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EMIL BOLOCAN FOR NATHAN

TRADE CORRIDOR ASSESSMENT
MOLDOVA STRUCTURAL REFORM PROGRAM

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CONTENTS

FIGURES

TABLES

ACRONYMS

AEM-Trans	Freight Forwarders and Customs Brokers Association
AEO	Authorized Economic Operator
AGR	European Agreement on Main International Traffic Arteries
AITA	Asociația Internațională a Transportatorilor Auto or International Association of Road Transport
AMDL	Moroccan Agency for Logistics Development
ANSA	National Food Safety Agency
ANTA	National Agency of Auto Transport
ASYCUDA	Automated System for Customs Data
ATP	Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be used for such Carriage
B2B	Business-to-business
BASPA	Black and Azov Seas Port Association
BCP	Border Crossing Point (Customs Post)
BRITE	Business Regulatory, Investment, and Trade Environment
CBA	Cost-benefit analysis
CoC	Chamber of Commerce
CEE	Central and Eastern Europe
CEFTA	Central European Free Trade Agreement
CEMT	Conférence européenne des Ministres des Transports (European Conference of Ministers of Transport)
CFM	Calea Ferata din Moldova (Moldovan Railways)
CIS	Commonwealth of Independent States
CM	Cut and make scheme
CMR	Convention on the Contract for the International Carriage of Goods by Road
CMT	cut, make, and trim scheme
CPT	Carriage paid to
CTC	Common Transit Conventions
DCFTA	Deep and Comprehensive Free Trade Area
EaP	Eastern Partnership
EBRD	European Bank for Reconstruction and Development
EFTA	European Free Trade Association
EIB	European Investment Bank

EU	European Union
EUBAM	EU Border Assistance Mission to Moldova and Ukraine
FC	Free Carrier
FCL	Full Container Load
FDI	Foreign Direct Investment
FEZ	Free Economic Zone
FTA	Free Trade Agreement
GATT	General Agreement on Tariff and Trade
GDP	Gross Domestic Product
GIFP	Giurgiulești International Free Port
GoM	Government of Moldova
GUAM	Georgia, Ukraine, Azerbaijan, Moldova
GUI	Graphical user interface
HR	Human Resources
HRM	Human Resource Management
HS	Harmonized System
IBM	Integrated Border Management
ICT	Information and Communication Technology
IFI	International Finance Institution
IMO	International Maritime Organization
IRU	International Road Union
IRTU	International Road Transport Union
IWW	Inland Water Way
KIV	Chișinău International Airport
Km	Kilometer
LCL	Less than Container Load
LOC	Letter of Credit
LPI	Logistics Performance Index
MCC	The Millennium Challenge Corporation
MCS	Moldovan Customs Service
MD	Moldova
MoEI	Ministry of Economy and Infrastructure

NTFAP	National Trade Facilitation Action Plan
NTFC	National Trade Facilitation Committee
OECD	Organization for Economic Cooperation
ODIMM	Organization for Small and Medium Sector Development
PPP	Public-Private Partnership
RFID	Radio Frequency Identification
RO	Romania
Ro-Ro	Roll-on/Roll-off
SAD	Single Administrative Document
SMEs	small and medium-sized enterprises
SPS	Sanitary and Phytosanitary standards
SW	Single Window
TCA	Trade Corridor Assessment
TEN-T	Trans-European Transport Networks
TEU	Twenty-foot equivalent unit
TFA	Trade Facilitation Agreement
THC	Terminal Handling Costs
TIP	Trade Information Portal
TIR	Transports Internationaux Routiers (International Road Transport)
Tkm	Metric Ton per Kilometer
TRACECA	Transport Corridor Europe-Caucasus-Asia
UA	Ukraine
UCC	Union Customs Code
UN	United Nations
UNCTAD	UN Commission on Trade and Development
UNECE	United Nations Economic Commission for Europe
USAID	United States Agency for International Development
WCO	World Customs Organization
WMD	Weapons of Mass Destruction
WTO	World Trade Organization

EXECUTIVE SUMMARY

MOLDOVA'S TRADE

Since 2000, Moldova has seen impressive GDP growth, averaging 6.7% per year from 2000 to 2017. Moldova's growth has been founded on a development policy focused on trade, with imports increasing on average by 13% and exports by 18% per year over the same period.[1] Such a trade-focused development strategy requires well-functioning trade corridors: sufficient and high-quality infrastructure, efficient service markets, and a proper institutional and regulatory framework that facilitates trade and ensures fair competition. Despite Moldova's focus on trade and positive developments in many particular sectors including agriculture, viniculture, and manufacturing, Moldova's trade corridors are functioning poorly and are constraining growth from increasing even further. GDP growth over the past five years has slowed to an average of 3.8%, with two years (2012 and 2015) experiencing declines. Improving Moldova's trade corridor performance will reduce trade costs and could unleash latent potential, especially for small traders for whom current costs are too high to trade.

In 2017, imports registered a value of around $4.8 billion, decreasing from the peak of nearly $5.5 billion in 2013. Romania, which joined the European Union (EU) in 2007, remains Moldova's largest import trading partner, and 49% of Moldova's overall imports were from the EU. Imports from Commonwealth of Independent States (CIS) countries had a share of 25% of the total imports, but the largest year-on-year growth in imports from 2016 to 2017 was comprised of imports from the Far East including Japan (+33.4%), China (+28.4%), and Taiwan (+26.2%). Trade with the USA has also grown rapidly (+31.8%).[2]

Exports grew nearly 19% from 2016 to 2017, reaching $2.4 billion in 2017.[3] Since 2005, Moldova's export growth trend has been largely positive due to product diversification and entry into new markets. Increases have been particularly noteworthy in manufactured articles and in foodstuffs including processed agricultural goods. Export destination have shifted from CIS countries towards the EU, with 66% of total exports ($1.6 billion) to the EU in 2017. Four of five of Moldova's largest export trading partners are currently EU members, including Romania, Italy, Germany, and the United Kingdom.[4] Meanwhile, exports to CIS countries have declined both in absolute and in relative terms, with Russia maintaining Moldova's lead CIS-partner status followed by Belarus and Ukraine. Emerging export destinations include China, Saudi Arabia, Egypt, and Malaysia.

MOLDOVA'S TRADE CORRIDORS

Road transport comprises the majority of Moldova's trade, rendering the road system and land border crossing points (BCPs) the most critical components of Moldova's trade corridors. As Table 1 below shows, Leușeni-Albița and Sculeni-Sculeni BCPs to Romania handled over 35% of Moldova's road traffic by volume in 2016. Significant and time-consuming delays at the BCPs, mostly due to long queues, are a reality and a growing problem; they are becoming a key constraining factor to trade. Border delays increase transit time, reduce corridor reliability, and have indirect impacts on transport costs due to reduced trucking utilization. Such delays have a particularly negative impact

[1] Calculations using data from the World Bank World Development Indicators Database.
[2] National Bureau of Statistics of the Republic of Moldova.
[3] Ibid.
[4] Noting that the United Kingdom is planning on exiting the EU in 2019.

on time-sensitive goods, including high-value goods like auto parts and perishable goods such as fruits and vegetables—two subsectors that are particularly promising for long-term export growth.

Table 1. Moldovan Road Truck Traffic by BCP, 2016

BORDER CONTROL POST	NUMBER OF TRUCKS	PERCENT OF TOTAL
Leușeni-Albița (to Romania)	197,716	23.0%
Sculeni – Sculeni (to Romania)	104,296	12.1%
Otaci- Mohyliv-Podilskyi (to Ukraine)	97,250	11.3%
Tudora-Starokazacie (to Ukraine)	86,587	10.1%
Giurgiulești-Reni (to Ukraine)	54,472	6.3%
Giurgiulești-Galați (to Romania)	51,877	6.0%
Criva-Mamaliga (to Ukraine)	47,502	5.5%
Other (28 BCPs)	219,374	25.5%
TOTAL	859,074	

Source: Moldovan Customs Service/Border Police.

With increasing trade to overseas destinations, access to regional ports is becoming more important as well. The Ukrainian ports of Odessa and Chornomorsk (including the Illichevsk Fishing Port, which is universally known as the "Fish Port") handle the majority of Moldova's container trade, as well as a significant portion of bulk cargo. However, the access roads from Moldova to these ports need improvement; the Odessa port faces congestion, and there are perceived geo-political risks involved with shipping via Ukraine that affect financing. For instance, some shippers report they are unable to obtain letters of credit to export via Ukrainian ports and hence must use Giurgiulești port. The Port of Constanța in Romania is an efficient port, but it is farther away such that the costs of the inland transport leg are currently cost-prohibitive. Moldova's own river port at Giurgiulești handled moderate amounts of container traffic in 2017, as well as significant bulk volumes including grains and fuels, and has the physical capacity to handle more. Nevertheless, access to the Giurgiulești port is also constrained by the very poor conditions of road, rail and inland waterways access and possibly also by the domination of the port by a single large shipper, Trans-Oil. Low volumes of containerized traffic mean a low frequency of container vessel service calls, served only by one weekly container vessel for transshipment of containers at Constanța. This situation increases transport times to and from the port. As a result, the Giurgiulești International Free Port (GIFP) is largely used for exports of bulk cargo (grain and vegetable oils) that are not time-sensitive.

MOLDOVA'S TRADE CORRIDOR PERFORMANCE

Traders and transporters will typically choose their transport routes and modes based on a combination of time, cost, and reliability, with competitiveness being determined by the weakest link in the logistics chain. While performance varies by mode and route, overall the cost and time for trade using Moldova's trade corridors is high:

- Road costs ranged from $0.04 to $0.13 per metric ton per kilometer (tkm), with most costs in the $.06 to $.10/tkm range. Prices per tkm were most competitive for routes with longer distances, high traffic, and competition from European transporters, such as routes to Italy, Germany, Austria, and Turkey. Relatively low prices to Moscow reflect in part the increased metric tons per truck allowed shipping east. Prices to Kazakhstan are high due to the long distance, which results in poor truck utilization rates, and the inability to drive to Russia through Ukraine, which increases the distance even more as trucks detour through Belarus.

- Road prices over shorter distances were more expensive than over longer ones, which has a significant effect on the price of reaching regional ports. Truck prices are estimated at $0.08/tkm to GIFP, $0.10 to Ukrainian ports, and $0.07 to Constanța. However, Constanța is farther away from Moldova, so a comparison in terms of price per metric ton is more appropriate; in this regard, Constanța is more expensive at $36/t compared to $18/t to GIFP and $20/t to Ukrainian ports.
- Transport of containers is also more expensive than general trucking prices. It is our understanding that this is due to container guarantee fees imposed by the shipping lines. According to interviews, for Constanța this can equate to €200-€300 per trip, adding around 30% - 40% to the transport cost. Container transport costs to Constanța are higher than to the Ukrainian ports in terms of price per tkm and per metric ton. Transporters cited the following reasons for higher prices to Constanța: longer distance, container guarantee costs, lower axle load restrictions, more rigorous enforcement, and lack of backhaul from Romania / higher chance of backhaul from Odessa. Additionally, given the border delays, trips to Constanța take a minimum of two days while trips to Odessa/Chornomorsk can be made in one day.
- Rail costs were estimated to be $0.03 to $0.08/tkm, but in reality could be less due to higher tonnage per unit, or more due to drayage costs to/from the rail yard.[5] Additionally, the reported rail costs are only for shipments within the Moldovan rail system; prices could vary dramatically if crossing on to other rail systems.
- In general, air freight is typically the most expensive form of transportation. This is also the case in Moldova, where air freight costs are the highest priced of all of the modes by far, at over $1/tkm for exports and over $2/tkm for imports using civil aviation. These rates are cost-prohibitive for all but samples and urgent shipments. Until the aviation sector deploys larger planes and freight capacity and competition increase, it is unlikely that air freight prices will decrease. Current demand does not warrant dedicated air freight services and charter flights are also expensive and currently limited in feasibility of operation due to insufficient and poor quality air cargo infrastructure at the airports.
- Turkey provides a representative pricing comparison between all-road routings vs. road-sea combinations. In this case, exports prices were similar ($0.07 by road-sea, and $0.05-0.07 by road). Imports were cheaper by road using Moldovan carriers ($0.05), but more expensive using Romanian carriers ($0.13) or by sea ($0.12). However, with prices being so similar, once transport time is considered, road transport would likely be the more competitive option at present as it is 2-5 days faster. In terms of cost per metric ton, road-sea rates are higher than road rates, but this a reflection of the long distance of routes using sea transport.
- Comparisons can be made across sea transport routes.[6] In this respect, exports to China are the cheapest on a per metric ton basis of the routes that we report. We suspect this is due to excess capacity in sea shipping flows to China compared to exports from China, which are the main flow. This situation presents an opportunity for Moldovan exporters. On the other hand, imports from China are more expensive, and Moldova imports a significant amount of input materials and consumer goods from China. Overall, prices to/from Dubai were the most expensive, despite the short distance relative to other routes such as China and the US. Imports from Turkey were expensive as well, again despite the even shorter distance.

[5] Cost of local transport from the farm/warehouse/factory, etc., to the railway station. This cost has not been estimated as it would vary greatly depending on the distance to/from the railway terminal. In the most efficient cases, like Moldovan wheat, product is directly discharged from the wheat silo to the railway hopper wagons and transported without the need for drayage.

[6] Noting that the price quotes we received were spot prices and sometimes varied widely. However, our experience is worth noting, as it is similar to the constraints that a small shipper would face who wanted to explore new markets.

- Informal fees at the borders were reported to be minimal, but still required—typically just several token dollars or Euros.[7] However, with an estimated 859,074 trucks crossing Moldova's borders in 2016 (estimated from Moldova Customs Service data), this would still amount to a cost of several million dollars to traders and transporters. Transporters reported that in some places in Ukraine, refusal to pay the several dollar fee results in physical inspection taking several hours. In terms of the Romania/Moldova border, payments seem to be higher for LCL (Less than Container Load) or groupage shipments than for FTLs (Full Container Loads), which disproportionally affects small traders in terms of both cost and transport time.
- Most shippers reported increased prices during peak harvest seasons due to lack of available trucking capacity. (See the discussion of seasonal trucking demand in Section 2, below). There were also many reports of container shortages for export during these times.
- In terms of transport times, GIFP and the Ukrainian ports can be reached in less than one day. Transport to Constanța depends on the amount of time spent at the border, but typically takes at least 2 days.
- Bucharest and other destinations in Romania also typically take 2 days. Travel to Western Europe typically takes 3-5 days depending on the border delays at Leușeni or Sculeni. Transport time to Turkey is similar.
- Transport to the North and East takes 2-4 days depending on the time at the Northern border (mainly Otaci) and destination. Transport time to Kazakhstan at present is 5-8 days. Transport to Russia and destinations beyond via Russia requires a detour through Belarus, as the typical Ukrainian route to Russia is not open at present. In general, trips east require a detour around the Transnistrian region as well, either to the North or South; the South is the preferred route due to better road conditions, but only the Tudora BCP is open to trucks while Palanca is under construction.
- Transport by sea to most overseas destinations from Moldova typically take 25+ days, with up to an additional week of transit time through GIFP, because GIFP usually only sends one containerized ship per week.
- Rail transit times at present are not efficient or competitive. Transporters report that a 3+ day transit time for the 238 km trip from GIFP to Chișinău is common or standard.

BORDER WAITING TIMES IN AN INTERNATIONAL CONTEXT

During our assessment, it became clear that the time spent at Moldova's borders, especially the border with Romania, can include substantial delays and hinder trade. Shippers and transporters consistently mentioned that it takes 1-3 days to traverse the Leușeni-Albița BCP. Delays were also reported at Sculeni-Sculeni and the northern borders with Ukraine, especially at Otaci-Mohyliv-Podilskyi. Transporters typically fared better at Tudora-Starokazacie (typically 3 hours).

In the Moldovan context, it is important to appreciate that the border between Moldova and Romania is not simply a border between two countries, but also an external border of the European Union. The EU's external borders differ from most national borders in that they represent the gateway to a region of 28 countries and over half a billion people. However, according to a comparison of 23 EU/Non-EU borders undertaken in 2016,[8] the overall waiting time for goods

[7] Based on interviews. By far the most common informal payment appears to be a few euros or dollars for "speed money" that is charged for faster processing. Interviewees reported that this was an occasional issue on the Moldovan side and a universal and unavoidable one on the Ukrainian side. Some corridor users also apparently pay informal fees at the border to surpass regulations / violations such as overweight vehicles or lack of authorizations; this is much less common but the amounts involved are said to be larger ($50-70 per transaction). Note: not all interviewees were willing to discuss informal payments.

[8] Militiadou, Marios. "Analysis of Border Crossings in South East Europe and Measures for their Improvement". ScienceDirect Transportation Research Procedia 25 (2017) 603-615

entering Romania generally take significantly longer than at all other external EU BCPs. The results indicate that the overall average time needed to cross a (non-Romanian) EU border was 23.8 minutes. However, the average time needed to cross a Romanian border (6 of the 23 border crossings assessed), was 380.4 minutes. The six Romanian BCPs were the top six overall in terms of total average time. And of those 6 Romanian border crossings, the waiting time at the Moldovan-Romanian border (Leușeni-Albița) had the worst performance and was significantly higher than any of the others (1032.9 minutes). This has a significant impact on the performance of Moldova's trade corridors.

Anecdotal evidence suggests that there are issues with both Romanian Customs and the Romanian Border Police. The issues with Moldovan border police and customs do not appear so significant, except for the concerns about customs valuation, which are regularly raised by importers. However, there are also significant issues with other regulatory agencies in Moldova related to things such as provision of samples for testing and labeling of goods, particularly in terms of food and beverages. The key issues affecting performance appear to be that Romanian Border Police regularly hold vehicles in No Man's Land, which adds significant delays without affecting the official statistics on the Romanian side. Part of the problem is certainly that this is an EU border, with high levels of scrutiny and control, as discussed more in the full report. However, this is clearly not the only reason. Romania's BCPs compare poorly to other EU BCPs, such as Estonia-Russia and Poland-Belarus. As Moldova's external trade has shifted westward over the last decade, these problems have become both more obvious and more pressing.

TRADE CORRIDOR CONSTRAINTS

The costs of transport on Moldova's trade corridors are higher than they should be due to a variety of factors that can be summarized into a few main topics, as shown in the table below.

Table 2. Key Issues Affecting Moldova Trade Corridor Time and Cost

WHAT	WHY	IMPACT-TIME	IMPACT-COST
Poor and insufficient infrastructure	• Years of deferred maintenance • Lack of available funding • Lack of private sector investment • Misuse/inefficient use of available funds • Delays in procurements • Overloading of trucks • Lack of transport master plan • CFM freight cross-subsidizes passengers • Lack of resources to enforce regulations	• Diversion of traffic to roads and BCP with good infrastructure creating congestion • Diversion to longer but better condition road routes increases time • Reduced reliability of transport services impacts products that can be exported • Increased rail transit time • Increased air cargo unloading/loading time	• Increased trucking maintenance costs → increased tariffs • Increased distance → increased tariffs • Increased transport time → increased tariffs • Reduced availability of trucking services on routes with poor roads = less

			competition → increased tariffs • Overloading leads to poor roads and increased truck maintenance costs
Trade facilitation and border delays	• Poor roads lead to congestion at BCP with good access infrastructure • Inadequate BCP infrastructure (such as only 1 entrance lane) • Romania is gateway to EU • Transnistrian region limits crossing points to the East • Need to improve risk management, especially risk profiling • Lack of adequate resourcing for border controls on the Romanian side of the border[9] • Lack of use of security seals for cargo transiting across borders	• Border delays can last 1-3 days, mostly in queues • Creates further delays due to driver rest requirements • Cannot make trip to Bucharest or Constanța in same day • LCL (consolidated shipments) considered high risk and subject to reports of 100% physical inspection, leading to increased time of several hours • Detours around Transnistrian region add time • Reduced reliability	• Increased trucking costs due to increased time • Reduced truck utilization rates (trips/month) which increases costs • Time-sensitive products require 2 drivers at higher cost • Shippers have to pay costs of physical inspection • Minimal, but nuisance, informal fees
Asymmetrical information in markets and lack of information systems	• Poor collection and dissemination of statistics and data • Lack of digitization and online systems • Lack of economies of scale of transporters to invest in technology • Lack of financing of transporters to invest in technology • Regulators lack financial resources	• Increased time to trade • Transporters use known routes even with delays	• Lack of backhaul increases transport cost • Lack of economies of scale of transporters to invest in technology • Lack of financing of transporters to invest in technology • Regulators lack financial resources •
Lack of affordable and sustainable financing	• Increased risk of Moldovan banking sector since banking crisis has led to tighter lending criteria, higher collateral requirements, and higher interest rates	• Increased risk of shipping through Ukraine limits financing and so some shippers have to ship via GIFP adding a week of transit time	• Trucking companies face high down payments and interest rates so can't afford

[9] An examination of Romanian Customs is beyond the scope of this report, but it bears mentioning here that it does have a number of problems. Not all of the problems at Moldova's border with Romania are Moldova's fault; this situation is discussed later in this report.

	• International funding institutions stopped backing letters of credit • SMEs lack credit history to acquire affordable financing • Lack of private sector financing due to perceived risks • Insufficient PPP framework • Non-transparent procurements	• Some border delays if transit bond guarantee limits are exhausted	new trucks; old trucks have increased maintenance costs • Transit guarantees are more expensive due to high collateral costs and interest rates to brokers • Traders have to make upfront payments to transporters but lack financing mechanisms • Importers have to pay for inputs upfront

INFRASTRUCTURE ISSUES

As shown in Table 2, above, and discussed in more detail in the report, one of the biggest issues is infrastructure. Many of Moldova's roads need rehabilitation, and in some areas new road infrastructure—ranging from roads to bypasses—is required to make traffic flows more efficient at detouring villages and so on. The railway faces significant track maintenance and rehabilitation needs and improved rolling stock. Chișinău International Airport's cargo terminal needs significant upgrading in order to handle freight, especially high-value or perishable goods. The two Bălți-area airports are not ready to handle traffic in their current conditions, with studies required to determine the merits for investment; both airports have significant investment needs ranging from runway lighting to runway or terminal development. GIFP requires additional handling equipment and dredging, which is also required for Moldova's inland waterways. The country lacks multi-modal inland terminals, cargo consolidation points, and inland customs clearance points; while there is interest in establishing a logistics hub, a study is needed to determine its feasibility.

The lack of sufficient quantity and quality of infrastructure has many impacts on the performance of Moldova's trade corridors. For instance, while there are 30+ BCPs, cargo is disproportionately diverted to corridors with good access roads and BCP infrastructure, creating congestion at up to 7 BCPs while rendering others under-utilized. Competition for trucking services is limited on routes with poor road conditions, such as to GIFP, as poor road conditions lead to increased breakdowns and truck maintenance costs, thereby increasing the cost of trucking services. Due to poor air sector cargo infrastructure, as well as high prices, many traders have abandoned use of the sector altogether. The same could be said for the railway sector, which has seen volumes drop from nearly 3 billion metric ton-km in 2005 to only 793 million metric ton-km in 2016.[10] The reliability of

[10] World Bank WDI.

transport services, as well as high times and costs, also impacts which products can feasibly be exported.

This leads to the question of *why is Moldova's infrastructure so poor*, despite the increased focus on trade? The answer is complex, but stems from years of deferred maintenance, which, simply put, is a result of funding issues. These range from lack of available funds, particularly since the banking crisis, to misuse or inefficient use of funds (see the recent Road Fund audit report), along with a lack of private sector investment. The country has struggled to attract private investment in infrastructure, and the country's two highest profile public-private infrastructure transactions—the port at GIFP and the airport concession at Chișinău International Airport—have demonstrated the need for improving the Public-Private Partnership (PPP) framework, the shortcomings of which may be addressed through recent amendments to the PPP legislation. Further, when funding has been available, there have been delays in procurements and construction, such as with the road to GIFP that was only 3% completed by its scheduled construction end date, leading to a re-procurement in 2018 and a five-year delay. Finally, the lack of proper regulations, or poor enforcement of existing regulations, have made problems worse, such as the common problem of overloading trucks, which eventually damages both trucks and roads.

What can be done?

- First, Moldova should consider developing a comprehensive freight logistics master plan, consisting in part of a set of feasibility studies and financing options to make it easier for the Government of Moldova (GoM), international funding institutions (IFIs), and potential private investors to prioritize projects.
- In parallel, Moldova should work to increase for the use of private sector funding and public-private partnerships (PPPs), including ensuring full and open tenders and proper oversight of procurements.
- Infrastructure investments should first prioritize improving access to key BCPs and ports, including GIFP. Once key trade corridors have sufficient infrastructure, the second phase should be to improve access to secondary crossing points to alleviate congestion.
- To avoid further degradation of infrastructure, the National Agency of Auto Transport (ANTA) should be given the resources to properly conduct its regulatory functions, including enforcement of axle-weight violations.
- Moldova should also work to implement the suggestions in the audit of the Road Fund.
- In regards to aviation, accelerating improvements to the cargo terminal at Chișinău International Airport (KIV), or providing minor investments into handling equipment in the meantime, would improve short-term performance. A feasibility study should also be conducted to assess rehabilitation possibilities of Balti-area airports.

TRADE FACILITATION ISSUES

The largest issue in terms of time to trade across many routes is related to BCP queues. For instance, for trips to Western Europe, we estimate that over 40% of the transit time can be spent at the borders. For a trip to Bucharest, long queues at Leușeni-Albița can result in 90% of the transit time across Moldova being spent at the border.

From our assessment, we found a wide disparity in terms of the overall performance of border crossings both between locations and at the same location, depending on day and time of travel. Taking the busiest BCP, Leușeni-Albița as a case in point, the total border waiting time can vary between 1 hour and more than 24 hours. Since Leușeni-Albița is by far the most important BCP, this

means that a large variable element is thrown into Moldova's external trade. As noted above, border delays increase transit time, reduce corridor reliability, and increase transport costs.

It is clear that many of the problems and excessive delays occurring at Moldovan BCPs are outside of the control of Moldova's Customs Service (MCS) and other regulatory authorities. For instance, the Moldova-Romania border is an external entry/exit point to the EU, which creates complications. Further, the overall waiting time for goods entering Romania generally take significantly longer than at all other external EU BCPs. Romania's BCPs compare poorly to such EU BCPs as Estonia-Russia and Poland-Belarus. As Moldova's external trade has shifted westward over the last decade, these problems have become both more obvious and more pressing.

This is not to say that some improvements cannot be made in the operation of Moldova's own border regulatory controls. They clearly can. In this report, we provide a series of specific recommendations which should not only deliver some savings in terms of processing times and costs but also, critically, should allow MCS and other agencies to improve their overall performance in terms of improved risk management and meeting their objectives in terms of revenue collection and protection of society. For example, Moldova and Romania could jointly develop a cross-border vehicle appointment system, similar to the systems at the US-Canada, Estonia-Russia, and Lithuania-Russia borders. Combining pre-arrival notification, arrival slots / virtual queues, license plate recognition systems, RFID, trucking staging areas, and waiting time (queue) electronic notification capabilities have shown to be successful at reducing border processing and queue time.

ASYMMETRICAL INFORMATION AND LACK OF INFORMATION SYSTEMS

In the modern business environment, information systems and networks play a critical role in the efficiency and, ultimately, cost-effectiveness of trade corridor and logistics performance. Lack of such systems, along with other market inefficiencies, can lead to problems of asymmetrical information, which increase the time and cost to trade and limits traders' abilities to access new markets. For instance:

- Traders and transporters have a more difficult time finding one another and matching return loads, which increases transport costs
- Traders spend more time looking for trade information and completing paperwork
- Transporters do not have the systems to efficiently plan routes
- Traders and transporters cannot track and trace shipments
- Customs brokers cannot access their guarantee limits or usage without physical interaction with customs officials
- Transporters do not have accurate information on real-time BCP queues

In this regard, Moldova lags behind international standards in several regards including:

- Collection and publication of statistical data
- The version of ASYCUDA (Automated System for Customs Data) currently being used
- Lack of online services (i.e., ANTA has a One-Stop Shop which cannot be accessed online)
- Lack of transport corridor monitoring

Moldova can consider the following recommendations that would improve access to information:

- Development of a Trade Information Portal
- Develop and pilot a GPS or Radio Frequency Identification (RFID)-based truck/cargo tracking system

- Develop an app building on Moldovan Border Police waiting times to include total queue /processing time and allow mobile access and consider developing a cross-border vehicle appointment system as described above
- Upgrade ASYCUDA and increase functionality
- Develop a corridor development committee or, at a minimum, build relationships with regional ports and corridor players affecting Moldova's trade corridors to allow for better sharing of information
- Implement e-signatures for Eastern Partnership (EaP) countries

ACCESS TO CREDIT AND FINANCING ISSUES

Access to affordable and sustainable financing was an overarching theme that emerged in the interviews conducted in the course of our fieldwork for this Trade Corridor Assessment (TCA). There are financing constraints at all levels, whether it be at the national government level or the level of an individual farmer. Key issues include the following:

- **Government:** Reliance on loans and funding from IFIs for infrastructure investments. Lack of sustainable funding for the railways, roads, and airports.
- **Transporters:** High interest rates and down payment requirements are a barrier to buying trucks and lead to the purchase of more affordable used trucks, which have higher operation and maintenance costs. Based on interviews, the average truck age in Moldova appears to be in the range of 6-10 years, compared to 1-3 years for foreign trucks. One transporter indicated that 15-20% of his costs were comprised of financing. Others stated that they pay a minimum 30% down payments plus interest rates of 10-20%, compared to loans in Romania with no down payment and interest rates of 3-7%.
- **Traders:** Since the banking crisis, IFIs have stopped guaranteeing letters of credit in Moldova. It is expensive and difficult to get letters of credit without these guarantees. When traders have to pay transporters or input suppliers upfront, it leads to cash-flow issues. One trader also mentioned having to move shipments from Odessa to GIFP due to the perceived risk of shipping through Ukraine and its impact on financing; this process increased their transport time by 1+ weeks.
- **Farmers:** Moldovan banks now have a low risk tolerance, and the conditions are too stringent for farmers who often have limited credit histories, or poor credit histories due to past crop loses (and lack of available insurance). Farmers also are not able to lease agricultural equipment and have trouble getting loans to purchase it. Further, they note that cash payments are an issue in their industry and would like better use or requirement of e-payments. These issues have led to a greater uptake of microfinance and trading companies, both of which come at a substantially higher cost. This situation also reduces the ability of small farmers to export profitably.
- **Customs Brokers:** Customs brokers have to put up guarantees for transit cargo until it is cleared by customs. Since the banking crisis, it is harder for brokers to get access to affordable credit/credit limits, and banks want hard collateral at rates of over 100%.

This TCA is not tasked with providing recommendations on how to improve Moldova's capital and banking markets, but the Moldova SR project is in the progress of developing a separate report addressing some of these issues. But where banking reforms will take time, there are some areas where other sectors can make changes that would positively impact access to financing. For example, MCS can reduce the guarantee requirement for Authorized Economic Operators (AEOs) from 100% to a lower amount. The GoM can facilitate private sector investment and PPPs by improving the regulatory framework and financing feasibility studies aimed at attracting investment. Agricultural associations can require e-payments. The Organization for Small and Medium Enterprises Sector

Development (ODIMM) can be expanded to include loan guarantees for traders and other participants in the logistics sector.

NEED FOR INSTITUTIONAL AND REGULATORY STRENGTHENING

A final, cross-cutting theme is the need to improve the institutional structure governing the transport and logistics sector, as well as to strengthen the regulatory environment. Moldova has a number of options to pursue, but the global practice seems to be a combination of assigning logistics sector responsibility to an existing agency, in combination with a national logistics council consisting of private and public sector representatives. While the details of such a structure should be ironed out in the course of an institutional assessment, the agency should have broad decision-making power on matters of strategy, investment, marketing and promotion, and performance monitoring, with a national logistics council serving in an advisory capacity.

Moldova should also ensure that it has supportive policies and regulatory frameworks that generate trade and improve conditions in which freight is processed or moved. This action would mean improving the capacity of the Ministry of Economy and Infrastructure (MoEI) to develop regulations concerning the logistics sector, and of other agencies to enforce these regulations.

In terms of regulations, a major improvement to the road sector would be to liberalize the market, removing the need for authorizations. A secondary issue is developing standards and requirements for the freight forwarding industry.

To properly conduct its regulatory enforcement functions of the road sector, ANTA needs trained staff and proper equipment such as weigh stations. This process also includes increasing ANTA's use of technology and management information systems. For example, the One-Stop Shop should be moved online, and the industry should move towards developing a logistics management and freight tracking system using technology such as GPS trackers or RFID.

The planned Calea Ferata din Moldova (CFM or Moldovan Railways) restructuring should move forward, separating the freight, passenger and maintenance responsibilities, developing a regulator, and allowing private sector investment. At the same time, the MoEI will need to find ways to finance the passenger subsidies and track maintenance costs previously cross-subsidized by rail freight.

The Maritime Authority should be established as planned, and should begin with a mandate of improving environmental, safety and port state control, as well as ensuring fair competition. One of the agency's initial goals should be to get Moldova removed from the Paris Memorandum of Understanding's blacklist for port state control, which shows a lack of proper regulatory enforcement and negatively impacts the country's image.

Finally, Moldova should further promote air transport liberalization and competition, new routes, increased services, and air connectivity. Private operators, in coordination with the Moldovan government, should effectively promote and improve quality standards for freight handling at its international airports.

STRATEGIC ENABLERS

The last section of this report outlines the strategy that Moldova must pursue in order to improve logistics sector performance. The strategy consists of seven strategic enablers and associated goals and actions. The strategic enablers include:

1. Improving the Logistics Sector's Institutional Effectiveness
2. Ensuring Supportive Policies and Legislative and Regulatory Frameworks
3. Improving Trade Facilitation
4. Developing Efficient and Productive Infrastructure
5. Providing an Efficient Transport Logistics System
6. Facilitating Sustainable Financing
7. Promoting the Logistics Sector

The seven enablers as a whole constitute 25 strategies and 71 actions. Each enabler's goal, strategy rationale, and the strategies to be executed for each are provided. Specific implementing actions are also provided, and those entailing projects supporting implementation are presented in the form of project profiles.

Ultimately, the promise of this strategy is that it focuses on providing logistics services and assets while aligning and strengthening finances, human capital, systems, policies, processes and administration. Because setting a course for success requires the right craft and crew, the strategy calls for adjustments to the institutional arrangements intended to provide a coordinated and collaborative sector improvement strategy, engaging public and private sector stakeholders. Enabler 1 is thus a critical enabler, as it addresses the changes required to ensure that Moldova can institutionally anticipate and respond to issues and opportunities the sector faces. Through commitment to the strategy, Moldova will realize its highest potential as a country offering industry best standard logistics services and assets.

CONCLUDING REMARKS

In summary, Moldova's trade corridors face a wide array of issues which increase the time and cost for Moldovan traders and transporters to move goods.

- **Chișinău- Giurgiulești –Constanța:**
  - **Time:** poor access road and rail infrastructure add 1-2 hours by road and several days by rail; lack of dredging can lead to delays in river transport; lack of port handling equipment increases port handling time; queues where BCP and port converge; infrequent container feeder service can increase transport time by a week; lack of online and trade related e-systems increases time to trade.
  - **Cost:** high truck maintenance costs and increased transport time due to poor road conditions increase cost; limited trucking companies willing to travel route leads to higher prices due to lack of competition.
- **Moldova-EU:**
  - **Time:** poor road conditions to the borders combined with limited services at secondary BCPs lead to congestion at key BCP and increased road transport distances to reach the BCPs; several BCPs require additional access lanes, leading to queues; long queues at BCP due to insufficient resources; no OSBP at many borders; high incidence of physical inspection for LCL adds several hours of transport time; no mutual recognition of AEO; transit times limited by regulation when hotter than 30°C; different rail gauges in RO/MD limit possibilities for rail and increase time; KIV cargo terminal needs rehabilitation and equipment; Bălți and Mărculești airports require substantial infrastructure investments; use of IWW requires dredging; lack of online and e-systems increases time to trade.
  - **Cost:** limited civil aviation capacity leads to high prices; BCP delays impact transport costs; issues with access to affordable credit increase trucking costs; high trucking costs to Constanța port due to high container guarantee fees and transport time; nominal informal

fees at BCP; additional costs of physical inspection; higher truck and road maintenance costs due to lack of axle-load enforcement.

- **Moldova-Odessa/Chornomorsk/Fish Port:**
  - **Time:** poor road conditions in both Moldova and Ukraine, as well as "no man's land" between the BCP; access to Palanca BCP on Moldovan side is through a village; lack of technology used by Ukrainian customs; no freight rail service through Transnistrian region due to complexities and high costs of 3 systems for such a short distance; no IWW; poor road conditions in Odessa port; main public truck access gate to Odessa port is not operational requiring a detour through EuroTerminal at 20+ minutes; Moldovan shippers can't use e-signatures in Ukraine; delays when authorizations are exhausted; lack of online and e-systems increases time to trade.
  - **Cost:** poor road conditions lead to increased maintenance costs; rail through Transnistrian region is too expensive to be a competitive service; informal fees when authorizations run out; extra fee to Euro Terminal ($15) to enter Odessa port; high cost of Transports Internationaux Routiers (International Road Transport) (TIR) limits use.
- **Moldova – CIS**
  - **Time:** poor road conditions in both Moldova and Ukraine; delays when authorizations are exhausted; some delays at northern BCP; southern BCP have delays during peak periods such as grain harvest; detouring around Transnistrian region adds to transport time; Transnistrian region-shippers face additional time to go to Căușeni for customs processing; have to detour through Belarus (instead of traditional Ukrainian route) to get to Russia and Kazakhstan; lack of online and e-systems increases time to trade.
  - **Cost:** some informal fees at BCP and checkpoints (outside of Moldova); higher informal fees when authorizations are exhausted; lack of axle weight enforcement increases maintenance costs; increased distance to Russia/Kazakhstan increases cost; shippers from Transnistrian region face additional road use fees in Moldova and costs of going to Căușeni for customs processing. If these issues can be addressed, Moldova's transport and logistics trade costs should decrease, transport times should decrease, and trade volumes should increase.

Despite the challenges described above, this is an exciting time in terms of Moldova's trade corridors, with many ongoing reforms and planned projects ranging from implementation of trade agreements to infrastructure reconstruction projects to restructuring CFM and the Moldovan railway. The transport logistics and trade facilitation environment is evolving rapidly, and it seems like there are new developments every day. For instance, it was just announced that Moldova and Ukraine are liberalizing their air and road transport markets with one another. These evolutions will continue to make it easier for Moldovan traders to import goods and reach new export markets. In fact, the fastest growing export markets in 2017 were Asia and the US—very different than the historical markets of nearby CIS countries and Romania.

As Moldova endeavors to reach new markets, new challenges will continue to arise, and the sector will have to be ready to face these challenges in order to take advantage of new opportunities. While sufficient, quality infrastructure is surely a pre-requisite to trade, as trade corridors expand and markets grow, the service markets, trade facilitation, and the regulatory framework will become increasingly important. Keeping these points in mind, the remainder of the report explores these challenges and opportunities in more detail.

1. INTRODUCTION

Most international trade occurs along corridors – particular routes where goods are carried via land, sea, or air. Trading through corridors allows for economies of scale, network effects, and the appropriate targeting of resources for transport sector improvements. But corridors can also be subject to a wide range of problems including infrastructure defects, administrative delays, regulatory complications, congestion, and many others. These can increase trade and transport costs as well as constrain growth. Therefore, it is important that trade corridors operate smoothly, rapidly, and efficiently. Corridor improvements can reduce trade and transport costs, which can lead to increased trade, lower prices to consumers, and more competitive businesses. Trade corridor assessments such as this one can be used to measure corridor performance, identify bottlenecks and constraints, and determine solutions to improve corridor performance, which in turn make it easier to trade goods.

Trade corridors are comprised of routes connecting centers of economic activity, which can be regions, countries, cities, industrial areas, or farmlands. These routes consist of a network of ***links*** and ***nodes,*** as graphically depicted in Figure 1:

- Links are connectors including roads, railways, inland waterways, and maritime shipping where freight moves.
- Nodes consist of areas where freight is handled or processed, where costs are incurred, or where time is spent along the route including transport and trade infrastructure points (ports, inland container depots, rail depots, border posts, weighbridges, checkpoints), and areas of economic activity (cities, warehouses), which are often the origin or destination point, but also may be stopping points for drivers or areas of congestion.

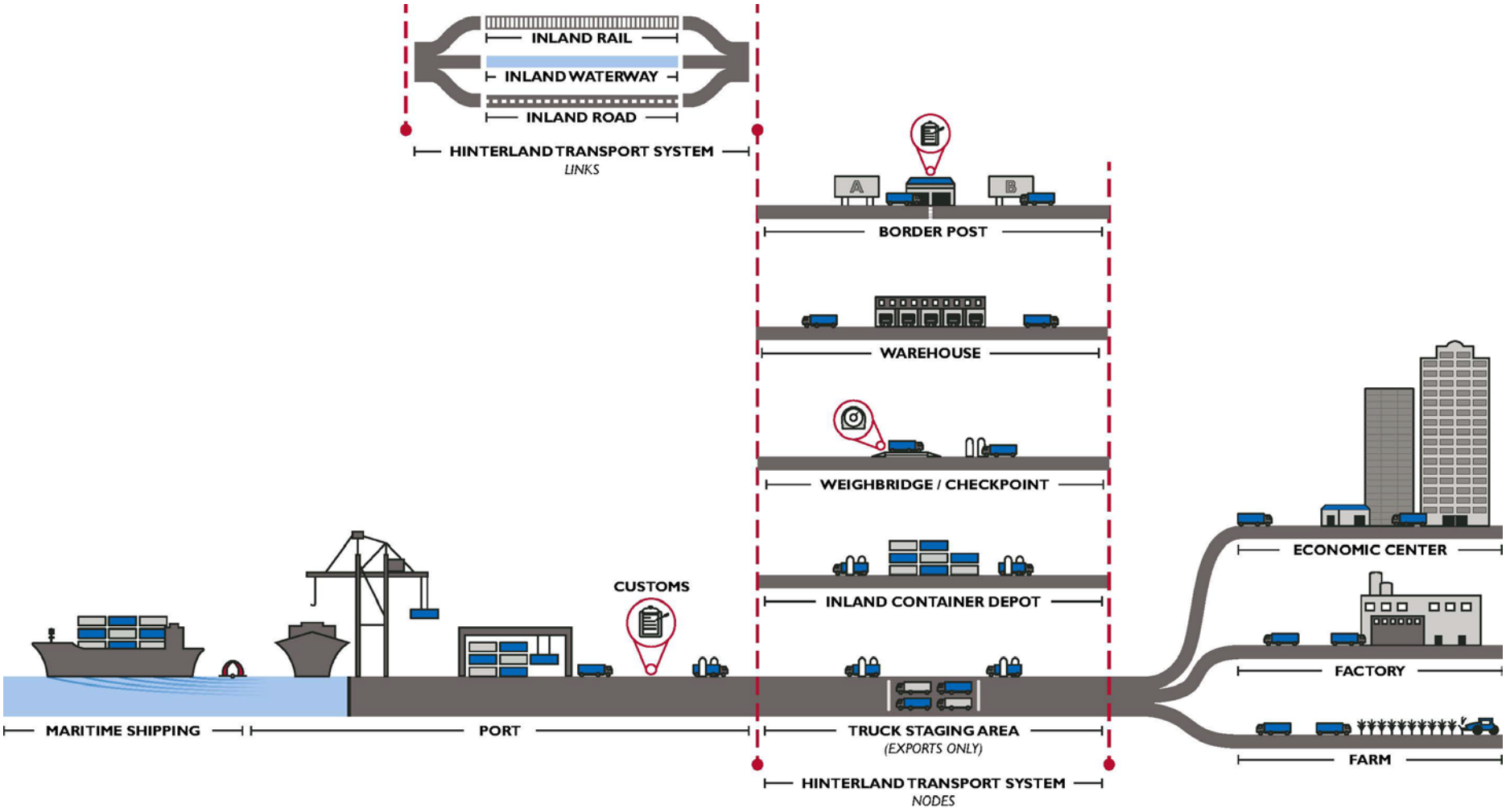
The components of a trade corridor extend beyond the ***infrastructure*** assets of the links and nodes system and also include ***transport and logistics services*** and ***trade and transport regulations***.

Trade corridor assessments (TCAs) aim to measure corridor transport and trade facilitation performance, which is important for determining the competitiveness of different routes and systems. Over the last decade, TCAs have been conducted in dozens of countries and regions around the world including in Moldova's neighbors Romania and Ukraine (see below).

Studies have shown that time, cost, and reliability are the key factors in determining corridor competitiveness from a transport logistics perspective. Therefore, measuring these indicators in a consistent manner across links and nodes is an important step in a corridor assessment. From a trade facilitation perspective, in addition to time, cost, and reliability, safety and security are also very important issues.[11]

[11] The context and standards for measuring safety and security are defined in the World Customs Organization (WCO) *WCO SAFE Framework of Standards to Secure and Facilitate Global Trade*. The *SAFE Framework* provides global supply chain security standards to support measures to counter terrorism and other criminal activity and to protect revenue. In addition to these global measures, all customs services have legal obligations at the national level to protect their citizens from a range of dangerous or undesirable goods. These incle prohibited goods such as drugs, illegal firearms, endangered species, etc., as well as sub-standard goods which contravene health and safety standards.

Figure 1. Typical Logistics Chain



Source: Nathan.

TCAs use both quantitative and qualitative analysis methods. Through the quantitative assessment we calculate times and costs. The qualitative assessment is key for understanding ***why*** times and costs are what they are. For instance, in the case of apparent delays or bottlenecks—for example, at the border—there are many possible explanations for the delay, which could be due to infrastructure, services, or regulatory issues.

The first generation of TCAs, conducted in the late 2000s, led to a key insight: improving the regulatory environment can often provide more cost-effective solutions for alleviating bottlenecks than expensive infrastructure investments. Governments and development partners frequently focus on projects developing hard infrastructure and overlook soft dimensions such as the regulatory framework, which can provide good value. This is not to say that infrastructure investments are not important. Functioning roads, railways, and ports are required for trade to take place. However, while a well-functioning infrastructure is a *necessary* condition for trade, it is not a *sufficient* condition. A government can invest $150 million in rehabilitating the roads along a corridor, but if trucks spend two days at the border, the corridor is no more competitive than before the investment. Captive traffic may use the road, but traders and transporters that have other options will not. Understanding why bottlenecks exist is the first step to developing action plans for improving trade corridor performance, which has the potential to unleash latent economic activity and trade.

Trade corridor assessments have been conducted in other regional countries in recent years: Ukraine in 2017 by USAID,[12] the Caucasus Transit Corridor (Georgia and Azerbaijan) in 2017 by USAID,[13] and Romania in 2013 by the EU.[14] In Moldova, a national transport and logistics strategy was developed in 2012[15] with accompanying technical reports on aviation[16], road[17], rail[18], and port[19] strategies supported by the World Bank. This was followed by a logistics and waterways of the sea master plan by the EU in 2013,[20] various border post studies such as one of Palanca by the UNDP in 2014,[21] and most recently an assessment of customs at Giurgiulești port funded by EUBAM, Moldova Customs and USAID-BRITE in 2016.[22] However, Moldova has never had a trade corridor assessment and has not had a large-scale study of its transport sector since the drafting of its national logistic plan in 2012.

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[12] Turdzeladze, Giorgi. 2017. TRADE POLICY PROJECT: Trade Corridor Assessment and Efficiency. USAID.
[13] Association Of Freight Forwarders Of Georgia. 2017. Competitiveness Analysis Of The Caucasus Transit Corridor. Governing for Growth Project. USAID.
[14] Romania West Region Competitiveness Enhancement and Smart Specialization
Trade and Transport Facilitation and Logistics Infrastructure: Key challenges and opportunities: Intermediate Report. 2013. EU.
[15] Government of the Republic of Moldova Transport and Logistics Strategy – 2013-2022: Draft Final Report. 2012.
[16] Joint Venture Kocks Consult GmbH, Koblenz – TransCare, Wiesbaden – Universinj LTD. Support to the Government of Moldova for the Preparation of a Transport and Logistics Strategy: TECHNICAL REPORT – AVIATION. 2012. World Bank.
[17] 2012 – MOLDOVA, ROAD SECTOR REPORT (WB): HTTPS://COLLABORATION.WORLDBANK.ORG/DOCS/DOC-24352
[18] 2012 – MOLDOVA, RAIL SECTOR REPORT (WB): HTTPS://COLLABORATION.WORLDBANK.ORG/DOCS/DOC-24351
[19] 2012 – MOLDOVA, PORT SECTOR REPORT (WB): HTTPS://COLLABORATION.WORLDBANK.ORG/DOCS/DOC-24330
[20] Egis International / Dornier Consulting. Logistics Processes and Motorways of the Sea II LOGMOS Master Plan – Annex 9.1 Country Profile MOLDOVA. 2013. EU.
[21] Construction of jointly operated border crossing point Palanca on the territory of the Republic of Moldova. UNDP Project Document. 2014.
[22] Gazeley, Colin. Giurgiulesti International Free Port Study. 2016. EUBAM, Customs Service of the Republic of Moldova, USAID-BRIT:

Because of increasing interest in TCAs as tools for development, in 2014 the World Bank published a toolkit for undertaking these assessments. This TCA generally follows the World Bank's framework:

> "A trade corridor assessment takes three main forms: determining the development and trade context, assessing corridor-length performance, and conducting a detailed diagnostic at specific locations, or chokepoints, along a corridor to identify practical intervention measures. The diagnostic process collects quantitative and qualitative data to identify the major impediments to trade facilitation and the capacity within the public and private sector for removing them."[23]

The remaining sections of this report include:

- Section 2: Context of Moldova's Trade Corridors
- Section 3: Assessment of Moldova's Trade Corridor Performance
- Section 4: Transport Bottlenecks and Constraints
- Section 5: Trade Facilitation Bottlenecks and Constraints
- Section 6: Commodity-Specific Analysis
- Section 7: Recommendations and Action Plans

[23] Emphasis added. Carruthers, Robin; Kunaka, Charles. 2014. Trade And Transport Corridor Management Toolkit. Washington DC; World Bank Group.

2. CONTEXT OF MOLDOVA'S TRADE CORRIDORS

MOLDOVA'S TRADE

TRADE AGREEMENTS

Moldova became a WTO member in 2001 ensuring its integration into the world trading system. Its commitments included a large liberalization of trade in goods and services, which has resulted in a dramatic increase in external trade. Additionally, on 24 June 2016, Moldova joined the WTO members that have accepted the Protocol of Amendment to insert the WTO Trade Facilitation Agreement (TFA) into Annex 1A of the WTO Agreement. The Government adopted an Action Plan to implement the TFA on 12 December 2017. The implementation of the plan will continue until 2020.

Moldova has also signed free trade agreements with 43 countries, among them member states of the Commonwealth of Independent States (CIS), the Central European Free Trade Agreement (CEFTA), European Union (EU) and Turkey. The EU-Moldova Association Agreement includes the creation of a Deep and Comprehensive Free Trade Area (DCFTA) that includes a preferential trade relationship with better market access and mutually advantageous conditions. The agreement eliminates customs duties and non-tariff barriers that gradually liberalizing trade in services and better access for enterprises to do business on the territory of the parties. The comprehensive side of trade refers to procurement policies, intellectual property rights, and sustainable development, all of which are addressed in the DCFTA.

There are also ongoing negotiations to sign a FTA (free trade agreement) with China. The first round of negotiations took place in February 2018 in Beijing. Moldova also wishes to sign a FTA with the European Free Trade Association (EFTA). The EFTA consists of several European countries such as Switzerland, Norway and Iceland that are not EU members. Moldova signed a joint declaration on cooperation with EFTA in November 2017 and organized the first Joint Committee meeting in May 2018.

TRADE BALANCE AND TRENDS

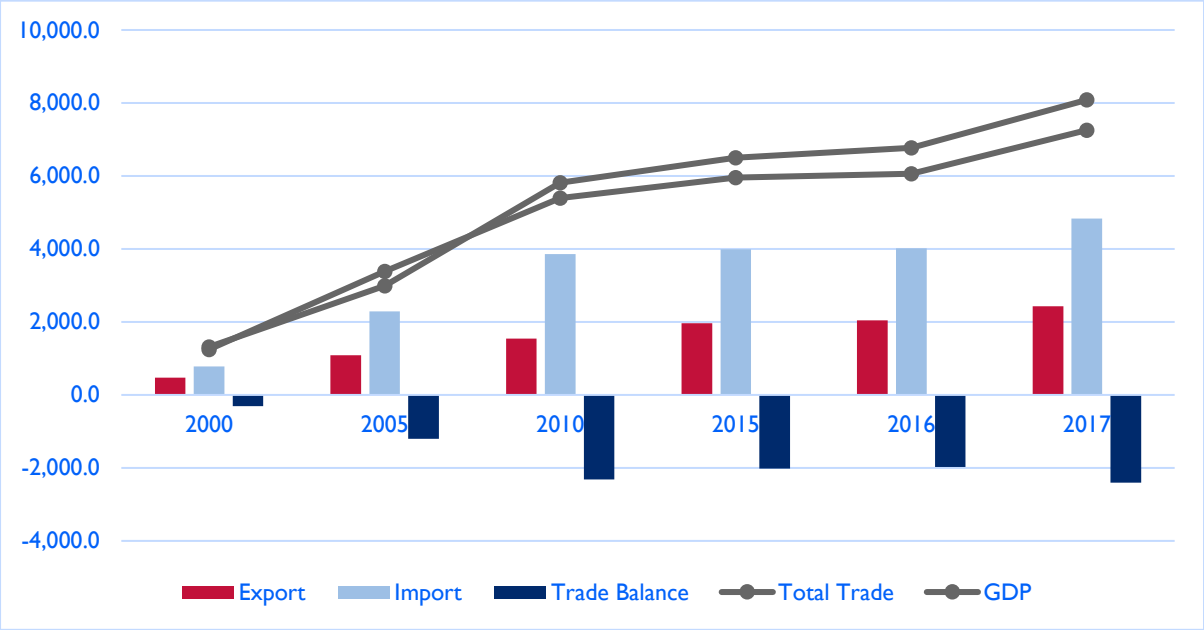
During the last 12 years (2005-2017), Moldova's international trade consistently recorded a negative balance with imports far exceeding exports (see Figure 2 below). However, over this period, exports increased somewhat more than imports. As a result, the import/export ratio decreased from 2.5:1 in 2010 to 1.99:1 (see Figure 2, below). This ratio still remains high compared to neighboring countries Romania (1.2:1) and Ukraine (0.95:1).[24] The trade deficit has a number of macroeconomic effects such as placing a long-term downward pressure on the Moldovan lei.

The trend over the last 12 years has been for trade to grow steadily with both imports and exports more than doubling over this period. An important exception came in 2014-2016 when growth in both imports and exports stopped or reversed. This was caused by a combination of factors including political instability, Moldova's banking crisis and the "stolen billion," an unusually bad harvest for most agricultural crops in 2015 and decreases in the international prices for some export products. Additionally, earlier restrictive tariff and non-tariff measures imposed by the Russian Federation against Moldova, as well as the regional geopolitical tensions (armed conflict in eastern Ukraine, economic sanctions and mutual trade restrictions between the EU and the Russian

[24] World Bank Group, Trade Statistics 2016 at https://wits.worldbank.org/countrystats.aspx?lang=en.

Federation) had a negative impact on the country's trade performance. However, growth recovered in 2017. Current projections are that both imports and exports will continue to grow steadily over the medium term (2018-2020).

Figure 2. Moldova's Foreign Trade Trends and GDP Growth, 2000-2017, in million USD



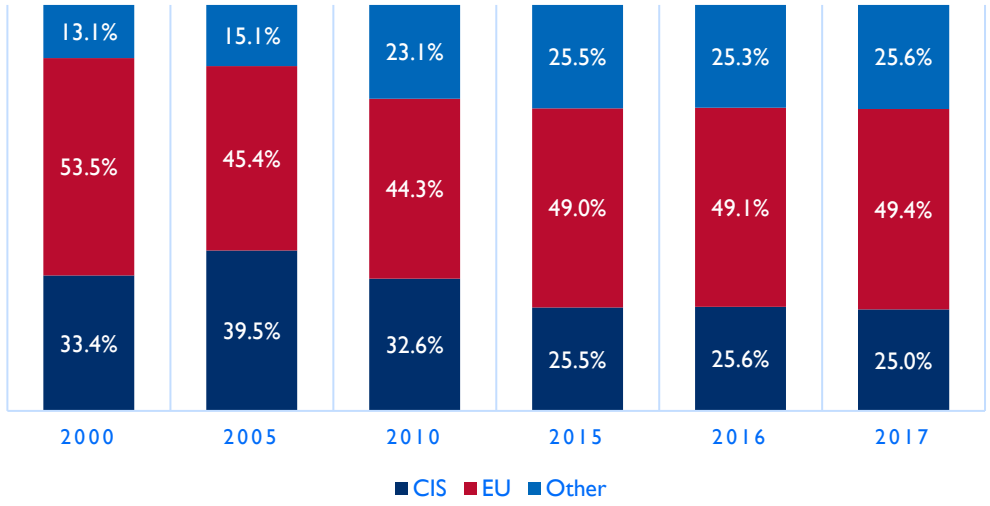
Source: National Bureau of Statistics of the Republic of Moldova and IMF World Economic Outlook.

Imports

In 2017, imports registered a value of around $4.8 billion, decreasing from the peak of nearly $5.5 billion in 2013 (Figure 3). As shown in the figure, imports from CIS countries had a share of 25% of the total imports, while those from EU – 49.4%. Romania, which joined the EU in 2007, remains Moldova's largest import trading partner (Table 3). Compared to 2016, the largest increases in imports came from Japan (+33.4%), USA (+31.8%), China (+28.4%), and Taiwan (+26.2%).[25]

[25] National Bureau of Statistics of the Republic of Moldova. 2017.

Figure 3. Moldova's Import Trends by Region, 2000-2017



Source: National Bureau of Statistics of the Republic of Moldova.

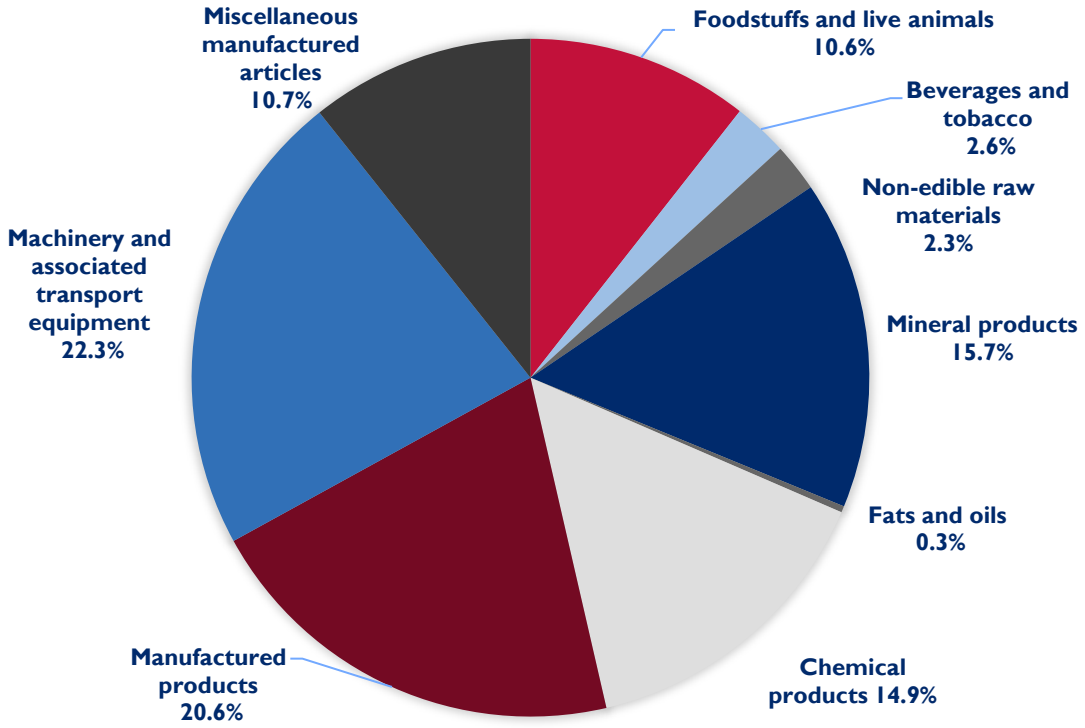
Table 3. Moldova's Top 5 Import Countries by Value, 2017

COUNTRY	IMPORT USD	PERCENT OF TOTAL
Romania	$694,529,990	14.38%
Russia	$571,709,660	11.83%
Ukraine	$511,098,810	10.58%
China	$505,377,340	10.46%
Germany	$390,601,840	8.08%

Source: National Bureau of Statistics of the Republic of Moldova.

The structure of Moldova's imports in recent years has been led by petroleum products (these are included in the Minerals category and include natural gas imports for the energy sector) and the demands of the industrial sector (electric circuits and textiles industry) for goods destined for production such as machinery and electrical equipment, chemicals, textiles etc. (Figure 4).

Figure 4. Structure of Moldova's Imports, 2017



Source: National Bureau of Statistics of the Republic of Moldova.

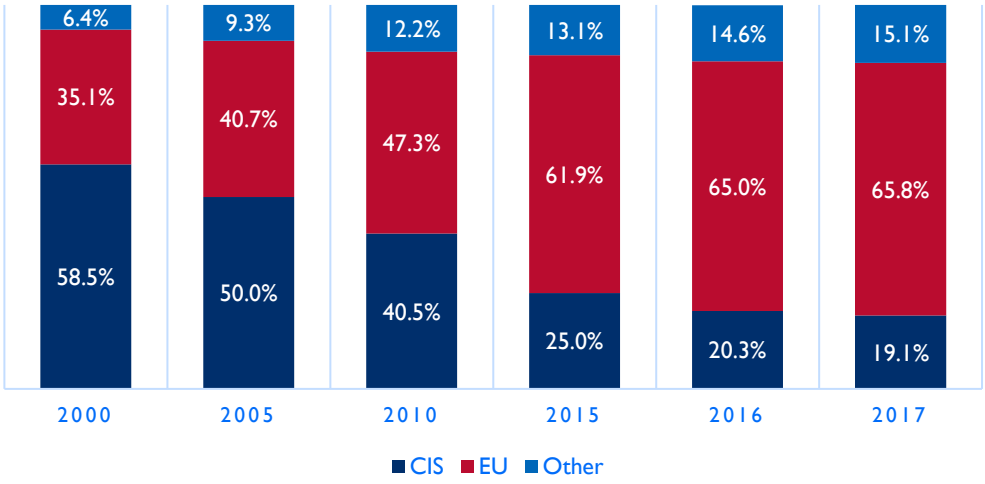
Exports

Moldova's exports were $2.4 billion in 2017, an 18.6% increase compared to 2016.[26] Since 2005, Moldova's export growth trend has been largely positive due to product diversification and entry into new markets. Increases have been particularly noteworthy in manufactured articles and in foodstuffs including processed agricultural goods.

The geographic coverage of exports has shifted from CIS countries towards the EU, with 65.8% of total exports ($1.6 billion) to the EU in 2017. Four of five of Moldova's main export trading partners are current EU members including Romania, Italy, Germany, and the United Kingdom.[27] (Table 2) Exports to CIS countries have declined both in absolute and in relative terms. In 2010 Moldova exported about $624 million of goods to CIS countries, while in 2017 the figure was about $463 million. However, because overall exports have grown rapidly, the CIS' relative share of exports has fallen even faster, from 40.5% of exports in 2010 to just 19.1% in 2017. Russia continues to be Moldova's main trading partner from this region followed by Belarus and Ukraine. Emerging export destinations include China, Saudi Arabia, Egypt and Malaysia.

[26] National Bureau of Statistics of the Republic of Moldova.
[27] Noting that the United Kingdom is planning on exiting the EU in 2019.

Figure 5. Moldova's Export Trends by Region, 2000-2017



Source: National Bureau of Statistics of the Republic of Moldova

Table 4: Moldova's Top 5 Export Countries by Value, 2017

COUNTRY	EXPORT USD	PERCENT OF TOTAL
Romania	$600,622,210	24.77%
Russia	$254,537,740	10.50%
Italy	$236,025,890	9.73%
Germany	$166,125,340	6.85%
United Kingdom	$136,149,060	5.61%

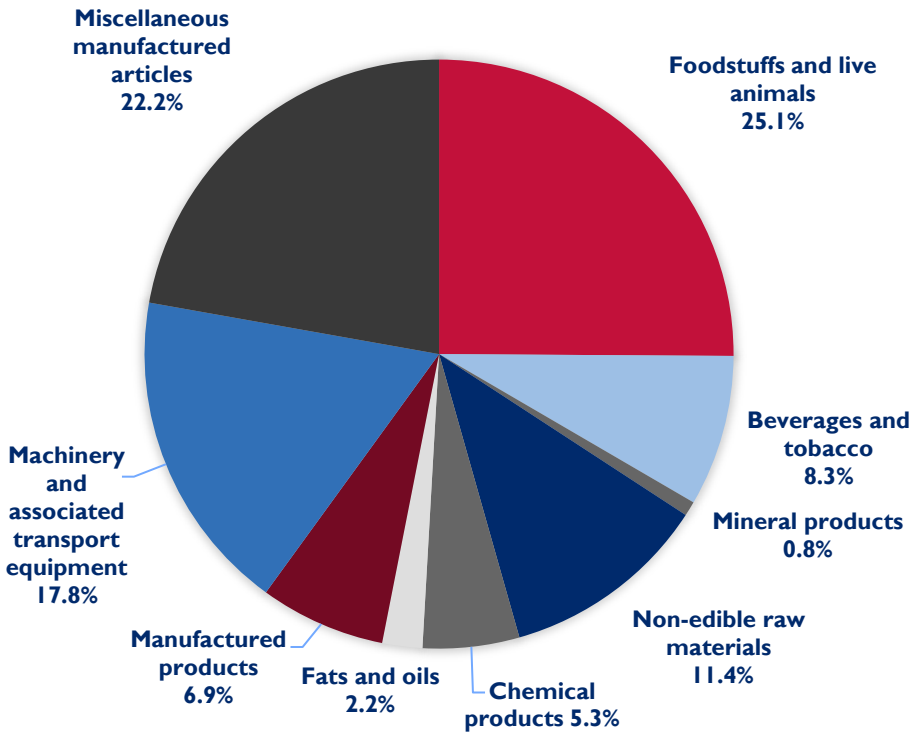
Source: National Bureau of Statistics of the Republic of Moldova

The structure of Moldova's exports has changed over the last 15 years, with higher exports of machinery, fruits, and vegetables at the cost of foodstuffs and textiles. In 2017, exports of foodstuffs, vegetable products, and animals (25.1%) accounted for the largest share of total exports (Figure 6). Various manufactured articles represented 22.2% of exports.

The single most important influence on export growth was vegetables and fruits with an increase of 46.1% compared to 2016. Also, exports of electrical machinery and equipment grew by 37.1% and medical and pharmaceutical products by 28.1%.[28]

[28] National Bureau of Statistics of the Republic of Moldova.

Figure 6. Structure of Moldova's Exports, 2017

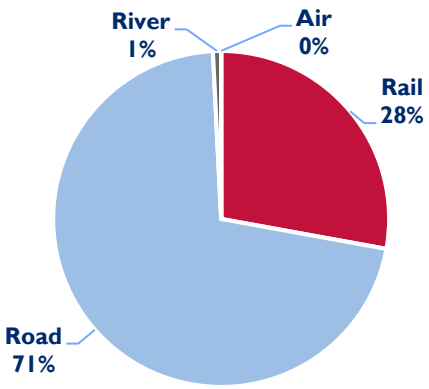


Source: National Bureau of Statistics of the Republic of Moldova.

TRANSPORT BY MODE

According to the National Bureau of Statistics, in 2017, 17.3 million metric tons of freight were transported in Moldova, up nearly 24% from 2016.[29] Of this, 71% was transported by road, nearly 28% by rail, 0.8% by river, and 0.01% by air (Figure 7). Year-on-year from 2016 to 2017, air transport increased by 2.2 times, rail transport increased nearly 38% led by increases in cereals, road transport increased 19%, and river transport slightly decreased.

Figure 7. Transport by Mode, % of Metric Tons, 2017



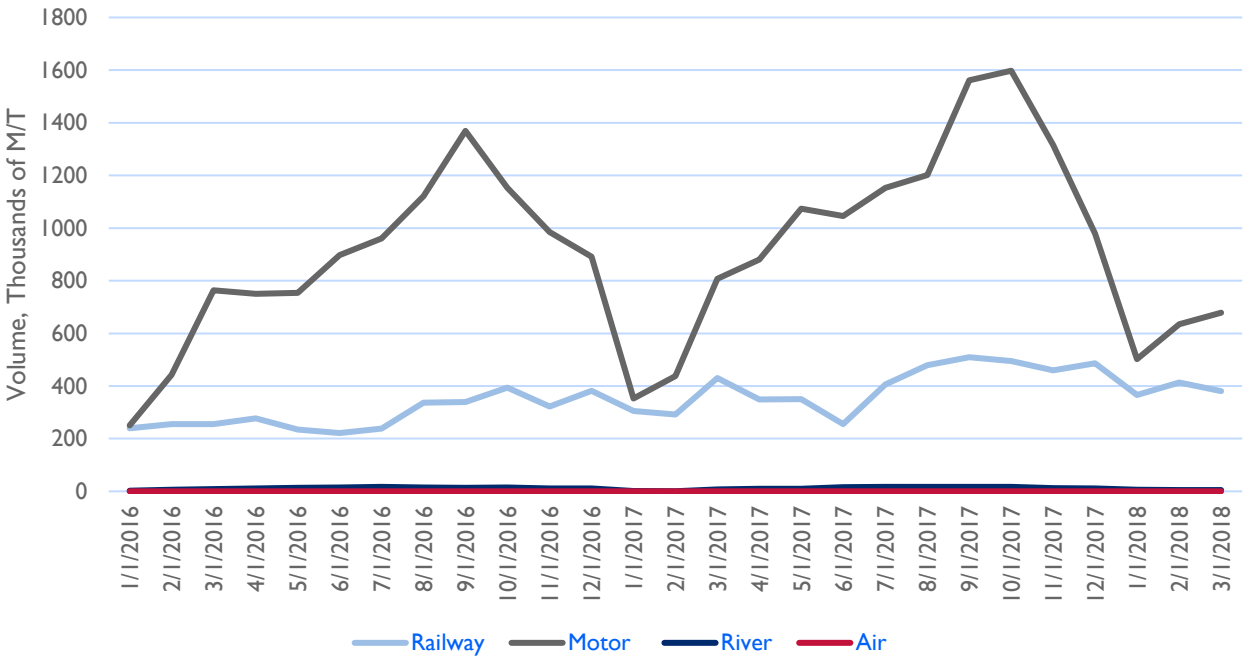
Source: National Bureau of Statistics of the Republic of Moldova.

[29] This figure includes internal transport as well as transport across the country's borders.

The increase in traffic, in turn, has influenced the total capacity utilization of Moldova's transport fleet, especially its domestic fleet of trucks. Shortages of supply are apparent through increased prices during peak agricultural seasons as discussed in Section 3. Road transport dominates both internal and external trade and there is little substitution to other methods (rail, river, or air).

The figure below depicts monthly traffic by mode from January 2016 through March 2018. As shown in the figure, traffic has a strong seasonal cycle with a peak during the harvest season from July to October and a low point in January-February. This pattern is common in countries with a large agricultural sector. The fact that it is so marked here suggests that the single most important client for Moldova's transport sector is (still) Moldova's agricultural sector. This is consistent both with available statistics and with evidence collected from interviews.[30]

Figure 8. Moldova's Monthly Transport of Goods by Mode, January 2016-March 2018



Source: National Bureau of Statistics of the Republic of Moldova
, statistical reports.

MOLDOVA'S TRADE CORRIDORS

OVERVIEW

Moldova is a small, south-eastern European country without any direct maritime access other than a very short (430m) stretch along the Danube River. Moldova has land borders with just two other countries: Romania to the west and Ukraine to the north, east, and south. Due to its landlocked location, its trade corridors are critical to the economy. In Moldova, trade corridors carry both national and transit cargo and consist of both road and rail links. Moldova's key trade corridors for national trade (imports and exports) typically go to/from its main economic centers of Chișinău and

[30] Anecdotal evidence suggests that the long Christmas holiday season, roughly December 24-January 15, is a minor but real secondary factor in the seasonal transport dip. "Truckers don't get summer vacations, because that's harvest time," said one interviewee. "So everyone wants to take a long holiday at Christmas."

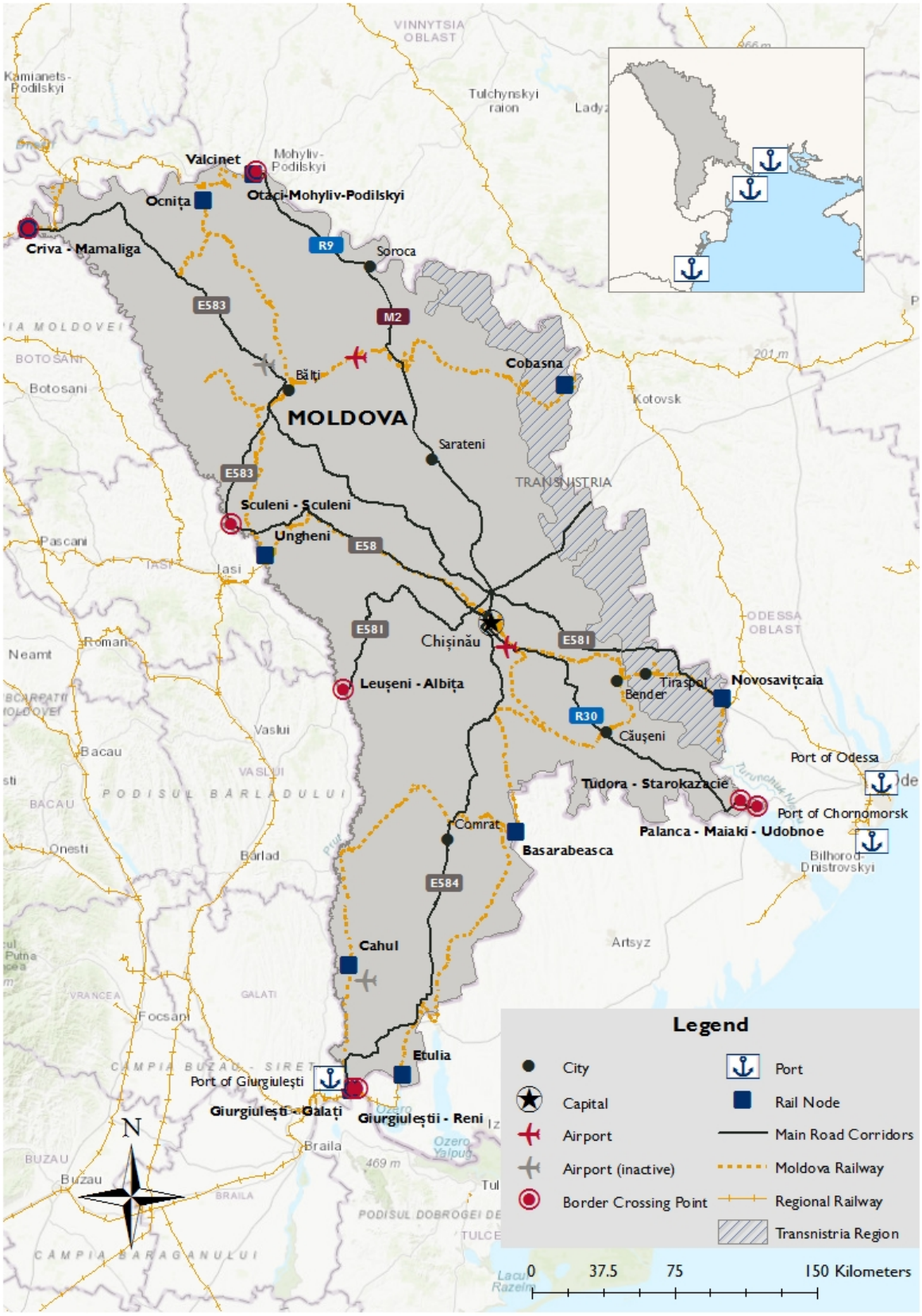
Bălți to/from anchors at ports including Odessa, Chornomorsk, Giurgiulești, Constanța, and economic hubs such as Bucharest and Vienna.

A single Pan-European corridor[31] crosses Moldova. Pan-European corridor IX links Helsinki, the capital city of Finland, to the Mediterranean Sea at Alexandroupoli in Greece, via Moscow, Kiev, Ljbasivka (in Ukraine on the Kiev–Odessa motorway), Chișinău, and Bucharest. Moldova is also crossed by the Transport Corridor Europe-Caucasus-Asia (TRACECA) and Trans-European Transport Networks (TEN-T) international road corridors, which follow the exact same routes spreading in all directions from Chișinău. Moldova is crossed by several European routes as per the European Agreement on main international traffic arteries (AGR): E583, E584, E58, E581. Moldova also signed the memorandum on the Black Sea Ring Highway on July 27, 2007 and is now on the list of the beneficiaries of Black Sea Ring corridor development. The other international trade corridors passing through Moldova are the Viking and Zubr rail corridors, which mostly handle containerized transit. These are all discussed in more detail below.

Figure 9 presents a map of Moldova's trade corridors and infrastructure.

[31] The ten Pan-European transport corridors were defined at the Second Pan-European Transport Conference in Crete, March 1994 as routes in Central and Eastern Europe that required major investment.

Figure 9. Map of Moldova's Trade Corridors



Source: Nathan 2018 for USAID.

MAIN ROAD CORRIDORS IN MOLDOVA

Moldova's key trade corridors for national trade (imports and exports) typically go to/from its main economic centers of Chișinău and Bălți to/from regional ports or economic centers. The majority of cargo (71.42% in 2017)[32] is transported by road.

Most of the goods are transported, mainly by road, to/from regional economic centers:

- Chișinău/Bălți - Leușeni, MD/ Albița, RO(BCP)- Bucharest/Budapest/Vienna/Prague/Hamburg/other EU destinations
- Chișinău/Bălți/Ungenhi - Sculeni, MD/Sculeni, RO(BCP)- Bucharest/Budapest/Vienna/Prague/Hamburg/other EU destinations
- Chișinău/Bălți - Criva, MD/ Mamaliga, UA(BCP)- Warsaw/Budapest/Bratislava/Prague/Hamburg/Riga/other EU destinations
- Chișinău/Bălți/Cahul - Giurgiulești, MD/ Galati, RO(BCP)- Bucharest/Sofia/Athens/Istanbul/ and other European, Middle Eastern, and Central Asian destinations
- Chișinău/Bălți - Otaci, MD/ Mohyliv-Podilskyi, UA(BCP) – Kiev/Minsk/Moscow/Kazakhstan/ Uzbekistan/Kyrgyzstan/other CIS destinations
- Chișinău/Bălți - Tudora, MD/ Starokazacie, UA(BCP)[33] – Odessa/Kiev/Tbilisi/Baku/Erevan/Minsk/south Russia/other CIS destinations

Most routes avoid Transnistrian region, which means that cargo to and from Ukraine has to be transported either via the southern Border Crossing Point (BCP) at Tudora or the northern BCP at Otaci. Interestingly, the southern route is also used by truck drivers going north from central regions of Moldova (Nisporeni, Ungheni) to Belarus and the Baltic states. This is because the roads via Tudora, MD/ Starokazacie, UA are better than the roads going from these regions to Otaci, even though the distance is longer going south due to the necessity to go around Transnistrian region.

Some national cargo is also transported by road or rail to regional seaports where it is then shipped to/from overseas locations such as China, Turkey, Middle East, USA, etc. This traffic is discussed in the maritime section below, but typically traverses the Tudora BCP to Odessa port or exits the country at Giurgiulești by sea.

In terms of traffic volumes by BCP, Leușeni-Albița is the most utilized BCP with 197,716 trucks of cargo in 2016 (Table 5).

[32] National Bureau of Statistics of the Republic of Moldova: http://statistica.gov.md/.
[33] An OSBP is being constructed at Palanca, but trucks are not being accepted during the current construction period.

Table 5. Moldovan Road Truck Traffic by BCP, 2016

BORDER CROSSING POINT	NUMBER OF TRUCKS	PERCENT OF TOTAL
Leușeni-Albița (to Romania)	197,716	23.0%
Sculeni – Sculeni (to Romania)	104,296	12.1%
Otaci-Mohyliv-Podilskyi (to Ukraine)	97,250	11.3%
Tudora-Starokazacie (to Ukraine)	86,587	10.1%
Giurgiulești-Reni (to Ukraine)	54,472	6.3%
Giurgiulești-Galati (to Romania)	51,877	6.0%
Criva-Mamaliga (to Ukraine)	47,502	5.5%
Other (28 BCPs)	219,374	25.5%
TOTAL	859,074	

Source: Moldovan Customs Service/Border police.

Based on current levels of traffic, the seven most popular BCPs account for 75% of land border traffic by volume. Leușeni is by far the most important crossing point with about double the level of traffic of the next largest. Leușeni alone accounts for nearly a quarter of all truck traffic in and out of the country. Anecdotally, Leușeni is also a center for truckers' and shippers' complaints about infrastructure, regulation, and administration.

Moldova is part of several international trade/transport corridors:

- There is one Pan-European corridor, Pan-European corridor IX, linking Helsinki, the capital city of Finland, to the Mediterranean Sea at Alexandroupoli in Greece, via Moscow, Kiev, Liubasivka (in Ukraine on the Kiev–Odessa motorway), Chișinău, and Bucharest.
- The three main TRACECA (Transport Corridor Europe-Caucasus-Asia) road corridors traversing Moldova cover about 890 km and include:
  - ***The South–North (SN) corridor*** linking the border with Romania at Giurgiulești/ Galați in the extreme south of Moldova to the border with Ukraine at Soroca in the northeast of Moldova, via Chișinău. This corridor passes through Vulcanesti at the border with Ukraine, Cimislia, Chișinău, and Orhei. The total length of this corridor is about 380 km-long, of which there is 100 km of dual carriageway road around Chișinău.
  - ***The Southeast–Northwest (SE/NW) corridor*** linking Kucurhan, in Transnistrian region, at the border with Ukraine in the southeast of the country, to Lipcani/Mamaliha at the border with Ukraine at the extreme northwest of Moldova. This corridor does not pass through Chișinău, but crosses the SN corridor 10 km north from Chișinău. The SE/NW corridor passes through Bălți and Edinet. The SE/NW corridor is about 370 km-long. Its southern portion provides the most direct road link to the Ukrainian ports of Odessa and Chornomorsk. Due to the political situation in Transnistrian region there is no freight traffic transiting between Ukraine and Moldova on this corridor.
  - ***The East-West (EW) corridor*** linking the border with Ukraine near Dubasari, in Transnistrian region, to Albița at the border with Romania. This corridor does not pass through Chișinău, but crosses the SN corridor 10 km north from Chișinău. This corridor is the Moldovan section of the Pan-European corridor IX mentioned above (Helsinki–Moscow–Kiev–Chișinău–Bucharest– Mediterranean Sea at Alexandroupoli in Greece). This corridor is about 150 km-long. As along the SE/NW corridor, due to the political situation in Transnistrian region, there is no freight traffic transiting between Ukraine and Moldova on this corridor.

- The road from Chișinău to the border of Romania at Ungheni is also part of the Trans-European Transport (TEN-T) network although it is not included in the TRACECA network.
- Moldova is crossed by following European routes as per the European Agreement on main international traffic arteries (AGR):

  - European route E583 is a European B class road in Romania, Moldova, and Ukraine connecting the cities Roman and Zhytomyr.
  - European route E584 is a European B class road in Romania, Moldova, and Ukraine connecting the cities Poltava and Galati.
  - European route E58 is a road part of the International E-road network. It begins in Vienna, Austria and ends in Rostov-on-Don, Russia. It is approximately 2,200 km (1,400 mi) long.
  - European route E581 is a European B class road in Romania, Moldova, and Ukraine.

- Finally, the Black Sea Ring Road is a projected road which would involve building a four-lane highway system connecting the countries surrounding the Black Sea. Countries formally committed to the project include Turkey, Georgia, Russia, Ukraine, Moldova, Romania, Greece, and Bulgaria. The project does not have a single budget as each country will pay for its own section using its own sources. In addition, some of the funding for the project is expected to be provided by the EU as well as by some EU banks and other international sources. The Black Sea Ring Road was originally planned to be commissioned in 2019-2020 and Russia has already constructed some short sections. That said, the current political situation, including the relationship between Ukraine and Russia, makes the road's fate an open question. The Black Sea Ring Road is included here for completeness since it could have a very significant impact on Moldova if it is ever constructed. However, the Black Sea Ring Road will certainly not be relevant to Moldova in the medium term (2018-2022).

MAIN RAIL CORRIDORS IN MOLDOVA

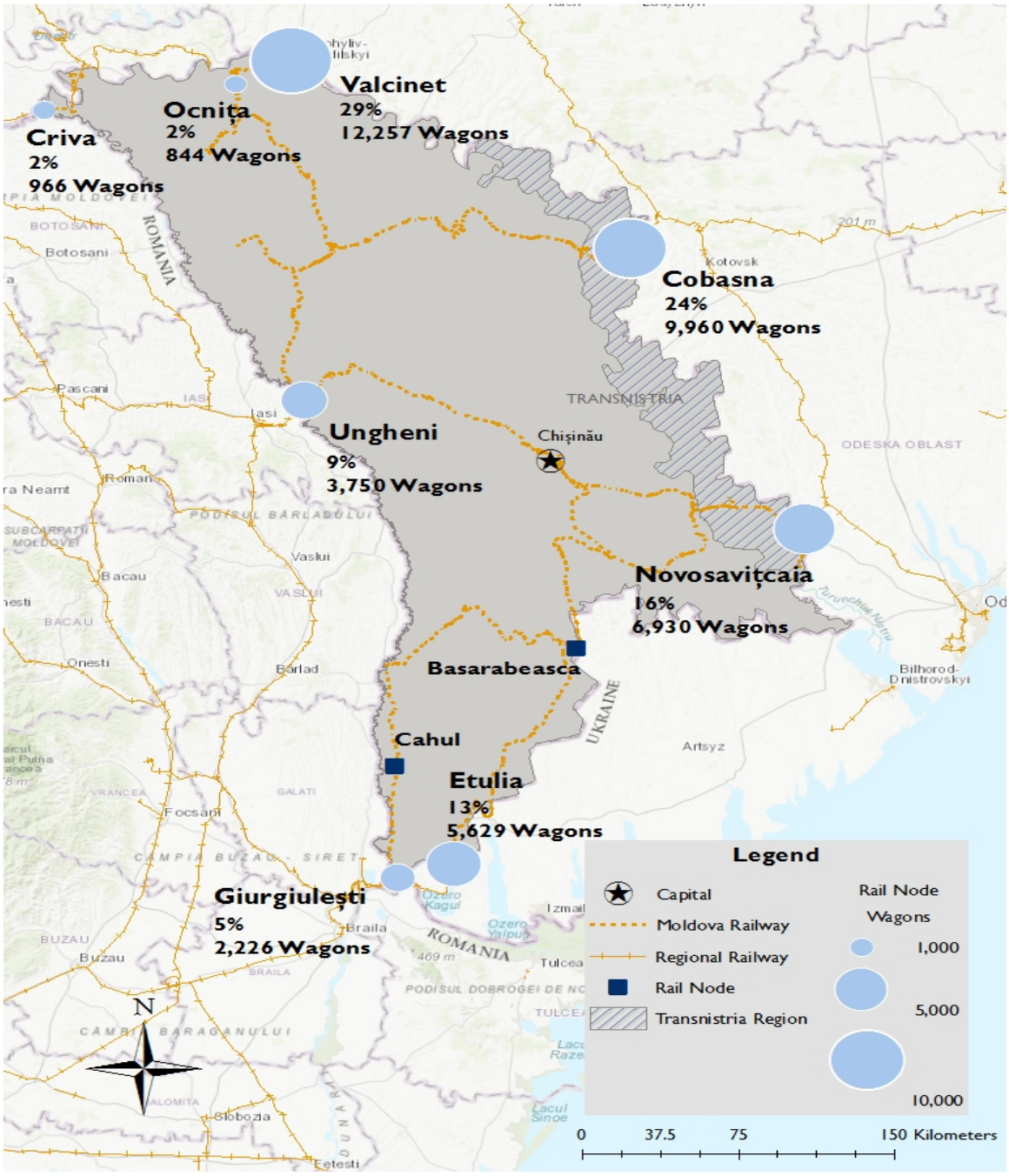
The Moldovan railway network covers 1,157 km of track over three main international railway lines, which cross the territory of the country from East to West (1 line) and South to North-East (2 lines). Major routes include:

- ***Northern:*** Ungheni to Bălți then:
  - northeast to Slobidka in Ukraine
  - northwest to Ocnița and then Ukraine via Mohyliv-Podilskyi and Chelmenti, and Romania via Mamaliga
- ***Central:*** east-west from Ungheni through Chișinău, Bender-2, and Tiraspol (in Transnistrian region) to Odessa and Chornomorsk in Ukraine; currently not operational for freight from Bender-2 to Ukraine
- ***Southern:*** northeast via two branches:
  - Cantemir on the Romanian border
  - Giurgiulești- Galați/Giurgiulești- Reni meeting at Basarabeasca on the Ukrainian border, and then on to Chornomorsk and Odessa from the South.
  - The Southern railway route (via Basarabeasca to Ukraine) is particularly important since it provides a link to the Ukrainian ports of Odessa and Chornomorsk and the mineral regions of Ukraine. The Central route via Tiraspol remains closed to freight traffic.
- Other national lines include:
  - a branch that continues north from Basarabeasca connecting to Chișinău and Bender 2

- a new line from Giurgiulești to Cahul, which connects to the southern line near Cantemir and goes on to Basarabeasca

The figure below presents 2017 trade flows by BCP. During this period, CFM exported 16,595 wagons containing 1.04 million metric tons, and imported 25,527 wagons containing 1.55 million metric tons.

Figure 10. Map of Rail Flows (import and export) by BCP, 2017



Source: Data from CFM.

The main commodities traded by rail in 2017 included:

Imports:
- Metal waste via Cobasna, Ukraine BCP;
- Fertilizer via Vulcanesti and Nivosavițaia BCP with Ukraine;
- Stone/gravel via Nivosavițaia and Valcinet;
- Dissolved gas via Nivosavițaia, Cobasna, and Valcinet; and
- Gasoline via Giurgiulești and other BCP.

Exports:
- Grains (wheat, corn, barley) from silos in Northern Moldova in Bratuseni, Bălți, Rogojeni, Ungheni and Southern Moldova (Cahul) to GIFP and Reni via BCP at Giurgiulești, Etulia, and Vulcanesti;
- Limestone from Northern Moldova (Ribnita) through BCP at Cobasna and Valcinet to Ukraine; and
- Iron bars/metal products from Transnistrian region via Nivosavițaia BCP.

While Moldova has rail lines within the TEN-T "comprehensive network," none of the Moldovan railway lines are part of the "core network," which consists of the most strategically important corridors.

Two international railway trade corridors passing through Moldova are Viking and Zubr as shown in Figure 11 below. The Viking rail route is an intermodal solution for combined transport with universal and specialized containers, as well as for trucks and trailers, which starts at Klaipeda port (Lithuania) and goes south via Belarus and Ukraine to Ocnița, Moldova and Bulgaria (Varna port). The Zubr corridor is a specialized container train, including the refrigerated containers, which starts in Tallinn (Estonia) and goes via all of the Baltic countries and Belarus to Ocnița and Chișinău and Odessa port, Ukraine.

Figure 11. Map of Viking and Zubr Routes

Viking Route **Zubr Route**

Source: https://guam-organization.org/kontseptsiya-razvitiya-transportnogo-koridora-guam/, https://www.rw.by/uploads/userfiles/images/zubr(2).jpg https://www.rw.by/uploads/userfiles/images/viking_eng.jpg https://www.jeuro.dk/2017/page/2/.

MAIN MARITIME ROUTES

Some national cargo is also transported by road or rail to regional seaports where it is then shipped to overseas locations such as China, Turkey, the Middle East, and the USA. Moldova's most important port-connecting corridors include:

- Road to/from Chișinău/Bălți to/from Odessa, UA to overseas destinations
- Road to/from Chișinău/Bălți to/from Chornomorsk, UA (near Odessa, but separate from it) to overseas destinations
- Road and rail to/from Chișinău/Bălți to/from Giurgiulești where it goes by barge or feeder to Constanța, RO where it is transshipped to/from overseas destinations
- Road to/from Chișinău/Bălți to/from Constanța, RO to overseas destinations

In the Preliminary TCA, we discussed how data on trade volumes to/from Moldova via regional ports was limited. For this report, we endeavored to close some of these data gaps, even visiting Odessa, Chornomorsk, and Constanța ports (having already visited GIFP during the Preliminary TCA fieldwork). Despite our best efforts, much of this data was still not available. The table below details the data that were able to obtain for containers only, as the bulk information that we received was very incomplete. As shown in the table, the main ports used for Moldovan containerized cargo are Odessa and GIFP. Starting in 2018 the Illichevsk Fishing Seaport (universally known as the "Fish Port") will also have some Moldovan containerized cargo volumes due to the transfer of Maersk's operations from Odessa to the Fish Port. The only data available for bulk cargo volumes include data from Constanța Port Authority for 2016-2017 (442,098 metric tons in 2016 and 292,222 metric tons in 2017 transshipped from GIFP) and GIFP from 2016 (758,000 metric tons including the 442,098 to Constanța), as well as anecdotal information that indicates some cargo is handled by Odessa and Chornomorsk ports.

Table 6. Moldovan Containerized Cargo Traded through Ports, Number of Containers, 2017

PORT	IMPORT	EXPORT	TOTAL	EST. SHARE
GIFP-Constanța [a]	Unknown	Unknown	6,420	40%
Constanța	250	0	250	2%
Odessa [b]	8433	910	9343	58%
Chornomorsk	0	0	0	0%
Fish Port	Unknown	Unknown	Unknown	Unknown
Total	8683	910	16,013	100%

[a] Data not clear on whether only contain full containers.
[b] Full containers.
Sources: Odessa Port Authority, Danube Logistics, DPW.

Currently the only port accessible by rail is the river port at Giurgiulești (GIFP). Odessa and other Ukrainian ports are theoretically accessible by rail, but the routes traverse Transnistrian region, and freight is not being transported at this time. Rail connections from Chișinău to Constanța via Bucharest also exist, but are not being utilized due to low volumes and gauge incompatibility.

From the ports, cargo can be transported to overseas destinations through a variety of vessel types including Roll-on/Roll-off (RoRo) vessels.

According to the European Agreement on the Main Inland Waterways of International Importance of 1996 (ECE/TRANS/120/Rev.4), Moldova has two internal water routes that are categorized as E (European) routes:

- E 80-07 – the River Prut up to Ungheni
- E 90-03 – the River Dnestr from Belgorod Dnestrovskiy to Bender

Moldova has a number of small internal streams that can carry small crafts but these are not used for trade.

During the Soviet period, the total volume of carried goods via the two major Inland Water Ways (IWWs), the Nistru and the Prut, reached 5 million metric tons per year. However, today, trade flows via IWW are almost non-existent.[34] There are multiple reasons for this including the degradation of infrastructure (no dredging has been carried out in the last 30 years), lack of equipment (the large barges used in Soviet times have mostly been scrapped), lack of demand, and, of course, the political situation with Transnistrian region.

There have been discussions and speculation about restarting trade along the IWWs. Barge service on the lower Prut from GIFP to Ungheni could be an attractive alternative to the current road and rail links. This has been discussed by management of Danube Logistics (the operators of the Giurgiulești port), but no decision has been reached as of this writing. The situation on the Nistru River is more complicated due to the unsolved Transnistrian conflict. Historically there were flows from Moldova to the Ukrainian ports, but there is no traffic at present. There has been intermittent discussion of restoring barge navigation from Moldova to Odessa in the future, but no concrete plans have been made, and it appears unlikely that this will happen any time soon.

Currently there are only four state enterprises and one private company that are authorized by the state port authority to carry out operations on the internal waterways:

- State enterprise "Căpitănia portului Giurgiulești"
- State enterprise "Portul Fluvial Ungheni"
- State enterprise "Registrul Naval"
- State enterprise "Bacul Molovata"
- Foreign-owned company ÎCS "Danube Logistics" SRL

No license is required for this activity, but the state does impose registration and reporting requirements.

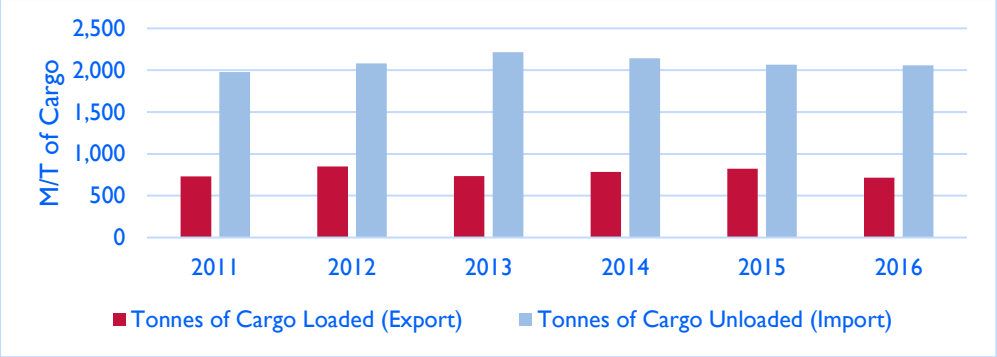
In theory, transport by IWW could be an important part of Moldova's transport network. This was the case during the Soviet period and neighboring countries (Romania, Ukraine) regularly move large amounts of trade along their IWWs. However, the potential for transport on the Prut side is relatively small, except on the lower Prut, because the upper reaches of the river (above Cahul) have not been dredged and/or are seasonally shallow. Towards the east, the potential for transport is sharply constrained by ongoing political issues with the Transnistrian region. And, as noted above, both rivers have not been dredged or given a general navigational survey since Soviet times. Therefore, except for the port of Giurgiulești, it seems unlikely that this will be a significant part of Moldova's transport mix in the near or medium term.

[34] Two international ferries cross the Nistru and some construction materials – sand and rock – have been moved by barge along the lower Prut.

MAIN AIR TRANSPORT ROUTES

Moldova's air cargo sector represents a small percentage of trade volumes, only 1.2% of ad valorem trade volume in 2017,[35] with most cargo being transported via civil aviation from Chișinău International Airport (KIV). Figure 12 shows metric tons of cargo unloaded and loaded at KIV from 2011-2016. Volumes represent a very small proportion of Moldovan cargo and imports exceed exports by nearly 3:1. Volumes have decreased in recent years through 2016. Data by value indicate a large increase for 2017, but no data on volumes are published yet to confirm.[36]

Figure 12. Commercial Aviation to/from KIV, M/T of Cargo



Source: National Bureau of Statistics of the Republic of Moldova.

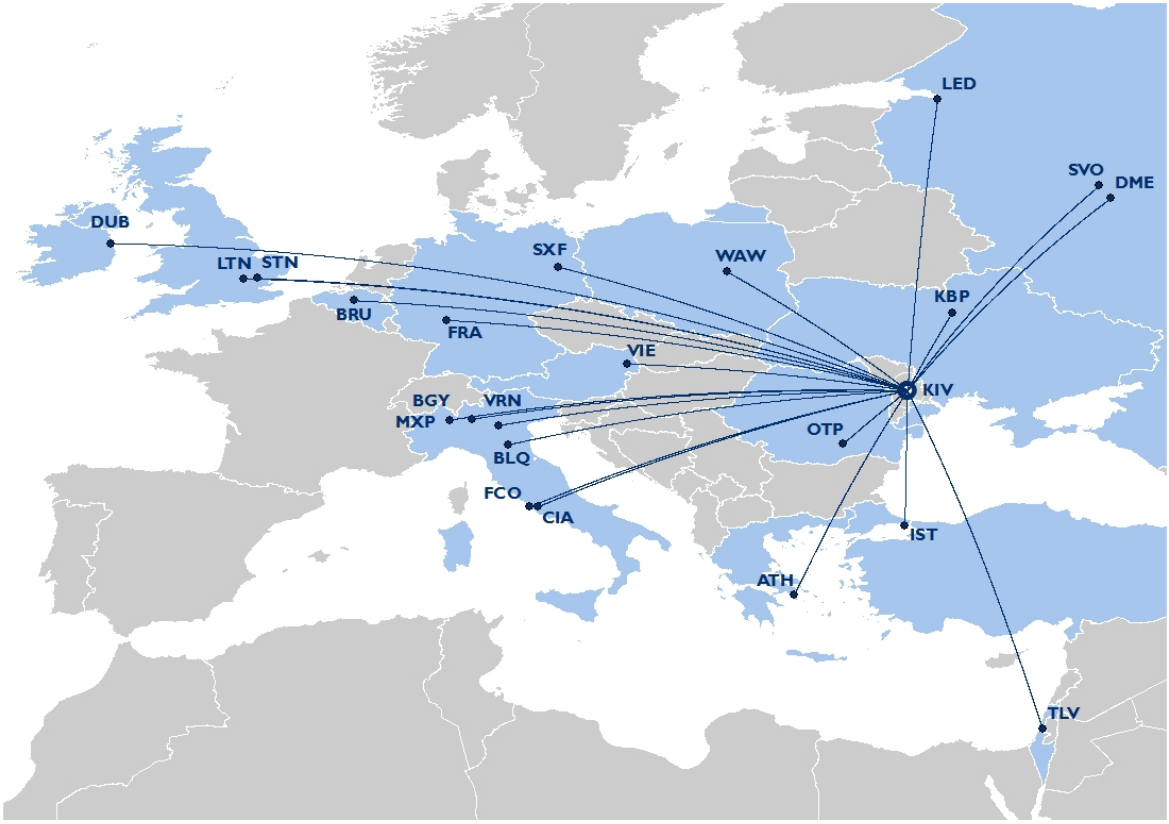
The only regular, dedicated air cargo service to Moldova is an Express service from Bucharest to Chișinău, making a round trip once every weekday, which is shared by DHL, FedEx, and UPS. Other cargo is shipped on passenger planes. The remainder of cargo is served by regularly scheduled civil aviation flights or charter flights. Current destinations served by civil aviation via direct flights to Chișinău include:

- Austria: Vienna
- Belgium: Brussels
- Germany: Frankfurt, Berlin
- Greece: Athens
- Ireland: Dublin
- Israel: Tel Aviv
- Italy: Bologna, Milan, Rome, Verona, Venice
- Poland: Warsaw
- Romania: Bucharest,
- Russia: Moscow, St. Petersburg, Ekaterinburg
- Turkey: Istanbul
- UK: London
- Ukraine: Kiev

[35] Calculated from data on the National Bank of Moldova's website, Balance of Payments 2017 (downloadable Excel spreadsheet).

[36] The data for 2017 at the National Bureau of Statistics show only total cargo transported by air (1100 tons). However, data extracted from the Customs Service are difference. MCS' numbers show 1696 metric tons of imports and 1847 metric tons of exports. The discrepancy in the numbers is large – the MCS figures total more than 3x the Bureau of Satistics numbers – and has not been explained. Here we are using the Customs figures, as based on discussion and interviews they seem more plausible.

Figure 13. Civil Aviation Flights to/from Chișinău as of June 2018



Source: Nathan June 2018 web searches.

This list changes regularly as new direct-flight destinations are added. Additional destinations are accessible via 1+ stop flights.

There are no regularly scheduled flights to any other airports in Moldova at present. Mărculești Airport near Bălți had scheduled civil aviation flights in the past, but at this time is only operating charter flights.

INSTITUTIONAL ARRANGEMENTS GOVERNING THE TRADE AND LOGISTICS SECTORS

In July 2017, following the adoption of a new Law on Government, ministries and agencies underwent a massive restructuring. The number of ministries was reduced from 16 to 9. The MoEI took over the functions of the former Ministry of Transport and Road Infrastructure and the construction functions of the former Ministry of Construction and Regional Development. Regional development was assigned to the new Ministry of Agriculture, Regional Development, and Environment. The Ministry is designing policies for the economy generally and also for information and communication technology, construction, transport, quality infrastructure, market surveillance, energy security, and efficiency. The Ministry has one International Cooperation Division responsible for bilateral and multilateral trade and economic cooperation, a Transport Division covering all the transport sectors (rail, road, naval, air), and a Transport Infrastructure Division that includes a unit on road infrastructure.

ANTA works under the MoEI. It is the implementing authority for road transport. ANTA was assigned functions to control and supervise road transport operators and companies performing road transport related activities.

As a result of the 2017 restructuring, the state enterprise "Calea Ferata din Moldova" (CFM) was transferred under the MoEI. It manages all the railroad infrastructure, maintains it, produces wagons, repairs them, and provides transport services. The Government adopted in 2017 an action plan to reform the state enterprise, which includes the establishment of an independent regulatory authority and a safety agency.

Another state enterprise managed by the MoEI is the State Administration of Roads, which maintains, repairs, builds, and modernizes national public roads and other related infrastructure elements. This agency is responsible for the implementation of the national public road networks in line with the Transport and Logistics Strategy 2013-2020 as well as for managing efficiently the financial resources allocated through the Road Fund.

The National Food Safety Agency (ANSA) implements policies in food safety, veterinary, zootechnical, plant protection, and phytosanitary areas including quarantine, seed control, and the quality of primary products, food, and feed. ANSA is directly subordinate to the Government and has an extensive network in all regions of Moldova. It issues sanitary-veterinary and phytosanitary certificates for export and import. At this time (June 2017), a new draft regulation[37] on the crossing of goods subject to the control of ANSA is being proposed for public consultations. It aims to improve sanitary, veterinary, and phytosanitary border checks and harmonize them with those of the EU. The draft includes 7 permanent border posts for ANSA and some temporary ones that can be established as the need arises. The new regulation is expected to simplify and streamline the procedures for the ANSA inspections at the border as well as bring into compliance the veterinary, phytosanitary and food safety regulations.

The Law on Public and Private Partnership (No. 179 of 10.07.2008) was developed with a view to provide alternative sources of financing of public services. The MoEI develops policy related to the development of PPPs in Moldova. Under the MoEI's recommendation, the Government established a National PPP Council in 2012. An inter-ministerial network of PPP was developed in 2013.

The Public Property Agency is an implementing institution under the Ministry of Economy and Infrastructure that has the role of promoting and supporting the implementation of PPP projects in Moldova. The Agency has one dedicated PPP Unit that coordinates the identification of objectives of PPP projects of national interest, manages all related aspects of PPP policy implementation, and monitors how PPPs are being achieved. The Ministry of Finance examines PPP proposals that include financial resources to be used from the state budget as well as monitors the expenditures of PPP related funds of the public entities in Moldova.

At this time, there is only one PPP that is directly relevant to trade corridor issues: the airport concession at Chișinău International Airport. (The Giurgiulești port is not formally a PPP.) However, the PPP law could become relevant to trade in the future. This is discussed in the recommendations section below.

Plans for the transport sector are governed by the *Transport and Logistic Strategy 2013 – 2022,* which was approved by Government Decision No. 827 from 28.10.2013. A mid-term review of the strategy was planned by the MoEI for 2017, but was postponed due to the Government's decision to develop a new *Moldova 2030* strategy so that the policies can be consistent. At this writing (June 2018) the mid-term review has not yet begun.

[37] http://particip.gov.md/proiectview.php?l=ro&idd=5392.

MOLDOVA'S PPP FRAMEWORK

Moldova's debt to GDP ratio is currently at 34.40 percent. However, Moody's, a credit worthiness agency, scores Moldova's credit worthiness at B3; this means that the market perceives Moldova as facing some risk of adverse economic conditions and therefore may not meet its financial commitments. Additionally, Moldova has a Trading Economics rating of 25, on a scale of 100 (meaning riskless) to 0 (meaning likely to default).[38] The same score is given to Belarus, Belize, Congo, Iraq, the Solomon Islands, and St. Vincent and the Grenadines. Moldova's low credit worthiness scores mean extraordinarily high interest rates and hence high borrowing costs. Budget constraints mean that Moldova will need to leverage financing from the private sector to cover some of the needed infrastructure improvements.

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Moldova has ratified the Convention on the Settlement of Investment Disputes between States and Nationals of Other States, thereby signaling the investment community that an objective process is in place as investment disputes arise. A 2013 review of the PPP law indicates shortcomings (relative to best practice), particularly in the area of the project appraisal process and preparation.[39] Though the review was conducted in 2013, more recent work suggests continued limitations on the institutional capacity to carry out successful transactions and the development of methodologies for doing so.

Moldova has had limited experience in carrying out transactions that transfer asset operational and improvement responsibility to the private sector. In the area of logistics assets, the KIV airport concession was awarded to a private company for operation and infrastructure improvements, while the contract that was awarded for the Giurgiulești port predates even current Moldovan PPP law.

The World Bank *et al* evaluated PPP frameworks in 135 economies, scoring the areas evaluated on a 0 – 100 scoring basis.[40] The higher the score, then the greater degree of compliance with global best practices. Moldova scored a 48 in the area "Preparation of PPPs", with non-compliance with global standards in the criteria of "Fiscal treatment of PPPs" and "Market sounding and/or assessment", and shortcomings in the areas of "PPPs' prioritization consistent with public investment prioritization" ("Detailed procedure not regulated") and lacking methodologies in the areas of "Economic analysis assessment", "Fiscal affordability assessment", "Comparative assessment (value

[38] The Trading Economics rating aims to provide a more objective basis for determining a country's credit worthiness; see https://tradingeconomics.com/moldova/rating.

[39] See, for example, UN Economic Commission for Europe, *National PPP Readiness Report: Moldova*, March 2013, available at: file:///C:/Users/e11328/Documents/USAID%20Moldova/Readiness_Assessment_report_Moldova_Final.pdf.

[40] See Word Bank, *et al*, "Procuring Infrastructure Public-Private Partnerships", 2018, available at: http://pubdocs.worldbank.org/en/256451522692645967/PIP3-2018-e-version-040218.pdf.

MOLDOVA'S FREE ECONOMIC ZONES

The free economic zones (FEZ) were established in Moldova in 2001 in order to stimulate economic development by attracting domestic and foreign investments, setting up foreign companies, ensuring regional development, using modern technology and technologies, promoting export-oriented commodities, applying advanced manufacturing and management experience, creating more jobs in the country. FEZs are a part of the Moldovan customs territory with clearly delimited area where entrepreneurial activity can take place under preferential regime. They are created for a period between 25 and 30 years. Residents have to comply with the national legislation, international agreements to which Moldova is a party, regulations adopted by the management of the FEE that should be in line with the national legislation. Companies may choose to produce export related industrial commodities, packaging, sorting, marking, export/import activities, transport activities etc.

Investments in the FEZ benefit from legal protection of the state, property and goods cannot be expropriated, nationalized, confiscated, except if there is a court order. Residents are exempted from 50% of the income tax derived from exports outside Moldova, 25% of income tax resulting from other activities. If a company decides to invest at least 1 million USD in the FEZ then it is exempt from paying income taxes for the 3 years, if investments amount to 5 million USD then the exemption is applied for 5 years.

After paying the taxes and other payments provided by the legislation, foreign investors are guaranteed the right to transfer abroad the amounts in foreign currency obtained by them as dividends, those resulting from the full or partial sale of goods belonging to a resident enterprise, as well as the liquidation or reorganization of the enterprise in the manner established by law. VAT and excise duties are not applied within the FEZ.

Currently there are seven FEZs in Chișinău, Ungheni, Bălți, Vulcanesti, Tvardita, Taraclia, and Otaci with a total of 190 registered residents. According to the Ministry pf Economy and Infrastructure the total volume of investments as of January 1, 2018 was over 400 million USD. Major activities of the FEZs are focused on the production of electronic and electric cables and wires (automotive), metal processing and equipment manufacturing, furniture, carpet manufacturing, synthetic yarn and wool production, footwear manufacturing, wine production, information technology.

for money analysis"), "Financial viability or bankability assessment", and "Environmental impact analysis". Moldova receives a "0" score in the area of Unsolicited Proposals, which has the effect of constraining the receipt of PPP opportunities that the private sector or investment community may identify.

CASE STUDY: INSTITUTIONAL ARRANGEMENTS FOR THE LOGISTICS SECTOR

The extended reach of logistics in the delivery of goods and services demonstrates a country's dependence on an efficient logistics system to induce economic growth. Efficient logistics systems rely not only on capital assets (fixed assets like ports and border crossing facilities and mobile assets like port cranes and trucks) that are in good condition and are operated efficiently, but also on the efficiency of freight processing and the timely sharing of information associated with the freight and assets used to process and move it.

Perhaps the greatest contributor to logistics efficiency was the development of the marine container. The world's acceptance of containerization for international trade unleashed a host of technologies to move, process, and monitor the flows of assets effectively leading to the creation of the modern logistics system. Economist Paul Krugman, in arguing that the container was as revolutionary to world trade as the internet was for communication, credits containerization with substantially reducing trade costs, particularly in the areas of loading and discharging vessels and reducing losses from pilferage.[41] In fact, one study suggests that containerization has contributed more to global

[41] Krugman, Paul, "Reflections on Globalization: Yesterday and Today." Citigroup Foundation Special Lecture, on Comparative Advantage, Economic Growth, The Gains from Trade and Globalization, and Computational Trade Modeling:

economic growth than free trade agreements, with containerization shown to increase North-North (developed country) trade 790% during the period 1966-1990, compared with trade agreements contributing 45% to cumulative trade growth during the same period.[42]

The advent and impact of containerization drew attention to the need to emphasize logistics efficiency. The World Bank's Logistics Performance Index (LPI) is a reflection of the increased awareness of the importance of primarily institutional factors that constrain (or facilitate) logistics performance. Countries have responded by incorporating logistics as part of national policy. The European Union (EU) produced its *Freight Transport Logistics Action Plan* with actions addressing the establishment of an e-freight system, reducing bottlenecks, simplifying administrative processes, harmonizing vehicle weight and dimension standards, developing green freight corridors, and incorporating urban freight considerations.[43] Germany, Greece, Spain, Britain, and France, among others, have since developed their own logistics strategy, all recognizing that improving logistics performance needs an approach that looks at logistics as a system due to the participation of myriad public and private actors, the inter-relationships among them, and the cooperation needed to minimize constraints along the transport logistics chain.

Experience shows that countries have used a number of approaches to ensure the formulation of a logistics policy and strategy, to make efficient its implementation, and to monitor logistics sector development and performance. We review the logistics sector institutional arrangements for a select few countries here. The intent is to illustrate a number of options that Moldova can explore. The countries selected here are intended more to address approaches used in differing geographic regions. The countries include Morocco, Panama, China, Malaysia, and Finland.

Morocco, Panama, China, Malaysia, and Finland all have government units largely dedicated to logistics policy and execution of national strategies. Morocco amended the scope of the transport ministry to include logistics with a new title "Ministry of Equipment, Transport, and Logistics." Within the Ministry's purview are two organizational units: the Moroccan Agency for Logistics Development (AMDL) and the Moroccan Observatory of Logistics Competitiveness.[44] The former is charged with implementing Morocco's National Strategy for the Development of Logistics Competitiveness while the latter is responsible for monitoring logistics system performance, identifying interventions for improving logistics competitiveness, and monitoring National Logistics Strategy implementation. South Korea created the Transport and Logistics Office, which reports to the Vice Minister of Transport within the Ministry of Land, Infrastructure, and Transport.

Panama chose a different course by establishing the Logistic Cabinet, which reports directly to the Ministry of the Presidency. This is perhaps a tip of the hat to how logistics permeates the economy. The Cabinet is composed of the Ministry of Foreign Affairs, Ministry of Public Works, Ministry of Commerce and Industry, Ministry of Economy and Finance, Panama Canal Authority, Civil Aviation Authority, National Customs Agency, Transit and Land Transport Authority, Colon Free Zone, and

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Festschrift Papers in Honor of Alan V. Deardorff, International Policy Center, University of Michigan IPC Working Paper 91, April 2010, available at: https://pdfs.semanticscholar.org/e0b0/55decfee39ea20f1c0a3be09e923b1feed19.pdf.

[42] Bernhofen, Daniel M., El-Sahli, Zouheir, and Kneller, Richard, "Estimating the effects of the container revolution on world trade," February 3, 2012; available at: https://economics.fiu.edu/events/2013/seminar-daniel-bernhofen/bek_container_feb-3-2013.pdf. Later published in the Journal of International Economics, Volume 98, January 1, 2016, pp. 36-50.

[43] Commission of the European Communities, "Freight Transport Logistics Action Plan," COM (2007) 607 Final, Brussels, 18 October 2007, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52007DC0607&from=EN.

[44] See Law No. 59-09, Law Creating the Moroccan Agency for the Development of Logistics, 21 July 2011, available at: http://www.amdl.gov.ma/amdl/wp-content/uploads/2015/03/dahir-creation-de-lamdl-la-loi-n-59-09.pdf.

the Tocumen gateway airport. The Cabinet's primary role is to implement the national logistics strategy, monitor its progress, and streamline logistics processes.[45]

China's Ministry of Transport is responsible for implementing the national logistics strategy. The Ministry addresses policies, planning, and the development and application of certain performance standards. However, like Panama, China established a national inter-ministerial council committee on logistics composed of 15 different agencies as called for in China's 12th Five-Year Plan.[46] The council ensures collaboration and assesses and monitors achievement of policy goals and priority projects. The Plan emphasizes the importance of intermodality with priority given to the development of ports, container freight stations, and logistics parks as development priorities along with the development of software to effectively integrate assets and services including customs.

Malaysia's logistics strategy is reflected in its Third Industrial Plan for 2006-2020[47] with the Ministry of International Trade and Industry assigned the primary lead role in the sector's development and improvement. Interestingly, the Plan sets forth explicit goals for increases in merchandised trades in the rail, port, and aviation sectors with concomitant plans for increasing capacity to accommodate the growth. In following the prescription in the Plan, Malaysia also established Malaysian National Logistics Development Council, which serves as the focal point to ensuring cross-agency coordination of sector policy, strategy, and regulatory frameworks. Malaysia's departure from other institutional arrangements described here is that it seeks and expects academic and private sector engagement in furtherance of the sector's development. Development Council members include representatives from government agencies as well as trade and industry associations. The Development Council in turn oversees the Supply Chain and Logistics Center, a research and training center engaged in technical, regulatory, and policy research. Though largely funded by government, the private sector contributes funding and participates in the research program.

Finland, which has a national logistics strategy, does not have a dedicated logistics unit. Its Ministry of Transport and Communications, in preparing the strategy, created a Logistics Steering Committee.[48] The Committee, chaired by the Minister, was co-chaired by the head of the National Board of Customs. Other members included the Minister of Finance, Confederation of Finnish Industries, Finnish Trade Unions Organization, Finnish Port Association, Prime Minister's Economic Policy Advisor, Minister of Foreign Affairs, and a number of logistics service providers. Additionally, the Ministry commissions a university to prepare periodic national logistics assessments,[49] the results of which inform transport policy and strategy.

Table 7 summarizes the institutional approaches used in the examples described above. Common attributes include the development of a national logistics strategy and the logistics theme permeating line agencies. While all countries in our sample here have assigned logistics sector responsibility to

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[45] A recent example was the Cabinet's decision to launch a Logistics Control Board, which among other things aims to develop standard documentation and a single portal for submission of freight and vessel documentation that satisfies the requirements of the Panama Canal Authority, the National Customs Agency, and the Panama Maritime Authority.
[46] See China's Twelfth Five Year Plan (2011- 2015), available at: http://www.britishchamber.cn/content/chinas-twelfth-five-year-plan-2011-2015-full-english-version) and UN Economic and Social Commission for Asia and the Pacific conference presentation, "Logistics Industry in China: Development Review and Processes," China Ministry of Transport, July 2010, available at: http://www.unescap.org/ttdw/FFmeeting/FFForum_2010/4.pdf.
[47] See Third Industrial Master Plan (IMP3) 2006 – 2020, available at: http://www.miti.gov.my/index.php/pages/view/1690.
[48] See Ministry of Transport and Communications Finland, Strengthening Finland's logistics position, 2005, available at: https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/78418/strengthening_finland%27s_logistics_position.pdf?sequence=1&isAllowed=y.
[49] See, for example, Solakivi, Tomi, et al, Finland State of Logistics 2014, University of Turku, 2015, available at: https://www.utupub.fi/bitstream/handle/10024/117920/Finland%20State%20of%20Logistics%202014.pdf?sequence=2&isAllowed=y.

line agencies, only one has included "logistics" in the names of the ministries, though Panama has also created a logistics cabinet. This is largely intended to reflect to the public a strong imperative for the logistics sector. Three of the sample countries have assigned logistics to ministries that are also responsible for the transport sector, emphasizing a perceived relationship between transport and logistics. Only one of the countries assigns logistics to a trade ministry.

While a regression or other statistical analysis technique is not applied to determine the relationship between institutional characteristics and logistics performance, we do include in the table the LPI scores for each country for 2007 (when the LPI was first reported) and 2016 (the most recent LPI scores).

Table 7. Logistics Sector Institutional Characteristics of Five Countries

INSTITUTIONAL FEATURES	MOROCCO	PANAMA	CHINA	MALAYSIA	FINLAND
National Logistics Strategy	✓	✓	✓	✓	✓
Logistics Theme Fully Integrated in Line Agency Planning	✓	✓	✓	✓	✓
Line Agency/ Ministry Sector Responsibility	✓	✓	✓	✓	✓
Ministry of Transport and Communications					
Transport Ministry	✓		✓		
Ministry of Equipment, Transport and Logistics					
Ministry of International Trade and Industry				✓	
Logistics Cabinet		✓			
National Logistics Council or Equivalent		✓	✓		
Dedicated Research Unit	✓			✓	
Periodic Evaluation of Sector Performance	✓		✓	✓	✓
LPI Score					
2007	94	54	30	27	15
2016	86	40	27	32	15

Source: Nathan.

The 2007 LPI scores consist of the first effort to disclose logistics performance via a global comparison. The scores placed pressure on countries to take action to improve performance. Indeed, the majority of countries initiated national logistics strategies in response to the LPI scores. Three of the countries improved their rankings, one maintained the same rank, and one moved lower in the rankings. However, it could very well be that moving lower is a reflection of other countries moving higher rather than the one country performing worse.

MOLDOVA'S TRANSPORT INFRASTRUCTURE, SERVICES AND REGULATIONS

ROAD SECTOR

Infrastructure

As of 2016, according to the National Bureau of Statistics, the Moldovan road network was composed of 9,386 km of roads including 3,346 km of national roads and 6,040 km of local roads. Almost 95% (8,894 km) of Moldova's public roads are paved, though most are not in good condition compared to EU road standards. Chișinău is by far the most important road hub.

Road conditions on Route E87 from Chișinău to Odessa.

The general condition of Moldova's roads is poor, but there is tremendous variation. Several major roads are fairly new and/or have been well maintained. A number of projects have been launched in recent years with the assistance of international funding institutions (IFIs) to remedy the condition of national and local roads. There have been several large-scale road rehabilitation projects in recent years. Section 4 further discusses the condition and investment plans of Moldovan roads.

Trucking and Freight Forwarding Services

The road trucking and freight forwarding industries are privately operated by national and foreign companies. In Soviet and immediate post-Soviet times, these services were provided by state enterprises, but they have long since been completely privatized.

Currently, the trucking market is fragmented and not uniformly developed, with most of the service providers having just a few trucks (10 or fewer). According to ANTA, there are 1,335 Moldovan companies carrying out haulage transport with a total fleet of 9,375 trucks recorded in the Register of Road Transport Operators. This suggests that the average number of trucks per company is 7 trucks. However, interviews with trucking and freight forwarding companies suggest that the actual distribution is very asymmetric with as many as a third of all operators owning only a single truck. The largest operator, Loredantrans SRL, has a fleet of about 160 trucks. The next two largest have about 100 each. About a dozen operators have between 50 and 100 trucks. These numbers are rather small for a middle-income country of over three million people. They can be contrasted to neighbors Romania and Ukraine, both of whom have multiple operators with fleets of 1000 trucks or more. By regional standards, Moldova's trucking industry is both small and fragmented.

In Romania, consolidation of the trucking industry has taken place very rapidly in the decade since Romania joined the EU, with a few large fleets buying up many smaller rivals. This does not appear to be happening in Moldova. The reasons for this are unclear, though access to capital may be an issue. In interviews, this was repeatedly mentioned as a problem. Additionally, the trucking industry has limited vertical integration. There are numerous smaller operators that provide hybrid services:

freight forwarding and trucking, customs brokerage and freight forwarding, and so forth. However, only a few large operators that offer a complete set of "door to door" services – transport, freight forwarding, customs brokerage, insurance, warehousing, and so forth.

There are about 400 trucking companies with CEMT (Conférence Européenne des Ministres des Transports / European Conference of Ministers of Transport) authorizations, which are required for international haulage.

There is a large foreign presence in Moldova's transport market and many foreign carriers operate routes to/from Moldova. Some of these "foreign" carriers are actually Moldovan because many Moldovan carriers have moved their registration to Romania (where they have easier access to the EU market) or Ukraine (where they get around Ukrainian authorization quotas). However, many others are wholly foreign-owned. These carriers, both "foreign" and truly foreign, compete with Moldovan-registered carriers for Moldovan cargo. Additionally, a large number of Moldovan drivers are choosing to work abroad by receiving certificates of professional competence that are valid internationally and are issued by ANTA. The number of issued international certificates of professional competence in 2017 was nearly 5 times more than the national ones, which are valid only on the territory of Moldova.

The number of trucks registered in Moldova has been growing steadily since 2015. This may seem surprising given the problems stated above including registration switching, brain drain to work abroad, and so forth. However, Moldovan carriers do offer some advantages such as lower costs, knowledge of both EU and CIS markets, multi-lingual and multi-cultural background (many Moldovan operators are fluent in both Romanian and Russian), and the ability to travel visa free across a very wide region. Thus, while the Moldovan trucking industry has stayed small and fragmented, it has not collapsed entirely.

There are three main ways of utilizing cargo transport services in Moldova: 1) via a company's own dedicated fleet, 2) directly with a trucking company, and 3) through a freight forwarder. Even though there are transportation companies and drivers that can be hired to provide transportation of goods, Moldovan companies that own trucks tend to use their own transport for distribution or supply of their goods. Moldova is a relatively small market without challenging terrain. Therefore, those wishing to conduct trucking activities do not need face high barriers to entry. Historically, an unusually high proportion of Moldovan firms, especially larger firms, used their own transport for distribution. This reflected the low quality of trucking services available both in terms of capacity and reliability and also in the lack of availability of specialized services such as tanker trucks, refrigerated trailers, and the like. However, anecdotal evidence suggests that in recent years this trend has reversed and more companies are outsourcing these services. This may be due to higher regulatory standards and the development of specialized providers in the logistics and freight forwarding sectors.

Alternatively, shippers can use trucking and freight forwarding services. On one hand there are the carriers, or trucking companies, that can be directly engaged. However, as noted above, most companies are small with only a few trucks, so it is understood that shippers face difficulties in bidding out quotes and finding trucking companies that are able to handle their business, especially if they are making large shipments, are specialized, or ship to/from a variety of destinations. On the other hand, there are freight forwarding companies whose business is strictly freight forwarding, i.e. dispatching and booking space for shipments on carrier companies. This type of company can specialize in just one mode of transport such as air, rail, or road. Others combine their core business with trucking by contracting private carriers or running their own truck fleet. A smaller

number of companies also have sea freight forwarding by carriers operating at the nearby ports of Ukraine and Romania. Some forwarding companies combine all four modes of transport, but have just one mode of transport as its core business. In recent years, many Moldovan forwarding companies have also become providers of customs brokerage services. In contrast to the trucking industry, the freight forwarding industry appears to be very dynamic. Anecdotal evidence suggests that it, too, is starved for capital.

A few freight forwarding companies also provide warehousing services. However, warehousing services are usually separated from the forwarding or transportation business. Thus, a distributor will usually have to consider the warehousing aspect separately from the other links in the supply chain.

Most available warehouses in Moldova are older Soviet-type facilities that do not fit Western storage standards often lacking proper heating, ventilation, or humidity control. A typical example of this would be the large Mezon warehouse in Chișinău,[50] which is a former military plant that was shut down and then privatized, and which now provides large amounts of warehouse space in the Riscani district. A few have undergone some type of modernization. For example, Chișinău has a number of specialized warehouses for frozen products. Such warehouses as a rule are run by specialized companies that provide overcapacities for rental. An example of this would be the JLC Group, a French manufacturer of dairy products which rents out extra warehouse space on their website.[51]

In the preliminary TCA (January 2018), it was noted that there seemed to be a shortage of good warehouse space in and around Chișinău. Upon further investigation, this indeed appears to be the case. Current demand appears to be exceeding current market capacity at least in the region of Chișinău. The extent of the problem is not clear (nobody is keeping statistics on warehouse capacity in Moldova), but anecdotal evidence suggests that it is a big enough problem to be a serious issue, especially for producers and distributors who need refrigeration or other specialized services. The reason for the shortage is also unclear, but probably reflects increased production, consumption, and trade, particularly of goods such as dairy products and meat, and perhaps also the increasing importance of Chișinău as a distribution hub.

One might reasonably expect that the market would respond to this need and anecdotal evidence suggests that this is slowly taking place. At least two local logistics companies – City Express and the Azmol Company – have recently invested large sums of money in modern warehouses. At least one large foreign investor has expressed interest in warehouse construction. It thus seems possible that private investors will step in to correct the problem in the medium term. In the near term, however, the shortage of warehouse space will slow Chișinău's development as a transport hub and distribution center.

Most of the regional trucking markets are not liberalized and operate under quota or authorization schemes. (This has been a particular issue with Ukraine and Turkey, although new liberalizations of the market should improve this going forward.) CEMT multilateral authorizations are issued to road haulers conducting international freight journeys on the territory of CEMT member states with transport units with a maximum total mass of over 12 metric tons and complying with the technical and safety standards for the classification categories corresponding to the CEMT category

[50] www.mezon.md. The company inherited a large manufacturing complex from a Soviet-era state-owned enterprise. Some of the complex is still being used for manufacturing purposes, but most of it is used for warehousing.
[51] See http://jlc-group.com/en/actions_post.php?id=1613.

concerned. CEMT multilateral authorizations are awarded to the Republic of Moldova annually[52] according to the decision of the International Transport Forum, an inter-governmental organization within OECD[53] to facilitate international freight transport and the more efficient use of motor vehicles. Moldova also negotiates authorizations with some countries on a bilateral basis.

Regulatory Framework

The Road Transport Code[54] establishes the legal framework for the organization and performance of road freight and passenger transport as well as activities related to road transport on the territory of the Republic of Moldova. Freight transport services are subject to registration at ANTA. ANTA regulates the registration of trucking companies based on the provisions included in the Road Transport Code. The Code was amended in 2017 to reduce the number of licenses and authorizations required to open a business in Moldova. Currently road transport operators have to notify ANTA on their intention to provide trucking services and do a preliminary registration. The basic requirements for a company are that it should have an office, at least one truck in its fleet, should own or lease at least 1/3 of the trucks that it uses but not less than one, and should be able to demonstrate a good reputation, financial capacity, and professional competence.

Additionally, authorizations are issued for those operating international trucking services in accordance with the Regulation on the Issuance and Use of Road Transport Authorizations approved by the Government Decision No. 257 of 28 April 2017. Authorizations are subject to the limited stock available at ANTA based on the results of annual bilateral negotiations with other countries and in accordance with Resolution CEMT/CM (2005). The limited availability of some authorizations, particularly for Ukraine, has been an issue in the past. This may change in 2019 as Ukraine has committed to increase the number of authorizations available to Moldova. See below.

Based on the Government Decision No. 1073 of 1 October 2007,[55] a Special Transport Authorization on public roads is required for vehicles exceeding the maximum admissible laden weight, maximum axle weight, and/or the maximum admissible dimensions. This authorization (permit) is issued by ANTA. In late 2017, there were apparent regulatory discrepancies related to total gross weight and allowed weight per axle in the Road Law.[56] This problem arose starting in December 2017 due to modifications and transfer of responsibilities from Moldovan Customs to ANTA for control of overweight and oversized transport vehicles. Consequently, there were noticeable blockages and delays at border crossing posts. As of this writing (June 2018), the issue appears to have been resolved. However, while ANTA is now responsible for controlling authorizations and overweight vehicles at the border, the agency does not currently have any staff placed at the border, limiting its enforcement abilities. There is currently a draft law in Parliament to transfer these functions back to Customs.

The current legal framework provides mandatory licensing only for carriers. Freight forwarding and logistics operations are not regulated. This has led to the presence of a large number of small "home run" offices that are providing intermediary services linking the shippers with carriers on a referral basis. Due to the absence of regulation in this area, the professionalism of the actors is diverse. There have been many complaints about contracts, unclear rights and obligations, reliability

[52] Distribuition of ECMT multilateral quota as of 01 January, 2018 for Moldova: https://www.itf-oecd.org/sites/default/files/mld_3.pdf.
[53] International Transport Forum within OECD : https://www.itf-oecd.org/.
[54] No. 150 of 17 July 2014.
[55] Road Transport Code (No. 150 of 17.07.2014).
[56] No. 509 as of 22.06.1995, annex no.3, and Government decision No. 979 of 19.10.2010 "On amending the Regulation on authorization, control and performance on public roads of weights and / or gauge loads that exceed the limits accepted."

problems, and in some cases outright fraud. Carriers are trying to lobby via business associations for a government decision promoting the idea of introducing licensing for freight forwarding companies that have no fleets with the intention of eliminating small freight forwarding operators who may not be professional.

On December 15, 2017, the Parliament of the Republic of Moldova examined and approved the Law on the Accession of the Republic of Moldova to the Additional Protocol to the Convention on the Contract for the International Carriage of Goods by Road[57] on the Electronic Consignment Note (No. 275 of 15 December 2017) drawn up in Geneva on 20 February 2008. The electronic consignment note is a consignment note issued by electronic means by the carrier, the consignor, or any other party interested in the performance of a contract of carriage to which the said Convention applies including the logically associated details of electronic communication by attachment or by other means of communication electronically at or after its issue for inclusion in the electronic consignment note. As of this writing (June 2018), it appears that a few of the larger operators have begun to make use of electronic consignment notes, but they are not yet an industry standard in Moldova.

On the 23rd of May 2018 the Cabinet of Ministers of Moldova approved the protocol[58] that liberalizes the road freight transport for vehicles meeting the requirements of EURO III[59] and above between Moldova and Ukraine. This means that vehicles meeting these standards will no longer need authorizations to go to Ukraine. This could have a significant impact on Moldova's trucking industry once it goes into effect in July 2018. Similarly, negotiations are ongoing with Turkey to liberalize the bilateral transport and transit.

RAIL SECTOR

Infrastructure and Services

The rail freight sector is second in importance in terms of freight volumes after the road sector. Statistical data for 2017 indicates that 4.8 million metric tons[60] of freight were transported by the railway, with an increase of 37.9% over 2016. Of this, the majority (43%) was transit cargo, followed by imports (34%), exports (12%), and local traffic (11%).[61] The sole current operator and owner of the railway tracks, locomotives, and rail depots is CFM (Calea Ferată din Moldova').[62] CFM is a wholly state-owned enterprise.

Moldova's railway network is generally in poor technical condition and is not electrified. Railway sleepers are in poor condition and need repair. There are shortages of rolling stock and severe shortages of locomotives. Existing equipment is in poor shape and prone to breakdowns. Works carried out some years ago to upgrade the track between Chișinău and GIFP have not yet achieved the required quality level. As a result, the weight of the trains, number of wagons, and operational speed have all been reduced, which means on certain segments now the speed does not exceed 10-15 km/h.

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[57] http://gov.md/sites/default/files/document/attachments/intr07_130.pdf.
[58] The protocol was signed by the parties in Kiev on April 12 on amending the intergovernmental Moldovan-Ukrainian Agreement on International Road Transport of March 20, 1993.
[59] EURO III is an emissions standard. It was introduced in 2006. As of 2018, it is fairly minimal – even in Moldova, the great majority of the trucks on the road should be compliant EURO III.
[60] National Bureau of Statistics http://www.statistica.md/newsview.php?l=ro&idc=168&id=5896#idc=34&.
[61] Ibid.
[62] Rolling stock is owned by both CFM and shippers.

Chișinău main railway station.

EMIL BOLOCAN FOR NATHAN.

In addition to problems with the physical systems of the railway network, CFM has long suffered from administrative problems and a general lack of technical and administrative capacity. The Court of Accounts (the Moldovan national auditor) published an audit of CFM in March 2018 covering the years 2015-16.[63] The report was highly critical of CFM and pointed to specific shortcomings in governance, financial discipline, and asset management. It described the condition of the trains as (on average) "deplorable" and noted the complete lack of a rational and modern tariff system.

Most Moldovan railway tracks have CIS gauge (1,520 mm) resulting in gauge compatibility issues with rail travel to the EU. At GIFP, there is a dual railway track (of 1,520 mm and 1,435 mm in width) allowing goods going through the port to arrive or depart at either of Moldova's neighboring countries without subsequent bogey exchange or unloading/reloading. For other traffic a single bogey exchange operates at Ungheni near the Romanian border.

There is capacity to handle 20' containers at Ungheni and Chișinău. The Chișinău railway depot has gantry cranes capable of lifting 20' containers. Some are inoperable at present but could be repaired or replaced. There is a Soviet-era warehouse with a rail line to allow goods to be loaded onto and unloaded from railway wagons. There is no special provision for temperature controlled cargo or hazardous cargo.

CFM struggles with funding and sources of investment. In 2016, despite many problems, it showed a modest profit from handling freight but overall operations were unprofitable due to losses on the passenger transport side. The high costs of rehabilitating and maintaining the tracks, rolling stock, and locomotives have led to railway tariffs in Moldova that are generally high when compared to neighboring countries and road transport. This, along with inefficient and unreliable operations and political problems with Transnistrian region, has led to underutilization of the extensive rail network by national cargo as it is uncompetitive with road transport for all but dangerous and heavy cargo. For example, from GIFP, oil and construction materials are sometimes transported by rail, but most other cargo is moved by road. The majority of rail traffic is transit cargo that has no choice but to traverse Moldova.

There is some optimism for the sector's recovery due to significant incoming investment and a planned restructuring (see below). The EBRD has planned investments of EUR116.5 million to finance the acquisition of new multi-purpose locomotives and for conducting priority investments in rail infrastructure rehabilitation. However, optimism should be cautious, as (1) it is unclear whether

[63] http://www.ccrm.md/auditul-de-performanta-privind-sectorul-feroviar-1-4053.

reforms will actually lead to effective management by CFM and (2) the amounts committed so far are probably not adequate to the investment needs of the system.

Regulatory Framework

Moldova's rail transport code[64] establishes the legal, organizational, and economic framework of the railway transport. It regulates relations between the railway and the freight forwarders, the consignees of goods, the passengers, and other natural and legal persons that benefit of the railway transport services. The Code regulates the basic conditions of passenger transport, goods, luggage and messengers, and establishes general rules for the operation of access to railways.

The Government approved in October 2017 the Concept of Restructuring the Railway Sector and the State Enterprise "Moldova Railway" 2018-2021. It is envisaged that a Railway Agency will be created that will be the regulatory body and accident investigation authority. The railway market will be opened up for private market players and to attract new railway operators. The State Enterprise will be restructured and transformed into a joint-stock company with organizational and financial separation of passenger transport, freight transport, and infrastructure.[65]

MARITIME AND INLAND WATERWAY SECTOR

Moldova, as a landlocked country, has a high level of dependence on neighboring countries with direct access to the sea and well developed port facilities. This includes Black Sea ports such as Ukraine's Odessa and Chornomorsk ports as well as Romania's Constanța port. In recent years, Moldova has also benefitted from access to a national port on the Danube River through Giurgiulești International Free Port (GIFP), which began operations in 2005. GIFP also competes with Danube river ports such as Reni and Galati for non-containerized cargo. Sporadic cargo going to and from Moldova is handled via these ports, but this volume is negligible and takes place irregularly.

Additionally, Moldova's water transport system includes two IWW: the Nistru and Prut Rivers. IWW transport is very limited (see discussion above).

Odessa Port, Ukraine

The port of Odessa, Ukraine is one of the largest ports of the Black Sea. It also appears to handle the largest portion of Moldova's cargo arriving by sea.[66] The port has 55 berths covering 10,200 meters of shoreline and can handle vessels up to 330m long with up to 13m draught.[67] The port's technical capacities allow handling of more than 25 million metric tons of dry and 25 million metric tons of bulk cargoes annually.[68] Two container terminals can handle of over 900,000 TEU per year.[69] Only about 50% of total capacity is being used at this time. The port offers about 400 power stations for refrigerated containers.

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[64] Rail Transport Code No. 309 of 17 July 2003.
[65] This "unbundling" is already proving problematic, because freight transport is profitable, passenger transport is not, and infrastructure requires immense sums in investment.
[66] There are no official statistics for the source of Moldova's cargo by port. MCS was unable to provide data by port. Odessa port authority was only able to provide data for 2017 containerized cargo (not bulk). We were unable to obtain data from Chornomorsk. 2017 data from GIFP was incomplete. Due to these data gaps, we are unable to calculate the port's market share other than an estimate for containerized cargo (see Table 6).
[67] Odessa Sea Port Authority: http://www.port.odessa.ua/en/about-port/technical-characteristics.
[68] Odessa Sea Port Authority : http://www.port.odessa.ua/en/.
[69] Ibid. TEU=twenty foot (container) equivalent.

The port has road, rail, and IWW connections. However, the areas both in the port and directly outside the port are congested both for road and rail. The truck loading/unloading varies from 30 to 1.5 hours, but total truck time in the port can be several hours. At present the only truck access gate is through Euroterminal, which adds time and to congestion. The access road/bridge is also deteriorating.

A Strategic Development Plan was adopted that includes 5 main directions/projects for the period 2020-21 with the aim to increase its productivity, which include:

- Deepen the depths of the container terminal berths 42-43 to 15 m
- Increase the capacity of the container terminal by 600,000 TEU to reach total capacity 1.5 million TEU
- Increase the capacity of the "Brooklyn-Kiev" Port Terminal to 1.5 million TEU per year
- Reconstruction of the berths 7, 13-14 and increase the length of the berths 42-43.
- Construction of the berth 1-3
- Increase the number of loaded/unloaded rail wagons/day from 560 to 1100.

The port is also undergoing a major effort to implement electronic declarations. This has been largely successful. Currently over 90% of declarations are now e-declarations. However, there are still some issues with e-declarations on the railway as there is no efficient exchange of data between Ukrainian Railways and Customs. Another issue is mutual recognition of the electronic signatures for cargo transiting by railways. Thus, some paper documents are still required. There is a pilot project between Turkey and Georgia on eTIR with the exception of excisable goods.

Odessa was considered a moderately expensive port in terms of port tariffs. However, port tariffs were recently decreased dramatically (nearly 50% on average) by the state administration in order to be competitive with other regional ports.

With regard to Moldova, the most common trade item to pass through Odessa appears to be exports of containerized grain. In February 2018, the Ribnitsa metallurgical plant "MM3" was exporting cargo in 20ft containers (about 200,000 M/T). Transit is mostly going to Russia to Novorossiysk and Tamani, but also to Kazakhstan. The only mode of transport available for transshipment via Odessa is by truck crossing the borders at BCP: Tudora, MD / Starokazacie, Ukraine, which is about 65 km from Odessa. While rail connections are available, they run through Transnistrian region and are not used. Small amounts of Moldovan cargo occasionally arrive on barges going from the Ukrainian Port of Reni carrying wheat.

E-TIR

A pilot project on eTIR was launched in 2015 between Georgia and Turkey aiming to implement a paperless TIR. This was initiated within the framework of the UNECE project "Strengthening the capacities of developing countries and countries with economies in transition to facilitate legitimate border crossing, regional cooperation and integration". The system allows electronic exchange of customs data on the TIR transports that are crossing their borders. Customs authorities are able to perform risk analysis before the cargo under TIR Carnet would reach their BCPs. This helps prevent illegal trade, smuggling and terrorism.

eTIR pilot projects are usually run together by IRU and UNECE.

In 2016, the implementation of a similar project was discussed at a meeting between AITA, the Ukrainian Road Hauliers Association and IRU representatives, where it was agreed to establish a working group consisting of customs authorities and road hauliers associations that will decide on the next steps for eTIR pilot project implementation between Moldova and Ukraine, though little if any progress has been made since.

Cargo can be transported from Odessa to Chișinău (and vice-versa) within a day, and often within just a few hours, provided there are no issues at the border.

Odessa is an all-weather port with a well sheltered anchorage, so it only shuts down in the most extreme weather conditions. Chornomorsk closes much more often as it is vulnerable to high winds, which are particularly common in the Black Sea in autumn and winter. However, Odessa cargo must enter the port through Euroterminal at a cost of $15+, and the port is more congested. Chornomorsk is easier to access and is slightly cheaper.

Chornomorsk Port, Ukraine

The port of Chornomorsk (formerly Illyichevsk) is located 19 km to the southwest of Odessa in Ukraine on the Black Sea. It is a multipurpose port transporting metals, grain, and containers. Total capacity is up to 30 million metric tons per year, but the port is currently operating at about 14 million metric tons per year.[70] While the port has container handling equipment, few containers are handled at present and most container traffic has moved to the privately-operated Fish Port.

The port operates a multimodal (rail to ferry and Roll-on/Roll-off (Ro-Ro)) complex, which is the only rail to ferry terminal in Ukraine and one of the largest on the Black Sea.[71] The terminal allows for loading of railway wagons and trucks directly onto a ferry for transportation across the Black Sea. The port handled 1.8 million metric tons of cargo in 2016 and has an annual capacity of 4.5 million metric tons of railway cargo, 35,000 heavy duty trucks, and 250,000 vehicles.[72]

Figure 14. Chornomorsk Port Ro-Ro Terminal

Ro-Ro ferry lines serve destinations including Bulgaria (Varna), Georgia (Poti), and Turkey (Derince).

In 2017, the port did not handle any Moldovan containers. Moldovan bulk volumes, if any, were not available. However, from discussions at the port it is clear that some Moldovan bulk cargo is exported through Chornomorsk.

Illichevsk Fishing Port, Ukraine

[70] Chornomorsk Port Authority 2017/18.
[71] https://mtu.gov.ua/en/content/proekt-koncesii-zaliznichnoporomnogo-kompleksu-dp-morskiy-torgovelniy-port-chornomorsk.html.
[72] Ibid.

There is a separate private investment in the Illichevsk Fishing Seaport (universally known as the "Fish Port") activated in 2017. Before renovation with private investment, it was an old port infrastructure with some capacity for processing food stuff (mostly fish). Having good railway and road connections and a large capacity for cars (about 400 cars), it underwent a thorough modernization that enlarged its potential and capabilities to handle general and bulk cargo, containers, and steel products. In 2017, most containerized cargo moved from Chornomorsk state owned port terminals to the Fish Port terminal across the bay. Maersk moved its operations from Odessa to the Fish Port in early 2018.

Port of Constanța, Romania

The Port of Constanța in Romania is important to Moldova in two ways: 1) some container traffic is transshipped from Constanța to GIFP in Moldova by feeder or barge, and 2) cargo can move through Constanța to Moldova by road. While the latter is currently not competitive compared to Ukrainian ports or GIFP in terms of price and time due to the longer distance, having the option is very important to Moldova due to political considerations with Ukraine and the changes in trade flows from east to west.

The Port of Constanța is located at the crossroads of the trade routes linking the markets of the landlocked Eastern European countries to the Trans Caucasus, Central Asia, and the Far East. The port has good connections with the Central and Eastern European countries through the European Corridor IV (rail and road), Corridor VII - Danube (inland waterway, to which it is linked by the Danube-Black Sea Canal), and Corridor IX (road, which passes through Bucharest). Constanța port is part of several international associations including BASPA (Black and Azov Seas Ports Association), of which GIFP is also a member.

Constanța Port has a handling capacity of over 100 million metric tons per year and 156 berths, of which 140 berths are operational. The total quay length is 30.1 km and the depths range between 8 and 19 meters. Currently the port uses about 60% of its capacity.

Constanța Port is both a maritime and a river port. Facilities offered by the port allow accommodation of any type of river vessel. The connection of the port with the Danube River is made through the Danube-Black Sea Canal, which represents one of the main strengths of Constanța Port. Important cargo quantities are carried by river between Constanța and Central and Eastern European countries including Moldova, Bulgaria, Serbia, Austria, Slovakia, and Germany. In 2016, the port of Constanța total traffic consisted of 59 million metric tons, of which gross weight for containerized cargo was 6.9 million metric tons, comprised of 434,439 containers or 711,339 TEU.

Containers to Moldova are typically transshipped by a feeder or barge weekly service to GIFP where the goods are on-forwarded by truck or rail modes to main destinations such as Chișinău, Bălți, etc. Net port fees in Constanța are lower than in Ukraine in part due to higher insurance premiums in Ukraine due to war and political instability. However, little traffic is currently moved to Moldova by truck from Constanța due to the high price and time of inland trucking compared to transport from Ukrainian ports, which are half the distance away.

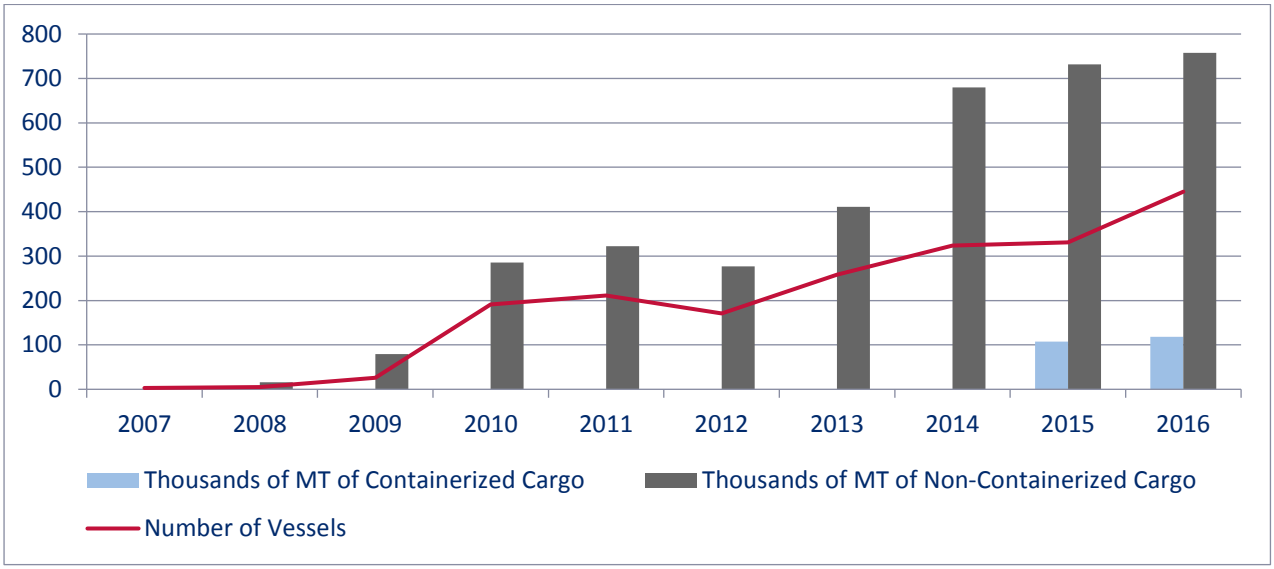
Giurgiulești International Free Port (GIFP)

Giurgiulești International Free Port is located in southwestern Moldova on the Danube and Prut rivers. The general investor and operator of GIFP is Danube Logistics, which is owned by the EBRD

(65%) and Danube Logistics Holding BV (35%).[73] In December 2004, Danube Logistics signed an investment agreement with the Government of Moldova for the construction of GIFP. GIFP's entire territory has the status of a free economic zone until 2030 confirmed by primary legislative act.[74]

In 2016, the port handled 445 vessels, up 34% from 2015 (Figure 15). Volumes of containerized cargo increased 10%, while non-containerized cargo saw a 3.6% increase. Neither the number of ships or total volume transported was available for 2017, but our understanding based on the port's containerized volumes and transshipment to Constanța (Constanța Port Authority provided us data for 2017) is that GIFP's volumes may have declined from 2016 to 2017.

Figure 15. GIFP Traffic, 2007-2016

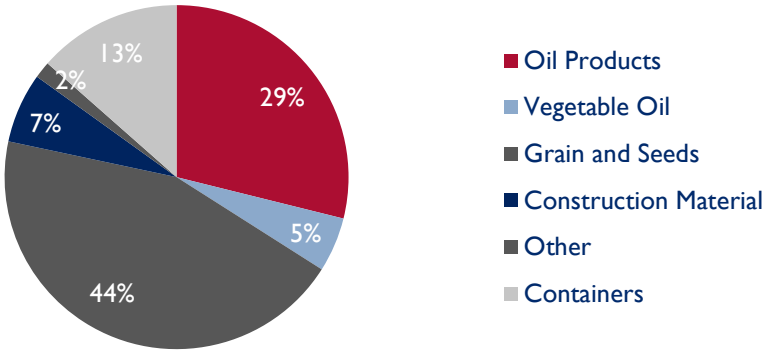


Source: General Presentation of Giurgiulești International Free Port dated January 2017.

GIFP facilities include terminals for diverse types of cargo handling including an Oil Product Terminal, Grain Terminal, Vegetable Oil Terminal, Bulk Cargo Terminal, and a General Cargo Terminal and Container Terminal that began operations in January 2012. In 2016, port volumes were led by grain and seeds (44%) and oil products (29%), as shown in Figure 16. Containerized cargo represented 13% of port volumes in 2016, with containers imported from 39 countries and exported to 43[75] countries via a weekly container feeder service from Constanța to GIFP. The Container Terminal's open storage area of about 2 hectares is directly connected to the railway and has a total of 48 plug-in points for reefer containers. The equipment of the terminal consists of a 70 metric ton Sennebogen mobile harbor crane, a Kalmar reachstacker and two fork lifts. The minimum water depth at the terminal is 5m.[76] A Ro-Ro Terminal is in prospective development plans.

[73] General Presentation of Giurgiulești International Free Port dated January 2017 from http://www.gifp.md/en/page/106/DOWNLOADS.
[74] Law no. 8 of 2005.
[75] Ibid.
[76] GIFP : http://www.gifp.md/en.

Figure 16. GIFP Traffic Composition by Volume, 2016



Source: General Presentation of Giurgiuilesti International Free Port dated January 2017.

Traffic through GIFP is dominated by grain and oil, and almost all of the grain and oil shipped through GIFP appears to belong to a single operator: Trans-Oil. Trans-Oil is an agricultural conglomerate whose ownership appears to be Russian. Trans-Oil is by far the largest purchaser of wheat and of seed-based oils in Moldova; exact figures are impossible to acquire but it clearly accounts for either a large plurality or a majority of all purchases. Trans-Oil did not agree to be interviewed for this report and did not provide any information. That said, it is clear that GIFP is dominated by Trans-Oil's traffic. One interviewee described GIFP as "Trans-Oil's private port". Whether this statement is fair or accurate is beyond the scope of this report, but if this is a common perception, it could affect the willingness of other exporters to use GIFP.

One important achievement of GIFP is the Mixed Gauge Railway Terminal, in operation since September 2014, which connects Moldovan, Romanian, and Ukrainian railways. The facility allows swift transshipment of liquid as well as dry cargo including containerized cargo by railway directly from/to Moldova, CIS and EU countries.

The port is connected to Chișinău and northern Moldova by road and rail. However, at this time both connections are in poor repair. Work is under way to rehabilitate the road, but it has been delayed by a lawsuit and will not be complete before 2020 at the earliest.

Inland Waterways

Moldova's water transport system includes two key inland waterways, the Nistru and Prut Rivers, as well as a 430 m bank on the Danube River on which GIFP operates. The Nistru and Prut Rivers are suitable for waterborne transport only at certain segments due to the natural sedimentation and lack of regular dredging works.

- At present, the Nistru River is occasionally used for local transport needs using small (>5 M/T) river craft. International (passenger and freight) traffic is limited to two ferry stations at Soroca and Cosăuți.
- In 2012, the navigation on Prut River resumed after 25 years. Only the 83 km stretch between Giurgiulești and Cahul is practical for use. The Prut River is occasionally used for transporting construction materials, e.g. sand, ballast, and gravel destined for the rehabilitation of roads in the South-West of Moldova.

The naval conditions of the Nistru and Prut Rivers allow for the transportation of cargo on barges or barge convoys with a total DWT of 1,000t and 600t, respectively. As noted above, these waterways played a significant role in transport in Soviet times. This is no longer the case. Most river vessels are in poor technical condition and do not meet international norms and standards. River ports still exist at Ungheni (Prut) and at Varnița (Nistru), but they do not offer loading services and the faculties have not been well maintained. It would require significant investment to bring them up to international standards and make them relevant to Moldova's transport needs.

Regulatory Framework

The Code of Commercial Maritime Navigation[77] regulates relations in the field of commercial maritime navigation. Recent amendments to the Code envisage the establishment of a Maritime Agency in Moldova that will implement policy in the area of shipping and overseeing compliance by natural and legal persons with the regulatory framework.

The Law on Inland Waterways Navigation[78] sets out the specific rules applicable to inland waterway navigation in the Republic of Moldova, organizes of the institutional system in this area, and applies specific rules related to the safety of inland waterway navigation and basic requirements applicable to ships, their personnel, and persons performing activities in the field of shipping. According to the National Action Plan to implement the EU-Moldova Association Agreement for 2017-2019,[79] the Law on Inland Waterways Navigation is to be amended to transpose a number of EU Directives related to systems of chartering and pricing in inland waterway transport, access to the occupation of carrier of goods by waterway, transport of dangerous goods, technical requirements for the ships, and so forth.[80]

Law No. 8 on Giurgiulești International Free Port (No. 8 of 4 March 2005) stipulates that the port is being established for 25 years (until 2030) and that competition legislations will not be applied to the General Investor of the port during that period. In effect, it is a state-approved monopoly. Residents are exempt from VAT and from excise and/or customs fees for certain goods and services. The Law was approved after an Investment Agreement on the International Free Port Giurgiulești was signed on the 29 of December 2004 by the Government of Moldova with three foreign investors Azpetrol SRL (currently Bemol Retail SRL), Azertrans SRL (currently Danube Logistic SRL), and Azpetrol Refinery SRL (currently Bemol Refinery SRL), a subsidiary of Azpetrol Oil Services Group BV. The initial agreement was for a period of 25 years. The two Azpetrol investors withdrew some time ago leaving Danube Logistics, in partnership with EBRD, as the sole investor.

Investors committed to invest in developing the port infrastructure, to expand the cargo, passenger and oil terminals, to build a petroleum refinery, and to develop a network of petroleum products.

[77] No 599 of 30 September 1999.
[78] No. 176 of 12 July 2013.
[79] approved by Government Decision No. 1472 of 30 December 2016.
[80] This is part of a very broad trend by Moldovan authorities towards harmonization with EU Directives. Whether this harmonization will be relevant or useful is beyond the scope of this report.

The total area of the port was planned to be 120 hectares. However, currently the land is only 55 hectares. The land is leased for 99 years for $1,000 per year. The government committed to reconstruct and repair the network of roads, railways, electricity, gas pipelines, and telecommunication lines necessary for the functioning of the Giurgiulești. Investors were allowed to connect to any existing or future railway infrastructure located in the vicinity of the port.

At this time, Giurgiulești may be considered a limited success. Much useful infrastructure has been built and it appears that the port is providing a modest profit to its operators. It is certainly desirable from a national security point of view for Moldova to have its own international river port. However, the amount of cargo going in and out of Giurgiulești, both in volume and ad valorem, are quite small and the port plays only a modest role in the country's international trade. Road and rail links behind the port remain in very poor condition.

AVIATION SECTOR

Infrastructure

Air cargo represents a small percentage of Moldova's external trade. While there are international airports in three cities in Moldova, only one (Chișinău) is currently fully operational for international passengers and cargo. Moldova's other airports include Mărculești International Airport and Bălți International Airport in northern Moldova near Bălți and Cahul Airport in southwestern Moldova.

Chișinău International Airport

Air Moldova flight arrival at Chișinău International Airport.

EMIL BOLOCAN FOR NATHAN

Chișinău International Airport (KIV) is Moldova's main international airport located 13 km southeast of the center of Chișinău and operating 24 hours per day. The airport is managed by private company JV "AVIA INVEST" through a 49-year concession from November 1, 2013 through October 31, 2062. The concession agreement requires the operator to invest at least €240 million. Avia Invest inherited an airport with poor infrastructure and many rehabilitation needs. It has responded with a prioritized action plan that (so far) is being carried out on schedule and has given some positive results. During its 4.5 years as operator, Avia Invest has undertaken several important works including rehabilitating the airport's passenger terminal and repairing its secondary runway, which had not been operating for many years. This will allow the airport to move traffic from the primary runway to the secondary runway so that repairs can be made to the primary runway. Work on the 3,590m primary runway will begin in summer 2018 and run through 2019. This work includes widening the runway from 45m to 65 meters so that large international flights can be accommodated.

The current condition of Chișinău Airport's cargo facilities is poor, but there are plans to rehabilitate the terminal by 2021 after the runway works are complete. The storage warehouse and customs warehouse is old, not climatized, not secure, small, and does not have cold storage facilities.

This means that the airport cannot handle sensitive cargo operations like valuables, perishables, IMO dangerous goods, and the like. Equipment overall is limited. There is one small, old scale for weighing imports. There is one small, old, passenger cargo sized scanner for scanning exports and no scanner available for imports. This means that Customs officers must do all import inspections physically. It also means that large export items must be broken down, scanned, and put back together, which is a serious nuisance for shippers. Handling equipment is also limited and shared between passenger and freight cargo, resulting in delays. These infrastructure and equipment issues severely limit the country's ability to attract and handle air cargo.

Mărculești International Airport

Mărculești International Airport is a former military airport located 28km from Bălți. Since 2008, it has operated as a free economic zone and is now under the MoEI. It currently has 8 commercial residents specializing in air cargo transportation, logistics operations, construction and reconstruction, and servicing airport infrastructure. To date, the investments made in the airport infrastructure are about $9 million. The airport's infrastructure includes a 2500 x 40 m runway. The take-off / landing route from Mărculești Airport differs from other Moldavian flight paths allowing for heavy aircraft landing.

Bălți International Airport

Bălți International Airport was built some 30 years ago and is situated in the northern part of Moldova at the altitude of 232m. In September 2015, the airport's license was withdrawn and operations ceased. Its infrastructure includes a 2240 m x 42 m runway, a passenger terminal, a small cargo terminal, a hangar, and air control and weather stations. However, as discussed in Section 4, there are many infrastructure issues that must be addressed before the airport can again be operational.

Mărculești and Bălți both have a small advantage in that their altitude and location occasionally allow for landing even when weather in Chișinău may be experiencing fog or poor weather conditions.

Cahul International Airport

Cahul International Airport is 8 km away from Cahul near the border with Romania. According to the Government Decision no. 467 of August 28, 1996, Cahul Civil Aviation Airport was sent to the local public administration. In 2002, the airport was given the status of an international airport and there were several routes to Ukraine, Russia, and Turkey. After 2003, the airport underwent renovations. However, the airport did not obtain a proper operating license from the State Civil Aviation Administration and airport activity was stopped in 2004 by the Civil Aviation Authority due to the fact that the airport did not meet the requirements for flight safety.

Cahul International Airport has a 1700m runway and an ATC tower. The tower does not appear to be in working condition. In the past it was occasionally used for small private planes but at this time it appears to be completely nonfunctional.

Air Cargo Services

Air cargo services in Moldova are typically performed via passenger aircraft. They include cargo such as postal courier services, medications, perishables, and other similarly time sensitive items along with some high value-per-kilogram items such as medical equipment.

Currently Moldova's air cargo market is mainly served by civil aviation. This means that KIV is the only airport regularly utilized by cargo as it is the only one receiving regular passenger flights. Increasing passenger service should naturally increase air cargo service and expand the reach of Moldova's air cargo market. Table 6 lists current routes serving Moldova by civil aviation. Most flights are short-to-medium haul flights to Europe and CIS countries as well as the Middle East, which means that they offer potential opportunities for shipment of perishable goods.

At this time the total amount carried by air is quite small in volume. Only about 1,100 metric tons of air cargo were moved in 2017.[81] This is a small figure per capita compared to Moldova's neighbors. On the other hand, this means that there is considerable scope for rapid growth if the proper conditions are met.

There are currently no technical limitations on aircraft size at KIV, but due to a combination of cost efficiency and economic compatibility with demand, smaller aircraft are utilized by air carriers. This limits the size and amount of cargo that can be handled. As priority is usually given to first to luggage, then to mail, and then to cargo, there are sometimes delays in cargo shipments.

[81] http://www.statistica.md/newsview.php?l=ro&idc=168&id=5896.

Table 8. Current Direct Civil Aviation Routes to/from Moldova

DESTINATION	AIRLINE	DAY	FLIGHT DURATION	TYPICAL AIRCRAFT TYPE
Athens (ATH)	Air Moldova	Th, S	1h50m	E190
Athens (ATH)	Wizz Air	W, Sun	2h00m	A320
Berlin (SXF)	Wizz Air	Th, Sun	2h15m	A320
Bologna (BLQ)	Wizz Air	M, W, F	2h30m	A320, A319, E190
Bologna (BLQ)	Air Moldova	T, Th, S, Sun	2h10m	A320, A319, B738
Brussels (BRU)	Air Moldova	T, Th, Sun	3h00m	E190
Bucharest (OTP)	Tarom	M,T,W,Th,F,S,Sun	1h15m	ATR42(All), Others (S, Sun)
Bucharest (OTP)	Tarom	M,T,W,Th,F,S,Sun	1h15m	ATR42, ATR72
Bucharest (OTP)	Air Moldova	M,W,F,Sun	0h40m	E190
Dublin (DUB)	Air Moldova	T,W,F,Sun	3h40m	A320
Dublin (DUB)	Fly One	T,Th,Sun	3h50m	A319
Frankfurt (FRA)	Lufthansa	M,T,W,F	2h40m	A319
Istanbul (IST)	Air Moldova	M,T,W,Th,F,S,Sun	1h10m	E190
Istanbul (IST)	Turkish Airlines	M,T,W,Th,F,S,Sun	1h35m	B737, A321, A319, B738, A320
Kiev (KBP)	Ukraine Intl	M,T,W,Th,F,S,Sun	1h05m	B737, B738
London (LTN)	Wizz Air	M,T,W,Th,F,S,Sun	3h30m	A320
London (STN)	Air Moldova	T, Th, F, S, Sun	3h20m	A319
Milan (BGY)	Wizz Air	M, W, F	2h40m	A320
Milan (MXP)	Air Moldova	M, T, Th, S, Sun	2h20m	A319
Moscow (DME)	Air Moldova	M,T,W,Th,F,S,Sun	1h40-50m	A320, A319
Moscow (DME)	S7	M,T,W,Th,F,S,Sun	3h10m	A319
Moscow (DME/VKO)	Fly One	M,T,W,Th,F,S,Sun	2h	A320
Moscow (SVO)	Aeroflot	M,T,W,Th,F,S,Sun	2h55m	A320
Rome (CIA)	Wizz Air	T, S	2h30m	A320
Rome (FCO)	Air Moldova	M,W,Th,F,S,Sun	2h10m	A319, A320
St. Petersburg (LED)	Air Moldova	M,T,W,Th,F,S,Sun	2h20m	E190
St. Petersburg (LED)	Fly One	M, F	2h10m	A320, A319
Tel Aviv (TLV)	Air Moldova	W, F, Sun	2h50m	A319, A320
Tel Aviv (TLV)	Tandem Aero	Th, Sun	2h50m	A320
Tel Aviv (TLV)	Arkia	M, F	2h35m	E195
Venice (VCE)	Air Moldova	M, Th, Sa	2h10m	A319
Verona (VRN)	Air Moldova	M,W,Th,F,S,Sun	2h10m	A319
Vienna (VIE)	Lufthansa	M,T,W,Th,F,S	1h45-55m	CRJ9(M), DHC8(T,S), E195
Warsaw (WAW)	Air Moldova	M,T,W,Th,F,S,Sun	1h50m	DHC8, DH8D, E75L, E170

Source: Nathan research using Google flights and web searches, June 2018.

Alongside regular civil airline services, there is also one scheduled direct express service per day from Bucharest shared by DHL Moldova, UPS, and FedEx. There are also occasional unscheduled services (i.e. DHL aviation) to Chișinău and Mărculești Airports based on demand. It also occasionally happens that consignments arrive by air at hubs in Bucharest or Vienna from where the cargo is trucked to Moldova.

Presently there are no regularly scheduled passenger or cargo flights to Bălți International or Mărculești Airport. Both airports presently have infrastructure constraints. Once addressed, there is potential for air services to/from one of the Bălți airports (likely Mărculești which has more advanced infrastructure and a free economic zone). Currently Mărculești serves charter flights and other activities including helicopter repair, aircraft parking, helicopter leasing, etc.

Regulatory Framework

The Civil Aviation Law[82] regulates the relations that arise in connection with the use of the airspace of the Republic of Moldova and with civil aviation generally. The Law applies to all natural and legal persons involved in civil aviation activities on the territory of the Republic of Moldova, to all aircraft in the airspace of the Republic of Moldova, and to aircraft registered in the Republic of Moldova regardless where they are located.

Moldova has a number of bilateral and multilateral air transport agreements. Among these is the Common Aviation Area Agreement with the European Union signed on 26 June 2012 that liberalizes the air markets of the parties and allows Moldova to integrate into the wider European common aviation area. The agreement removed restrictions on prices and the number of weekly flights between Moldova and the EU. Additionally, a new agreement on air services between Moldova and Ukraine was signed on 12 April 2018 and will regulate the air transport of passengers and cargo. It replaces a previous Moldova-Ukraine Air Service Agreement document that had been in force since 20 March 1993. This is expected to increase the level of competition in the air services market by increasing the number of airlines operating flights between the two countries. Other bilateral agreements have been signed with Azerbaijan, Belarus, Georgia, Russia, Uzbekistan, and the UAE.

In March 2018, the Government of Moldova approved the decision to initiate negotiations on an air transport agreement with the United States of America. This is the first document that will establish relations in the air transport and developing direct air traffic between the two nations.

The Free International Airport "Mărculești" was established in 2004 in the place of a military base in Mărculești. On 10 July 2008, the Parliament of the Republic of Moldova approved the Law on Free International Airport "Mărculești." The document provides for the creation of a free economic zone (FEZ), in which the infrastructure and the territory of the airport will be used. Both the airport and the FEZ are managed by the State Enterprise "Mărculești International Airport" as the General Investor. The law provides for customs, fiscal, and other easements, which will ensure a favorable investment climate for attracting investors and implementing economic projects in the airport. The Government Decision No. 574 of 19 July 2017 transferred the airport under the management of the Ministry of Economy and Infrastructure from the Ministry of Defense.

MOLDOVA'S TRADE FACILITATION ENVIRONMENT

GENERAL INTRODUCTION TO TRADE FACILITATION

The 1947 General Agreement on Tariff and Trade (GATT) is generally accepted as the originating point for the concept of trade facilitation in terms of governments and the role of government agencies in the trade process. GATT identified the need for and established the principles of trade facilitation in a regulatory environment. However, progress in applying meaningful measures was a slow process driven primarily by the World Customs Organization (WCO) and by the United

[82] No. 1237-XIII of 09.07.1997.

Nations through UNCTAD and the UNECE. The objectives were generally to achieve a greater level of harmonization and standardization combined with a degree of simplification and addressing the issue of integrity and transparency.

The Uruguay round of GATT (1986-1994) was quite successful in lowering tariffs at the global level. However, one consequence of this success was that businesses correctly noted that it was now non-tariff barriers which were often now a larger cost to them than the remaining tariffs. As a result, the newly formed WTO re-focused its efforts on trade facilitation in the mid-1990s with the communique of the ministerial meeting in Singapore in December 1996. This declaration instructed the Council for Trade in Goods "to undertake exploratory and analytical work, drawing on the work of other relevant organizations, on the simplification of trade procedures in order to assess the scope for WTO rules in this area." (WTO 2002a)

The next round of GATT (the Doha round) began in 2001, but was unable to deliver tangible progress. At the Ministerial Conference which initiated this round of negotiations, many countries called for "immediate binding rules" in relation to trade facilitation issues. However, there was significant resistance to this from many members and the final declaration was a compromise which undertook to identify the trade facilitation needs of the members and to provide technical assistance and support to meet those needs.

The output of this declaration, in 2001, was the WCO Trade Facilitation Agreement which was agreed in 2013 and came in to force in February 2017. This is the first real binding international agreement in terms of trade facilitation measures and marks a material step forward in this area. (The key provisions of the WTO Trade Facilitation Agreement are set out in the text box.)

There are multiple definitions of what constitutes *trade facilitation*, some being more complex than others. However, given the primacy of the WTO Trade Facilitation Agreement in this area, the WTO's definition is the most appropriate starting point. Here trade facilitation is defined as:

> "The simplification, modernization, and harmonization of export and import processes"

This definition is brief, understandable, and accurate. However, it requires significant expansion and explanation to translate it into meaningful action.

It also requires an understanding and appreciation of the fact that actions undertaken by governments and regulatory agencies in order to facilitate trade do not take place in a vacuum. It took from 1947 to 2017 (70 years) to come from an appreciation that trade facilitation matters to a fully-fledged international agreement to address the issue. This testifies to the complexities involved. While many of the delays

KEY PROVISIONS OF THE WTO TFA

The WTO Trade Facilitation Agreement is the first, dedicated international agreement to set out clear measures to be taken to facilitate legitimate trade.

The Agreement is divided into 3 sections. Section 1 covers

- Publication of and availability of information by customs
- Opportunity for business to comment on new laws
- Provision of advance rulings
- Procedures for appeal and review of customs decisions
- Other measures to enhance impartiality
- Disciplines on fees and charges
- Release and clearance of goods
- Border agency cooperation
- Movement of import goods under customs control
- Formalities connected to import, export and transit
- Freedom of transit
- Customs cooperation

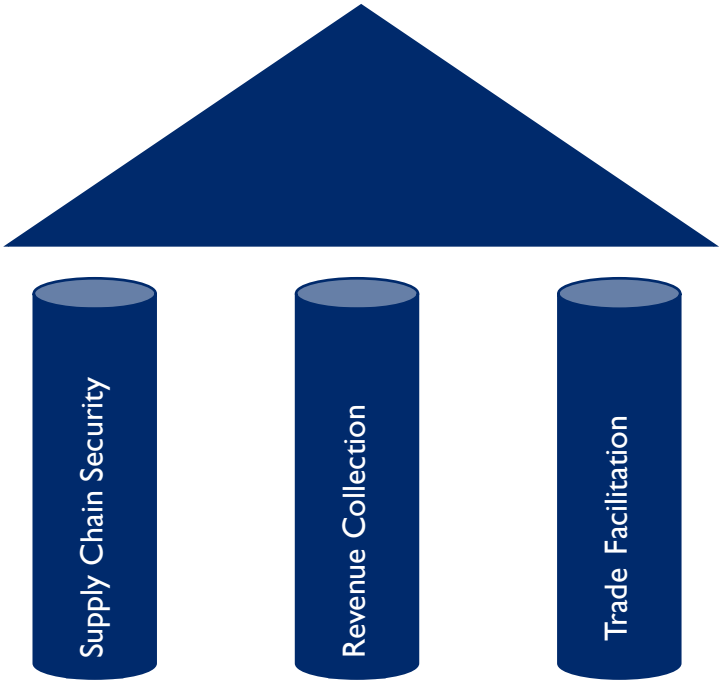
Section 2 provides for differential treatment for developing and least-developed countries

Section 3 covers institutional arrangements

have also been related to tariffs and trade policy issues, the challenges of achieving meaningful progress on trade facilitation have also been substantial.

For governments, and for the agencies which work to them, the initial challenge was to accept that they had a trade facilitation role of any kind. This hurdle has now largely been overcome, at least in a conceptual sense, if not always in reality on the ground. However, the more complex challenge was how to deliver progress in trade facilitation without weakening the capacity of governments and of border agencies to meet their obligations of protecting society and collecting revenue.

Figure 17. Requirements of a Modern Customs Agency



Achieving a satisfactory balance between these three objectives is, and will continue to be, the biggest challenge for governments and the agencies involved. However, while traditional thinking in this area was always that the requirements were mutually exclusive and that the only way of achieving them was through a balanced compromise, more recent thinking is that this does not necessarily have to be the case. This new approach identifies a natural partnership between the regulatory authorities and legitimate businesses. Legally compliant businesses will not only make it easier for customs and other agencies to undertake their other tasks, but can also work with them to address issues of non-compliance, fraud, and criminality.

On this basis, there are many ways in which a common approach to trade facilitation can be achieved. These include:

- the implementation of a regulatory regime which provides for the lowest reasonable level of requirements for legitimate businesses in terms of cost, documentation and time, and
- developing a partnership approach between the business sector, customs, and other regulatory agencies.

This should be achieved by:

- understanding and accounting for the needs of businesses in the development of new legislation, procedures, and policies,
- developing partnership and cooperation mechanisms and fora to allow for exchange of information, views, and opinions,
- the implementation of reasonable and coordinated strategies, procedures, and policies, which strike the correct balance between control and facilitation and which do not include any unnecessary or duplicated controls, and

- the development of a service-focused approach to regulation and control of trade, which provides for consistency, transparency, and mutual trust.

COMPLIANCE CONTINUUM

The approach to modern customs operations is the application of risk-based controls combined with measures to encourage compliance and discourage non-compliance.

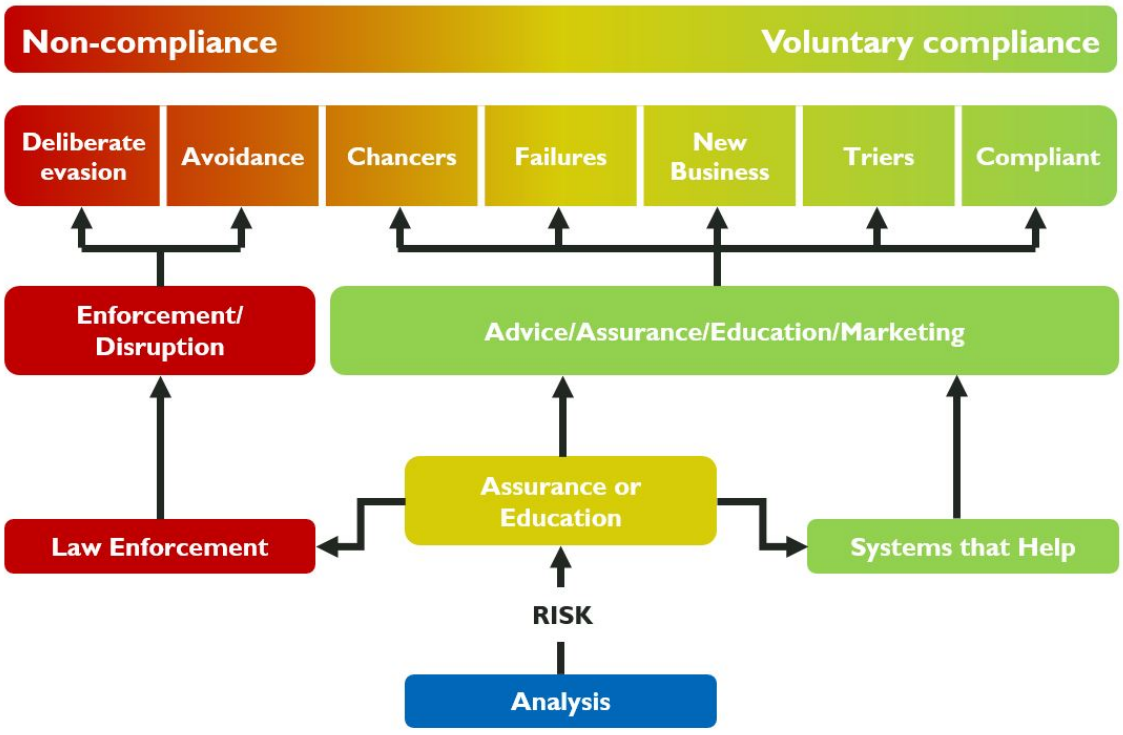
This approach requires a combination of many actions including:

- the provision of clear and accurate information to the trade on their obligations,
- the provision of support and advice to businesses to help them meet their obligations,
- the application of efficient, user-friendly systems,
- the adoption of simplified procedures and development of AEO programs,
- the deployment of enforcement staff to check suspicious consignments,
- the completion of sufficient and effective checks to deter non-compliant traders, and
- the investigation and prosecution of serious offenders.

All of these actions are then underpinned by the development of an effective risk management system where threats and risks are properly identified, information and intelligence are effectively collected and analyzed, and effective risk profiles are developed and applied.

The aim of these actions is to both encourage and push traders to become more compliant and to make it easier for them to do so, as well as to provide information to assist in effective risk profiling. This approach is shown graphically at Figure 18 below.

Figure 18. Compliance Continuum



Source: Nathan 2018.

As noted later in this report, the Moldovan customs service has specifically adopted a strategy to promote voluntary compliance.

THE ROLE OF THE MOLDOVAN CUSTOMS SERVICE IN TRADE FACILITATION

The Moldovan Customs Service (MCS) was established in 1991. It is a public administration body which reports directly to the Ministry of Finance. It currently has a complement of 1,520 staff. It is not necessary to provide a detailed historical overview of the customs service in this report other than to note that, over the last 27 years, it has undergone significant reform, modernization, and restructuring. The most recent major re-structuring took place in 2017. These changes saw a significant streamlining of structures including a reduction in the number of customs regions from 7 to 3 and a 12% reduction in total staffing levels.

The aims of these most recent reforms were, *inter alia*, to improve trade facilitation. These included measures to:

- provide for sufficient staff at borders to ensure the flow of traffic through the borders,
- delegate powers and authorities so that decisions could be taken more easily and quickly,
- implement the DCFTA between Moldova and the EU, and
- meet Moldova's obligations under the WTO Trade Facilitation Agreement.

It is appropriate and relevant to recognize both the vision statement published by the customs service as well as its defined mission. Its vision statement is:

> *To be a modern and efficient customs service that is capable of ensuring the sustainable development of the customs administration in accordance with the highest international standards and with a customs team that demonstrates professionalism, integrity, and responsible decision-making.*

The Customs Mission statement is as follows:

> *The Customs Service contributes to the development of the Republic of Moldova by ensuring the economic and financial security of the State, facilitating legitimate trade, and providing quality public services to citizens and to the business community.*

This mission statement directly and specifically refers to facilitating legitimate trade which is very welcome and which is also a requirement in accordance with the DCFTA and in line with EU standards and best practice.

However, it is important also to note that the Customs Service has a range of legal obligations to the State. It is defined as a public service which should operate in the interests of the country's citizens, economic operators, and economic security in compliance with the existing customs legislation. In summary, that includes the obligations to:

- ensure compliance with customs regulations relating to the transit, and movement of goods, means of transport, and people across the defined customs borders,
- survey, control, and clear goods,
- collect import and export duties and other taxes, and
- implement customs policies.

The general objectives of customs policy are defined by the government in the "Mid-Term Budgetary Framework." These include:

- trade facilitation and strengthening the competitiveness of economic operators,
- ensuring customs security at the border,
- systematization of national customs legislation, and
- harmonization of customs policy and legislation with EU legislation (particularly through the adoption of the new customs code of the Republic of Moldova).

In order to deliver on these high-level objectives, the Customs Service has adopted a strategy *(Vamal2020)* together with specific actions to deliver on the strategy. In terms of trade facilitation measures, the strategy commits customs to "promote voluntary compliance with payment of import/export duties by implementing modern customs procedures that facilitate external trade and ensure the security of the international supply chain."

The strategy references, and is in compliance with, other relevant national policies including:

- The Roadmap for Improving the Competitiveness of the Republic of Moldova,
- National Strategy for Attracting Investments and Promoting Exports, 2016-2020,
- SME Sector Development Strategy, 2012-2020, and
- Regulatory Reform Strategy of Business Activity, 2013-2020.

The strategy is also aligned with the National Anti-corruption Strategy and Action Plan.

LEGAL FRAMEWORK

NOTE ON OUR ASSESSMENT OF THE PERFORMANCE OF THE CUSTOMS SERVICE OF MOLDOVA

In completing this Trade Corridor Assessment, we have reviewed many of the functions of the customs service. This has been undertaken with the full support of the customs senior management and staff and has included meetings with senior managers, sectoral chiefs, local chiefs, and operational border staff. We have also observed customs functions at the borders and inland and we have additionally had a number of meetings with traders, trade associations, and other stakeholders to receive their observations and experiences of working with customs.

The scope of this assessment did not constitute a full review of the customs service. We focused on those areas most closely related to trade facilitation and to the operation of border and inland controls.

Background on Legal Framework for Customs

The regulatory framework for customs operations and other regulatory controls should, as its primary objective, aim to provide for the necessary balance between achieving the regulatory goals in terms of revenue collection and ensuring the safety and security of the State and its citizens whilst at the same time facilitating legitimate trade.

In order to achieve these multiple aims, it is critical that the legal framework:

- is comprehensive, effective and transparent,
- meets the requirements and obligations defined in international treaties and conventions as well as any other regional commitments,

- provides for the effective operation of the customs service by giving it the necessary powers to meet its obligations but also ensures it is fully accountable and responsible in carrying out its duties,
- allows for the application of controls based upon the risk involved so that fraudulent or suspect movements can be properly checked and that legitimate trade can be allowed to move with the minimum necessary levels of control,
- provides for cooperation and coordination between customs and other national agencies and the agencies of other countries and international organizations,
- includes effective but proportional sanctions, which strike the balance between promoting compliance and deterring non-compliance,
- incudes a transparent, consistent, and effective system for appeals against customs decisions, and
- ensures protection of data including both personal and commercial information.

WCO SAFE FRAMEWORK – TO SECURE AND FACILITATE GLOBAL TRADE

The SAFE Framework was first agreed upon by WCO members in 2005. Its purpose was to apply supply chain security standards to customs operations. It focused on the end-to-end management of goods moving across borders and also recognized the importance of developing a closer partnership between customs and business.

The Framework has been amended twice, most recently in 2015, and its key elements now are:

- he harmonization of advance electronic cargo information,
- commitment to apply consistent risk to security threats,
- commitment to undertake effective checks on outbound consignments (at the request of the recipient country), and
- commitment to provide tangible benefits to businesses which meet the necessary supply chain security standards

Legal framework in Moldova

There are a number of legal instruments which control or affect the movement of goods to and from Moldova. These include both international and national laws, conventions, and treaties.

International Legal Framework for Trade Facilitation

The international framework for the operation of customs controls, as well as controls by other border and regulatory agencies, is broad, complex, and in a state of near constant change. However, in terms of overall structure and the way in which the various elements combine, the position is considerably clearer now that the recently implemented WTO Trade Facilitation Agreement is in place.

The key provisions of the TFA are defined above, and they are now the umbrella, as well as the funnel, for the current and future operation of trade facilitation-related activity. However, it has to be acknowledged that the TFA does not provide all the answers and solutions to the operation of customs and trade facilitation measures. The TFA is, almost by definition, the baseline to which all WTO members felt able to sign up to. Nevertheless, as a WTO member and signatory of the TFA, Moldova has a legal obligation to fulfill its obligations in that respect. A more detailed assessment of Moldova's current compliance with the TFA is in section 5 below.

There are also a number of earlier international conventions, to which Moldova is also a signatory, through its membership of the United Nations, the WTO and of the World Customs Organization (WCO). The most important instruments in this regard are:

- WTO General Agreement on Tariff and Trade (1994),
- WCO Revised Kyoto Convention,

- WCO ATA/Istanbul Convention,
- WCO SAFE Framework of Standards,
- UNECE Convention on the Harmonization…and
- UNECE TIR Convention.

All of these instruments provide for a level of harmonization of controls and promote a set of common international standards which allow for the easier movement of goods across borders. However, it should specifically be noted that the WCO SAFE Framework is specifically focused on common standards to ensure the safety of the supply chain. Whilst this Framework fully acknowledges the importance of trade facilitation, its purpose is to ensure that adequate measures are in place to prevent terrorists and criminals from abusing the trading environment.

Regional Framework for Trade Facilitation

The geographical position of Moldova puts it at a crossroads between the European Union and Central Asia as well as between the Russian sphere of influence, the Western European sphere of influence, and the Turkish sphere of influence. It is also potentially on the 'silk road' between China and Europe.

Politically and economically, Moldova has had close links with all of its neighbors and near neighbors at different times in its history and clearly it makes economic sense for it to continue to trade with all of its neighbors as far as possible, even when there may be some degree of incompatibility in terms of the legal and political framework.

At the present time, Moldova is a member of a number of regional groupings and/or has a legal base for regional cooperation and trade. These include:

- The DCFTA with the European Union (covering Moldova and the 28 EU Member States),
- CEFTA (covering trade with Serbia, Montenegro, Macedonia, Bosnia & Herzegovina, Kosovo and Albania),
- GUAM (covering Ukraine, Azerbaijan and Georgia), and
- CISFTA (covering Russia, Ukraine, Belarus, Armenia, Kyrgyzstan, Kazakhstan and Uzbekistan).

Each of these agreements and memberships brings with it some level of legal obligation and conformity with specific standards in order to maximize the potential for trade and economic cooperation with its parties.

However, it is clear that the current political and economic climate, as demonstrated by Moldova's current levels of economic engagement and trade, mean that the DCFTA with the EU is the paramount regional legal instrument and policy framework within which Moldova is operating. Of secondary importance is CEFTA, which, as with the DCFTA, can also be seen as a stepping stone towards eventual EU membership. More detailed information on Moldova's implementation of its DCFTA and CEFTA obligations is in section 5 below.

Moldova's membership of GUAM and of CISFTA, while of less current economic importance, should not be overlooked however. GUAM provides a framework within which its members can trade with each other but also provides the potential for the development of common standards within the group which can assist it in achieving greater economic cooperation with others. CISFTA provides less of a legal and political framework, but nevertheless is important in allowing Moldova to trade with its other members on preferential terms rather than under basic WTO rules.

National Legal Framework in Moldova

The Customs Service of Moldova operates primarily under the national customs code. The current code was adopted in July 2000.

At the time of its preparation, it was designed to mirror, as far as possible, the existing EU Community Customs Code (1992). The key provisions of the Moldovan customs code are:

- Section 1 – General Provisions
- Section 2 – Movement of Goods and Means of Transport across the Customs Frontier (customs regimes)
- Section 3 – Customs Fees (duties, VAT, excise, licenses, customs service fees)
- Section 4 – Customs Clearance Procedures
- Section 5 – Customs Controls
- Section 6 – Customs Privileges for some Categories of Foreign Entities
- Section 7 – Customs Valuation and Determination of Origin
- Section 8 – Disposal of Goods and Means of Transport and their Sales Proceeds
- Section 9 – Detection and Investigation
- Section 10 – Infringements of Customs Regulations and Consequent Liabilities
- Section 11 – Appeals against Customs Decision
- Section 12 – IPR controls
- Section 13 – Customs Officers (legal status and powers)
- Section 14 – Collection and Provision of Statistics
- Section 15 – Final Provisions

Overall the current customs code was a satisfactory legal framework at the time of its adoption and has served Moldova well. However, the operational environment of customs, the international and regional legal frameworks, and other best practices have emerged since it was introduced and it is no longer fit for purpose. (It should be noted that the EU customs code, on which the current Moldovan code was based, was updated and modernized in 2008).

In 2013, the EU then adopted a new, substantially different model of customs code – the Union Customs Code (UCC). This code came into effect in 2016, although not all provisions are yet effective and some sections will not be fully operative until 2020.

As a part of Moldova's DCFTA with the EU in 2016, it committed to introduce a new customs code, substantially aligned with the UCC. A description of the current status of development is in section 5.

Implementation of the WTO Trade Facilitation Agreement

Moldova submitted its instrument of ratification of the WTO TFA in June 2016 (the 84th country to do so at that time). The Agreement subsequently came in to force in February 2017 following its ratification by 112 countries (two-thirds of the membership of the WTO).

Moldova established its required National Trade Facilitation Committee (NTFC) in January 2017. This Committee has legal status (Government Decision 26/2017) and its remit is defined additionally through amendments to the functioning of the Economic Council to the Prime Minister, to which the NTFC reports.

The NTFC comprises members of state institutions and agencies (22), business associations and representative bodies (34), international organizations (10) and representatives from the academic, scientific and research community (5). This number is expected to increase in the near future.

A National Action Plan for Trade Facilitation was adopted in December 2017. This plan includes a total of 92 specific actions, structured within 20 chapters and 35 articles. The key areas of activity within the action plan are:

- provision of access to information and ensuring transparency in all aspects of trade regulation,
- ensuring that rules related to trade are consistent and predictable,
- simplifying procedures related to trade as far as possible,
- application of new and enhanced IT systems to automate and streamline trade procedures, and
- improving infrastructure.

It has been assessed that there are 13 separate state entities which have a direct role in implementing the action plan.

The elaboration of the National Action Plan was substantially based upon the assessment of Moldova's level of implementation of the WTO TFA and the needs which flow from that assessment. In accordance with the requirements of the TFA, this assessment categorized the actions and obligations under the TFA into three sections. Category A commitments are assessed as having been implemented. Category B commitments are assessed as needing additional time to implement. Category C commitments are assessed as needing additional time and also external technical assistance to implement.

Under this self-assessment of the 36 categories of commitments within the TFA, Moldova has identified that 20 have already been achieved (Cat A), 9 require more time to implement (Cat B) and 7 require both time and technical assistance (Cat C).

Key areas where technical assistance has been identified as being required include:

- upgrading of the customs IT system (ASYCUDA),
- development of a system for notifications and alerts,
- creation of Trade Points,
- enhancement of customs laboratory capacity,
- enhancement of systems and procedures for expedited deliveries,
- enhancement of risk management functionality,
- development of risk assessment tools for use by NFSA and NATA,
- development of the e-NFSA IT system,
- strengthening of the national standardization process,
- improvement of the transit regime and facilities,
- enhancing the capacity of MOLDAC, and
- developing a market supervision capability.

The focus on Category B and C obligations in the TF Action Plan is understandable and appropriate. However, there are also many obligations within Category A which merit further and ongoing review. These include publication of relevant legislation and procedures; provision of advance rulings; and procedures for appeal and review of Customs decisions. Whilst compliance with the obligations under the WTO TFA may have been achieved, many of these areas are critical to promoting

maximum trade facilitation and we believe there may still be room for further improvement in some of them.

Implementation of the DCFTA between Moldova and the EU

The DCFTA between the EU and Moldova entered in to force in July 2016 as a part of the wider Association Agreement. Implementation of the DCFTA is primarily guided by the Association Agenda, agreed in August 2017, which set out the 13 key priority areas for reform during the first 2 years.

The most recent assessment of progress in implementation of the DCFTA is the EC's Association Implementation Report of April 2018 produced by the Joint Staff Working Group.

The report notes that the EU remains Moldova's largest trading partner with bilateral trade valued at EUR 4 billion in 2017 (an 18% increase on the previous year). It also highlighted some of the substantial reforms which have already taken place and/or which are underway.

In terms of those areas which impact upon the trade corridor and the areas covered by this assessment, the key outstanding issues identified in the report were:

- the need for more effective action to tackle corruption,
- the need for further, sustainable diversification in relation to the economic activities in rural areas,
- the need to pay attention to resourcing levels and capacity within the Ministry of Agriculture, Regional Development and Environment,
- the need for further alignment and approximation of rules in relation to sanitary and phytosanitary standards,
- the need to improve the capacity to diagnose animal diseases, and
- the need to resolve problems with the system of customs valuation.

The report also highlights the preconditions attached to a major tranche of EU Macro-Financial Assistance, which includes the finalization of the new draft customs code.

The EU underlined its continued commitment to supporting Moldova in implementation of the DCFTA and the policy document, "Eastern Partnership – 20 Deliverables for 2020."

Moldova has a system designed to support it in monitoring the progress of DCFTA implementation. This system was created in 2017 but is not yet operational.

Implementation of the CEFTA agreement

CEFTA (the Central European Free Trade Agreement) was established in 1992 primarily as a vehicle for countries which had applied for EU membership. The primary aim of CEFTA is the promotion of regional trade through the abolition (or reduction) of tariffs and the elimination of non-tariff barriers to trade. Additionally, CEFTA aims to promote an environment conducive to encouraging foreign direct investments, trade in services, and the protection of intellectual property rights.

The initial members were Poland, Hungary and Czechoslovakia (subsequently The Czech Republic and Slovakia). They were then joined by Slovenia, Romania, and Bulgaria in the mid-1990s and Croatia in 2003. All of these countries ultimately left CEFTA when they joined the EU. In 2006/7, CEFTA was expanded to include Macedonia, Albania, Bosnia & Herzegovina, Moldova, Montenegro,

Serbia, and Kosovo. The legal framework for CEFTA was updated following the change in membership in 2006 and re-launched as *CEFTA 2006*. Moldova has therefore been a member of CEFTA for 12 years. Although the 3rd largest by population, it is, by some way, the smallest in terms of per capita GDP.

Moldova, together with the other CEFTA members has implemented other provisions to allow for tariff-free trade between members. However, many non-tariff barriers remain and this issue was directly addressed by the addition of 'Protocol 5' to the CEFTA Agreement. Protocol 5 is largely based on the requirements of the WTO Trade Facilitation Agreement as was adopted by CEFTA members in 2017. The key work now being done by the CEFTA Secretariat and its members focuses on:

- horizontal support and private sector involvement,
- harmonization of norms and practices for the elimination of non-tariff barriers,
- standardization of document and data submission requirements, and
- simplification of customs clearance procedures.

Moldova remains an active and positive partner within CEFTA and, in areas such as the development of an AEO program, it is a leading member. However, there are still some areas (e.g. the capacity to provide for pre-notification and pre-clearance of goods) where it needs to focus efforts to meet the required standards and best practice.

Overall, CEFTA remains an important vehicle for cooperation, the development of standards and the provision of technical support but, in terms of trade facilitation, it is now primarily a vehicle to implement DCFTA and WTO TFA provisions.

Implementation of the new Customs Code

The primary drafting of the new Moldovan Customs Code was undertaken by the legal department of customs in 2017 with the support of experts from the EU. The aim is to provide Moldova with a new code which reflects the needs of Moldova, is compatible with the overall Moldovan legal framework, incorporates modern and current approaches to customs operations, and is compatible with the EU's UCC.

On completion of the draft code, the text was published for a consultation with the business community and other stakeholders. This public consultation exercise took place in February and again in April 2018. This report does not make a direct assessment of that process. However, we do assess the need for effective consultation with stakeholders later in this report.

The draft text was then submitted to the Government of Moldova in May 2018. There has been no further official announcement about the draft text, nor any further changes that have been made by the Government, nor the date when it will be submitted for Parliamentary scrutiny and review. Since Moldova must have general elections by the end of this year, the Code should be passed sometime before the end of September 2018 if it is to pass this year.

Parliament is due to review and finally approve the draft text before the end of its current session. This timescale is currently looking to be ambitious, if not impossible, to meet. However, legal approval for the law is a requirement of the EU under the terms of the DCFTA for the provision of further support in the area of macro-finance. Any delay in approving the draft would therefore be a cause for concern.

As drafted, the new code will come into effect on 1st January 2020. This remains the intention and the goal is both achievable and highly desirable. However, before the code can come in to effect, it will be necessary to draft and approve the parallel implementing regulation. Whilst sufficient time remains available to complete the regulation, this is a major piece of work.

CUSTOMS ORGANIZATION AND STRUCTURE

Overview of Customs Organization and Structure

A modern customs service, its structure, organization, and its management must reflect its role and responsibilities. These are simultaneously to collect and protect revenue for the state, to protect the state and its citizens against dangerous and prohibited goods and practices, and to facilitate legitimate trade.

Essentially this means that the customs administration needs to adopt a service-orientated approach which implements both international and national obligations and standards and that can respond effectively to the needs of its customers and stakeholders.

In practice, this means that they should:

- have a full, effective, modern, and transparent business strategy,
- develop and apply an organizational structure which allows for full implementation of the business strategy, and
- develop and implement the systems necessary to support its effective management.

Organization of the Moldovan Customs

Business strategy

The Moldovan Customs Service adopted a new business strategy, *Vama2020,* in April 2017. This strategy includes an up-to-date profile of the organization covering its structure and personnel as well as the external assistance it is receiving.

The strategy defines the policy framework within which it operates and then sets out is four priority areas and strategic objectives for the period up to 2020. These include:

- Facilitation of legitimate trade and supporting competitiveness
  - Developing e-customs capacity
  - Developing simplified procedures and maximizing voluntary compliance
  - Promoting cross-border cooperation
  - Supporting the customs advisory committee and committing to active participation in the trade facilitation working group
  - Transposing international trade facilitation standards into national legislation
- Prevention and combating of fraud
  - Implementation of a risk management strategy
  - Development of operational capacity to prevent, detect and combat fraud
  - Enhancing procedures for the assessment and collection of revenue

- Modernization of customs infrastructure

  - Modernization and upgrading of customs information system (ASYCUDA)
  - Development of projects to invest in customs infrastructure
  - Provision of modern equipment to customs
  - Diversifying and streamlining external assistance to customs by development partners

- Organizational reform and modernization

  - Development of systems to encourage personal development and promote integrity
  - Enhancement of internal communications
  - Continued adoption and implementation of standards (e.g. ISO) in relation to financial management and controls

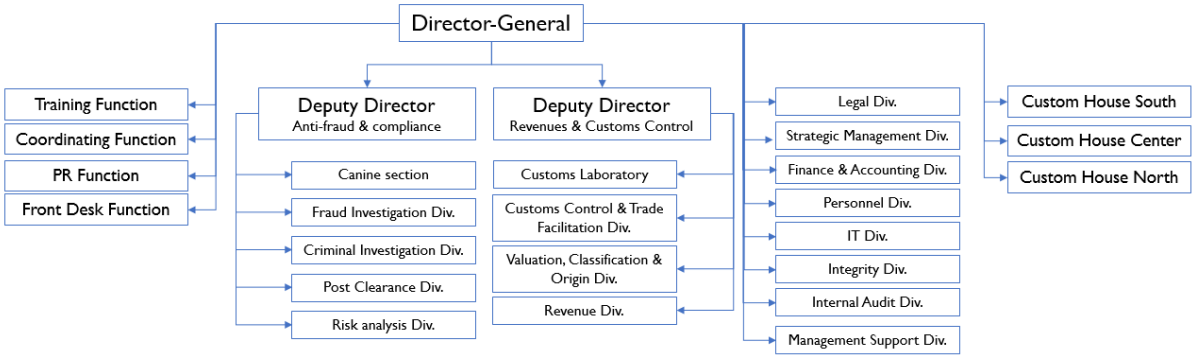
The Strategy also includes a 'map' which includes each of the four strategic objectives and priority actions, and also includes a range of performance indicators in each area.

Management Structure and Resourcing

The Moldovan customs service has a notional complement of 1,520 staff structured on the basis of a headquarters section and three regional customs regions – Customs House North, Customs House Central, and Customs House South.

Overall management of the service is the responsibility of the Customs Director General. The structure below that is shown in the organogram at Figure 19.

Figure 19. Moldovan Customs Service Organizational Structure



Source: Customs Service of the Republic of Moldova.

There are two Deputy Directors, one responsible for anti-fraud and compliance measures and the other for customs controls and revenue collection. The three regional Directors all report directly to the Director-General as do a number of other headquarters functions, as shown in the organogram.

HUMAN RESOURCES AND TRAINING

Overview of Human Resources and Training

Effective management of human resources is central to the operation of a modern customs service. The starting point for this is an acknowledgment that the staff are the most important resource

within the service and that they therefore needed to be treated as such. However, this also means that the staff need to reciprocate in terms of acting professionally at all times and undertaking their duties with honesty, integrity, consistency, and transparency.

Specifically, this should be addressed through the:

- development and implementation of a Human Resource Management (HRM) strategy which supports the needs of the organization and particularly the implementation of its business strategy.
- development of HRM policies which are consistent with national legislation and meet international obligations,
- development of policies which support and promote efficient performance,
- development of HR systems which clearly defines roles and responsibilities of all staff,
- development of an effective training function which supports the HR strategy and the business plan,
- development of the capacity of the training function to design and deliver in accordance with a comprehensive training needs assessment, including the long-term needs of the organization, and
- establishment of training and development plans for individual staff, as well as the organization as a whole.

HRM in the Moldovan Customs

The HRM capacity and level of responsibility within Moldovan customs is relatively limited. It functions under the direct management of the Director-General, who is responsible for making and implementing most of the key policies and decisions.

The other key influencer on the work of the HR department is the legal section, which is responsible for defining and ensuring compliance with legislation and policies including the law on the Customs Service, staff motivation schemes, the content of job descriptions, roles, and responsibilities.

In summary, the HR section has a largely administrative role with minimal scope to form its own policies and procedures.

RISK MANAGEMENT

Introduction to Risk Management

Risk management is at the heart of a modern customs service. This includes both internal and external risks. In terms of trade, we have focused on the application of risk in terms of how it can achieve the necessary balance between control and facilitation.

An effective risk management system must include:

- a legal framework which allows for the proper application of risk-based controls,
- an organizational structure which can properly apply risk management,
- a strategy and system of risk management which ensures that the risks are properly identified, analyzed, and assessed so that the necessary steps can be taken to deal with them,
- a high level of cooperation and exchange of information within customs, with other agencies, and with the business sector to maximize the access to and understanding of information which could inform any risk assessment, and

- an IT system which supports the collection, collation, analysis and dissemination of information on risks.

Risk management in Moldovan customs

The overall approach to risk management within customs was not specifically reviewed. However, in discussion with senior management and with the risk analysis unit as well as from other research, it is evident that MCS is applying risk analysis in its key decision-making processes including the allocation of staff and the selection of traffic for checks.

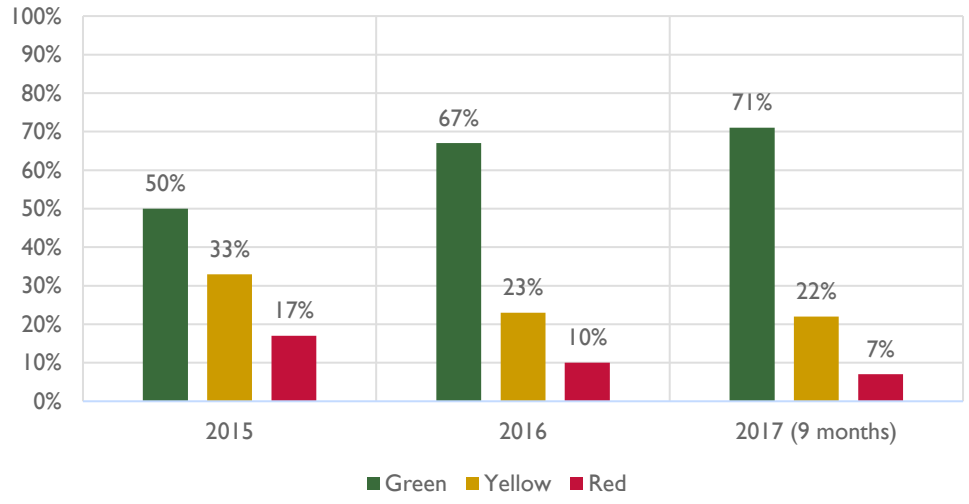
MCS does have a risk management strategy – its first ever – drafted with EUBAM support and approved in 2017. The re-structuring of customs in 2017 was largely based on known and perceived risks as well as on traffic flows. And the selection of consignments for documentary and/or physical checks is largely based on the risk profiling tools provided by the automated customs system, ASYCUDA.

We were unable to identify any structure to allow for the effective cooperation and exchange of information with other agencies and the business sector at the national level, in a way which would inform the risk management process. However, there was evidence of cooperation on the ground, particularly between customs and border police, although this was more related to exchange of information to avoid duplicate checks, than to inform risk-based controls.

In terms of risk profiling, the primary tool is the ASYCUDA risk selection function, which determines whether a specific consignment should be allowed to proceed (green), should be subject to further documentary checks (yellow), or should be subject to physical examination (red).

Based on the latest available figures from ASYCUDA, it is clear that the number of import consignments flagged for further checks (red & yellow) has fallen from 52% in 2015 to 29% in 2017. For exports, the equivalent comparison is a reduction from 22% to 9%. Nevertheless, there are some doubts about how these welcome reductions were achieved and whether the existing catalogue of risk profiles is either fully effective or comprehensive. Such an assessment would require much more in-depth, specialized assessment.

Figure 20. Customs Declaration Proportions for Imports



Source: Figures provided by Moldovan Customs Service

BORDER AND INLAND CONTROLS

Introduction to Border and Inland Controls

Customs administrations were originally conceived and established as border control agencies to monitor the movement of goods across international border and to collect any tariffs or taxes due as a result of the import or export of the goods concerned. However, their role and the way they fulfil their duties has changes considerably over the centuries and most particularly in the last forty years, particularly in terms of their role in trade facilitation.

The aim of a modern customs service is to deliver efficient and effective controls of national borders (land borders, sea borders, international rail, and air terminals), which collect the revenue and also protect society against unwanted or dangerous goods.

Many of these controls may still need to take place at the border itself (e.g. the importation of radioactive materials, animal or vegetable products which may spread diseases), but systems such as customs seals, 'track & trace,' and 'trusted trader' programs mean that an increasing number of those checks can take place inland either at customs terminals or traders' premises.

In specific terms, the effective functioning of customs controls, whether at the border or inland, should include:

- a clear legal base which ensures that customs has the necessary powers to inspect and carry out controls on goods, means of transport, documents, and commercial records (both at the border and inland),
- a comprehensive border and inland control strategy for customs aligned with a comprehensive integrated border management strategy developed with other border control agencies,
- the application of a systematic control system based upon known and perceived risks,
- staff who are properly trained in the application of the relevant border and inland controls, and
- the existence of appropriate infrastructure, equipment and IT systems to support the border and inland control strategy

INVESTIGATION AND ENFORCEMENT

The proper enforcement of customs controls underpins its ability to facilitate legitimate trade. The proper application of risk-based controls is key to identifying non-compliant traders but this competence can only be exploited if the customs service (and other agencies) have the powers and the capacity to enforce the law and to investigate and prosecute offenders.

Such capacity must be sufficiently competent and flexible to implement an intelligence-based strategy of enforcement using the latest methods as well as technological solutions in order to protect the revenue and society.

Specifically, an effective and risk-based approach to investigation and enforcement should include:

- a comprehensive and appropriate legal base that gives the necessary power to customs to investigate suspects and enforce controls as well as to exchange information with other agencies both at home and abroad,
- the creation and maintenance of an effective organizational structure and capacity to enforce customs controls and to investigate suspected non-compliance,

- the development of a system and structure for cooperation with other agencies, including the police and the judiciary, as well as with agencies in bordering countries, other trading partners, and international organizations, and
- Systems of management, HR management, training, and IT which support the enforcement of controls and the investigation of non-compliance.

We recognize that law enforcement models vary considerably between countries and this is particularly true in relation to customs authorities. In some systems, customs have full intelligence, investigation, and enforcement powers and capacities. In other models, some or most of these tasks are undertaken by other agencies. Our recommendations, particularly in relation to some of the more sensitive issues surrounding the collection of intelligence and the investigation and prosecution of offences, fully recognize this issue.

COMPLIANCE

Introduction to Customs Compliance

Effective customs control and achieving the highest possible levels of trade facilitation are based upon the development of a business environment which encourages, supports and rewards compliance. The principles underpinning the positive promotion of compliance is described at above.

Compliance within Moldovan Customs

The Moldovan customs service is committed to the promotion of voluntary compliance. Specific pledges include:

- the application of international standards and best practice to reduce costs and delays to economic operators,
- the provision of clear, transparent and consistent information to traders,
- the enhanced used of selectivity based upon risk,
- the modernization of the IT infrastructure,
- the modernization of the physical infrastructure, and
- the continued expansion and enhancement of the AEO program.

However, all of these commitments, while they are very welcome and will definitely contribute to increased compliance, do not of themselves constitute a ‘compliance strategy’.

Our assessment was unable to identify a unified and coherent approach to trader compliance other than though a range of largely disparate (although positive) actions. There was no evidence of the application of the compliance continuum and the positive actions which could be taken to positively promote compliance at a strategic level.

POST-CLEARANCE CONTROLS AND AUDIT

The approach and methodology employed by customs has evolved over many years. The move from border to inland controls is already highlighted above. A natural progression from border controls to inland controls is the further progression from transactional controls to audit-based controls and controls at traders’ premises. This is particularly true with the growth of larger traders, undertaking multiple import or export movements, and where traders have both customs and other tax obligations.

Post-clearance and audit-based controls, when combined with a risk-based approach to compliance and enforcement, underpin a modern customs service and provide the opportunity for a significant facilitation of legitimate trade.

Specifically, a post-clearance and audit control function should include:

- an effective legal base which allows for post-clearance and audit-based controls and which ensures that the evidence obtained from such controls can be used in the enforcement of customs obligations,
- the development and resourcing of an audit function within the customs administration with suitable management systems and oversight including quality assurance of the audit system,
- the existence of an audit strategy and plan, including long-term and short-term actions, based on the identified risks, and
- the education and training of staff within the audit function (and their managers) so that the audit plan can be effectively implemented and managed.

ASYCUDA WORLD

ASYCUDA World is the current (since 2006) version of the UNCTAD customs software, currently operating in approximately 80 countries worldwide. Its core functionality includes:

- Management of the full customs declaration process (manifest, transit shed, declaration, accounting, statistics, audit)
- Management of customs regimes (import, export, temporary admission, transit, warehousing, temporary export, inwards/outward processing etc.)
- Risk management and selectivity (including potential for online access to external databases to support risk assessment)
- Valuation (to support application of GATT valuation rules)
- Workflow management
- Provision of management information
- Provision of statistical data

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

Introduction to ICT

The application of IT and IT systems has transformed the way that customs operate over the last 30 years. Their application has gone from being an internal tool for customs services to manage processes to becoming the core platform on which customs and businesses operate.

The effective use of IT systems in the customs and trade environment provides opportunities for all parties to benefit from reduced waiting times, reduced costs, greater assurance on the accuracy of information submitted and received, and more effective analysis of that information.

Specifically, from a customs perspective, the IT systems it uses need to support implementation of the business strategy.

The core IT functionality of any customs service is its declaration processing system. This is the system which processes every customs declaration submitted by traders to identify what goods are entering or leaving the country, what duties or other taxes are due on those movements and who has to pay them.

The automation of this procedure was a logical progression from both the invention of the required technology and the development of global standardization of customs procedures, particularly the Harmonized System (HS) of Nomenclature which was introduced in 1988.

At the same time as the HS System, the EU also introduced the Single Administrative Document (SAD) in 1988. This was initially introduced for intra-EU movements of goods, but has now been adopted as an international standard, with its standardized fields for data capture.

However, to build dedicated systems which can process such large volumes of data efficiently and effectively is a major challenge and a major cost to customs services and governments, not least because one of the major benefits of having a computerized system of customs declarations comes from allowing direct trader input into the system.

While some privately developed software solutions do exist, and many larger countries still develop their own bespoke systems, the de facto standard for smaller and less developed countries is the UN system, ASYCUDA, developed and maintained by the UN Commission on Trade and Development (UNCTAD). This is the system used in Moldova and many other countries and provides all the necessary core functionality for the processing of declarations as well as many other additional features (See text box.)

However, as the technology has progressed, the potential and the demand for its use increased. While ASYCUDA has provided a range of additional functionality for customs, the demand for additional functionality has also come from the business community. Such additional functionality includes:

- the online provision of accurate information on regulations and procedures,
- the coordination of IT systems between different parts of the public administration to avoid duplication and discrepancy,
- the establishment of virtual 'single windows' for administrative procedures,
- the development of applications to provide traders with real-time information (e.g. on border waiting times or the availability of customs staff to process declarations),
- the potential to connect and exchange information with other countries, and
- the provision of information and functionality in diverse languages.

The automation of procedures is also a major factor in reducing the opportunities for corruption, both by customs and by traders, where it removes the personal interface between the parties and requires all processes to be completed online.

There is no question that maximizing the potential provided by IT and the automation of procedures, as well as the provision of information through online systems, is both a major opportunity and a major challenge. The opportunity is to harness its undoubted potential to further facilitate trade. The challenge is both to meet the development costs and to ensure the integrity and reliability of such systems.

IT Capacity in Moldovan Customs

The Moldovan Customs Service uses *ASYCUDA World* as its core declaration processing system. Moldova was the first country to install *ASYCUDA World* (the successor to ASYCUDA ++), when it was introduced and it was rolled out nationally in 2006.

However, one of the consequences of being the first country to implement the new software is that other countries who implemented it subsequently were able to benefit from the various upgrades which followed the initial launch. As a result, the version of *ASYCUDA World* which Moldova has is now the oldest functioning version in the world. Many of the upgrades to the system have responded to the needs of customs and the business community to include additional functionality, which Moldova now lacks in comparison. These include the lack of capacity to handle advance notifications (except for TIR movements) and the lack of capacity to apply the common transit convention (CTC).

A further complication resulting from Moldova's early adoption of *ASYCUDA World* is that there have been a number of 'local' modifications and enhancements to the system which may have added additional functionality at the time, but which complicate the process of implementing an upgrade to the system by UNCTAD.

Despite some of these problems however, ASYCUDA continues to deliver an effective service in most areas. This is shown by the dramatic improvement in the level of direct customer inputs of information and the clearance of goods electronically. In 2015, only 4% or imports and 65% of exports were handled electronically. These figures are now 30% and 99% respectively.

In addition to ASYCUDA, Moldovan customs also operates the TARIM database, which contains information on the customs tariff of Moldova. The TARIM system is a comprehensive database which is accessible publicly through the customs website. It provides information on the classification of goods, the tariff rates which apply, and any other relevant information such as quotas and anti-dumping measures or trade embargos which may be in place. This is an enormously helpful facility for traders. However, the primary concern of traders (and of the government) is that the information contained in TARIM cannot be considered as definitive. If there is a discrepancy between what is in TARIM and what is in statute law, then the latter prevails. The consequence of this is that traders cannot completely rely on the information they obtain from TARIM and, if it is incorrect, it is the trader who may be liable to be penalized as a result. This is clearly a cause for concern.

Aside from these two operational systems, Moldova is currently beginning preparations to establish a 'single window' for the import and export of goods. At this stage, the work is at an early stage and is primarily focused on preparing the legal framework to allow for a single window to be created at some point in the future. There is no published target date for the completion of a full single window.

In addition, Moldova has also committed to the establishment of a trade point or trade portal as a part of its commitment to implementing their obligations under the WTO Trade Facilitation Agreement. This work should be completed by the end of 2019.

INFRASTRUCTURE AND EQUIPMENT

International trade volumes have increased by a factor of twenty in the last 40 years. ICT and automation have made it easier to administer the necessary regulatory controls over the same period but two outstanding challenges remain in most countries. The first is the key issue of providing the required large-scale infrastructure to allow for the timely and efficient movement of traffic and goods through borders (including the approaches to border points). The second is the opportunity provided by new technologies to undertake quicker and more effective checks on goods. This includes facilities such as scanners, CCTV, systems to allow rapid, real-time information transfer to and from central systems and outfield staff (including sending and receiving images), laboratory analysis tools, and equipment for checking the presence of radioactive substances etc.

Overall, the key strategic requirements in terms of developing future customs infrastructure should include:

- a sound investment policy covering both long-term and short term requirements,
- an internal mechanism to review and amend requirements, and
- a financial program to finance the requirements.

The biggest risk in terms of investing in border and other infrastructure is that the requirements of customs are either not properly understood or are overlooked. This applies to ports, airports, and land borders. These requirements may vary considerably, not only in terms of the levels of traffic but also in terms of the types of traffic and the risks associated with it. It also needs to be developed in accordance with other systems and policies such as the requirements of an AEO program and the checks undertaken on behalf of other agencies (e.g. SPS checks).

TRADE COOPERATION MEASURES

The key strategic objectives in terms of trade facilitation from a customs and regulatory perspective, as set out above, relate to the need to develop a cooperative and collaborative relationship between customs and the business sector. This requires customs to accept the trading community as partners and for businesses to acknowledge that customs has a crucial role to play in collecting revenue and protecting society. At the heart of this issue is the need to build and consolidate trust and understanding between the key players.

In practical terms, there are many actions which can be taken to build the necessary confidence, but inevitably the process is a gradual one and relies on the development of a long-term relationship, consistency of approach and transparency of actions.

However, while there was a traditional view from a customs perspective that trade facilitation and enforcement were competing objectives and hard to reconcile, the more enlightened view is that they are, or can be, mutually supportive.

Provided this belief can be entrenched in customs and is accepted by the business community, there are a number of specific steps which can be taken to deliver tangible benefits for both parties. These include:

- greater involvement of the business community in the drafting of legislation, regulations, instructions, policies, and procedures,
- greater transparency in the publication of documents, particularly those related to customs procedures, fees etc.,
- the development and wider application of simplified procedures, wherever possible,
- the development and use of more cooperation tools such as MoUs and customs/trade committees,
- the strengthening and expansion of national AEO programs,
- the organization of joint training for customs and business representatives, and
- the establishment of an environment where legitimate businesses are prepared to cooperate with customs in order to identify where breaches of regulations are taking place.

The promotion of voluntary compliance by traders is the single most effective policy which can be implemented by any customs service. If adopted correctly, it will consolidate levels of revenue collection, facilitate legitimate trade by reducing the burdens on them, and allow customs to focus their time and resources on the remaining non-compliant sector.

The recent development of new initiatives to re-launch the AEO concept (often referred to as AEO 2.0) requires all countries and regions to re-assess how they operate their programs and what could be done to extend the benefits to both customs and the trade. This includes the provision of more tangible and measurable benefits to program members, the expansion of programs beyond customs

to include other government departments and agencies, and the development of simplified systems for SMEs.

SITUATION IN MOLDOVAN CUSTOMS

Moldovan customs has a functional and effective AEO program. In comparison with many other countries in the region, it is one of the most advanced in terms of the uptake and use of the AEO status. There are currently 115 companies in the program and feedback from most of them is largely very positive. An assessment was undertaken as recently as June 2018 and it is clear that customs continues to listen to and take note of feedback from the business community. Comments on the effectiveness and suitability of the AEO program, and recommendations for improvement should be considered in this context.

Customs has also committed to adopt additional measures to further simplify procedures where possible and the involvement of the review process for any new procedures with economic impact is a valuable tool in driving customs in this direction.

The role of the Customs Advisory Committee has also been strengthened, not least in response to recommendations made by the previous USAID BRITE program. Customs has committed to further engagement of the Committee in decisions in order to take on board the views of the business community and promote transparency in decision-making. This move is very welcome.

The current customs code inhibits the adoption of some further trade facilitation measures given the time when it was adopted and the major changes which have taken place in this area since 2000. The new draft customs code addresses many of these issues and will have a positive impact when it is adopted. However, it will be crucial to ensure that the implementing regulation of the new code maintains and protects these potential benefits and establishes procedures which are balanced and reasonable, in the context of the risks they represent.

3. ASSESSMENT OF MOLDOVA'S TRADE CORRIDOR PERFORMANCE

APPROACH AND METHODOLOGY

Corridor performance is important for determining the competitiveness of different routes and systems. Some traffic is considered ***captive*** to a corridor meaning that traders only have that one option for going from point A to B. But in many instances, shippers, traders, and transporters have multiple route options and can choose among them. This is especially true as distances increase. For example, a trader will have more options shipping from Chișinău to China than from Chișinău to Bucharest. Transit cargo typically has even more options than national cargo. In addition to choosing which route through Moldova to take, a shipper can choose to bypass Moldova altogether. But even a trader shipping items from Chișinău to Bucharest has options regarding which route they take to leave their warehouse, which border post to traverse, etc. Traders will typically make these decisions and choose routes based on a combination of time, cost, and reliability with competitiveness being determined by the weakest link in the logistics chain.

The definition of corridor performance, and consequently how to measure it, varies based on who is asking the question.

- From a ***transporter's*** point of view, corridor performance is how fast and efficiently goods can be moved through the entire logistics chain from the origin to destination. In a competitive market, transporters have little control over their costs or the tariffs they can charge, so their main focus is time. As transporters will pay the same tariff regardless of how long a trip takes, they want the trip to be as fast as possible so that they can make as many trips as possible in a given month.
- From a ***trader's*** point of view, cost, time, and reliability all matter with one being the most important aspect as companies strive to meet delivery deadlines and avoid penalties. For example, in our interviews we learned that if automotive parts are delayed arriving at their destination (such as a factory in Germany), the whole assembly could stop in which case the shipper may be subject to massive contractual penalties.[83]Therefore, reliability is one of the most important factors considered by traders and shippers may be willing to pay more or take a longer route in order to ensure that their products are always delivered on time.
- ***Road agencies and ministries*** are concerned with traffic volumes, which affect road capacity, truck weight, which affects road maintenance and quality, and bottlenecks on the roads, which affect the competitiveness of the mode compared to other modes and routes.
- For ***rail authorities***, traffic volumes are key because of the relationship between traffic volume and cost. Rail is typically slower than road, but price sensitive customers will normally choose the railway as it is typically much cheaper than the road over long distances. That said, rail tariffs must be competitive to win freight, meaning that operations have to be efficient to keep train turn times reasonable and utilization rates of locomotives and rolling stock high. As shippers value reliability, railway operations must also be reliable.
- ***Customs authorities*** have a range of obligations and functions which result from national and supra-national legislation. The first responsibility is to collect any customs duties and taxes due as a result of goods crossing the border. The second is to prevent the movement of -prohibited and restricted commodities such as drugs, weapons, dual-use goods, etc. and to ensure the security of the supply chain in that respect. The third is to apply and enforce regimes on behalf of other

[83] Based on discussions with Moldovan suppliers, just-in-time contracts to factories in Central Europe regularly involve massive penalties for late delivery, which may run to thousands or tens of thousands of euros.

parts of government (health and safety standards, export licensing requirements, trade embargoes, quota restrictions etc.). And the fourth is to undertake their regulatory functions with full regard to the needs of business and in support of the maximum level of legitimate trade facilitation. Achieving this balance is a constant challenge between competing interests.

- A ***government's*** perspective typically includes concerns about revenue and budget, which is essential not only for building and maintaining transport infrastructure, but also for providing other services in the country. Even more important than items like road usage fees is revenue collection at the border. In many countries, customs is a main source of government revenue. In Moldova, customs remains the primary source of state revenue and it is therefore crucial that these revenues are properly collected.
- From a ***regional economic community perspective***, corridor performance is reflective of trade, the balance of trade, types of commodities flowing through the corridor, impact on employment, and economic growth. Trade corridors do not stop at national boundaries. Therefore, regional cooperation, harmonization of policies, and investment in infrastructure is paramount to fluid trade flows.

As time, cost, and reliability are the key factors in determining corridor competitiveness, measuring them in a consistent manner across corridors and modes is an important step in a trade corridor assessment. This part of the assessment is quantitative and the focus of this section of the report. Understanding why corridors are performing as they are requires a more qualitative assessment. In the following chapters we drill-down on bottlenecks related to transport (Section 4) and trade facilitation (Section 5). Below we assess Moldova's transport costs and times by corridor and mode.

SUMMARY OF CURRENT PERFORMANCE

While performance varies by mode and route, the cost and time for trade using Moldova's trade corridors is high.

Table 9 below summarizes times and costs collected through the course of this study and our judgements of typical and peak times and costs based on the information we collected. In some instances, data sources were concrete and the time or price to report was unquestionable. For instance, in the case of rail container prices from Chișinău to Giurgiulești, there are official rates which are published. But in many cases, reported times and costs were not available through such reliable sources and the assessment team had to rely on a range of sources. One important (though anecdotal) source was the approximately 100 interviews undertaken from November 2017 through June 2018. An additional complication is that times and prices will vary based on the exact situation of the shipper: what volumes are being transported, whether they are a regular or spot customer, whether is it peak season, where in Moldova they are trading from, whether there is backhaul, what commodity is being transported, whether the product is perishable or breakable, whether it is containerized, whether it is urgent, the total distance, the number of borders crossed, etc. Where possible, we report prices per container or general truck. In Section 6, we discuss performance of specific commodities and report on times and costs for refrigerated containers (reefers).

Table 9. Time and Cost of Moldovan Trade [a]

ROUTE	MODE	TYPE	MAX TONS	DIST	TYPICAL/AVERAGE COST				PEAK COST	AVG TIME	MAX TIME
				KM	US$	US$ / KM	US$ / T	US$ / TKM	US$	DAYS	DAYS
A. TRANSPORT TO GATEWAY PORTS											
Chișinău-Giurgiulești Port, MD	Road	Truck	20	220	355	1.61	17.75	0.08	500	<1	<1
	Road	Container [b]	20	220	450	2.05	22.50	0.10	500	<1	<1
	Rail [c]	20' container [b]	20	238	250	1.05	12.50	0.05	N/A	3	5
	Rail	20' container w/ backhaul [d]	20	238	150	0.63	7.50	0.03	N/A	3	5
	Rail	40' container [b]	20	238	363	1.53	18.15	0.08	N/A	3	5
	Rail	40' container w/ backhaul [d]	20	238	228	0.96	11.38	0.05	N/A	3	5
Chișinău-Odessa/Chornomorsk Ports, UA [e]	Road	Truck	22	208	450	2.16	20.45	0.10	600	<1	<1
	Road	Truck w/ backhaul [d]	22	208	400	1.92	18.18	0.09	475	<1	<1
Chișinău-Odessa Port, UA [e]	Road	Container	22	208	450-500	2.16-2.40	20.45-22.73	.10-.11	885	<1	<1
Chișinău-Chornomorsk Port, UA [e]	Road	Container	22	208	450-500	2.16-2.40	20.45-22.73	.10-.11	767	<1	<1
Chișinău-Constanța Port, RO [f]	Road	Truck	20	523	720	1.38	36.00	0.07	1,140	1	3
	Road	Container-destuff-truck	20	523	960	1.84	48.00	0.09	1,080	2	4
	Road	Container-MD truck	20	523	1,062	2.03	53.10	0.10	1,380	1	3
	Road	Container-RO truck	20	523	1,380	2.64	69.00	0.13	1,560	1	3
Chișinău-GIFP- Constanța Port, RO	Road-River	20' Container	20	523	850	1.63	42.50	0.08	900	3	7

ROUTE	MODE	TYPE	MAX TONS	DIST	TYPICAL/AVERAGE COST				PEAK COST	AVG TIME	MAX TIME
				KM	US$	US$ / KM	US$ / T	US$ / TKM	US$	DAYS	DAYS
B. BY ROAD/AIR TO INLAND DESTINATIONS											
Chișinău-Bucharest, Romania	Road	Truck	20	460	700	1.52	35.00	0.08	840	1	3
Chișinău-Milan, Italy	Road	Truck	20	2060	1,680	0.82	84.00	0.04	2,520	4	5
Chișinău-Munich, Germany	Road	Truck	20	1800	2,160	1.20	108.00	0.06	2,714	3	5
Chișinău-Vienna, Austria	Road	20' Container	20	1330	1,650	1.24	82.50	0.06	1,880	3	5
	Air	Cargo Exports [g]	1	1330	1,521	N/A	1521.00	1.14	N/A	<1	<1
	Air	Cargo Imports [g]	1	1330	2,890	N/A	2890.00	2.17	N/A	<1	<1
Chișinău-Bratislava, Slovakia [h]	Road	Truck, 20t	20	1309	1,440	1.10	72.00	0.06	1,800	3	5
Chișinău-Istanbul, Turkey	Road	Truck-MD	20	1100	1,200	1.09	60.00	0.05	N/A	3	5
	Road	Truck-RO [i]	20	1100	2,400	2.18	120.00	0.11	2,520	4	6
	Road	Truck-RO Backhaul [i]	20	1100	1,500	1.36	75.00	0.07	2,520	4	6
Chișinău-Moscow, Russia [j]	Road	Truck	22	1465	1,700	1.16	77.27	0.05	2,000	2	4
	Road	Reefer	22	1465	2,000	1.37	90.91	0.06	2,500	2	4
Chișinău-Belarus	Road	Reefer	22	970	1,800	1.86	81.82	0.08	2,400	2	4
Chișinău-Warsaw, Poland	Road	Reefer	22	1005	2,400	2.39	109.09	0.11	2,880	2	3
Chișinău-Astana, Kazakhstan	Road	Truck	22	4160	8,400	2.02	381.82	0.09	N/A	5	8

ROUTE	MODE	TYPE	MAX TONS	DIST	TYPICAL/AVERAGE COST				PEAK COST	AVG TIME	MAX TIME
				KM	US$	US$ / KM	US$ / T	US$ / TKM	US$	DAYS	DAYS
C. TO OVERSEAS DESTINATIONS VIA ODESSA/CHORNOMORSK [K]											
Chișinău-Shanghai, China	Road-Sea	20' Container, Export	20	N/A	1,312	N/A	65.60	N/A	1,734	45	57
		20' Container, Import	20	N/A	2,296	N/A	114.80	N/A	2,770	39	47
Chișinău-Dubai, UAE	Road-Sea	20' Container, Export	20	N/A	2,145	N/A	07.25	N/A	2,736	25	32
		20' Container, Import	20	N/A	3,004	N/A	150.20	N/A	3,571	28	36
Chișinău-Baltimore, USA	Road-Sea	20' Container, Export	20	N/A	2,561	N/A	128.05	N/A	2,860	37	37
		20' Container, Import	20	N/A	1,880	N/A	94.00	N/A	2,688	43	43
Chișinău-Istanbul, Turkey [l]	Road-Sea	20' Container, Export	20	1100	1,468	1.33	73.40	0.07	1,576	7	10
		20' Container, Import	20	1100	2,708	2.46	135.40	0.12	2,946	7	10
Chișinău-Mombasa, Kenya	Road-Sea	20' Container, Export	20	N/A	2,070	N/A	103.50	N/A	2,240	21	24

[a] Truckload up to 18 metric tons, assume same price for container/20'/40'/truck unless otherwise noted, assume one way (empty return), with same price for imports or exports. Prices quoted in Euro were converted to USD using rate of 1.2.

[b] Container prices are assumed to be one way, meaning with no backhaul, unless otherwise noted.

[c] Assumed same metric tons/container as with road, but typically rail can carry heavier containers, in which case the price per metric ton and per km would fall. Does not include dryage.

[d] Price for one way, but with backhaul (full trip price is 2x). Assumed same metric tons/container as with road, but typically rail can carry heavier containers, in which case the price per metric ton and per tkm would fall. Does not include dryage.

[e] Via Tudora, as Palanca is not currently handling trucks due to construction. Both ports are the same distance from Chișinău. Ukrainian transporters and transporters in December 2017 quoted the same price for all Ukrainian ports from Chișinău, but Moldovan transporters in May 2018 indicated that prices to Chornomorsk were currently less expensive.

[f] Via Leușeni. Would be 475 km via Galați, but Leușeni is currently the preferred route due to road conditions and border services. For multi-modal transport via GIFP to Constanța, road distance is used for price per km.

[g] For price comparison purposes, prices were converted to "per metric ton" for regular cargo using Lufthansa cargo's price calculator for the summer season. Does not include truck transport to/from the airport.

[h] Via Leușeni. Would be 1184 via Sculeni.

[i] Via Bucharest and Leușeni.

[j] Via Belarus as cannot traverse Ukraine to get to Russia at present. Would be 1328 km via Kiev.

[k] Includes inland transport and maritime transport including terminal handling fees and inland transport to destination for a non-refrigerated 20' container. Port is Odessa or Chornomorsk as the total fees to/from there are currently lower than Constanța. Inland prices and distances from Chișinău are taken from section A of this table.

[l] Using distance by road for price per km.

Sources: Interviews by project team, maersk.com, http://worldfreightrates.com/en/freight#. http://tracer.railway.md/tarif/ro/local2018.html, Lufthansa cargo.

As shown in the table, road costs ranged from $0.04 to $0.13 per metric ton per kilometer (tkm) with most costs in the $.06 to $.10/tkm range. Rail costs were estimated to be $0.03 to $0.08/tkm, but in reality could be less due to higher tonnage or more due to additional dryage costs.[84] Additionally, the reported rail costs are only for shipments within the Moldovan rail system. Prices would vary if crossing on to other rail systems. Air freight costs are the highest by far at over $1/tkm for exports and over $2/tkm for imports. Sea freight prices cannot be compared on a price per tkm basis other than for Turkey, where we calculated a sea freight price per tkm using the road distance. In this case, exports by road and sea were similar at $0.07 by road-sea and $0.05-0.07 by road.

Imports were cheaper by road using Moldovan carriers ($0.05), but more expensive using Romanian carriers ($0.13) or by sea ($0.12). However, with prices being similar, once transport time is considered, road transport would likely be the more competitive option at present as it is 2-5 days faster. In the future, Ro-Ro options may become competitive as offerings are increased. For example, one company is planning a service from Constanța to Turkey that will have a transit time of 1 day. Even adding in inland haulage and staging time, this service could be competitive with current trucking times, which require crossing several borders.

In terms of cost per ton, road-sea rates are higher than road rates, but this a reflection of the long distance of routes using sea transport. However, comparisons can be made across sea transport routes.[85] In this respect, exports to China are the cheapest on a per metric ton basis of the routes that we report in the table above. We suspect this is due to excess capacity in sea shipping flows to China compared to exports from China, which are the main flow. This presents an opportunity for Moldovan exporters. On the other hand, imports from China are more expensive and Moldova imports a significant amount of input materials and consumer goods from China. Overall, prices to/from Dubai were the most expensive despite the short distance relative to other routes such as China and the US. Imports from Turkey were expensive as well despite the even shorter distance. This presents opportunities for Ro-Ro services if they can be price competitive.

Getting back to road transport, prices per tkm were most competitive for routes with longer distances, high traffic, and competition from European transporters such as routes to Italy, Germany, Austria, and Turkey. Relatively low prices to Moscow reflect in part the increased tons per truck allowed shipping East. Prices to Kazakhstan are high due to the long distance, which results in poor truck utilization rates, and the inability to drive to Russia through Ukraine, which increases the distance even more. Prices to Poland are high as the only quotes we received were for perishables in refrigerated trucks, which are more expensive than regular ones.

Road prices over shorter distances were more expensive than over longer ones, which has a significant effect on the price of reaching regional ports. Truck prices are estimated at $0.08/tkm to GIFP, $0.10 to Ukrainian ports, and y $0.07 to Constanța, which was surprising as both transporters and shippers cited high inland transport costs as the number one reason why they do not utilize Constanța Port more frequently. However, Constanța is a longer distance from Moldova. In terms of price per ton, transport to Constanța is more expensive at $36/t compared to $18/t to GIFP and

[84] Cost of local transport from the farm/warehouse/factory, etc. to the railway station. This has not been estimated as it would vary greatly depending on the distance to/from the railway terminal. In the most efficient cases, like Moldovan wheat, product is directly discharged from the wheat silo to the railway hopper wagons and transported without the need for drayage.

[85] Noting that the price quotes we received were spot prices and sometimes varied widely. However, our experience is worth noting as it is similar to the constraints that a small shipper wanting to explore new markets would face.

$20/t to Ukrainian ports. In this sense, the price per metric ton calculation is more meaningful than the price per tkm.

Transport of containers is also more expensive than general trucking prices. It is our understanding that this is due to container guarantee fees imposed by the shipping lines. According to interviews, for Constanța this can equate to €200-€300 per trip adding around 30% - 40% to the transport cost. Container transport costs to Constanța are higher than to the Ukrainian ports in terms of price per tkm and per ton. Transporters cited the following reasons for higher prices to Constanța: longer distance, container guarantee costs, lower axle load restrictions, more rigorous enforcement, and lack of backhaul / higher chance of backhaul from Odessa. In addition, with the border delays, trips take a minimum of 2 days while trips to Odessa/Chornomorsk can be made in one day.

In some cases, transporters indicated discounting for backhaul, but in others, the transporters indicated that they kept the same prices and took the additional revenue as profit or to offset other costs.

Informal fees at the borders were reported to be minimal, but still required—typically just several token dollars or Euros[86]. However, with an estimated 859,074 trucks crossing Moldova's borders in 2016 (estimated from Customs data), this would still amount to a cost of several million dollars to traders and transporters. Transporters reported that in some places in Ukraine refusal to pay the several dollar fee results in physical inspection taking several hours. In terms of the Romania/Moldova border, payments seem to be higher for LCL (less than container load) or groupage shipments than for FTLs (full container loads).[87]

A final comment on transport costs is that most shippers reported increased prices during peak harvest seasons due to the lack of available trucking capacity. (See the discussion of seasonal trucking demand in Section 2, above). There were also many reports of container shortages for export during these times.

In terms of transport times, GIFP and the Ukrainian ports can be reached in less than one day. Transport to Constanța depends on the amount of time spent at the border, but typically takes at least 2 days. Bucharest and other destinations in Romania also typically take 2 days. Travel to Western Europe typically takes 3-5 days depending on the border delays at Leușeni or Sculeni. Transport time to Turkey is similar. Transport to the north and east takes 2-4 days depending on the time at the northern border (mainly Otaci) and destination. Transport time to Kazakhstan at present is 5-8 days. Transport to Russia and destinations beyond via Russia requires a detour through Belarus as the typical Ukrainian route to Russia is not open at present. In general, trips east require a detour around Transnistrian region as well, either to the north or south. The South is the preferred route due to better road conditions, but only the Tudora BCP is open to trucks while Palanca is under construction.

Transport by sea typically takes 25+ days, with up to an additional week of transit time through GIFP, because GIFP usually only sends one containerized ship per week.

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[86] Based on interviews. By far the most common informal payment appears to be a few euros or dollars for "speed money" charged for faster processing. Interviewees reported that this was an occasional issue on the Moldovan side and a universal and unavoidable one on the Ukrainian side. Some corridor users also apparently pay informal fees at the border to surpass regulations / violations such as overweight vehicles or lack of authorizations. This is much less common, but the amounts involved are said to be larger ($50-70 per transaction). Note: not all interviewees were willing to discuss informal payments.

[87] This is due to reports that the payments were by shipment, so if a consolidator has cargo from 10 shippers in his truck, he pays 10x the informal fee.

Rail transit times at present are not efficient or competitive. Transporters report that a 3+ day transit time for the 238 km from GIFP to Chișinău is common or standard. Remarkable, CFM acknowledges this. Locomotive shortages mean that a loaded train may wait a day or longer for a locomotive. Then, because of track issues, the train travels very slowly. Then it will make multiple stops along the way which may involve additional delays. Reliability is also an issue with CFM as breakdowns and other unscheduled delays are not unusual.

In sum, costs of transport on Moldova's trade corridors are higher than they should be due to a variety of factors that can be summarized into a few main topics, as shown in Table 10, below.

Table 10. Key Issues Affecting Moldova Trade Corridor Time and Cost

WHAT	WHY	IMPACT-TIME	IMPACT-COST
Poor and insufficient infrastructure	• Years of deferred maintenance • Lack of available funding • Lack of private sector investment • Misuse/inefficient use of available funds • Delays in procurements • Overloading of trucks • Lack of transport master plan • CFM freight cross-subsidizes passengers • Lack of resources to enforce regulations	• Diversion of traffic to roads and BCP with good infrastructure creating congestion • Diversion to longer but better condition road routes increases time • Reduced reliability of transport services impacts products that can be exported • Increased rail transit time • Increased air cargo unloading/loading time	• Increased trucking maintenance costs → increased tariffs • Increased distance → increased tariffs • Increased transport time → increased tariffs • Reduced availability of trucking services on routes with poor roads = less competition → increased tariffs • Overloading leads to poor roads and increased truck maintenance costs
Trade facilitation and border delays	• Poor roads lead to congestion at BCP with good access infrastructure • Inadequate BCP infrastructure (such as only 1 entrance lane) • Romania is gateway to EU • Transnistrian region limits crossing points to the East • Need to improve risk management, especially risk profiling • Lack of adequate resourcing for border controls on the Romanian side of the border[88] • Lack of use of security seals for cargo transiting across borders	• Border delays can last 1-3 days, mostly in queues • Creates further delays due to driver rest requirements • Cannot make trip to Bucharest or Constanța in same day • LCL (consolidated shipments) considered high risk and subject to reports of 100% physical inspection, leading to increased time of several hours • Detours around Transnistrian region add time • Reduced reliability	• Increased trucking costs due to increased time • Reduced truck utilization rates (trips/month) which increases costs • Time-sensitive products require 2 drivers at higher cost • Shippers have to pay costs of physical inspection • Minimal, but nuisance, informal fees

[88] An examination of Romanian Customs is beyond the scope of this report, but it bears mentioning here that it does have a number of problems. Not all of the problems at Moldova's border with Romania are Moldova's fault; this situation is discussed later in this report.

Asymmetrical information in markets and lack of information systems	• Poor collection and dissemination of statistics and data • Lack of digitization and online systems • Lack of economies of scale of transporters to invest in technology • Lack of financing of transporters to invest in technology • Regulators lack financial resources	• Increased time to trade • Transporters use known routes even with delays	• Lack of backhaul increases transport cost • Lack of economies of scale of transporters to invest in technology • Lack of financing of transporters to invest in technology • Regulators lack financial resources •
Lack of affordable and sustainable financing	• Increased risk of Moldovan banking sector since banking crisis has led to tighter lending criteria, higher collateral requirements, and higher interest rates • International funding institutions stopped backing letters of credit • SMEs lack credit history to acquire affordable financing • Lack of private sector financing due to perceived risks • Insufficient PPP framework • Non-transparent procurements	• Increased risk of shipping through Ukraine limits financing and so some shippers have to ship via GIFP adding a week of transit time • Some border delays if transit bond guarantee limits are exhausted	• Trucking companies face high down payments and interest rates so can't afford new trucks; old trucks have increased maintenance costs • Transit guarantees are more expensive due to high collateral costs and interest rates to brokers • Traders have to make upfront payments to transporters but lack financing mechanisms • Importers have to pay for inputs upfront

The sub-sections below discuss corridor performance at border crossing points and then by mode. Sections 4, 5 and 6 further detail more specific constraints.

ASSESSMENT OF BORDER CROSSING POINT PERFORMANCE

OVERVIEW OF BCP PROCESSES

Border crossing points within the trade corridor are, almost by definition, physical and administrative bottlenecks. This is an inevitable consequence of the need for transport corridors to connect towns, cities, and countries and the obligation of customs and other regulatory authorities to undertake checks on the movement of goods and persons entering and leaving the country. The challenge is to develop infrastructure which can handle current and future levels of traffic and to streamline administrative procedures to the maximum degree so that time spent at the border is minimized.

There are a number of functions and services which take place at border crossing points, the most significant of which are:

- customs checks to protect the revenue and ensure correct payment of duties and taxes,
- other regulatory controls to check health and safety of goods entering the country,
- controls on the movement of people to ensure people have the right to enter the country,

- checks on the safety and suitability of vehicles entering the country including the provision of services for insurance and road tax payments (vignettes), and
- other law enforcement checks to intercept illegal goods, illegal immigrants, criminals, and other illegal or undesirable activities.

Some of these activities are directly related to the existence of the border itself (e.g. customs and immigration controls) while others may take place at the border specifically because it is a 'pinch point' in the supply chain and it is therefore the easiest place to undertake such checks.

Our focus in this section is largely on land borders as they account for the vast majority of Moldova's trade by both value and volume. The issues related to trade facilitation at Moldova's single international waterway, Giurgiulești/GIFP, are addressed in their own dedicated section later in the report.

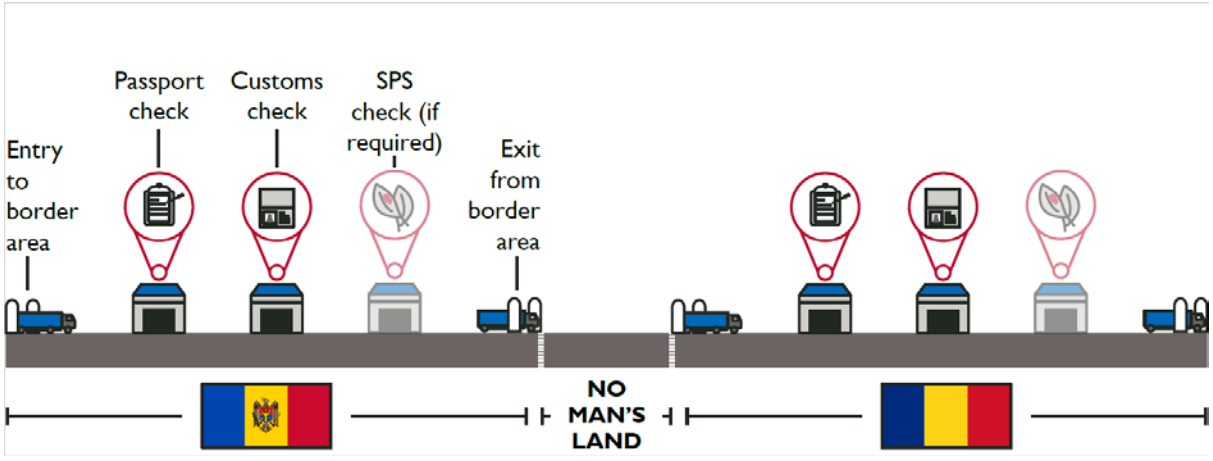
PROCESS OF IMPORT AND EXPORT OF GOODS TO/FROM MOLDOVA

The standard process for commercial traffic crossing through a land border when leaving Moldova typically includes the following steps:

1. Admission to the Moldovan border zone (Moldovan border police)
2. Check for radioactive materials (automatic)
3. Clearance of goods for export (Moldovan customs)
4. Emigration checks on individuals (Moldovan border police)
5. Exit from the Moldovan border zone (Moldovan border police)
6. Traverse of 'no man's land'
7. Admission to the Romanian/Ukrainian border zone (border police)
8. Immigration checks (border police)
9. Clearance of goods for import (customs)
10. Clearance of goods for import (SPS and other relevant controls)
11. Exit from border zone (border police)

The process for entering Moldova is a reverse of the exit procedure.

Figure 21. BCP Processes



Source: Nathan.

These steps are generally in line with international standards and best practice. The only check which is not routine for all BCPs is the separate check upon entering the border area, which is often combined with the border police immigration/emigration checks.

It should also be noted that in some locations joint checks are now being undertaken and more joint controls are planned in the future (see discussion below). This is in line with current international best practice.

Customs procedures

In terms of customs, the documentary requirements are in line with international standards and best practice. This means that the usual standard requirements are:

- the customs declaration,
- the commercial invoice,
- the sale-purchase contract agreement, and
- transport documents.

Additional documents are then needed for animal and plant movements, certificate of origin (where relevant), certificate of conformity (where relevant) and import/export licenses (where required). Again, these are in conformity with international standards and best practice.

At the strategic level, Moldova's Customs Service (MCS) can also be said to be largely compliant with other international standards and best practice. These include:

- ratification of relevant UNECE transport conventions,
- ratification of the WTO Trade Facilitation Agreement,
- drafting of a new national Customs Code (based on the EU Union Customs Code),
- application of ISO 9001:2008 (Quality Management),
- completion of a structural reorganization,
- the implementation of the ASYCUDA system for automated processing of customs declarations (note that 98% of all export declarations are now completed electronically), and
- the establishment of a national AEO program with over 110 members.

Border police & migration procedures

The primary checks undertaken by the Moldovan border police relate to confirming the entitlement of the individuals crossing the border. Moldova allows visa free travel for the citizens of 100 countries including all countries in the European region. Those entitled to visa-free travel may remain for up to 90 days in any six-month period. Exit checks are undertaken to verify whether an individual has exceeded this period and fines may be levied if the period has been exceeded. Border police also check vehicle entry in to Moldova to ensure requirements for temporary admission are met. They also share responsibility with customs in relation to the prevention of non-revenue smuggling (e.g. drugs, firearms, human trafficking, etc.).

The key documents required for presentation include:

- passport or ID card (plus visa if applicable) and
- vehicle registration, ownership, and insurance documents.

The Moldovan border police continue to implement a widespread program of reform and modernization in line with EU standards and best practice.[89] This has included changes to the legal base, automation of data collection, organizational restructuring, and training. Most recently, this has included active participation in an integrated border management strategy together with other Moldovan border agencies and with agencies in neighboring countries.

It should also be noted that the EU is implementing a large-scale program of cross border cooperation with Romania. With the assistance of EUBAM, they are also undertaking significant cooperation measures with Ukraine.

Sanitary and phytosanitary controls

The facilities and processes for undertaking sanitary and phytosanitary (SPS) controls at Moldovan BCPs are variable and have largely been dependent on donor investment. This is not a criticism, but a simple statement of fact. The reality is that the biggest investment to date and the most modern facilities currently exist at the Leușeni-Albița border crossing. These facilities fully meet current needs as well as longer-term requirements based on expected growth in relevant commodities. The facilities under construction at Palanca are also expected to meet all current and future needs in this respect based on a review of plans and facilities described in the project documentation.

Outside of these locations, the facilities and capacity to undertake effective SPS controls is severely limited. This includes the facilities at the Giurgiulești border (both land and maritime), where transport of livestock and other goods through the passenger terminal facility was observed.

It was not possible, within the limitations of this assessment, to carry out a detailed assessment of the procedures being applied to deal with the movements of animal and plant products, even at the Leușeni-Albița border crossing, because of the relatively low levels of relevant traffic being moved across the border. However, the indications are that, on the Moldovan side, the procedures are being undertaken in compliance with requirements, in a professional manner, and with minimal disruption to trade flows.

A report on the facilities and checks undertaken by Romanian agencies was not within the remit of this assessment.

BORDER CROSSING LOCATIONS AND FACILITIES

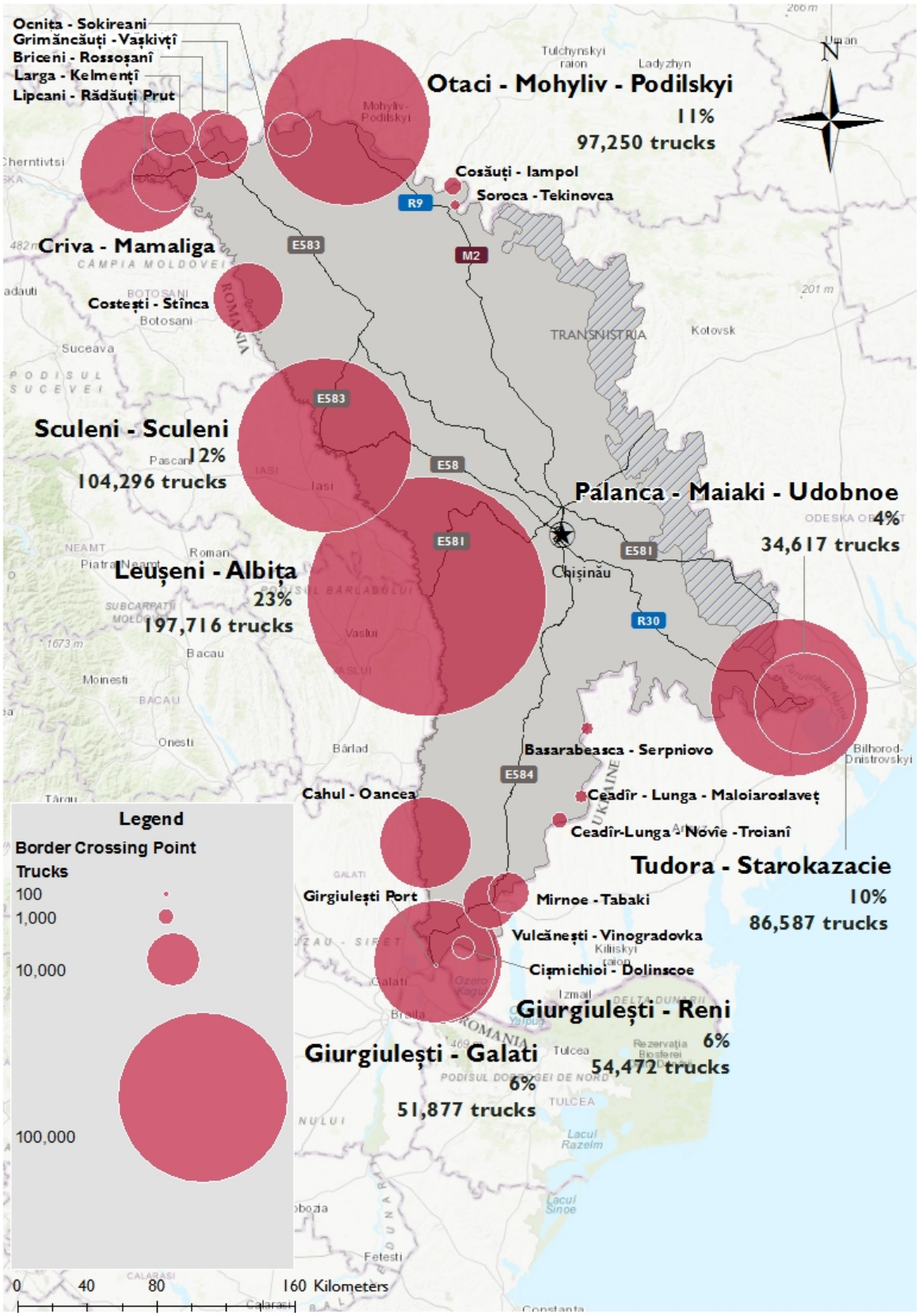
The map below shows the border crossing points currently in use for the export of Moldovan goods, by volume and value. As can be seen, Moldova has a large number of commercial BCPs – 35 land crossings, one functional international airport, and the river port at Giurgiulești. There are also a number of small local land BCPs, but these are only for local, non-commercial traffic.

Within the limitations of this TCA, it has not been possible to undertake a detailed assessment of every BCP in Moldova. In terms of trade facilitation issues, we have focused on those BCPs which are of greatest importance to Moldova, particularly in relation to the export of Moldovan goods. On the basis of levels of traffic, we focused our assessment on the seven most important BCPs in relation to road traffic, which are Leușeni-Albița (to Romania), Otaci-Mohyliv-Podilskyi (to Ukraine), Sculeni-Sculeni (to Romania), Tudora-Starokazacie (to Ukraine), Giurgiulești-Reni (to Ukraine), Giurgiulești-Galați (to Romania), and Criva-Mamaliga (to Ukraine). As seen in Table 1 above, based

[89] Note that the Border Police are under the Ministry of Interior, and so are completely separate from MCS, which is under the Ministry of Finance.

on current levels of traffic, these seven BCPs account for over 80% of land border traffic by volume in Moldova.

Figure 22. Map of Top Moldovan BCP with Number of Trucks in 2016



Source: Data from Moldovan Customs Service/Border Police. Nathan 2018.

BCP PERFORMANCE IN MOLDOVA

We undertook a number of field missions to BCPs in various parts of Moldova. We then interviewed customs staff and a number of traders to obtain additional information and we also cross-referenced against a range of other trade and border related data that is available.

There was a wide disparity in terms of the overall performance of border crossings both between locations and at the same location depending on day and time of travel. A consolidated summary and overall quantification of actual waiting times is therefore neither possible nor desirable as any consolidation would mask the cause and effect of the various issues. There are, however, some metrics which are available and these are shown in the table below. The table below depicts typical time for "green" lane traders who do not undergo secondary inspections. The 7% of traders flagged "red" undergo secondary inspections, which range from 30 minutes for scanning to 4-6 hours for physical inspection. Inspections by other border agencies, such as ANSA, are also excluded, but could take 20-280 minutes and average one hour.[90]

Table 11.Average or Typical Time Taken to Complete Border Crossing Formalities, Minutes

BCP	MOLDOVAN BORDER CROSSING FORMALITIES [A]	MOLDOVAN CUSTOMS FORMALITIES [B]	ROMANIAN/UKRAINIAN BORDER CROSSING FORMALITIES [C]	TIME IN QUEUES [D]	TOTAL TIME
Leușeni-Albița	5-30	5-30	40-120	0-2,880	50-3060
Otaci-Mohyliv-Podilskyi	5-30	5-30	20-90	0-1,440	30-1590
Sculeni-Sculeni	5-30	5-30	20-60	No data	30-Unknown
Tudora-Starokazacie	5-45	5-30	20-120	No data	Typical: 180 Max: 480
Giurgiulești-Reni	5-30	5-30	20-120	No data	30-Unknown
Giurgiulești - Galați	5-30	5-30	20-90	No data	30-Unknown
Criva-Mamaliga	5-40	5-30	30-120	0-420	40-610

[a] Figures provided by Moldova Border Police, http://www.border.gov.md/to/index.php?dt=2

[b] Figures provided by Moldova Border Police & Customs, http://www.border.gov.md/to/index.php?dt=2

[c] Figures provided by Romanian Border Police, https://www.politiadefrontiera.ro/en/traficonline/ and Ukrainian State Fiscal Service, http://kordon.sfs.gov.ua/en/home/index

[d] Figures obtained from survey of drivers.

[90] Contributing paper to Analysis of border crossings in South East Europe and measures for their improvement (Elsevier BV, 2016)

The data in this table are based upon information provided online by the Moldovan and Romanian border agencies. However, none of the agencies record or publish waiting times outside of the border control zone. Our information is that, particularly in the case of the Moldova-Romania border and specifically at the Leușeni-Albița border crossing, this is where a significant part of the overall waiting time takes place. As this shows, the waiting times there are extremely variable, primarily related to the levels of traffic.

From our own field work and from interviewing traders and transporters, it is clear that the official border processing times alone do not tell the full story. A key missing element in these figures is the time taken to access the border control area, both at the initial point of entry and in terms of the time spent in 'no man's land' between the two national control areas. Official statistics also do not take account of any additional times needed, having exited the BCP, to obtain insurance and/or vignettes to allow the vehicle to continue its travel after the border.

It is clear that these additional waiting times can and often do exceed the actual processing times by customs and border police, often many times over. For example, we have evidence that goods exiting Moldova through the Romanian land borders can often be held for up to 24 hours in no-man's land before being allowed to enter the Romanian border area for processing.[91] As it stands, this 'waiting time' is not assessed by any formal system so the only measurements come from regular business surveys (e.g. World Bank Doing Business Report) or from anecdotal evidence provided by traders.

Moreover, the waiting times can be highly variable depending on the individual BCP, the day and time when the BCP is used, and the levels of other (non-commercial) traffic using the BCP at the time. Taking the busiest BCP Leușeni-Albița as a case in point, the total border waiting time can vary between one hour and over 24 hours. Since Leușeni-Albița is by far the most important BCP, this means that a large variable element is thrown into Moldova's external trade generally.

On the positive side, variability does not necessarily mean randomness. Interviews showed that shippers and transporters are very aware of the variations at Leușeni-Albița depending on time, nature of cargo, etc. For instance, all interviewees agreed that a major cause of the extended delays occurs when there is a high level of non-commercial traffic crossing from Moldova in to Romania. Surges in non-commercial traffic occur predictably on holidays, and also seasonally, as Moldovans move across the border for work in the EU. It appears that the clearance of non-commercial traffic is prioritized by the Romanian authorities. This creates a resource pressure on the Romanian side of the border and it appears that Romanian Customs and Border Police are under-resourced to begin with.

The nature of delay-causing problems varies from one BCP to another. For instance, the Tudora-Starokazacie BCP between Moldova and Ukraine does not have a major issue with non-commercial travelers. However, it does have a problem that causes very variable delays: it is difficult for vehicles to enter the BCP from the Moldovan side because of the limited width of the access road in to the border area. The road is one lane in both directions and is also very poorly maintained. This infrastructure problem causes bottlenecks. Most transporters interviewed said that the total waiting

[91] This appears to happen because the Romanian Border Police sometimes hold vehicles in No Man's Land until the Romanians have the resources to process them at their side of the border. This is probably related to the shortages of manpower in Romania's Customs Service mentioned earlier in this section. Note that official clearing times for Romanian Customs are quite low. Anecdotal evidence suggests that this is at least partly because shipments are being held in No Man's Land until the Romanians are ready to process them.

and processing time was typically 2-3 hours, but with a maximum time of half a day during peak seasons.

It is clear that many of the problems and excessive delays occurring at Moldovan BCPs are outside of the control of the MCS and other regulatory authorities. Some are infrastructural and some relate to the border checks carried out by authorities on the other side of the border. This is not to say that some improvements cannot be made in the operation of Moldova's own border regulatory controls. They clearly can. In this report, we provide a series of specific recommendations which should not only deliver some savings in terms of processing times and costs but also, critically, should allow MCS and other agencies to improve their overall performance in terms of improved risk management and meeting their objectives in terms of revenue collection and protection of society.

BORDER WAITING TIMES IN AN INTERNATIONAL CONTEXT

Before considering the range of measures which could be applied to reduce border waiting times at the Moldovan borders, it is also important to put border performance into context. Simple cross-comparisons are not very meaningful since it is important to understand the context of the other borders with which they are being measured. Key issues which can potentially impact on border waiting times (excluding the actual processing of traffic by the regulatory authorities) include:

- overall levels of traffic relative to the infrastructural capacity of the BCP,
- overall levels of traffic relative to the staff allocated to border formalities at the BCP,
- lack of facilities to divert traffic to a separate location to complete inspections (without delaying the traffic behind it),
- opening hours of border facilities (including the levels of cross-border coordination of opening hours) and potential impact of shift changes, and
- restrictions imposed by weather conditions.

In the Moldovan context, it is also important to appreciate that the border between Moldova and Romania is not simply a border between two countries. It is also an external border of the European Union. The EU's external borders differ from most national borders in that they represent the gateway to a region of 28 countries and over half a billion people. The EU is also acknowledged as a global leader in areas such as citizens' rights, protection of society, maintenance of health and safety standards, application of intellectual property rights, and maintenance of environmental standards. In order to meet these objectives, while at the same time maintaining free movement of goods and persons within the EU, it has been necessary for them to strengthen their external border controls. From a customs perspective (though not necessarily in terms of all border checks), once you have entered through an EU external border, your goods are effectively in free circulation and no further customs checks occur wherever your ultimate destination.

When the EU single market was established in 1992 and internal customs checks were removed, it was evident that the external frontiers needed to be strengthened in order to maintain the integrity of the market and its citizens. Since that time, the membership of the EU has increased from 12 to 28 countries, while the borders have become longer and moved progressively further east. As the EU has expanded, its borders have become longer and more complicated to protect and the burden of controlling those borders has now primarily fallen on the newer (and less economically strong and technically advanced) member states, which joined in 2004, 2007, and 2013. This has created a range of different problems for the EU and its members in terms of providing adequate transport routes

into and out of the EU while at the same time protecting the Union by preventing unwanted persons and goods as well as ensuring that the correct duties and taxes are paid at the point of entry.

In terms of comparing waiting and processing times at external EU borders, we must take in to account a number of factors. It is also relevant to look at some internal EU borders where there are no customs controls, but where there may still be border checks if the countries are not both in the Schengen area.[92]

The tables below have been obtained from the 2016 report "Analysis of Border Crossings in South East Europe and Measures for their Improvement" and are reproduced with the express permission of the principal author of that report, Dr. Marios Militiadou. The first table shows the waiting and processing times for selected border crossing points.

Table 12. EU/Non-EU border waiting times (Minutes)

NO	COUNTRY/BORDERING COUNTRY	BCP	COUNTRY STATUS	TOTAL AVERAGE TIME (IN MINUTES)[A]
1	Slovenia/Croatia	Obrezje / Bregana	EU / EU	93.8 / 12.5
2	Croatia/Serbia	Lipovac / Batrovci	EU / Non-EU	26.8 / 31.3
3	Serbia/Macedonia	Presevo	Non EU / Non-EU	21.8
4	Albania/Montenegro	Han I Hotit	Non EU / Non-EU	-
5	Greece/Macedonia	Evzonoi	EU / Non-EU	36.0
6	Greece/Bulgaria	Promachonas / Kulata	EU / EU	- /10.0
7	Greece/Albania	Krystallopigi / Kapshtice	EU / Non-EU	49.8 / -
8	Greece/Albania	Kakavia / Kakavije	EU / Non-EU	40.0 / -
9	Serbia/Bulgaria	Gradina / Kalotina	Non-EU / EU	37.3 / -
10	Bulgaria/Romania	Vidin / Calafat	EU / EU	- /128.5
11	Romania/Bulgaria	Giurgiu / Ruse	EU / EU	436.0 / 3.5
12	Romania/Moldova	Vama Albița	EU / Non-EU	1032.9
13	Hungary/Ukraine	Zahony	EU / Non-EU	23.5
14	Romania/Hungary	Oradea-Bors / Artland	EU / EU	395.0 / 4.1
15	Croatia/Hungary	Gorican / Letenye	EU / EU	3.3 / 8.8
15	Croatia/Bosnia & Herzegovina	Zuplanja	EU / Non-EU	19.1
17	Serbia/Hungary	Horgos / Roszke	Non-EU / EU	24.5 / 24.9
18	Serbia/Bosnia & Herzegovina	Trbusnica	Non EU / Non-EU	10.0
19	Serbia/Montenegro	Bregovo	Non EU / Non-EU	8.3
20	Serbia/Romania	Vatin / Stamora Moravita	Non-EU / EU	24.4 / 84.9
21	Bulgaria/Turkey	Kapetan Andreevo	EU / Non-EU	15.0
22	Ukraine/Romania	Siret	Non-EU / EU	- /205.0
23	Albania/Kosovo	Morine	Non EU / Non-EU	-

Key: Moldova's Neighbors' BCP; Moldovan BCP

[a] Where 2 figures are shown, they relate to each side of the border (i.e. the 93.8 refers to Slovenian control and the 12.5 to Croatian controls). On some there was insufficient data to provide average times.

Source: Analysis of border crossings in South East Europe and measures for their improvement (Elsevier BV, 2016).

[92] The Schengen area comprises the 26 EU/EEA members, which are party to the Schengen Agreement and which have largely abolished passport and other border controls at their mutual borders.

As can be seen, the report looked at 23 separate border crossing points covering 15 different countries in SE Europe including both external and internal BCPs. The results indicate that the overall average time needed to cross a (non-Romanian) EU border was 23.8 minutes. However, the average time needed to cross a Romanian border (6 of the 23 border crossings assessed), was 380.4 minutes. The six Romanian BCPs were the top six overall in terms of total average time. And of those 6 Romanian border crossings, the waiting time at the Leușeni-Albița border was significantly higher than any of the others.

We were able to speak in more detail with the research team that undertook this work and specifically the team which assessed the Albița border crossing into Romania. They were able to provide us with additional information on the waiting and processing times at Albița and particularly how they were broken down in terms of the separate procedures involved. These figures are reproduced below.

Table 13.Facilities and controls at Vama Albița BCP

ROMANIAN AGENCY	TOTAL STAFF	TIME FOR PERFORMING CONTROLS ON TRUCKS (INWARD), IN MINUTES		
		MINIMUM	AVERAGE	MAXIMUM
Border Police	60 (24/7)	10	30	360
Customs	60 (24/7)	20	40	60
Phytosanitary Agency	3 (12 hours)	20	60	280
Veterinary Agency	24 (8 hours)	20	60	240

Source: Contributing paper to Analysis of border crossings in South East Europe and measures for their improvement (Elsevier BV, 2016).

As the table shows, the waiting times for trucks entering Romania were extremely variable. For goods not requiring SPS checks (i.e. police & customs), the minimum total time for both entering and leaving was 30 minutes. This is exactly on the lower end international benchmark of 30 minutes of border transit. The average time was 70 minutes. This is slightly above the upper end international benchmark of 60 minutes. But the maximum times were around seven hours. This is significantly above international standards.[93] The times needed for phytosanitary or veterinary checks, when required, extended this to over 15 hours, although it is not clear whether this takes into account trucks arriving outside the working hours of those services, which do not operate 24/7. Again, it is not for this report to interpret the results of this study, but the indications are that police and SPS checks (where applicable) were significantly longer than those required for customs clearance.

In terms of the time taken to complete police checks, it is also relevant to note that, although not yet a member of the Schengen area, Romania has been assessed for some time as meeting the operational criteria for admission in terms of land BCPs. This means that they meet the requirements for:

- data protection,
- application of the SIS/SIRENE information system,
- police cooperation,
- professionalism of border checks (including use of risk analysis and intelligence), and
- availability and use of equipment (specifically the EURDAC-scanners).

[93] Also, as noted in an earlier footnote, this does not include time held in No Man's Land because the Romanian Border Police were not permitting passage.

In the case of Moldova, goods entering Romania are also entering the EU. Before the completion of the EU Single Market, Moldovan goods destined for Germany or Italy would have had to cross two or three further national borders with customs and other checks before arriving at their destination. Now, there is only a single border check for goods (although internal checks remain for persons at most borders), but it is almost inevitable that these checks will be more rigorous than those of a simple national border. However, as shown above, this cross-comparison indicates that the overall waiting time for goods entering Romania generally take significantly longer than at all other external EU BCPs. The Moldovan-Romanian border has the worst performance. This has a significant impact on the overall performance of Moldova's trade corridors.

Anecdotal evidence suggests that there are issues with both Romanian Customs and the Romanian Border Police. As noted earlier in this section, the Border Police regularly hold vehicles in No Man's Land, which adds significant delays without affecting the official statistics on the Romanian side. Part of the problem is certainly that this is an EU border, with high levels of scrutiny and control, as discussed above. However, this is clearly not the only reason. Romania's BCPs compare poorly to such EU BCPs as Estonia-Russia and Poland-Belarus. As Moldova's external trade has shifted westward over the last decade, these problems have become both more obvious and more pressing.

In summary, while Moldova certainly has many problems of its own, it also suffers from being next door to the EU's least efficient member in terms of border crossing.

ASSESSMENT OF TIME AND COST OF ROAD TRANSPORT

Land transport comprises the majority of Moldova's trade. Historically, Moldova's trade went east to Russia and other Soviet countries. In recent years the trend has reversed with trade to the EU comprising about half of imports and two-thirds of exports. However, trade to the east is still important with Russia remaining in the top five of Moldova's trading partners and Ukraine in the top five of import partners. Table 14 below presents times and costs of trade to important main land trade destinations.

The most cost-effective location to trade with Moldova is Romania in terms of cost per metric ton reflecting the relatively short distance and the competitiveness of the market due to the frequency of trips. On a per metric ton basis, costs to Kazakhstan are the highest as it is the farthest distance. Additionally, as traditional routes via Ukraine are not currently available as Ukraine is not presently a transit route to Russia, cargo to both Moscow and Kazakhstan must divert through Belarus. This adds about 175km for cargo traveling to Moscow and 300km for cargo traveling to Kazakhstan.

In terms of cost per tkm, costs are lower for longer distances. Costs to Warsaw are the highest. However, this may be an anomaly as the quotes that the team received were for refrigerated trucks, which usually are shipped at a higher price. Transport to Istanbul using Romanian trucks is also expensive reflecting the high cost of one-way transport as trade flows are uneven and there are multiple time-consuming border crossings. Backhaul to Istanbul is much cheaper as noted by Moldovan transporters.

In terms of Moldovan corridor transport time, speeds of road travel in Moldova are slower than other locations due to the poor road conditions and single lanes in many areas. Within Moldova, trucks typically travel speeds of 50-70 km/hr compared to 80-100 km/hr in countries with more developed road infrastructure.[94] However, most corridor travel occurs outside of Moldova. Outside of Moldova and Ukraine, road conditions are generally good. The majority of corridor transport time through Moldova is spent at the borders. For trips to the west, we estimate that over 40% of the transit time can be spent at the borders. For a trip to Bucharest, long queues at Leușeni-Albița can result in 90% of the transit time across Moldova being spent at the border.

LCL PRICING AND CONSTRAINTS

Based on interviews with freight forwarders, consolidated cargo, less-than-container-load, (LCL) and less-than-truck-load (LTL) cost more than full truck loads (FTL). These variations per 1 pallet of consolidated cargo vs non-consolidated can be 30% to 50% more expensive. For example, from Moldova to Italy, one pallet of LCL cargo can cost €200, whereas a pallet in a FTL would cost €70.

The increased prices are due to several factors:

- Volume of cargo on certain logistics chain/routes
- Seasonality
- Costs of handling (including the customs procedures, etc.)
- 100% physical inspection rates at the BCP, which takes several hours to several days and has additional costs

[94] This situation is partly because of poor road conditions, but also because almost all Moldovan road corridors repeatedly pass through towns and villages where the speed limit drops to 50 mph. Moldova has no long stretches of dedicated motorway without such slowdowns.

Table 14. Moldova Land Transport Corridor Times and Costs for 1 FTL [a]

CORRIDOR	DISTANCE (KM)	TYPE	MAX TONS	COSTS						TIMES					
						TOTAL				HOURS					
				TRUCKING	INFORMAL	USD	USD/T	USD/KM	USD/TKM	DRIVING	OVERNIGHT	BORDER-MD	BORDER-OTHERS [B]	TOTAL	% MD BORDER
Chișinău-Bucharest	460	Avg	20	698	2	700	35.00	1.52	0.08	8	At border	24	0	32	27%
	460	Peak	20	795	45	840	42.00	1.83	0.09	8	At border	72	0	80	90%
Chișinău-Munich	1800	Avg	20	2158	2	2,160	108.00	1.20	0.06	22.5	24	24	6.6	70.5	34%
	1800	Peak	20	2669	45	2,714	135.70	1.51	0.08	22.5	24	72	Unknown	125.1	61%
Chișinău-Vienna	1330	Avg	20	1648	2	1,650	82.50	1.24	0.06	17	12	24	6.6	53	45%
	1330	Peak	20	1835	45	1,880	94.00	1.41	0.07	17	12	72	Unknown	107.6	71%
Chișinău-Istanbul	1100	Avg	20	2,400	Unknown	1,200	60.00	1.09	0.05	15	12	24	7.5	58.5	42%
	1100	Peak	20	2,520	Unknown	2,520	126.00	2.29	0.11	15	12	72	48	147.0	49%
Chișinău-Warsaw	1010	Avg	22	2,400	Unknown	2,400	109.09	2.38	0.11	16	12	1	Unknown	29	3%
	1010	Peak	22	2,880	Unknown	2,880	130.91	2.85	0.13	16	12	24	Unknown	52	46%
Chișinău-Moscow	1495	Avg	22	2,000	Unknown	2,000	90.91	1.34	0.06	22	12	1	Unknown	35	3%
	1495	Peak	22	2,500	Unknown	2,500	113.64	1.67	0.08	24	12	24	Unknown	60	40%

[a] Non-Moldovan BCP. Data are from interviews and Analysis of border crossings in South East Europe and measures for their improvement (Elsevier BV, 2016).

[b] Prices for containers are slightly higher depending on the route.

Source: Interview and see footnote a.

ASSESSMENT OF COST AND TIME OF MARITIME TRANSPORT

COMPETITIVENESS OF PORTS SERVING MOLDOVA

While the majority of Moldova's trade is by road, access to the sea is still essential as it opens up trade to markets that cannot be easily reached by land such as the Americas, Africa, South/Southeast/North Asia, and the Middle East. While these locations can be accessed by air, air transport is much more expensive than sea transport. Moldova's trade corridors to the river and sea, while not overwhelming in terms of trade volumes, still play a significant role in providing Moldovan companies and consumers with access to important markets. For instance, China was one of Moldova's largest import partners in 2017 with $393 million of imports to Moldova. While Chinese goods could arrive by air or rail, the most cost-effective mode of transport is maritime shipping.

Moldova's only access to the sea in its own right is via a small section of the Danube at Giurgiulești in the southwest of the country. As noted above, Giurgiulești handles only a modest amount of Moldova's external trade. Therefore, most of Moldova's maritime cargo traverses ports in neighboring countries including Romania and Ukraine. Moldova's current transport corridors to the sea are shown in the table below, with their corresponding volumes when data were available.

Table 15. Moldova's Trade Corridors to the Sea

CORRIDOR	NUMBER OF CONTAINERS	TONS
Road or Rail transport → Giurgiulești Port → Giurgiulești FEZ BCP → River Transport → Constanța Port → Maritime Shipping → Overseas destination	6,420	442,098
Road or Rail transport → Giurgiulești Port → Giurgiulești FEZ BCP → River Transport → Overseas destination	0	434,102 [a]
Road transport → Tudora BCP → Odessa Port → Maritime Shipping → Overseas destination	9,343	Unknown
Road transport → Tudora BCP → Ilyichevsk Fish Port → Maritime Shipping → Overseas destination	Unknown	Unknown
Road transport → Tudora BCP → Chornomorsk Port → Maritime Shipping → Overseas destination	0	Unknown
Road transport → Leușeni-Albița BCP→Constanța Port→ Maritime Shipping → Overseas destination	250	Unknown

[a] 2016.

Sources: Danube Logistics, Constanța Port Authority, Odessa Port Authority, DPW.

In this section, we discuss the competitiveness of each of these routes, including the inland transport, customs, and port (see table below). While there are other potential routes or modes,

such as using inland transport by rail to Odessa or Constanța, here we only focus on routes that have Moldovan cargo flows at present. We end the chapter with a discussion on prospective routes.

Table 16. Competitiveness of Ports Serving Moldova

METRIC	GIFP-CONSTANȚA	CONSTANȚA	ODESSA	ILLICHEVSK FISH PORT
Distance (km)	233 km	525km (via Albița); 477 km (via Cahul); 470km (via Galat)	Approx. 200 km (via Tudora)/205 km (via Palanca)	Approx. 200 km (via Tudora)/205 km (via Palanca)
2017 Freight	Containers: 6,420	Containers: 250	Containers: 9,343	Unknown
Corridor Transport Cost	Medium Road: $350-500 OR rail $250 20'- $363 40' + River shipping: $400 (20') - $500 (40') Total 20': $650-$900	High Truck: €600-950 ($720-$1140) OR Container; €1000-1300 ($1200-1560) (incl. €300 gaur.)	Low Typically $450-$600 (incl. optional $100 TIR), up to $800 peak	Low $450-$600 (incl. optional $100 TIR)
Corridor Transport Time Chișinău-Ship	High Road: 4-5 hours OR Rail 3-5 days Port: 2-3 days River: 12-48 hr Transshipment: Estimated 2-3 days Total: 6-14 days	Medium Road: 8 hours Border: 24-74 hours Port: 1 day Total: 3-5 days	Low Road: 4-5 hours Border: 2-3 hours Port: 1-2 days Total: 2-3 days	Low Road: 4-5 hours Border: 2-3 hours Port: 1-2 days Total: 2-3 days
Corridor Reliability	Low Feeder only weekly and occasional delays; rail very low	Medium Port ok but 1-3 day delay at BCP	Medium-High Currently few delays on corridor but congestion in port	High Currently no delays indicated
Port THC Cost	Unknown	$250-260	$270	$270-320
Port Performance **-Crane moves/hr** **-Processing time** **-Truck turn time**	Poor 4-6 2-3 days Unknown	High Avg: 30-35, Max: 50 1 day 20 minutes	Mixed 35 M: 1-2 days, X: 1 day 2 – 6 hours, max 48h	Unknown, but indicated to be less congested and have smooth operations
Border Crossing Post	Giurgiulești FEZ Customs	Most common: Albița, RO / Leușeni, MD Alt: Galati-Giurg.	Currently: Tudora, MD / Starokazache, UA; Palanca JBP in progress	
Border Post/Customs Performance	High Normal and fast operations, pre-arrival processing, no transit documents required	Low Long wait in RO (1-3 days), nominal informal fees RO, MD	Medium-High Normal and fast operations (2-3 hours), some informal fees UA	
Rail Performance	Cheaper but slow and unreliable at present	Not available	Not operating or cost-effective due to Transnistrian region	
Access Road Performance	Poor road condition, rehabilitation planned but delayed	Mostly good condition via Leușeni but longest route (double the km); avoid Cahul/Galat due to road and BCP conditions	Varies from fair to poor, with poor roads on both sides of BCP.	
Overall Competitiveness	High potential due to benefits of no transit docs and short distance, but poor condition of access roads, high transport time and poor reliability. Despite this, receives 40% of MD's containers; proportion of bulk is unknown.	Currently uncompetitive by road due to higher inland cost and long BCP times. However, the port processes a significant proportion of MD's containers via GIFP.	Ukraine ports have the lowest inland transport costs and times so are preferred at present, but there are geo-political risks. Odessa has more ship calls but is congested and more expensive so some lines prefer the Fish Port and Maersk moved there in 2018.	Fewer ship calls than Odessa but less congested, cheaper and better operations.

Source: Interviews and site visits conducted by the project team in November/December 2017 and March-April 2018.

At present, Odessa and the Illichevsk Fish Port, both in Ukraine, are the most competitive ports serving Moldova (see table above and Appendix A for more detailed times and costs).[95] These Ukrainian ports can currently only be accessed by road as rail access would require an arrangement with Transnistrian region to allow freight trains to traverse the territory. Both ports are located approximately 200km from Chișinău and Tudora whose border operations are reasonably efficient, so both ports can be accessed in under a day's time from Moldova. Inland transport costs are also the most reasonably priced at $400-600 per truck plus $100 for the optional TIR carnet. While trucking costs are similar to costs to reach GIFP at around $450, GIFP requires additional fees for river transport. Volumes through Illichevsk Fish Port are unknown, but they should increase in 2018 as Maersk moved their operations from Odessa Port to Illichevsk Fish Port. While the TCA was unable to visit Illichevsk Fish Port, we understand that it is less congested than Odessa and offers a longer free storage period. Current truck access to Odessa is also limited to one gate through the Euroterminal ICD, at an additional cost of approximately $15. However, Odessa port is still used by many shippers as it receives more frequent vessel calls than the Fish Port and some users like the level of service of the private container terminal operator, HPC.

While Constanța port operations are very efficient, especially in terms of DPW's container terminal, the inland transport costs and times from Moldova render the port presently uncompetitive with Ukrainian ports. The distance from Constanța to Chișinău is more than double the distance to Ukrainian ports. The roads in Romania are generally in good condition and allow for somewhat higher speeds than in Ukraine and Moldova, so in theory, the port should be accessible in one day's driving time. However, at present, the border at Leușeni-Albița adds at least a day of delay, doubling or worse the transit time. In theory, cargo should also be able to use shorter routes via Cahul or Galati, but transporters seem to avoid these routes due to poor road conditions on the Moldova side and fewer services such as customs brokers at the border posts. The additional distance and transport time to Constanța means that the transport cost is higher. Further, it is our understanding that containerized cargo is also charged a container guarantee fee of up to €300. Therefore, current traffic volumes by road to Constanța are minimal. In 2017, DPW received 250 import containers.[96] However, the port remains an important option for Moldovan cargo as an alternative to transport through Ukraine.

Constanța port can be accessed in a more cost-effective manner by transshipment through GIFP. GIFP has the benefits of being a domestic port and therefore avoiding the transit regimes which apply if goods are exported before being shipped. Moldova is not yet a signatory of the Common Transit Convention and does not yet have the capacity to apply the new computerized transit system (NCTS). Work is in progress to address these issues, but, until these regimes are in place, the transit of goods is undertaken in compliance with Moldova's National Customs Code and the codes of neighboring countries, in this case both Ukraine and Romania. Once Moldova applies NCTS, it will be able to seal transiting goods in Moldova and they will be able to travel to their final

[95] The State-owned Port at Chornomorsk does not presently have much Moldovan cargo. The port is processing very few containers in general as most containerized cargo has moved to the Fish Port.
[96] Constanța port authority was unable to provide data on Moldovan cargo by road so we cannot verify bulk volumes, but assume that they were minimal.

destination without interim checks (i.e., in Constanța)[97]. However, this will not be the case until at least 2020 at the earliest.[98]

In 2016, GIFP transported 876,200 tons of cargo including 442,098 metric tons via Constanța and 434,102 tons to other destinations.[99] Of this, 8,200 containers (118,000 metric tons) were transported. In 2017, container volumes fell to 6,420, which was about 40% of Moldova's containers by sea. The majority of cargo through the port is grain (44% in 2016) followed by oil (29% in 2016). GIFP is just over 200 km from Chișinău and accessible in several hours despite the poor condition of access roads. It is also accessible by rail at approximately 2/3 of the road transport price, but at the expense of transit times, which are currently very high at up to several days. In theory, once CFM receives its additional locomotives and track conditions are improved, rail should provide a more efficient means of reaching the port.

While transit time by road to the port is reasonable, container vessel calls are infrequent at once a week. This means that overall transit times are significantly higher than transport through Odessa. The port container operations are also much less efficient than handling at Odessa or Constanța. The port has limited handling equipment so loading/offloading is quite slow at 4-6 moves/hour. For a ship with 150 containers, this means an offloading time of 2 days further adding to transit times. GIFP has the potential to capture more Moldovan cargo once the time and cost performance of the corridor improves.

ASSESSMENT OF MARITIME TRADE PERFORMANCE

Above we discuss the corridors accessing regional ports. Here we expand our analysis to assess times and costs of Moldovan cargo from origin to destination including maritime shipping. While Moldovan cargo has several options for reaching the sea, as discussed above, here we make the assumption that the shipper will choose the corridor with the lowest cost and time, which at present is Odessa/Fish Port. Therefore, we present prices and times using quotes from the Ukrainian ports. As part of our data collection and validation efforts, we collected prices to/from Constanța when possible and a comparison of quotes from Maersk by port are included later in Appendix B. Table 17 below presents indicative costs and times to trade to overseas destinations in China, UAE, and the USA. While quotes vary based on a variety of factors including volumes, seasons, demand etc., these are what we found to be typical prices based on our research and interviews.

The largest component of the transport cost is maritime shipping, which, for example, comprises 55% of the cost of a shipment from Chișinău to China-see Figure 23**.** The maritime shipment component also comprises the largest percentage of transport time (91% from Chișinău to China). Informal fees at the borders are minimal and are typically nuisance payments. Additionally, some corridor users also apparently pay informal fees at the border to surpass regulations/violations such as overweight vehicles or lack of authorizations ($50-70). Trucking rates ranged from $400-$800 to the port depending on demand with an optional TIR carnet adding about $100 to the minimum trucking rate. Port fees in Ukraine were recently reduced and quotes indicate that they currently include about $280 in terminal handling costs (THC) plus $30 export fee for the export of a 20'

[97] Note that Ukraine is not a member of the Common Transit Convention (CTC), and is not likely to be any time soon. "Everything west of Moldova is in CTC, and nothing east of us is."
[98] The EU Twinning project is currently working on the implementation of NCTS with MCS. The "at least 2020" figure is an estimate based on discussions with them. Note that there are both legal and technical processes here as Moldova would have to apply to become a member state of the Common Transit Convention and the time frame for this is uncertain.
[99] GIFP and Constanța Port Authority.

container, or $320 plus a $55 bill of lading for an import container. At the destination, both THC and inland transport fees vary by port and inland destination.

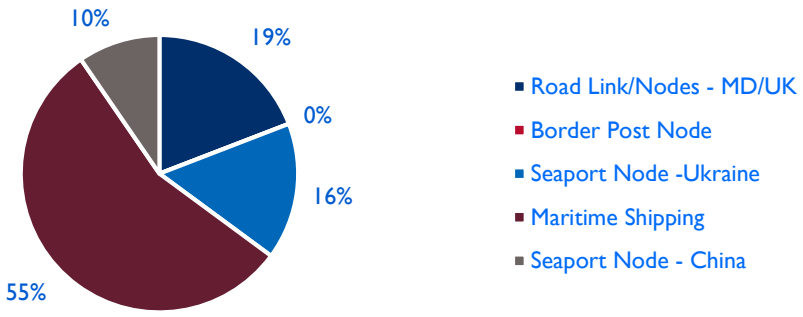
Table 17. Total Time and Cost of Maritime Trade [a]

CORRIDOR	TYPE	IMPORTS					EXPORTS				
		PRICE US$		PRICE US$/T		TIME	PRICE US$		PRICE US$/T		TIME
Chișinău-Shanghai	Road - MD/UA	450	600	25	33	5 hrs	450	600	25	33	5 hrs
	Border Post					3 hrs					3 hrs
	Seaport–Ukraine	375		21		1-2 days	$310		$17.22		1 day
	Maritime Shipping	1,300	2,320	72	129	37 days	835	953	46.39	52.96	43 days
	Seaport– China	225		13		3 days	$169		$9.38		2 days
	Road–China	Varies					Varies				
	Total	2,350	3,521	131	196	43 days	1,764	2,032	98	113	47 days
Chișinău-Dubai	Road –MD/UA	450	600	25	33	5 hrs	450	600	25	33	5 hrs
	Border Post			0		3 hrs					3 hrs
	Seaport–Ukraine	375		21		1-2 days	$310		$17.22		1 day
	Maritime Shipping	1,025	3,121	57	173	26 days	820	2,286	46	127	23 days
	Seaport– UAE	408		23		2 days	$350		$19.42		1 day
	Road–UAE	150	245	8	14	1 hr	150	245	8	14	1 hr
	Total	2,408	4,749	134	264	30 days	1,930	3,546	107	197	26 days
Chișinău-Baltimore	Road -MD/UA	450	600	25	33	5 hrs	450	600	25	33	5 hrs
	Border Post					3 hrs					3 hrs
	Seaport Node –Ukraine	375		21		1-2 days	$310		$17.22		1 day
	Maritime Shipping	1,110	2,333	62	130	41 days	1,660	2,238	92.22	124.31	35 days
	Seaport Node – USA	250		14		2 days	$470		$26.11		1 day
	Road --USA	400		22		2 hrs	$400		$22		2 hrs
	Total	2,585	3,558	144	198	45 days	3,290	4,018	161	201	38 days

[a] Via Odessa/Chornomorsk.

Source: Interviews by project team, maersk.com, http://worldfreightrates.com/en/freight#, searates.com

Figure 23. Example of Costs of Moldovan Shipments to China



Note: excluding inland haulage costs in China.
Source: Table above.

CUSTOMS AND REGULATORY PROCEDURES AT GIURGIULEȘTI PORT

The operation of customs controls at Giurgiulești port is notably different from the customs controls applied at other BCPs. This is because the traffic is largely predictable and advance notification is almost always received. Danube Logistics provides the Moldovan Customs Service with preliminary information on arrivals as soon as the vessels are loaded in Constanța. This information includes a description of the goods and their volume/quality and details of the exporter and importer together with the container and seal numbers. On receipt of this information, generally 24 hours before the arrival of the vessel, MCS therefore has the opportunity to undertake additional checks and establish the risks involved. In addition, MCS should usually receive the cargo manifest from the vessels approximately 2 hours before the vessel is due to dock. This preliminary manifest is sent electronically to customs at the port as well as to the regional and central risk analysis units. Physical control of vessels entering Giurgiulești port is then undertaken jointly with the Moldovan border police and, if required, by ANSA.

There are no specific issues in relation to the customs and regulatory operations at Giurgiulești that merit unique treatment. Generally, the local procedures run well within the constraints of the overall functioning of the customs and other regulatory bodies. We do, however, make a number of recommendations elsewhere in this report in relation to customs procedures which would apply to and impact positively on operations at Giurgiulești, particularly in relation to:

- the risk analysis function (including the refinement of local and commodity-specific risk profiles),
- the use of more audit-based controls on regular users of the port, and
- the enhancement of the AEO regime.

ASSESSMENT OF TIME AND COST OF RAIL TRANSPORT

The competitiveness of Moldovan rail travel has stagnated in recent years due to poor track conditions, lack of locomotives and rolling stock, and administrative problems at CFM. All of these have led to long transit times and unreliable service. However, there are big plans for track rehabilitation and purchase of equipment, which could make the rail system more competitive.

International standards indicate that rail travel on efficient systems is generally less expensive than road transport on efficient systems for distances over 600km. In Moldova, it is the case that even transport from GIFP to Chișinău, a distance of about 238km by rail, is cheaper by rail than on the

roads with rail costing $250 for a 20' container compared to trucking costs of $350-450. However, transit times are very slow, typically 3-5 days instead of less than one day which would be typical for such a short distance.

Rail transport is also typically an efficient way of transporting heavy and bulk cargo. Much of Moldova's trade is comprised of heavy goods, which are well suited to rail transport. Moldova's largest export is grain, of which a significant portion is exported by rail. CFM provided an example of a price calculation for transporting grain from Chișinău to the Giurgiulești border, as shown below.

Example of CFM Grain Price Calculation

Route: Chișinău – Giurgiulești Frontieră (export to CFR (Romania))
Distance: 238 KM[100]
Freight and cargo: Grain 65 tons[101]
Basic Tariff 14.69 CHF/metric ton ($14.89/MT)[102]
Discount: K=0.54[103]
Final Tariff: 4.69*0.55=8.08 CHF/MT ($8.19/MT)(inventory wagon of CFM)
14.69*0.55*0.85=6.87 CHF/MT ($6.96/MT) (private wagon)

The price would cost $8.19/metric ton using CFM wagons or $6.96/metric ton using private wagons. In comparison, road transport would cost about $17.75/metric ton in bulk or $22.50/metric ton in containers. The rail price equates to about $0.03/tkm, which is a competitive price and is low by both European and international standards. These reinforce the point that the issue with CFM is not cost, but time and reliability.

While CFM's current prices are competitive, many potential customers are unaware of the potential cost of using the railway. While price formulas are posted publicly on CFM's website, they are complicated. The coefficients used in the formula-based calculations vary depending on the distance, type of goods carried, and type of container used. Further, prices become more complicated when they begin to cross borders and rely on pricing from several different railway systems. CFM mentioned that this is also where costs can begin to get uncompetitive. For example, prices from Chișinău to Odessa are comprised of prices from CFM plus the railways in Transnistrian region and Ukraine. CFM has said that the container service on this segment has stopped in recent years not only due to political issues with Transnistrian region, but also due to the high combined price of the three systems.

ASSESSMENT OF TIME AND COST OF AIR TRANSPORT

TRANSIT TIME

Transport times and costs for air freight are included in Table 18 and Table 19 using information from the only readily available source for data, which was on Lufthansa's cargo website. Prices and times for other carriers such as Air Moldova may vary from the information in these tables, but Lufthansa has the widest network from Chișinău and Air Moldovan cargo from non-direct flights would presumably be using the Lufthansa network as they are partners.

As shown in the tables, flight times can range dramatically depending on layover times in Vienna or Frankfurt for flights both from Chișinău and to Chișinău with the shortest transport times being for

[100] http://tracer.railway.md/tarif/ro/index.shtml?2018/a7.
[101] http://tracer.railway.md/tarif/ro/index.shtml?2018/a1#id-a1-1.
[102] http://tracer.railway.md/tarif/ro/index.shtml?2018/a10-t1. Converted to USD using oanda.com in June 2018.
[103] http://tracer.railway.md/tarif/ro/export2018.html.

direct routes such as Vienna and Frankfurt. Flight times to far locations such as China are more than one day and would be difficult for perishable goods that need to remain cold.

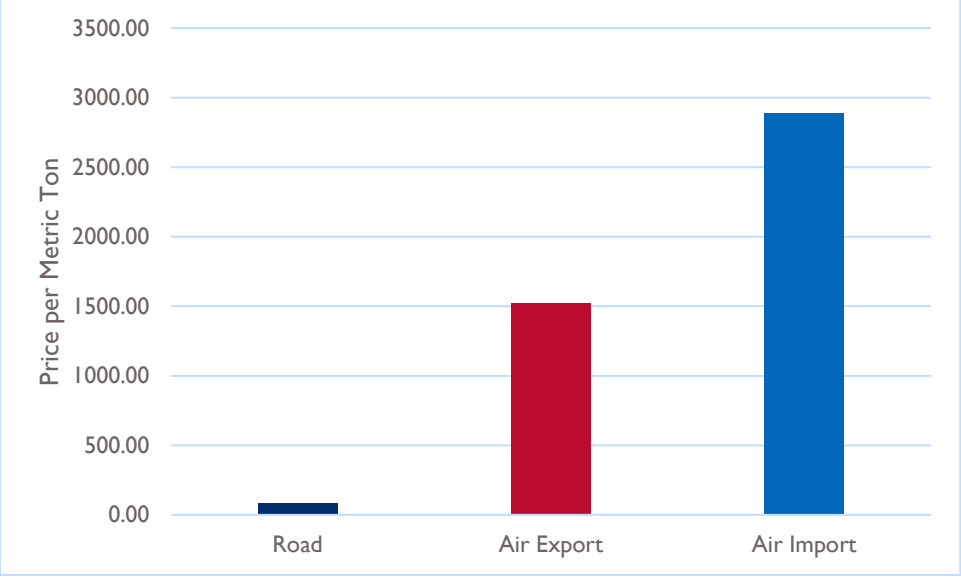
In addition to the flight times as listed in the tables, shippers would also have to consider the time that it takes to reach the airport and load/unload cargo. As noted in Section 2, there are some inefficiencies with cargo handling at KIV due to a lack of equipment and the consequent sharing of equipment between freight and luggage. As passenger luggage takes priority, there can be delays in receiving cargo. One shipper says that it takes about 2.5 hours from the time the plane lands until the cargo reaches their office in Chișinău. Assuming that about 30 minutes is driving time, this means about 2 hours of airport handling and customs time. For a 2-hour direct flight, this means that more than 50% of the total transit time is spent at the terminals. In terms of customs, MCS has indicated that their processing time could be sped up if pre-arrival notifications were implemented.

Seasonal routes are often established that shorten travel duration for cargo during peak passenger travel seasons, although these do not always correspond with peak cargo seasons and actually can negatively influence cargo hold capacity for freight. For example, during the peak summer and winter holiday passenger periods, shippers have noted delays with their cargo shipments as cargo holds prioritize passenger luggage and are full. This reduces the reliability of air transport and reliability is a very important factor for time-sensitive air cargo.

EXPORT PRICES

In order to compare air freight prices to other transport modes, we converted prices to price per metric ton, even though in reality it is not possible to ship a metric ton of air cargo. Shipping regular cargo from Chișinău to any included European location cost $1,216.80 per MT for *pro rate* and $1,521.00 per MT for *flash rate*, which is faster. In comparison to other modes, air transport is much more expensive, as shown below. Exports by air are more than 17x more expensive than exports by road. Refrigerated goods would cost even more and have their own logistical constraints. At present, exporting regularly is basically cost-prohibitive, which shows why volumes are so low. Air is only really used for urgent and high value goods such as pharmaceutical products and samples.

Figure 24. Comparison of Air versus Road Transport Costs to/from Vienna, Regular Freight



Source: Lufthansa cargo, interviews with transporters/freight forwarders.

When shipping from Chișinău to a country with multiple location options, it should to be noted that the price for these different locations varies. For example, Chengdu, China is more expensive than Beijing with a *flash rate* of $2,632.50 per MT compared to $2,106.00 per MT. Generally, in a country with multiple location options, the shipping rates are less expensive the more internationally accessible the location.

IMPORT PRICES

Air freight prices for shipping imports are much costlier than exports, as shown in the figure above. This is due to higher import volumes than export volumes. As shown in Section 2, in 2016, there were 2,057 tons of imports to KIV compared to 717 tons of exports.

Unlike shipping cargo from Chișinău, the relationship between the cost of shipping with *pro rate* and shipping with *flash rate* to Chișinău do not follow a standard marginal increase and instead vary greatly based on the origin location. There is also a greater difference on average between the per MT price for *pro rate* shipping and the per MT price for *flash rate* shipping. For example, the average cost of upgrading to *flash rate* shipping from Chișinău is $392.85 per MT, while the average cost for upgrading while shipping cargo into Chișinău is $1,348.28 per MT. Saudi Arabia is the least expensive country on average to ship from for both *pro rate* and *flash rate* shipping. *Pro rate* shipping from Chicago, USA is the lowest per metric ton cost location ($1,930), but all other US locations are between $3,460.00 and $3,650 per MT. Shipping from China is the most expensive country on average.

But regardless of location, as with exports, pricing makes air cargo cost-prohibitive for most imports. Air cargo imports are 34 x more than road transport.

Finally, in addition to high air transport costs, shippers have noted that storage costs at KIV are also high and are based on a period starting at midnight in calendar terms, not 24 hours after arrival. So for flights arriving late, shippers have to pay storage until the next morning when they can be cleared.

Table 18. Lufthansa Cargo Prices from Chișinău (Exports), Summer Season

CITY	COUNTRY	FLIGHT TIME	OTHER POSSIBLE GOODS	MIN RATE ($)	NORMAL FLAT RATE ($/KG)	PRICE FOR 250 KG ($)	PRICE FOR 500 KG ($)	PRICE FOR 1000 KG/ 1MT ($)
Vienna	Austria	1h45m – 1h55m	Care, Cool P, Fresh	80.44	2.06	421.20	761	1,521
Guangzhou	China	32h05m	Care, Cool P, Fresh	102.38	2.61	529.43	959	1,919
Chengdu	China	29h45m	Care, Cool P, Fresh	102.38	3.60	731.25	1,316	2,633
Beijing/Peking	China	22h45m - 46h45m	Care, Cool P, Fresh	102.38	1.98	403.65	725	1,451
Shanghai	China	19h20m - 34h20m	Care, Cool P, Fresh	102.38	2.16	438.75	790	1,580
Cairo	Egypt	10h05m - 34h35m	Care, Cool P, Fresh	117.00	4.50	915.53	1,644	3,288
Frankfurt	Germany	1h40m	Care, Cool P, Fresh	80.44	2.06	421.20	761	1,521
Hong Kong	Hong Kong	20h15m - 44h15m	Care, Cool P, Fresh	102.38	1.98	403.65	725	1,451
Mumbai	India	15h10m - 39h10m	Care, Cool P, Fresh	102.38	2.80	567.45	1,024	2,048
Tehran	Iran	29h25m	-	102.38	2.52	511.88	924	1,849
Tel Aviv	Israel	23h00m - 28h30m	Care, Cool P, Fresh	109.69	2.16	438.75	790	1,580
Amman	Jordan	11h40m - 35h40m	Cool P, Fresh	109.69	2.26	456.30	825	1,650
Almaty	Kazakhstan	24h30m-30h20m	Care, Cool P, Fresh	102.38	2.88	585.00	1,053	2,106
Kuwait	Kuwait	29h35m - 31h55m	Care, Cool P, Fresh	109.69	3.23	658.13	1,188	2,375
Beirut	Lebanon	12h10m - 36h10m	-	109.69	3.86	786.83	1,422	2,843
Amsterdam	Netherlands	19h50m - 24h25m	Care, Cool P, Fresh	80.44	2.06	421.20	761	1,521

Dammam	Saudi Arabia	30h40m	Cool P, Fresh	109.69	3.15	640.58	1,158	2,317
Riyadh	Saudi Arabia	29h00m-30h05m	Care, Cool P, Fresh	109.69	2.34	476.78	854	1,708
London	UK	9h40 - 22h10m	Care, Cool P, Fresh	80.44	2.06	421.20	761	1,521
Dubai	United Arab Emirates	31h00m	Care, Cool P, Fresh	109.69	2.52	511.88	924	1,849
Los Angeles	USA	31h30m - 36h20m	Care, Cool P, Fresh	102.38	2.80	567.45	1,024	2,048
Miami	USA	30h20m - 31h20m	Care, Cool P, Fresh	102.38	2.61	529.43	959	1,919
Chicago	USA	16h25m - 36h30m	Care, Cool P, Fresh	102.38	2.97	602.55	1,088	2,176
San Francisco	USA	32h25m - 36h00m	Care, Cool P, Fresh	102.38	2.88	585.00	1,053	2,106
New York	USA	15h45m-36h25m	Care, Cool P, Fresh	102.38	2.80	567.45	1,024	2,048

Table 19. Lufthansa Cargo Prices to Chișinău (Imports), Summer Season

CITY	COUNTRY	TRANSIT TIME	OTHER POSSIBLE GOODS	MIN RATE ($)	NORMAL FLAT RATE ($)	PRICE FOR 250 KG ($)	PRICE FOR 500 KG ($)
Vienna	Austria	2h35m-2h50m	-	93.60	6.72	1,474	2,890
Guangzhou	China	36h35m-37h25m	-	159.20	14.80	1,960	3,720
Beijing/Peking	China	32h00m-42h30m	-	115.04	16.80	2,920	5,520
Shanghai	China	18h35m-34h05m	-	118.56	20.16	3,480	6,640
Frankfurt	Germany	3h30m	-	79.56	4.50	1,024	1,890
Hong Kong	Hong Kong	19h15m-43h15m	-	121.94	11.12	2,145	4,193
Mumbai	India	31h55m-37h05m	-	135.00	5.67	1,050	1,898

Tehran	Iran	12h05m-36h05m	-	75.00	6.10	1,125	1,950
Tel Aviv	Israel	14h35m-29h30m	-	58.00	5.80	1,238	2,075
Amman	Jordon	23h05m-34h20m	-	70.50	4.79	881	1,643
Almaty	Kazakhstan	36h30m-38h20m	-	95.00	6.50	1,413	2,575
Kuwait	Kuwait	35h40m	-	66.20	5.63	1,034	1,804
Beirut	Lebanon	20h50m	-	75.00	4.30	775	1,450
Amsterdam	Netherlands	16h45m-21h40m	-	65.81	5.62	1,056	1,966
Dammam/Riyadh/Jeddah	Saudi Arabia	35h00m- 38h40m	-	77.63	4.59	844	1,458
London	UK	10h10m-17h50m	-	50.25	4.53	1,039	1,950
Dubai	United Arab Emirates	13h30m-37h30m	-	77.63	5.48	3,038	1,755
New York	USA	14h20m-38h35m	-	150.00	7.32	1,573	N/A
Los Angeles	USA	32h25m-38h00m	-	150.00	7.70	1,655	N/A
Miami	USA	37h35m	-	150.00	7.32	1,573	N/A
Chicago	USA	14h55m-38h55m	-	150.00	4.27	913	N/A
San Francisco	USA	36h30m	-	150.00	7.70	1,655	N/A

Note: For selected routes with a maximum of 2 stops. Pricing is for "regular" goods, "flash," or expedited rate. Quotes are for the summer season, from March 25-Octobr 27, 2018. Pricing per kg decreases with certain volumes/economies of scale. Converted to USD using exchange rates from oanda.com. For exports, Care/Cool products may be shipped depending on the route, but for imports, only regular goods are available.

SUMMARY OF BOTTLENECKS BY CORRIDOR

We end this section with a summary of key bottlenecks by corridor as presented in Table 20. As seen in the table, many of these bottlenecks relate to infrastructure issues such as poor road and rail conditions. Others are related to the quality or availability of services or regulatory issues.

Table 20. Summary of Bottlenecks by Corridor

CORRIDOR	TYPE	ISSUES AFFECTING TIME	ISSUES AFFECTING COST
Chișinău-Giurgiulești - Constanța	Infrastructure	• Poor condition of roads from Chișinău to GIFP increases road transport time by 1-2 hours • Poor rail track conditions and lack of locomotives substantially increases rail transport time from 1 day to 3+ • Road queues where port and two BCPS converge • Lack of dredging can lead to delays increasing river transport time • Lack of port container handling equipment increases port handling time	• High truck maintenance costs due to road conditions increases cost • Increased transport time due to road conditions reduces truck turn time and increases price
	Services	• Infrequent service of container vessels (weekly) increases transport time	• Limited trucking companies willing to travel the route due to poor road conditions (less supply increases price)
	Regulatory	• Road rehabilitation projects delayed due to procurement and implementation issues. • Lack of online and trade related e-systems increases time to trade	
Moldova-EU	Infrastructure	• Poor road conditions to the border limit route options, requiring travel on longer distance routes (i.e. to Constanța, Albița adds approx. 50km) • Several BCPs require additional access lanes (Giurgiulești-Reni and Giurgilești-Galați, Leușeni-Albița, Sculeni, Otaci etc) leading to queues • Different rail gauges in RO/MD limit possibilities for rail and increase time • KIV cargo terminal needs rehabilitation and equipment • Bălți and Mărculești airports require substantial infrastructure investments • Use of IWW requires dredging	• Air cargo is limited to civil aviation and plane doors are too small for much cargo, limiting to expensive charters • Air cargo to/from Northern MD has to be trucked from KIV
	Services	• Long queues at the RO/MD border • No OSBP so have to go through formalities on both sides of border • Lack of services (customs brokers etc.) at non-key BCPs lead to congestion at better equipped BCP • High incidence of physical inspection for LCL/groupage, which adds several hours of transport time	• BCP delays impact driver rest time and transport costs • Issues with access to affordable credit increases trucking costs • High inland transport costs to Constanța Port due to container guarantees and high transit time • Air freight is expensive • Nominal informal fees at the border, especially for LCL/groupage

			• High incidence of physical inspection for LCL/groupage, which has official fees for loading/unloading • Declining Moldovan trucking sector due to high costs and low relative wages (compared to neighboring countries) as well as regulations
	Regulatory	• In summer, transport limited to night time when over 30C • AEO limited to imports (no mutual recognition with EU) • Romania border police and customs apply controls in accordance with requirements to protect the EU external border • Lack of online and e-systems increases time to trade	• Poor enforcement of axle weight restrictions in MD leads to higher truck maintenance costs
Moldova-Odessa/ Chornomorsk/Fish Port	Infrastructure	• Poor road conditions in some areas on both MD and UK sides and in "no man's land" • Access to BCP on MD side is through villages and roads need repairs • Palanca BCP is under construction • UK BCP at Tudora could be rehabilitated to increase use of technology • Poor road conditions within Odessa port	• Road conditions lead to increased maintenance costs
	Services	• No rail service due to Transnistrian region; option of detouring takes long time • UK BCP has paper slips for entry/exit	• Rail through Transnistrian region is too expensive and not competitive •
	Regulatory	• Delays when authorizations are exhausted • MD shippers can't use e-signatures in UK • Cannot access Odessa port thru main gate, adds approx. 20 minutes • Lack of online and trade related e-systems increases time to trade	• If run out of authorizations, pay informal fees to cross border • Cannot access Odessa port thru main gate, additional $15 cost to EuroTerminal/entry • High cost of TIR.
Chișinău-CIS	Infrastructure	• Poor road conditions in MD and UK increase transit time	
	Services	• Some delays in northern MD BCP • Southern BCP (Tudora) ok except peak times	
	Regulatory	• Detouring around Transnistrian region adds to transit time • Shippers from Transnistrian region face additional time to go to Căușeni for customs • Cannot transit from Ukraine to Russia, requiring detours through Belarus • Lack of online and trade related e-systems increases time to trade	• Some informal fees in UK • Lack of axle weight enforcement • Shippers from Transnistrian region face additional costs of going to Căușeni to customs and for road use fees • If run out of authorizations, pay informal fees to cross border • Longer distance avoiding Ukraine to Russia increases transport price

The subsequent sections of the report provide further detail on bottlenecks and constraints faced in terms of transport (Section 4), trade facilitation (Section 5), and by specific commodities (Section 6).

4. TRANSPORT BOTTLENECKS AND CONSTRAINTS

In the section above, we presented tables and figures describing the typical times and costs for transporting goods via Moldova's key trade routes. In this section, we drill down on some of the main transport-related bottlenecks affecting time and cost to trade.

ROAD SECTOR BOTTLENECKS AND CONSTRAINTS

ROAD SECTOR INFRASTRUCTURE CONSTRAINTS

We begin by discussing issues with transport infrastructure as infrastructure is a pre-requisite to free flowing trade corridors. While proper infrastructure alone does not guarantee a well-performing corridor, without it transport will certainly underperform and logistical issues will distort trade.

Much of Moldova's transport infrastructure including almost all its current border post infrastructure was developed during the Soviet period with a focus on trade to the east. As trade flows have reversed directions from east to west in recent years, Moldova's trade corridor infrastructure has been strained, especially the corridors leading to the west. Nearly 66% of Moldova's exports and 50% of imports by value in 2017 came from the EU. The most important road BCP in this respect is the Leușeni-Albița BCP, which represents approximately 65% of all movements by number in terms of EU trade.

The overall condition of much of Moldova's transport infrastructure is poor and in urgent need of rehabilitation due to deferred maintenance. In 2017, Moldova was ranked 111 of 137 countries in quality of transport infrastructure by the World Economic Forum with the quality of its transport infrastructure receiving a rating of only 2.7 out of 7.0. (Table 20. Summary of Bottlenecks by Corridor). In particular, Moldova's road infrastructure (its most used infrastructure accounting for 71% of trade in 2017) scored and ranked extremely poorly receiving a 2.5 out of 7.0 and ranking of 132/136 in 2016 and 128/137 in 2017.

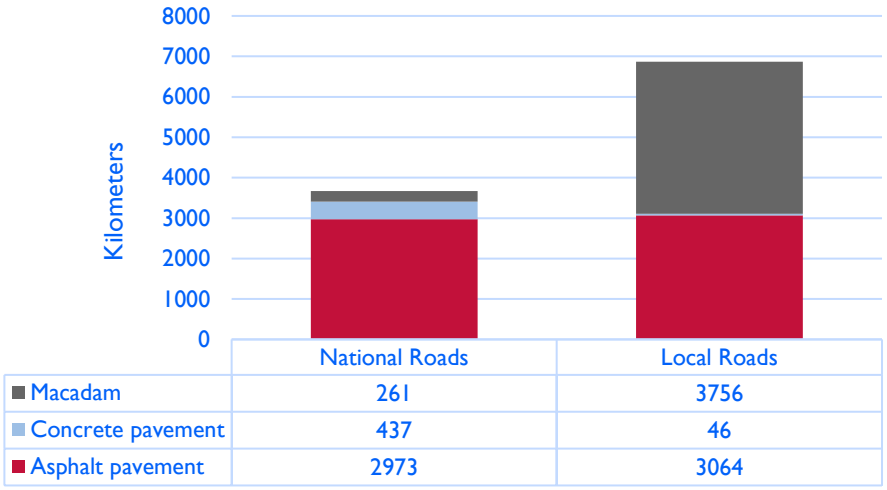
Table 21. Competitiveness of Moldova's Transport Infrastructure, 2016-2017

METRIC
Quality of overall infrastructure
Quality of transport infrastructure
Quality of roads
Quality of railroad infrastructure
Quality of port infrastructure
Quality of air transport infrastructure

Source: World Economic Forum's Global Competitiveness Index, 2016-2017 edition and 2017-2018 edition.

In 2017, 35% of Moldova's roads were national roads and 65% local roads. Overall, 58% were asphalt paved although the rate is lower for local roads than national roads. (Figure 25)

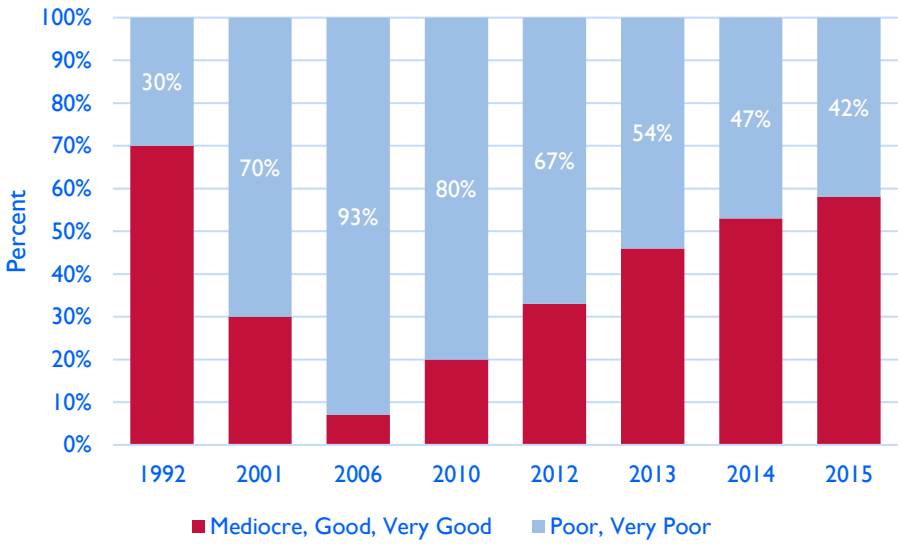
Figure 25. Moldovan Roads, by Type, 2017



Source: Ministry of Economy and Infrastructure, 2017, at https://www.unece.org/fileadmin/DAM/trans/main/SDGs/Develop_Resilient_Infrastructure/Experiences-T-Buzovschi_Moldova_.pdf.

As noted above, Moldova's roads are in poor condition. This includes key transport routes between major cities and to the borders. Besides being riddled with pot holes, which lead to reduced speeds and increases truck maintenance costs and fuel consumption, most of the country's roads have only a single lane in each direction, which limits the ability to pass and reduces safety. In addition, key roads also traverse villages, again reducing speeds, producing safety issues, and negative environmental and social effects. Further, Moldova's trade corridors also depend on roads in Ukraine and Romania. Ukraine's roads in particular are also in poor repair.

Figure 26. Moldovan Road Conditions, 1992-2015 [a]

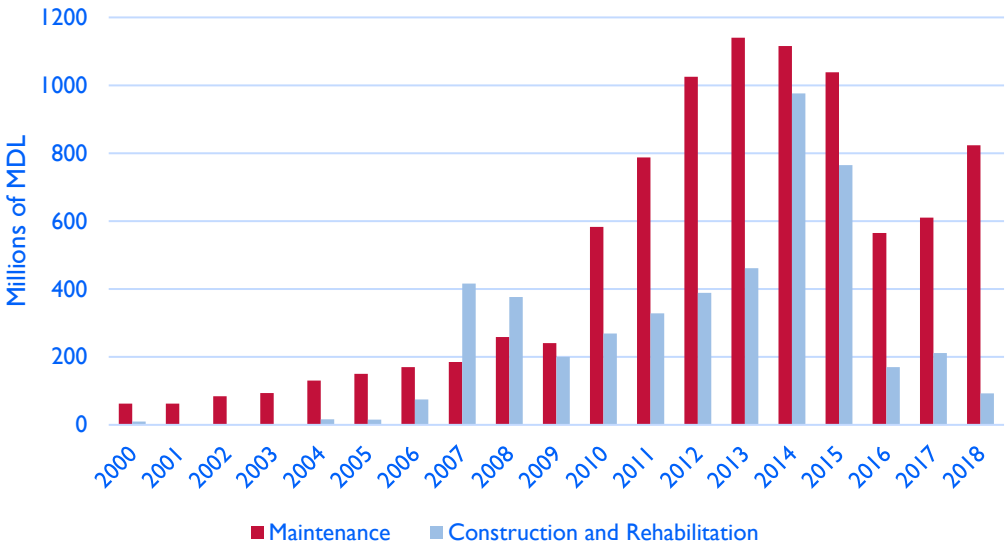


[a] Latest data available were only through 2015. Data also did not break out mediocre versus good.

Source: Ministry of Economy and Infrastructure, 2017, at https://www.unece.org/fileadmin/DAM/trans/main/SDGs/Develop_Resilient_Infrastructure/Experiences-T-Buzovschi_Moldova_.pdf.

Road construction and rehabilitation is usually financed through loans and grants from international financing institutions such as the EBRD, EIB, MCC, and World Bank. Road maintenance is funded by the Road Fund,[104] which is part of the National Budget. The National Budget for 2018 has allocated 1,715 million lei ($100.8 million) to the Road Fund, which is a large increase over the 1,080 million lei ($58.3 million) allocated for 2017. Figure 27 below presents Moldovan road infrastructure funding for maintenance, construction, and rehabilitation from 2000-2018. As shown in the figure, investment in construction and rehabilitation was nearly non-existent until 2007 and maintenance funding only picked up around 2010. Funding has fallen since 2014 especially in terms of construction and rehabilitation funding.[105] Total spending has not yet recovered to its 2014 peak and probably will not until after 2020.

Figure 27. Moldova Road Infrastructure Funding, 2000-2018 [a], Millions of MDL



[a] Latest data for construction and rehabilitation available were only through 2015.

Source: Road Fund 2018, Road Fund 2017, Road Fund 2016, Ministry of Economy and Infrastructure, 2017, at https://www.unece.org/fileadmin/DAM/trans/main/SDGs/Develop_Resilient_Infrastructure/Experiences-T-Buzovschi_Moldova_.pdf.

Furthermore, when funding has been available, there is an indication that it has not always been used to its full potential. For instance, there appears to be a repeating pattern of procurements for construction or rehabilitation that have not led to actual construction or repairs such as on the Chișinău- Giurgiulești corridor. A 2017 audit of the Road Fund revealed many deficiencies in uses of funding amongst other issues. (Further detail on the Road Fund is included in the Regulatory sub-section of this chapter.) Finally, roads are further deteriorating due to overloading of trucks and lack of sufficient enforcement (also discussed in the regulatory section). A key takeaway here is that proper procurement, along with regulatory development and enforcement, is closely linked with the quality of road infrastructure and the ability to maintain road conditions.

Next, we detail road conditions and infrastructure bottlenecks by route.

[104] Law on the Road Fund no. XIII of 02.02.1996.
[105] See http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=352091 and http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=358301.

Chișinău- Comrat- Cahul-Giurgiulești

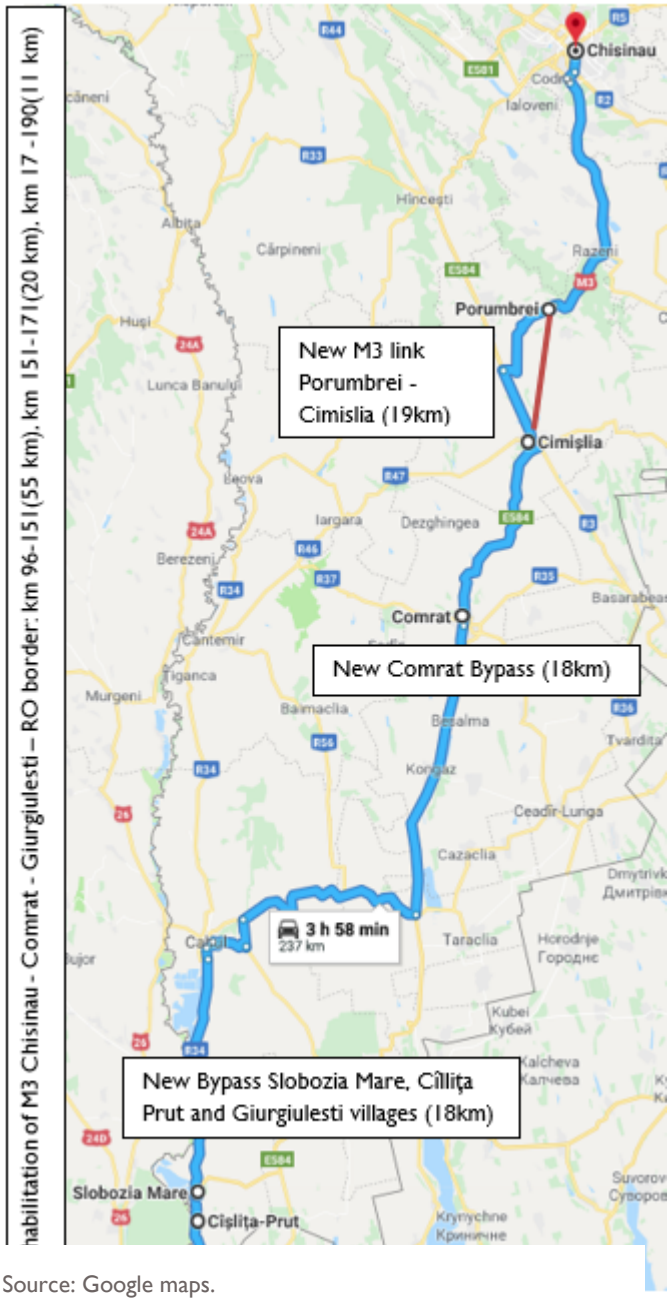
The current truck route from Chișinău to Giurgiulești is in poor condition, which is one of the key issues impacting the competitiveness of the trade corridor. Many transporters refuse to make the trip or charge higher rates to cover for their increased maintenance costs. Along with increasing trade costs, this also reduces the competitiveness of GIFP, which in turn reduces the frequency of vessel calls to the port.

Further, the poor road conditions limit the effectiveness of the Galati and Giurgiulești border control points as an option for traveling from Chișinău to the EU. This detour adds 50 kilometers to a trip to Constanța. It also applies further pressure to the more northern route at Leușeni.

However, there are many planned investments to construct and rehabilitate better roads on this corridor. (Figure 28) According to the Ministry of Economy, priority investment plans include:

- construction of a bypass road at Comrat of 18 km,
- construction of a bypass road between Slobozia Mare, Cîlița Prut and Giurgiulești villages of 18 km,
- construction of a bypass road at Vulcanești of 8 km (not on main truck route),
- construction of the missing sector on the M3 road from Porumbrei - Cimișlia sector of 19 km, and
- rehabilitation of the M3 from Chișinău - Comrat – Giurgiulești – Romanian border at km 96 - 151 (length 55 km), km 151 - 171 (length 20 km) and km 179 - 190 (length 11 km).

FIGURE 28. PLANNED CHISINĂU – GIURGIULEȘTI ROAD INVESTMENTS



Source: Google maps.

The rehabilitation of the M3 was initially awarded to a Romanian firm in 2014 with an expected completion date of 2016. In 2017, the contract was cancelled as less than 3% of the work was completed. The retendering began in March 2018 and the project, which is funded through a loan from the EBRD, is now estimated to be completed in 2021.

Once the works are completed, the corridors (Chișinău-Giurgiulești-Constanța, Chișinău-Giurgiulești-EU, and Chișinău-Cahul-EU) should be much more competitive. If trucks are able to travel at 80km/hr, they will be able to reach Giurgiulești in three hours.

Chișinău- Tudora/Palanca – Odessa/Chornomorsk

The nearest ports on the Black Sea are located across the border in Ukraine. The quality of the roads to the ports from Chișinău through the Tudora and Palanca BCPs in Moldova varies.

- The road is fair-poor from Chișinău to Căușeni. One constraint is that the road only contains one lane in each direction meaning that to pass slow moving vehicles and trucks, vehicles have to enter into the opposite lane. This presents safety issues.
- Căușeni town has a bypass road for trucks.
- From Căușeni to Tudora the road is better having been recently rehabilitated, but is still only one lane each way.
- The access road to Palanca needs rehabilitation and also traverses a village. If it is not repaired, it will become a bottleneck once the Palanca OSBP opens. It is our understanding that a procurement was just announced for works on the access road with aims to complete works in 2018, but that seems ambitious.
- The access road to Tudora is in good condition on the Moldova side.
- Currently access to both BCPs at Tudora and Palanca only contain one lane. While there are several lanes within Tudora BCP, the one access point under the authority of Moldova Border Police regularly becomes a bottleneck during busy times.
- The road in "no man's land" between Tudora and the Ukrainian BCP is in very poor condition and is a bottleneck. The road is one lane total for both directions. Fragile cargo, such as wine bottles or fruit, would have serious risk of damage or breakage.
- The Ukrainian BCP is less sophisticated than on the Moldovan side with manual gates, paper tickets at entry and exit instead of license plate recognition software, etc.
- The road conditions outside of the Ukrainian BCP are again in very poor condition. (Exhibit I)
- After some time, the roads improve, first to approximately 50 km/hr, then finally to 80-90 kph.
- As vehicles near Odessa, they encounter congestion and traffic.
- Currently access to Odessa Port is limited to one entrance through EuroTerminal at a cost of approximately $15 per entry. The free, port authority entrance is currently not accessible due to town restrictions on accessing the port through the city. Detouring through the EuroTerminal also increases the transport time to get to some of the port terminals. Road conditions within Odessa port are very poor including those on some of the elevated bypasses.

Ukrainian Roads Outside Of Tudora/Palanca BCP

RADU CORNEA AND KRISTEN HARTPENCE FOR NATHAN, MARCH 2018.

We are not aware of any planned projects to rehabilitate the road from Chișinău to Căușeni, the road to Palanca, or the road between the border of Moldova and Ukraine. A MoEI PPT from 2017

indicates that the Chișinău-Căușeni section would cost €39m, but funding had not been identified. The same document shows prospective plans to develop a highway from Ungheni-Chișinău-Odessa. There are two possible routes differing only on the Chișinău-Odessa portion. One is through Transnistrian region that would cost €447 million for 200km and another is in Moldova that would cost €544 million for 254km.

Chișinău-Leușeni

Chișinău-Leușeni is one of the most traveled trade corridors in Moldova. There are two possible routes from Chișinău to Leușeni:

- E581, 100km
- R33, 75km

Despite being 25km longer in distance, the E581 is the "quicker" of the routes as it was recently rehabilitated and is in good condition. It is a two-lane route. Most truck drivers prefer to use this route. The more direct route is being rehabilitated. The project includes 37km from Hîncești-Lăpușna at a cost of €18.8 million.[106]

Chișinău-Ungheni-Sculeni

Currently this road (R1) is under rehabilitation and, despite many terms of finalization of this project that started in 2014, it is planned to finally be accomplished in spring 2019.

The MoEI indicated that a priority project for 2018 was to begin the construction of a 6km bypass road at Bahmut.

Chișinău-Soroca-Otaci

Otaci is one the main borders for trade to the north and also to the east as the trade corridors avoid Transnistrian region. A MoEI document from 2017 describes trade through the border as comprising 13.1% of road trade and 313,385 metric tons per year.

The US Millennium Challenge Corporation (MCC) rehabilitated the 59km of road from Sarateni to Soroca from 2010 to 2015. The project reconstructed 61 km of roads and renovated or constructed 14 bridges as well as added sidewalks, lighting, signs, and guardrails in villages. However, the road from Soroca to Otaci is not in good condition at this time.[107]

Bălți-Chișinău

The project team traveled several routes from Chișinău to Bălți in March 2018 and found the roads to be in fair to poor condition despite connecting the two largest cities in the country. This presents a bottleneck for cargo traveling from the north to markets in the capital, to the only airport operating regularly scheduled flights (KIV), to borders, and to the ports serving Moldova.

The main route Bălți-Chișinău is the M14 (E583), which is part of the TRACECA road network, EATL, and TEN-T. It is a 2-3 lane road of 131km with an average speed of 65 km/hr. While the route was not listed by the MoEI as a priority investment for 2018, another source indicated that a

[106] https://www.unece.org/fileadmin/DAM/trans/main/SDGs/Develop_Resilient_Infrastructure/Experiences-T-Buzovschi_Moldova_.pdf.
[107] https://noi.md/md/societate/traseul-distrus-soroca-otaci-un-dezastru-adevarat-pentru-soferi.

feasibility study and design project is planned for 2018 with implementation expected from 2019-2021.[108]

Bălți-Ungheni-Sculeni

The nearest sizable BCP connecting Bălți to the EU is located at Sculeni. There is a €39 million project to rehabilitate 55km of the R16 Bălți-Fălești-Sculeni funded by the EIB.[109] There is also a program, funded by the EU, to upgrade the Sculeni-Sculeni BCP facilities.

Bălți-Criva

In 2012, project documentation was prepared for the rehabilitation of 133km of road from Bălți to Criva at a cost of €120 million, but as of 2018 funding sources had not yet been identified.[110]

Bălți-Otaci

As part of the *2013-2022 Transport and Logistics Strategy*, it was proposed that the R8 Edinet–Otaci–Ukrainian border be included in the TEN-T network. The road is considered in fair condition, but will require €26.7 million in rehabilitation.

Local Roads

65% of Moldova's roads are local roads and only 45% are paved. We could not find up to date information on the quality of local roads, but a World Bank document from 2014 indicates that 90% of such roads are in poor or very poor condition.[111] This increases costs for much of the country's agricultural sector and makes rural development much more challenging in general.

The World Bank began implementing the Local Roads Improvement Project in August 2016. The project will rehabilitate 300 km of rural roads aiming to connect residents of rural areas in Moldova to social services such as education and health facilities as well as to economic services by opening markets and increasing trade. While the project will only affect 4% of rural roads, it will improve key roads providing access to other social and economic infrastructure. The World Bank initially attempted to tender the works to local firms, but this was not successful. In 2018, the project will be re-tendered in an internationally-open procurement. As per the project's March 2018 Implementation Status and Results Report, the project's overall implementation was listed as "Moderately Unsatisfactory" with an overall risk rating of "Substantial".

According to the MoEI, investments planned for 2018 under the project include rehabilitating:

- R21 – Oniskani (10 km),
- M2 - Peresecina - Hîrtopul Mare - Ohrincea - R23 (26 km), and
- R25 - Seliste - Pirlița - R1 (42 km).

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[108] https://collaboration.worldbank.org/docs/DOC-25298 (last modified Nov 28, 2017).
[109] The Ministry of Economy and Infrastructure reported to the Parliament on the level of rehabilitation of several national roads and the progress of implementation of some of intiated works. The R16 Bălți – Fălești – Sculeni national road, financed by EBRD (credits) is currently about 25% complete. See http://www.parlament.md/Actualitate/Comunicatedepresa/tabid/90/ContentId/3891/Page/8/language/ro-RO/Default.aspx.
[110] https://www.unece.org/fileadmin/DAM/trans/main/SDGs/Develop_Resilient_Infrastructure/Experiences-T-Buzovschi_Moldova_.pdf.
[111] WB Local Roads Improvement Project Information Concept Document, 2014.

In 2019, additional projects will begin including:

- R13 - Ivanovca - Vanțina - Ocolina - M2 (35 km),
- M2 - Tînțăreni - Chișelnita - Ignăței - Trifești - R20 (36 km),
- R34 - Ciobalaccia - Tarta - R56 - Baimaclia - Enichioi - R37 (37 km),
- R26 - Mihailovca - Sadaclia - Iordanovca - R3 (22 km), and
- R3 - Pojareni - Țipala - R32 (34 km).

In addition to the construction works, the project also allows for $5 million in institutional strengthening.

ROAD SECTOR SERVICE CONSTRAINTS

Issues faced by Moldovan trucking companies

The Moldovan trucking industry is fragmented and comprised of many small-to-medium sized firms. As noted above, there are over 1,000 firms, with an average of 7 trucks per firm. There are few to no multi-national trucking companies represented in Moldova, although foreign and multi-national firms do operate on Moldovan routes. In fact, many Moldovan trucking companies and drivers have moved abroad towards more lucrative markets, which can be seen through the ANTA driver registration figures. Interviews with trucking industry participants revealed that the industry is becoming less and less lucrative to Moldovan trucking companies for the reasons laid out below.

- The poor road conditions lead to high operating costs and high maintenance costs.
- Long queues at the border lead to issues with driver rest time and it is hard to find drivers willing to spend 1-3 days at the border every time they make a trip to the EU.
- In general, it is hard to find qualified drivers willing to work for Moldovan trucking wages, which are about $500 per month, compared to $2000 in Romania.
- Moldovan trucking companies cannot pick up cargo in all markets due to cabotage restrictions, whereas Romanian registered trucks can operate cabotage in other EU markets allowing them to get more backhaul and rending them more competitive.
- Authorizations with key transit countries have been in short supply (Ukraine, Turkey, Russia) and Moldova has had little negotiating power to increase the number of authorizations allotted to its drivers.
- The Moldovan financial market and access to credit is poor and many trucking companies are starved for capital.

SOUTHERN AFRICA ONLINE FREIGHT EXCHANGE

Empty Trips Pty Ltd (https://www.emptytrips.com/) has developed a digital platform aimed at reducing the number of empty backhaul shipments in Southern Africa. In the SADC region, transport pricing per metric ton is higher than it should be because 30-60% of trucks only operate full one way. Empty return loads mean lower truck utilization and higher transport costs—plus they have a negative impact on congestion and emissions having unproductive vehicles on the roads. We understand that Moldova has a similar issue.

Transporters using the Empty Trips platform offer their excess capacity to shippers through an online, auction-based system. Pricing is anonymously negotiated through the system and parties are only revealed after the selection and payment process is completed. The system offers services for both road and rail freight and charges a 3% transaction fee.

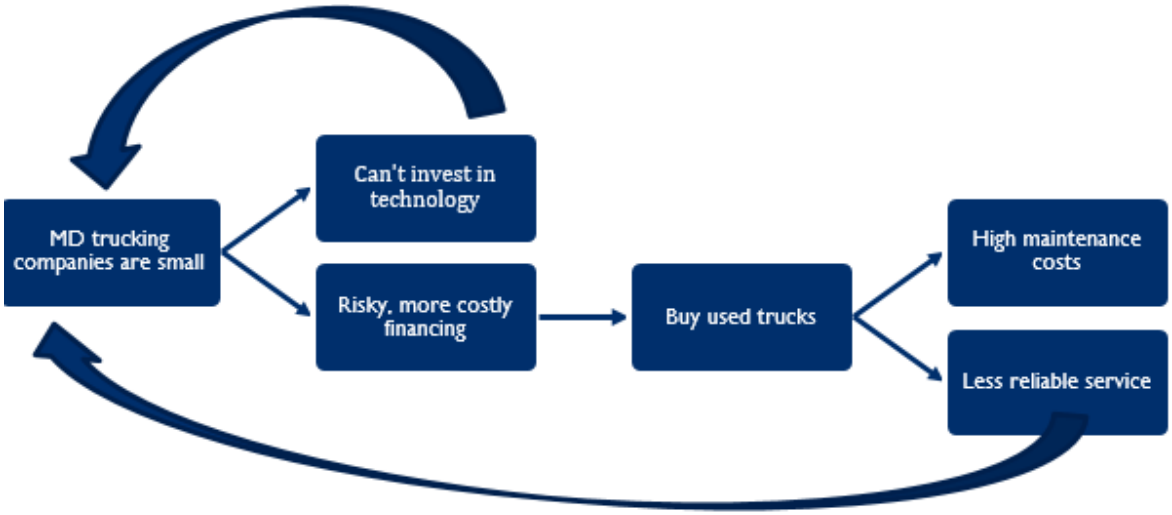
In 2018, 108 transporters with 3,900 trucks and 103 shippers were using the platform. The platform reports to be handling 30-40 transactions per day. Savings are significant. On average, shippers are saving 23% per consignment. At the same time, trucking companies are increasing their utilization and profitability. In addition to matching backhaul, it also provides solutions to asymmetrical information both by vetting participants and matching them as well as by mitigating collusion.

- This is complemented with tighter environmental standards imposed on Moldovan companies, which induce higher costs for acquiring newer trucks, in addition to the cumbersome bureaucratic regulatory system in place.

This means that drivers are leaving the country as are trucking companies, which are moving their registration to Romania and countries with access to more liberalized trucking markets. In recent years, the Moldovan trucking industry has faced a shortage of drivers due to higher wages in neighboring countries, which has become a substantial problem for national companies in retaining or hiring the new staff. The commercial struggle for market by carriers has led to a phenomenon of overloading cargo. This lowers the costs for transportation per unit of goods allowing Moldovan companies to be more competitive and make up for their higher operating costs. However, the practice has a negative impact on both trucks and roads.

These constraints on the Moldovan trucking market make it unattractive to foreign investors and multi-national firms. The constraints also make it difficult for Moldovan companies to grow. Many or most Moldovan trucking companies are small, which has an impact on their ability to invest in technology like track and trace (GPS, RFID) capabilities. All of these issues together make them a higher risk for financing. (Figure 29)

Figure 29. Circular Impact of Lack of Economies of Scale in the MD Trucking Industry



Source: Nathan.

Access to affordable financing is a major issue for the transport industry in Moldova as a whole, but especially has an impact on trucking companies' abilities to finance new trucks. For instance, some trucking companies indicated that they could receive a loan for a new truck in Romania with 0% down payment and interest rates around 5%. On the other hand, in Moldova, the same truck would require a down payment of 30%+ and an interest rate of 10-20% on the loan. At these rates, Moldovan trucking companies cannot afford to purchase new trucks. Instead, they purchase used trucks, which have higher maintenance costs and breakdown rates.

The combination of all of these factors increases the cost of transport to Moldovan shippers and reduces the reliability of service.

ROAD SECTOR REGULATORY ISSUES

Road Fund

As mentioned above, the Road Fund is used to finance road maintenance. In 2017, an audit report was published noting many deficiencies in the effectiveness of the Road Fund during the audit period of 2014-2016 including inefficient fund usage and missing funds. Key findings of the report include:

- failure by the responsible entities (Ministry of Finance and Ministry of Transport and Road Infrastructure) to carry out the actions required to exhaustively estimate the eventual resources for the Road Fund,
- inefficiency and non-transparency of Road Fund resources allocated by the institutional decision-makers,
- failure to ensure efficient data exchange for the purpose of exhaustive bookkeeping of tax duties generated by the inefficiency of current information systems,
- failure to ensure achievement of progress outcomes in the process of establishing the Road Fund because of inefficient monitoring of reported transport units,
- non-achievement of output indicators, attested to following inadequate and ineffective monitoring by the responsible subjects,
- acquisition of works and services by the State Enterprise 'State Road Administration' with a series of deficiencies and irregularities, which affects the efficient management of Road Fund's means (105,5 million lei) [$6.2 million],
- arbitrarily establishment by the beneficiary (the State Enterprise 'State Road Administration') of the warranty period for the repair works carried out, which established the inefficient use of public money,
- failure to ensure the quality of performed works following acceptance of public road repair works with deviations from legislative provisions in the area of construction quality (148,4 million lei) [$8.7 million],
- non-efficiency of the financial management of joint stock companies, which generated additional spending (47.4 mil. Lei) [$2.8 million],
- irregular management of Road Fund resource, which led to the inefficient use of Road Fund means for the maintenance and repair of access roads to social-cultural institutions (2.4 million lei) [$141,000], and
- lack of an adequate normative framework, which determined non-achievement of expected outcomes in both qualitative and quantitative terms.[112]

The issues uncovered in the audit report describe some of the reasons why roads in Moldova are not able to be properly maintained and are in poor condition. Poor road conditions have many effects on trade corridor performance such as:

- reduced operating speeds → increased time,
- increased vehicle operating costs → increased cost,
- increased truck maintenance costs → increased cost,
- reduced competition of trucking companies willing to bid on services on routes with poor infrastructure → increased cost,
- use of older trucks which in turn break down more frequently → reduced reliability,
- breakage of cargo → reduced reliability, increased costs, and

[112] Attachment to the Decision of the Court of Accounts No.66 of 05.12.2017, Performance Audit Report on the Assessment of the Effectiveness and Efficiency of Administration of Road Fund means to ensure quality development of the road infrastructure. Conversions to USD included in brackets.

- diversion of cargo to routes with better infrastructure, which may include longer routes and increased congestion on those roads or at those borders → increased time and costs.

Regulation of Freight Forwarders

At present, regulation of the freight forwarding industry is limited. In order to implement the provisions of the Road Transport Code, the Government approved in 2016[113] a Regulation on Road Freight Transport that defines freight forwarding, establishes mandatory provisions and the structure of contract, and regulates freight transportation operations. According to industry stakeholders interviewed in the course of the project, these regulations can be improved to create minimum requirements for conducting freight forwarding services, which would improve the professionalism of the industry. Without these standards, "fly by night" operations can operate either in unprofessional or fraudulent manners. For example, one trucking company indicated that in 2017 it had 900,000 MDL ($53,000) in bad debt from non-payment by forwarding services.

It is rare when an industry asks for regulation, but both the Freight Forwarders and Customs Brokers Association (AEM-Trans) and International Association of Road Transport (AITA) have requested that regulations be developed. Both groups say that the problems in the industry are pervasive and can only be solved by regulation. AEM-Trans indicated that they had begun drafting proposed regulations on the rules, rights, and responsibilities for freight forwarders to operate, but could use technical assistance. Development and review of such regulations would fall under the prevue of the Ministry of Economy and Infrastructure with collaboration with the appropriate associations. Once developed, the policies or regulations would then be implemented by ANTA. We suggest that the MoEI and ANTA meet with industry associations and stakeholders to review and consider strengthening the regulation.

Overweight vehicles

In interviews, Moldovan haulers noted that there is much stronger enforcement of regulatory requirements on the control of weight per axle by Romanian authorities versus a more relaxed situation in Moldova and Ukraine. This influences the volume of cargo going to the port of Constanța and is one of several reasons that the Port of Odessa is preferred by drivers with general cargo.

A general summary of maximum permitted axle weights is presented in the table below.

Table 22. Permissible maximum weights of trucks (M/T)

	NON-DRIVE AXLE	DRIVE AXLE	LORRY 2 AXLES	LORRY 3 AXLES	ROAD TRAIN 4 AXLES	ROAD TRAIN 5+ AXLES	ARTICULATED VEHICLE 5 AXLES +
Moldova	10	10	18	24	36	40	40
Romania	10	11.5	18	25	36	40	40
Ukraine	11	11	18	24	44	44	46

Source: https://www.itf-oecd.org/sites/default/files/docs/weights_0.pdf.

[113] http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=365504.

At a glance it appears that the maximum permissible weights are similar among the three countries. However, all haulers agreed that Romania actually enforces these weights while enforcement in Moldova and Ukraine is much looser.

Vehicles are weighed by Moldovan customs at the BCP and, in theory, should be fined if they are overloaded. In practice, this does not always happen. By regulation, enforcement is by ANTA and ANTA does not have a consistent presence at the borders. ANTA has several mobile weighbridges, but no permanent weigh stations. The agency does not have the resources to have enough teams to properly enforce these regulations as discussed below. ANTA states that they coordinate with MCS, but based on interviews it appears fairly easy to avoid enforcement.

Currently ANTA leases 8 mobile weighing points. Back in 2009-2010, the WB, EBRD, and European Bank purchased 13 mobile weighing points on the axle (10 units with static operation and 3 units with dynamic operation). These are the property of the State Roads Administration. The State Roads Administration was responsible for mandatory verification of axle load until 2014 when this function was transferred to ANTA. The Audit Report on the Road Fund (2017) of the Court of Accounts notes that the mobile weighing equipment was leased to ANTA by the State Roads Administration only in 2016. As a result, ANTA incurred additional expenses in the total amount of 1.2 million MDL ($71,000), out of which 800,000 MDL was for the rental of weighing equipment and 400,000 MDL was for maintenance and endowment of the equipment.

Data obtained from ANTA's inspections for 2014-2016 have shown that fines for overweight vehicles are quite common. Over this two year period, the total amount of fees applied for the exceeding of the allowed limits was 9.3 million MDL ($550,000). However, anecdotal evidence suggests that many overweight trucks managed to avoid paying a fine either by making an informal payment or simply because there was not a functioning weight station. The amount of fines not collected by ANTA cannot easily be estimated, but it is clear that overweight trucks are quite common and are a serious problem for Moldova's roads.

Capacity of ANTA

ANTA is a self-managed and self-financed institution with a budget of nearly 60 million MDL in 2017 ($3.5 million) and estimated budget for 2018 of around 48 million MDL ($2.9 million). It has a total of 120 employees with 11 departments. This level of funding is insufficient for ANTA to properly train its employees or purchase the equipment required to properly regulate the road sector. In part it is a chicken and egg problem. With its current levels of funding, ANTA lacks the resources to enforce regulations or collect penalties, which in turn hurts its financial capabilities. With more resources, the agency could do a better job of enforcement, particularly of axle-weight regulations, and bring in more resources.

The Agency lacks a strategy on human resource development and staff is not sufficiently trained in areas related to controls, technical inspections, provisions of services to the public, software skills, project management, etc. Most of the staff do not have proficiency in English or other languages besides Romanian and Russian, despite the need for staff to work with foreign transporters and policy documents.

A One-Stop Shop was established at ANTA several years ago for submitting and issuing a number of permits and certificates. This was a useful step forward, but transporters can only access the One-Stop Shop by coming into ANTA's office. Online access does not exist.

Since Moldova acceded to the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to Be Used for Such Carriage,[114] the Agency is responsible for verifying the parameters of vehicles for the transport of perishable and easily altered products. In order to do so, it needs a modern laboratory that would conduct all required tests without delaying the transportation of products. It also needs to finalize regulation in this area and to train staff on how to properly implement the rules.

In general, there is still an insufficient regulatory framework to fully implement the Road Transport Code and EU and international commitments. ANTA has requested technical assistance, training, and capacity building support to better equip its staff to fulfill these functions. An action plan is included in the recommendations section of this report to address some of these issues and the USAID Moldova SR program will work with ANTA to see which issues can be addressed through its Year 2 work plan.

Trucking Authorizations

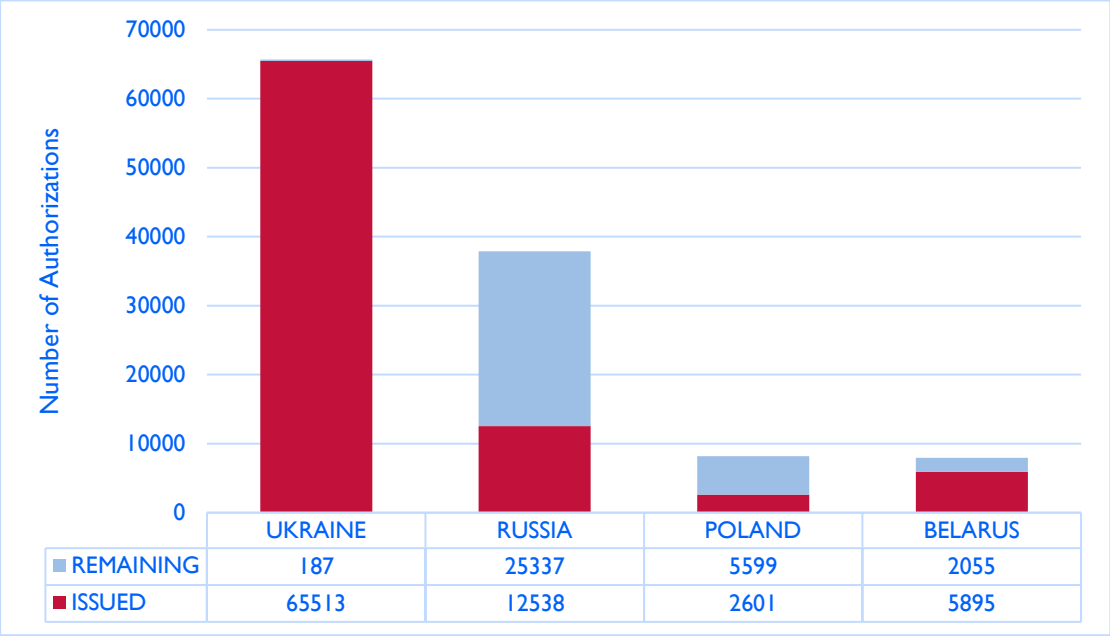
One of the most important bottlenecks in the road transportation logistics in Moldova is the number of trucking authorizations. Authorizations are subject to inter-country negotiations and quotas, which are renewed on a yearly basis.

The figures and maps below shows the total number of authorizations negotiated between Moldova and other countries based on mutual agreements and in some cases reciprocity. Figures 30 and 31 show the stock of issued and remaining authorizations in 2017. In some cases, such as Ukraine and Russia, despite the large number of authorizations, they are not sufficient to cover overall demand. They often are solicited during the year, particularly in the high season from July to October, which increases the uncertainties and non-transparent way of distribution.

As shown in Figure 30, Moldova had the most authorizations to Ukraine, but has used nearly all of them. In fact, according to interviews, Moldova typically exhausts its stock of authorizations to Ukraine around September and it takes high level political negotiations to increase the stock. In the meantime, it is our understanding that those without authorizations can get through the border by paying informal fees ranging from $50-120. The other highlight is Turkey, with which Moldova has exhausted 100% of its 2017 authorizations.

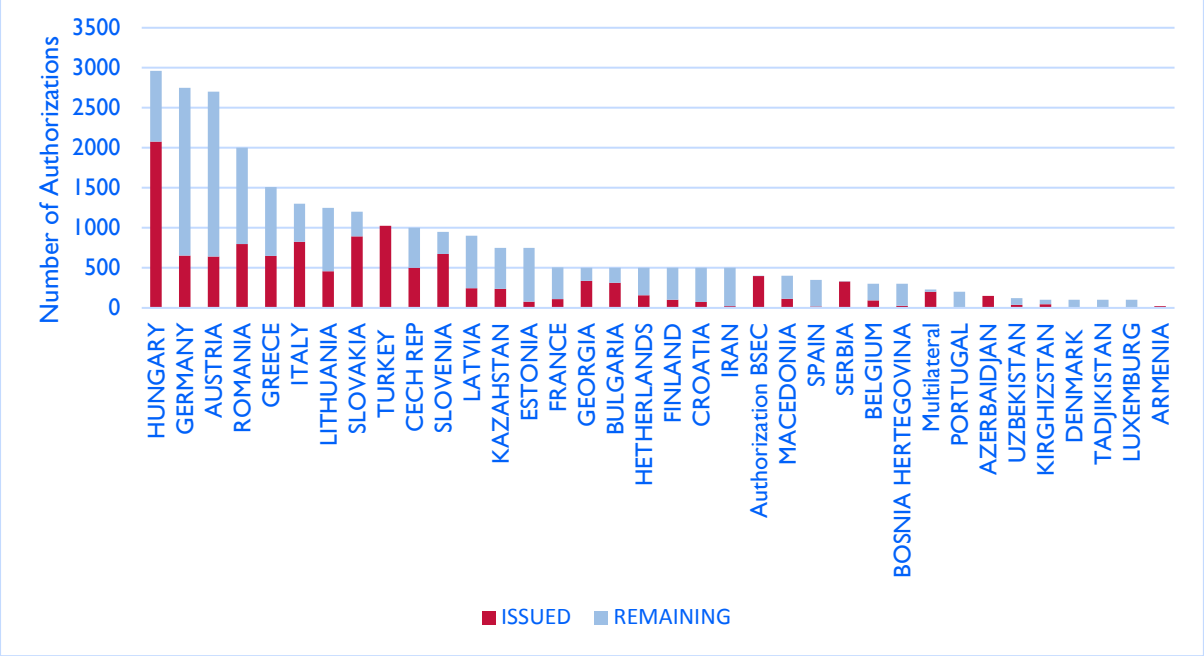
[114] The agreement was last time amended in january 6, 2018 https://www.unece.org/trans/main/wp11/atp.html.

Figure 30. Stock of Issued and Remaining Authorizations by Country, 2017: Countries with Over 5,000 Authorizations Issued



Source: ANTA.

Figure 31. Stock of Issued and Remaining Authorizations by Country, 2017: Countries with Under 5,000 Authorizations Issued



Source: ANTA.

Figures 32 and 33 below show Moldova's stock of authorizations for 2018 and those remaining through May 2018. As shown in the figures, Moldova will run out of authorizations to Ukraine and Turkey by the end of the year. In the case of Ukraine, there was a recent agreement that will lead

towards the liberalization of the market in 2018, which will remove this issue in the future.[115] This was a result of high-level negotiations by the Moldovan government. Negotiations for liberalization with other markets should be considered as well. While it allows foreign carriers to enter the Moldovan market more easily, it also benefits Moldovan trucking companies.

Figure 32.Total Number of Authorizations for Road Cargo Transport

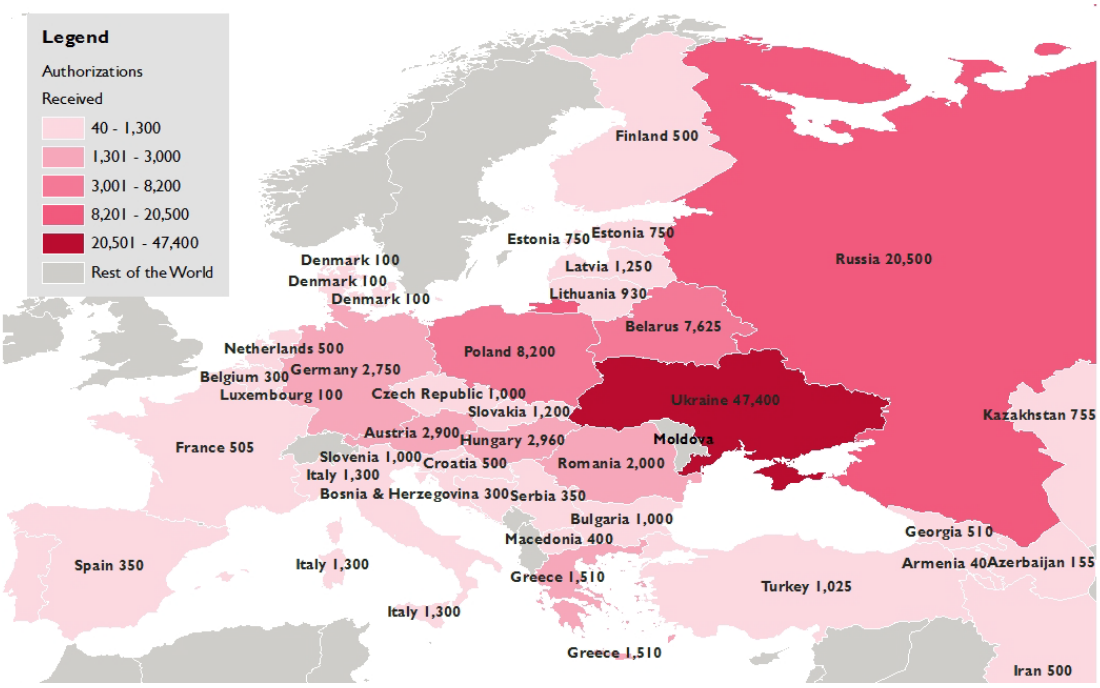
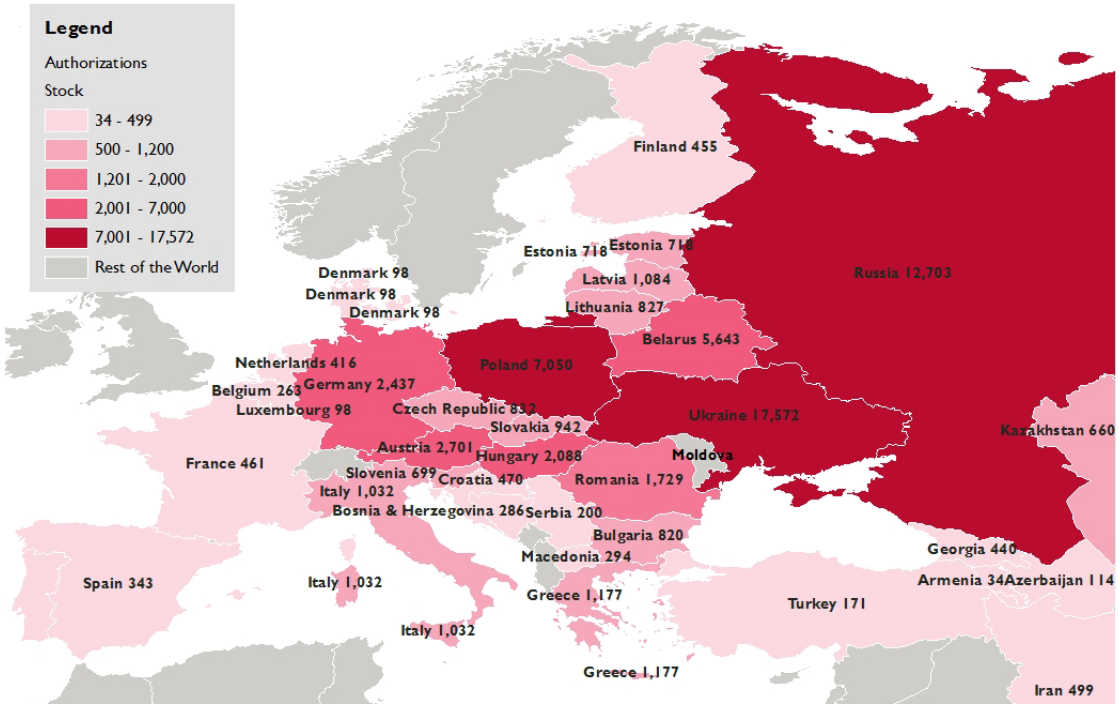


Figure 33. Remaining Stock of Authorizations as of May 15, 2018



Source: www.anta.com.

[115] The tentative agreement was for July 2018. At of this writing, it is not clear whether this deadline will be met.

The internal distribution procedure of authorizations among the trucking companies remains non-transparent. For example, CEMT multilateral authorizations are issued to road haulers conducting international freight journeys on the territory of CEMT member states and CEMT multilateral authorizations are awarded to the Republic of Moldova annually according to the decision of the International Transport Forum. According to transport and freight forwarding companies, the availability and fair distribution to the haulers of the CEMT authorizations is still an issue. Despite the formal structure (committee) and procedures that are established in specific regulatory acts, the process remains largely non-transparent and subject to interpersonal relationship or even sometimes to informal payments to public servants from the agency.

The shortage of available authorizations is a factor for trucking companies to move registration of companies' truck fleets to Romania in order to avoid blockage of activity due to the lower number of authorizations granted to the Republic of Moldova. As a consequence, the Moldovan carriers compete with Ukrainian and Romanian carriers for national and regional traffic. Solutions for this may include liberalizing the market and/or developing a more fair and transparent process for obtaining authorizations such as moving to an online system.

Jurisdiction of Controls at the Borders

In 2014, the new Road Transport Code[116] assigned additional control functions to ANTA that related to border control checks for any transport vehicle entering, transiting, or exiting Moldova. Additionally, ANTA had to check all the bilateral and/or multilateral road cargo authorizations. That has created a number of issues since the regulatory authority did not have sufficient capacity to cover all the border crossing points of the country. In March 2018, a new amendment[117] to the Road Transport Code was prepared that transferred these functions to the Customs Service. The draft law amending the Code is currently before the Moldovan parliament. It is not clear whether it will be passed by September. If it is not, the autumn elections mean that it will certainly not pass until next year at the earliest.

RAIL SECTOR BOTTLENECKS AND CONSTRAINTS

RAIL SECTOR INFRASTRUCTURE ISSUES

Moldova's railway is on the brink of rapid change. The EBRD has offered large investments that could rejuvenate the sector. However, the investments are linked to restructuring, which are already proving financially and politically difficult.

A legacy of the Soviet period, Moldova's railway network is extensive covering 1,151 km of un-electrified track. After years of deferred maintenance, the system is in very poor condition. (See discussion in Sections 2 and 3, above.) Investment requirements are therefore quite high. However, if revitalized, the rail sector could remove pressures from the road sector, most significantly in terms of heavy cargo that increases road maintenance costs, and the trucking sector, which is facing shortages of drivers.

According to interviews with CFM management, CFM estimates that its investment needs are around $600 million. To date, there are €116.75 million in planned investments to purchase freight locomotives and rehabilitate some of the tracks. Financing includes a €52.5 million loan by the

[116] http://lex.justice.md/md/354404/.
[117] http://www.parlament.md/ProcesulLegislativ/Proiectedeactelegislative/tabid/61/LegislativId/4146/language/ro-RO/Default.aspx.

EBRD, a €52.5 million loan by the EIB, a €5 million EU grant, and a €1.75 million EBRD grant.[118] The estimated €55 million for track rehabilitation will cover the section from Curciugan on the Transnistrian region/Ukraine border to Giurgiulești essentially providing potential access to three ports, GIFP in Moldova and Odesa/Chornomosk in Ukraine. The remaining funds will purchase 10 locomotives. The works are planned to begin in late 2018 and last 18 months.

ARMENIAN RAIL PRICE EXAMPLE

Somewhat comparable by its geographical constraints (small size, landlocked, etc.) may be the South Caucasus Railways (Armenian Railways), which puts on its website the exact tariffs in USD from Yerevan (Armenia) to Poti port (Georgia) – ex: 1000 USD/wagon of non-alcoholic beverages (HS: 2201, 2009).

This is definitely a start in the right direction and will allow service to become much more reliable in the southern part of the system. However, many other infrastructure needs remain, including repairs to additional tracks, inland terminals, and the purchase of rolling stock. For instance:

- CFM has 5,442 rolling stock, but 52% are non-operational. This includes the majority of its general purpose wagons, universal platforms, fitting platforms, cement hoppers, and other boxcars.
- The majority of tracks need to be rehabilitated with no funding identified other than the GIFP to Cuciurgan section.
- Inland terminals need investment and handling equipment.
- There is no rail connection to the Bălți FEZ.
- There is a shortage of signaling equipment and much of the existing stock of equipment is nonfunctional. This contributes to slowdowns and also will make it quite difficult for the system to handle expanded traffic.

The investment needs are so high in part because CFM has faced budget shortfalls for years. Despite positive cashflows for freight operations, subsidizing passenger transport has limited CFM's investment potential.

In addition, the railway faces technical issues. For one, it is not electrified. For another, much of the network is single track. Yet another issue is that Moldova is nestled in between the EU and former USSR countries, which use different rail gauges. Besides Giurgiulești, which has a mixed gauge, Moldova's rail gauge is compatible with the CIS countries, but not EU, which complicates travel to Romania. According to CFM, the technical issue can be overcome. CFM says that they can adapt 40 wagons at the border in just 48 minutes. The process is apparently quicker than customs operations at the borders, which takes an hour for scanning, and so is less of an issue than publicly perceived.

There has been some discussion of a standard gauge line from Chișinău to Iași in Romania. This could improve connections to the EU and would also have political and symbolic significance. Similar projects have taken place in the Baltic States where new standard gauge lines have been built beside existing Soviet gauge lines.[119] While no feasibility study has been done, it is estimated that such a project could cost around €200 million and would allow for transport of freight and passengers from Chișinău to Iași in less than 4 hours. However, it is difficult to consider funding such a project for greenfield investment when so much of the current infrastructure needs investment.

[118] http://www.eib.org/projects/loan/loan/20130274 , https://gov.md/en/content/european-money-restore-railway-infrastructure-moldova.
[119] These are now being integrated into a plan to build a standard guage network throughout the entire region, the so-called "Rail Baltica" plan.

RAILWAY SERVICE ISSUES

Poor Railway Performance Due to Infrastructure Issues

The Moldovan railway's poor track infrastructure and lack of locomotives leads to poor performance and unreliable service. CFM says that they typically operate at speeds of 33 km/hr far from their maximum design of 90 km/hr. These speeds are similar to neighboring countries like Ukraine and Romania, who also have poorly performing rail sectors. But even more time is spent waiting for locomotives and with breakdowns. It typically takes at least 3 days, and can take up to 6 days, for a wagon to travel 270 km from GIFP to Chișinău. In 2017, virtually no containers were moved via the railway through less than 10 import and export wagons combined.

After the EBRD's project rehabilitating the line from GIFP to Curcigan and the acquisition of new locomotives, it should be possible for CFM to offer a competitive container blocktrain shuttle service from GIFP to the capital. If an arrangement could be worked out with Transnistria region, a shuttle also could serve Odessa and/or Chornomorsk again. It is estimated that approximately 18,000 containers were moved annually to/from Moldova to Odessa and GIFP in recent years with almost all going by road. Therefore, there is significant potential for such a service. Container movements from GIFP to Chișinău are already priced competitively and, with improvements in transport time and reliability, should be able to attract cargo. A container service to Ukraine was stopped two years ago as it was not cost-effective with tariffs on three sections (MD, UA, and Transnistrian region). CFM's new commercial department appears to be properly staffed with a young, ambitious marketing team that should be able to sell the services once the infrastructure and equipment are ready.

Railway Tariffs

CFM's new commercial team is responsive and motivated to attract business. However, the CFM website could be updated to make it easier for prospective clients to access and understand pricing information. There is a general table indicating a formula-type tariff system, but transporters and shippers have indicated that it cannot be easily understood or used for determining the cost of transportation without the assistance of specialized freight forwarding companies. The coefficients used in this formula-based calculations vary depending on the distance, type of goods carried, and type of container used. The only tariffs with clear USD values are for containers from Chișinău to Novosavitcaia and Chișinău to Giurgiulești.

On the Moldovan Railway webpage,[120] there is a list of 18 freight forwarding companies that concluded the contracts in 2017 with the Moldovan Railway and have the right to render railway cargo transportation services. However, the websites for the authorized freight forwarders are very generic and do not have any detailed information on the distance/costs. From interviews with freight forwarders, it was determined that the tariffs are calculated on a basis of *ad hoc* requests with clear indication of the HS codes for the proposed goods to be carried, name of the buyer and seller, terms of delivery, etc. These companies usually connect via web portals of the Ukrainian railways or Romanian and Russian railways to provide the final quote, which usually is a spot price and may change quite significantly from one week to another.

This is partly the result of the overall country participation in various negotiations on establishing new trade corridors such as an extension of the Viking and Zubr corridors and the introduction of

[120] http://tracer.railway.md/tarif/ro/expeditor.htm.

the block trains as well as participation in the existing ones. Unfortunately, at this stage Moldova lags behind its neighbors in this respect as well as behind the EaP countries.

RAILWAY REGULATORY ISSUES

Moldovan Railway Restructuring

CFM is set to undergo a major restructuring, under which it will be split into several companies covering 1) infrastructure, 2) cargo, and 3) passengers. The organizations will be independent both financially and organizationally. In addition, a railway safety authority will be developed as will a regulatory body and an accident investigation body.

The restructuring could have three major benefits on the Moldovan freight railway market.

- Cargo will no longer have to subsidize passenger services, which are loss-making.
- The Government of Moldova will be obligated to contribute to infrastructure maintenance costs in order to maintain a certain level of safety and service.
- The restructuring will allow for private investment.

This plan follows the European model, which separates the profit-making freight business from the socially desirable, but loss-making passenger service allowing the cargo company to operate more like a business. In 2016, Moldova's cargo operations had a profit of 58 million MDL ($2.9 million), while its passenger operations had a loss of 200 million MDL (about $10 million). Removing the cross-subsidy will allow the freight service to lower its prices and attract more cargo and/or to invest in maintenance and equipment.

However, it also means that the Government of Moldova, and more specifically MoEI, will have to either come up with money to subsidize the passenger service or cut service. The first option will be difficult in the current fiscal environment, while the second would be politically unpopular. The MoEI will also have to determine how to fund infrastructure maintenance.

Finally, the restructuring allows for private investment. In theory, this would come in terms of a private company buying shares in the state-owned enterprise and providing capital that can be used to purchase equipment such as rolling stock. This could bring benefits in terms of investment and should allow the railway to become more competitive. However, the experience of other developing countries suggests caution. Moldova must be careful not to let a private monopoly replace the public monopoly, at least not without sufficient safeguards in place. It will be important that regulations and a regulator are in place to ensure fair competition and non-monopolistic pricing and that minimum performance standards are met.

Customs

At present, trains are stopped at the border for customs clearance. According to CFM, this takes about an hour as all wagons are scanned. Best practice would be for the cargo to be cleared at inland terminals and sealed allowing it to move across borders without stopping. However, such infrastructure is not currently available in Moldova and should be considered as part of future logistics hub planning.

MARITIME SECTOR BOTTLENECKS AND CONSTRAINTS

MARITIME SECTOR INFRASTRUCTURE ISSUES

Moldova's Ports and IWW

Moldova's maritime sector includes GIFP (the most utilized component), a public port at Giurgiulești with capacity for passenger services, and several IWW systems, which are currently underutilized. (See discussion in Sections 2 and 3 above.) For purposes of this TCA, the team only visited GIFP and did not do any engineering or waterside inspections. However, from interviews with stakeholders and secondary research, we understand that the main infrastructure issue with Moldova's maritime sector is lack of dredging. This affects both the IWW and access to the ports at Giurgiulești. During the summer months, there are periods where the river becomes too low to operate feeder vessels causing delays.

Other infrastructure constraints at the port include insufficient container handling equipment. While the port has good infrastructure for handling bulk cargos like fuel, sunflower oil, and grains including silos, elevators, and conveyor systems, equipment for handling containers is much more limited. The port has only one mobile harbor crane, one reachstacker, and one shunter. If any of these break down, there are no backups. The current crane can only handle 4-6 containers per hour. This means that a vessel of 150 containers would require 25-38 working hours, or several days, to load or unload. Customs infrastructure at the port is also limited. At the time of our team's visit, the port did not have a truck scanner and had to go to the BCPs outside of the port to scan trucks.

GIFP is connected to the railway system. The public port is not. The port now has multi-gauge railway connections with both the EU and CIS type gauges. This allows easy access to both Romanian and Ukrainian railways. Connections to Moldova's own railway system have poor operational performance, but still attract some cargo. In particular, CFM was able to attract significant grain volumes from Northern Moldova. The railway connection from GIFP to Cahul is also now operational although service is poor due to locomotive shortages. The connection from GIFP-Basarabeasca-Bender-Chișinău/Curciurgan needs repair and a €55 million rehabilitation project from GIFP to Curciurgan is being funded by the EBRD.

Road connections to the port are poor. In the area immediately outside of the port, there are BCP on both sides, to Romania to the west and to Ukraine to the east, which can lead to congestion. The port itself lacks truck parking areas and a truck parking lot or staging area could improve logistics. The roads connecting the port to Chișinău are in poor condition. Planned construction and rehabilitation projects that were supposed to have been completed have been delayed due to poor contractor performance only to be retendered in 2018.

Constanța Port

There are no apparent infrastructure constraints at Constanța port that would negatively affect Moldovan shippers' ability to use the port. The DPW container terminal is very professional, efficient, and has sufficient equipment. The terminal averages 30-35 container moves/hour and can hit a maximum of 50. Trucks use an appointment system for discharge and pickup spending only 20 minutes in the port. The terminal had no congestion issues. The terminal also had sufficient capacity. Bulk operations at the port have sufficient capacity as transshipment volumes have fallen in recent years. The port is in the process of developing a Ro-Ro terminal.

Ukrainian Ports

The Ukrainian ports are not in as good of condition as Constanța. The advantages of Odessa Port versus Chornomorsk port is that it operates even in bad weather as it is near the bay, while Chornomorsk is closed in the high winds. However, the access roads and internal port roads in Odessa are in fair to poor condition and the port faces congestion both with rail and road access. At present, the truck access gate in town is not accessible due to restrictions by the city, so the only truck access gate is through EuroTerminal. This comes at a cost of approximately $15/entry, whereas the public gate would be free. It also requires a longer driving distance to some of the terminals and traversing an overpass bridge, which was riddled with potholes. It took our team about 20 minutes to traverse the port from EuroTerminal one way in a car meaning truck roundtrip transit time alone to certain terminals would be about an hour, excluding queues or pickup/drop-off time. According to interviews, congestion is severe during peak agricultural export periods. The railway also faces infrastructure constraints and congestion. As the port is surrounded by sea and the city of Odessa, there is limited space for operational infrastructure extension.

MARITIME SECTOR SERVICE ISSUES

While bulk vessels operate on a charter basis, Danube Logistics operates a scheduled weekly feeder or barge container service from GIFP to Constanța. The feeder service can handle 145 containers, including 10 reefer containers, and is IMO certified. According to the operator, the feeder travel time is 10 hours upstream, and 8 hours downstream. However, due to draft restrictions or economics, sometimes one or two 2,000 MT barges are operated instead of the feeder service. The barge service cannot handle reefers or dangerous cargo, and it takes a significantly longer time (3-5 days), including additional time for customs processing as the shipments are treated as transit, not transshipment, cargo using this route. Shippers indicated that the use of barges creates issues for their business, as it increases transport time and reduces reliability, and also costs more due to the transit declaration and possible physical inspection costs in Romania. That said, when the feeder service is running, it provides benefits compared to using foreign ports, as no transit documents are required and no land borders are crossed.

Shippers also have issues with the frequency of service and transport time in general of using GIFP. With only weekly service, using GIFP can add 1-2 weeks to transport time compared to using Odessa or Constanța by truck. Here we encounter another chicken-and-egg problem. The low frequency of service deters many potential users away from GIFP, but current volumes of traffic do not provide an economic rationale for increasing the frequency of service. Current flows are also unbalanced with exports exceeding imports. This is the opposite of Moldova's general trade balance, so should be able to be improved. Danube Logistics believes that it will be possible to attract more import cargo once the access roads improve. If the port could attract some containers from the Ukrainian ports, or if volumes increase in general, a more frequent service could be warranted in the future. But for this to happen, the road and/or rail access to GIFP will have to be improved. Further, container handling efficiency at the port and the reliability of the feeder service would have to be assured.

MSC is the only shipping line in Moldova with a bill of lading GIFP. Other shipping lines using GIFP are represented by Danube. Shippers using other ports operate through freight forwarders or shipping lines in the country of the port such as Maersk Ukraine.

MARITIME SECTOR REGULATORY ISSUES

Institutional Structure

Moldova has a small maritime sector, the regulation of which is housed under the MoEI, which covers all transport sectors. Establishing a maritime agency was part of the *2013-2022 Transport and Logistics Strategy* as well as the EU-Moldova Action Plan to Implement the Association Agreement. In 2017, a draft law was submitted to Parliament to establish a Maritime Agency, but to date it has not been passed.

Like many other small countries, Moldova allows ocean-going ships to be registered under the Moldovan flag. However, so far this has not led to good results – see below.

Environmental and Safety Issues

It is our understanding that safety of navigation, protection of environment, and public management of waste at GIFP could all be improved.

Port State Control

The Paris MOU monitors port state control with the aim of using a standardized approach to monitor ship standards globally. Moldova is currently on the Paris MOU's Black List[121] due to lack of port state control and procedures. It is one of 12 countries worldwide on the list and one of 5 countries rated High Risk with only the Democratic Republic of the Congo being rated Very High Risk. The reports are published annually in June based on the prior year's performance and last for a year meaning that the 2018 publication covering 2017 performance is forthcoming. In 2017, there were Paris MOU deficiencies found on 139 of 144 inspections. Of the 1,013 deficiencies noted, 171 were detainable deficiencies resulting in 31 detentions or a detention rate of 21.5%. This rate is higher than 2016's 20.13% detention rate, which put Moldova on the Black List. In 2017, Romania had a 0% detention rate, although out of only 2 inspections. On the other hand, Ukraine had a 23% detention rate with 25/26 inspections finding deficiencies. The US had a 7% detention rate.[122]

EXAMPLE OF PORT STATE CONTROL VIOLATION

"The GENERAL CARGO "NORTH STAR", IMO N° 7811410, flying the Moldova Flag, sailing from TENES (ALGERY), arrived in Marina di Carrara Harbour on 17 May 2017 for cargo operations (marble blocks), with Priority 1 and was subject to an Expanded Inspection. Moreover, the vessel did not comply with the mandatory requirement imposed by Directive 2009/16/EC - article 9 ("notification of arrival of ships"). The Port State Control team attended the vessel on 18 May in the morning. Prima facie, the vessel appeared to be clearly substandard, with worn and partially unreadable immersion scales, either bow or aft and a considerable level of rust and indentations affecting the hull. Since the first approach, the Port State Control inspectors noted the unsafe gangway, with twisted and damaged steps. Later, whilst checking the rectification of the outstanding deficiencies, the inspectors recorded that as "recurrent deficiency", still in place and not rectified from the previous PSC inspection. During boarding procedures, the inspectors realized that crewmembers on watch - in charge to control access to the ship and embarkation of person and their effect - were not able to fill out the visitor's log book and check ID documents, being unable to write and speak in English, despite of being the working language on board…At the second deck, just under the main deck, the ceiling bulkheads of the room leading to the steering room was cracked with evident signs of corrosion and water penetration from the upper deck; most of the lights were found inoperative, including all the emergency lights. Port State Control inspectors discovered that, due to a serious failure, the electric system was inoperative, as well the emergency generator and the emergency fire pump! The vessel was detained in Marina di Carrara for 21 days, from 18 May to 7 June 2017, recording 29 deficiencies in total of which 21 were detainable deficiencies."

-17TH OF JULY 2017 news report from https://www.parismou.org/cg-north-star-caught-net

[121] https://www.parismou.org/detentions-banning/white-grey-and-black-list.
[122] https://www.parismou.org/inspection-search/inspections-results-kpis.

The implications of being on the Paris MOU's Black List mean that Moldovan ships cannot access ports in the Paris MOU region of 27 countries including: Belgium, Bulgaria, Canada, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, Portugal, Romania, the Russian Federation, Slovenia, Spain, Sweden, and the United Kingdom.[123] For example, in 2016, the Moldovan flagged M/V "ALIZE" was refused access to the Port of Constanța.[124] As long as other flagged vessels can serve the Moldovan market, this is not likely to have a large impact on Moldovan trade volumes.

However, it is still a regulatory responsibility of the Moldovan government. While the ship-owner or operator is responsible for complying with port state control, the country under which the vessel is flagged is responsible for enforcing compliance. Moldovan port state control should be strengthened to overcome this constraint on the maritime sector.

Regulatory Issues Using Ukrainian Ports

Meetings with the port authorities in Odessa and Chornomorsk revealed that the ports have no official relationships with counterparts within the Moldovan government to facilitate trade, share statistics and data, or address issues. Regulatory issues concerning transport through Ukraine uncovered in the course of our interviews include the three below.

- Moldovan drivers that regularly serve Ukrainian ports face issues with visa limitations. Additional intergovernmental agreements are needed to regulate these issues.
- Moldovan e-signatures are not permitted in Ukraine.
- Ukrainian authorities have strict border controls for spirits in efforts to prevent counterfeiting and smuggling. These procedures are very time consuming and are reported to include 3-7 days delay at the Starokazachye BCP plus an additional 2-4 days of laboratory inspections in the port.

AVIATION SECTOR BOTTLENECKS AND CONSTRAINTS

AVIATION SECTOR INFRASTRUCTURE ISSUES

Chișinău Airport

In August 2013, Avia Invest was awarded a 49-year concession at Chișinău Airport. Avia Invest took over an airport with infrastructure that had many rehabilitation needs. As part of its agreement, it has committed to €240 million in investment. During its 4+ years to date as operator, Avia Invest has undertaken important works including a complete rehabilitation of the airport's passenger terminal and repairs to its secondary runway. (See discussion in Section 2 above.)

Avia Invest's action plan has prioritized improving facilities for passenger services first, then cargo services. There is a sound economic rationale for this decision as the majority of cargo worldwide is transported via civil aviation or passenger planes. Increasing passenger service will therefore in turn naturally increase air cargo service and expand the reach of Moldova's air cargo market. Unfortunately, it means that Moldovan air cargo services will not receive dedicated investment from Avia Invest in the short or medium term. Avia Invest does have plans to improve the air cargo terminal beginning in 2021 after the runway rehabilitation is completed, but it is not clear whether they have plans for improving or acquiring other cargo-related infrastructure and equipment.

[123] https://www.parismou.org/about-us/organisation.
[124] https://www.parismou.org/mv-alize-refusal-access-paris-mou-region.

The current condition of Chișinău airport's cargo facilities is poor. The storage warehouse and customs warehouse are old, small, not climatized, not secure, and do not have cold storage facilities. Equipment is limited. There is one old, small scale for weighing imports. There is one old, small passenger cargo-sized scanner for scanning exports and no scanner available for imports. This means that customs must do all import inspections physically. It also means that large export items must be broken down, scanned, and put back together. It is our understanding that handling equipment for moving cargo from the planes to the terminals is also limited and is shared between passenger and freight cargo resulting in delays for cargo.

These infrastructure and equipment issues limit the country's ability to attract and handle air cargo. For instance, Lufthansa Cargo does not even sell services for imports of non-regular cargo (cold storage, high value, etc.) because of the lack of handling facilities at KIV for such cargo.

In theory, if infrastructure could be improved at one of the northern airports, the market could potentially be reinvigorated sooner. However, that requires investment into infrastructure at either Bălți International or Mărculești Airport near Bălți. At present, neither airport is ready to handle regularly scheduled passenger or cargo flights.

Bălți International Airport

Bălți International Airport was the main civilian airport in the north of Moldova operating both passenger and cargo flights until services were stopped in 2015 due to the airport's certification being revoked due to runway conditions. According to the airport, the 1220 m runway was built in the 1980s and is in fair condition. Airport officials state that the lighting, air traffic control, landing control systems, and the weather station are operational and the only required investments are to the runway and passenger waiting area, which they estimate would cost about $800,000. However, based on the team's visit and inspection in March 2018, the investment needs unfortunately look greater. It appears that extensive investment would be required for the runway, taxiway, lightning equipment, passenger and cargo terminal, cold storage facilities, and specific ground handling equipment although the specific needs and costs would require a feasibility study.

There are four critical infrastructure issues.

- All buildings are old and not fitted for the current requirements.
- Runways lack illumination systems therefore the landings in the past were during the daytime only.
- There is currently no connection to the gas or water pipelines.
- 1km of road needs to be enlarged and extended to connect to the highway to Bălți.

Additionally, a customs building would have to be built and the access roads repaired. There appears to be sufficient space surrounding the airport to handle the required investments and construction if deemed financially feasible to rehabilitate the airport.

The airport administration initiated some talks concerning the development of the airport taking into account the development of the free economic zone in Bălți and potential for future development of high value agricultural products by air cargo such as berries to Middle East countries. The administration also mentioned plans to have an aircraft repair facility. Another area of development would be to use the airport as for sport-type aircrafts and small aviation for agricultural purposes. However, the airport will be competing with Mărculești Airport, which is a FEZ and appears to have more extensive infrastructure already in place. Any feasibility study initiated should consider pros

and cons of both locations, existing infrastructure, and whether demand warrants investing in two facilities.

Mărculești Airport

As noted, the Free International Airport of Mărculești is also competing for investment. The airport and FEZ was created in 2008,[125] and has FEZ status for 25 years exempting it from customs taxes and VAT. It is currently a SOE under the MoEI. Previously, it was a military airport. The airport has a 2500m x 40m runway, which can handle planes such as the Boeing C 17 Globemaster, AN 124, Airbus 330, and Boeing 737. It also has on-site customs and border police.

Airport officials state that their largest infrastructure issue is a lack of runway lighting that prohibit the airport from operating at night. They estimate that such improvements would cost about €8 million, but the airport itself does not have sufficient funding available to make the investment. Further research by the project team also found indications that other investments are required such as installation of radar. Like Bălți International, a feasibility study would be required.

The airport has ideas for future development including transshipment of goods from China and Russia that can be transported by airplanes that currently cannot fly over EU at night due to the stricter regulations for noise and air pollution standards.

This TCA will not pass judgement on which Bălți-area airport should be the "winner" and focus of investment. However, we will recommend that the GoM or a development partner conduct a feasibility study that assesses the potential costs and benefits of both options. Depending on the outcome of the study, investment should be focused into only one of the airports. Mărculești airport is 45 km from Bălți airport and the two Bălți airports are 148km and 165 km from Chișinău Airport, respectively. Present demand and proximity likely does not allow for financially feasible investment into both airports.

AIR CARGO SERVICE ISSUES

Current service to KIV

The majority of current air freight is transported via civil aviation. Since Avia Invest's concession in 2013, passenger traffic has increased substantially (67% rise from 2013 to 2016),[126] which means more flights and destinations are serving KIV. The number of flights serving the airport grew from 16,858 flights in 2013 to 22,033 flights in 2016. Table 6 in Section 2 listed current routes serving the airport. Dubai is not served by a direct flight at present. This is noteworthy because Dubai is a popular destination for high-value added agricultural products. However, while the increase in passenger traffic has allowed for an expansion of air cargo routes, air cargo volumes to/from KIV have actually decreased over the same period by 6%.

Freight on civil aviation has the lowest priority meaning that if luggage, mail, and diplomatic packages fill the plane, cargo scheduled for service will be moved to the next available shipment. Given that the planes currently serving KIV have small cargo volume capacities, this represents a significant risk of delay during peak travel periods. The whole point of air cargo is that a shipper needs to send a product urgently, so the risk of a day or more of delays reduces the competitiveness of the sector.

[125] Law Nr.178 of 10.07.2008.
[126] Bureau of Statistics, Table 18.6 TRAFFIC BY INTERNATIONAL AIRPORT CHIȘINĂU.

Given that only a few routes have daily service, and even fewer multiple flights per day, the extent of the delay could be significant.

Table 23. Cargo Hold Size, Aircraft Serving KIV as of June 2018

AIRCRAFT TYPE	FORWARD CARGO DOOR (METERS, HXW)	REAR CARGO DOOR (METERS, HXW)	CARGO WEIGHT CAPACITY (KG)	MAX WEIGHT PER PIECE (KG)	VOLUME CAPACITY (M^3)
A319	1.8 x 1.2	1.8 x 1.2	6,332	158	27.6
CRJ9	1.1 x 0.5	1.1 x 0.8	2,755	68	16.8
DHC8	1.4 x 0.7	1.5 x 1.4	2,136	-	14.2
E195	1.1 x 0.9	1.0 x 0.8	-	-	25.6
ATR42	1.7 x 0.7	1.3 x 1.8	4,000	-	11.3
A320	1.2 × 1.8	1.2 × 1.8	9,435	-	37.5
E190	0.7 x 1.0	0.7 x 1.0	3,509	150	19.0
ATR72	1.2 x 1.6	0.6 x 1.2	2,160	33	13.5
B737/8	0.7 x 1.1	0.7 x 1.1	5,476	158	27.0
A321	1.2 x 1.8	1.2 × 1.8	1,134	136	14.0
DH8D	1.4 x .70	1.5 x 1.4	2,136	-	14.2
E75L (E175)	1.0 x .90	0.8 x 0.9	2,650	68	17.1
E170	0.9 x 1.1	0.8 x 1.0	2,400	91	14.4

Source: See Appendix E

Further, delays can be compounded as a delay in one piece of the shipment will delay the whole consignment in customs as MCS requires the entire shipment to arrive before processing it. Packages waiting for the remainder of the consignment will sit in the un-climatized, un-secured customs area of the cargo terminal.

Also, as seen in the table above, the cargo holds are small limiting the size of shipments that can be transported by air. If passenger demand increases, the size of passenger planes should increase, increasing cargo hold sizes in turn. The projected increase in the size of Runway One, scheduled to be complete by 2020, should make this possible, although at this time it is impossible to say whether it will result in larger planes arriving at KIV. Furthermore, if a shipper had a larger item for export, then even if the item fit through the plane doors, it might still have to be dis-assembled to put it through the passenger luggage scanner as there is no large freight scanner.

In general, the present storage and handling facilities and equipment at KIV make the air services uncompetitive as they are not secure or reliable. Stakeholders mentioned issues with delays in receiving goods due to lack of available trucks and priority given to passenger over cargo flights. Further, the present equipment is not efficient for unloading/loading planes and is configured so that cargo is exposed during transit in inclement weather.

Transport of items requiring cold storage, such as fruits, is not possible due to the lack of cold-storage facilities at the airport. We understand that some shipments of medical and pharmaceutical products are made using dry ice, but the current facilities do not allow for a larger trading scheme.

Air cargo infrastructure at KIV is not expected to improve until at least after 2020. In the meantime, solutions could be implemented to lessen the pain. For example, handling equipment or scanners

could be purchased. Issues with freight capacity could be addressed with charter flights and pre-screening of inbound packages could reduce delays.

Prospective Service to Bălți

Neither of the two airports in Bălți present a viable alternative to Chișinău for air shipments at present as they face not only infrastructure issues, but also a lack of scheduled service. According to airport officials, in the 1980s and 1990s, Bălți International Airport received up to seven flights per day operating at 75% capacity. However, as noted above, service was stopped in 2015 due to runway conditions. Mărculești historically operated as a military airport and currently handles charter planes and cargo planes, but no passengers.

An airport in the north could have several benefits including:

- higher altitude so less foggy weather conditions than Chișinău,
- provide a second national airport that can handle passengers and cargo as a backup in cases of emergency, poor weather, or construction in Chișinău,
- proximity to northern Moldovan agricultural areas
- proximity to the second largest population center in Moldova and can also serve parts of Ukraine that do not have nearby airports, and
- according to several stakeholders, airport costs could be cheaper than in Chișinău due to lower operating costs or in the case of Mărculești lower taxes as a FEZ.

As noted above, a feasibility study is required to fully assess the costs and benefits of investing in either of the northern airports. In order for either airport to be reopened, significant investment would have to occur. This would require funding from an IFI or PPP, which would first require a feasibility study including a cost estimate and demand forecasts.

Then, the airport would have to work to attract carriers and services. If reopened, cargo trying to use civil aviation would likely face some of the issues currently faced in Chișinău, most obviously related to aircraft cargo capacity and door size as well as prioritization of passenger luggage and mail before freight. However, hopefully the cargo storage and handling facilities would be taken into account during the rehabilitation and so will not be a constraint. In this case, there would be potential for dedicated charter services. For instance, an agricultural trading company, or single or several large producers could arrange charter services to the Middle East, Russia, or Europe.

GENERAL TRANSPORT SECTOR ISSUES

STRATEGIC AND MASTER PLANNING

Plans for the transport sector are governed by the *Transport and Logistic Strategy 2013 – 2022*. A review of the *Transport and Logistics Strategy 2013-2022* was launched by the Ministry of Economy and Infrastructure in 2017, but this was postponed because the Government decided to review the *Moldova 2020 National Development Strategy* and develop a new strategy "*Moldova 2030*". Thus, in order to harmonize the stipulations of these strategies, the revision of the *Transport and Logistics Strategy* will be continued after the approval of the "*Moldova 2030*" *Strategy*.

We are unaware of any recent transport and logistics sector master plans in Moldova. The MoEI should consider conducting such an exercise, which could also include feasibility studies for several pending infrastructure needs.

MULTI-MODAL CONSOLIDATION POINTS/LOGISTICS HUB

Moldova does not have any multi-modal logistics hubs or central consolidation centers. Some stakeholders believe that such a facility could provide benefits to the logistics center. A logistics hub could provide a point for exchange of containers, collection of backhaul cargo, multi-modal transfers, inland clearance of cargo, warehousing and storage, container stuffing/de-stuffing, consolidation of LCL cargo, etc. If funded by the private sector or a PPP arrangement, the private operator could charge for services. However, a feasibility study is required to better understand the potential demand, what types of facilities should be offered, the cost of development, design, location, and potential tariffs amongst other things.

ETRADE, ELOGISTICS, AND TRANSPORT CORRIDORS

In the modern business environment, information systems and networks play a crucial role in the efficiency and cost-effectiveness of trade corridors and associated logistics.

Starting with inland procedures, such as obtaining export documents (certificates of origin, and conformity, customs declarations and transport documents) then continuing to customs clearance, transport and distribution, modern logistics are increasingly driven by IT infrastructure and regulatory issues. Some examples include:

- IT Infrastructure: interoperable databases, high-speed internet connection for data transmission and cargo tracking devices, e-signatures, etc.;
- Regulatory improvements: single window for obtaining inland pre-shipment documents and customs clearance procedures including pre-arrival electronic declarations, interoperable databases among state actors, etc.;
- Transport electronic infrastructure: road (eCMR), railways (COTIF/CIM and SMGS/CIM), sea (eManifest), air (Electronic Air Waybill (eAWB)); and
- Transport corridors: RFID (Radio Frequency Identification).

USING RFID TO IMPROVE TRADE FACILITATION IN CENTRAL AMERICA

The USAID Regional Trade and Market Alliances (RTMA) Project worked in the Northern Triangle region consisting of El Salvador, Honduras, and Guatemala to reduce the time and cost of trading in the region. To achieve this, RTMA supported the installation of Radio Frequency Identification (RFID) technology at key border points. One of the priority measures of the Central American Strategy for Trade Facilitation and Competitiveness, the RFID technology improves trade flows through more efficient border control and increased safety and security.

Once fully operational, expected at the end of 2018, the RFID system will reduce congestion for cargo transporters at the border by fully automating the transit process and collecting critical data on border transit times, allowing easier monitoring of trade flows

While the full impact cannot yet be seen, the RFID system, coupled with other logistical improvement measures such as increased signage at the borders, have already resulted in a 42% reduction in time for export cargo to pass through El Salvador's borders.

To ensure the sustainability of the system, RTMA built capacity with local border agencies to both manage the new technology and effectively use the generated data, and facilitated coordination between the border agencies of the three Northern Triangle countries.

The RFID system, coupled with the other logistical measures, is already considered by both USAID and the Northern Triangle countries themselves as a regional model for improving transit at other important border points in Central America.

In this regard, Moldova, despite its ambitious e-transformation plans and some obvious positive results (implementation of eID, MCloud, MPay), still lags. In particular, Moldova is far from reaching EU targets set forth in the relevant directives and decisions including Regulation (EU) 910/2014 on electronic identification and trust services for electronic transactions in the internal market (eIDAS

Regulation), Decision 70/2008/EC, and Decision N 70/2008/EC of the European Parliament and of the Council of 15 January 2008 on a paperless environment for customs and trade.

As the recent study on the *Harmonization of The Digital Markets in The Eastern Partnership: Etrade, Elogistics & Digital Transport Corridors* (May 2018) shows, Moldova has to move forward in implementing e-procedures in a number of areas related to trade and logistics, especially that it lags behind the EaP countries. (Table 24).

Table 24. Degree of Moldova's Usage of Paperless Procedures, Extracted from *Harmonization Of The Digital Markets In The Eastern Partnership: Etrade, Elogistics & Digital Transport Corridors*

INDICATOR/DEGREE OF USAGE OF PAPERLESS PROCEDURES	NOT IMPLEMENTED	ONLY PAPER ORIGINALS	ELECTRONIC AND PAPER	ELECTRONIC OR PAPER	ELECTRONIC
Export procedures					
Requesting and obtaining of export licenses					
Delivering Certificate of Origin					
Requesting permits & certificates of conformity					
Submission of export customs declarations					
Processing of licenses and permits					
Processing of transport documents					
Clearing goods at border					
Import procedures					
Requesting and obtaining import licenses and permits					
In last years, Moldova has pursued a trade-focused development strategy for foreign Certificate of Origin					
Processing of foreign permits & certificates of conformity					
Submission of import and transit customs declarations					
Processing of foreign transport documents					
Processing of pre-arrival declarations					
Releasing goods					

Source: Study on the Harmonization of the digital markets in the Eastern Partnership: eTrade, eLogistics & Digital transport corridors, May 2018.

The study describes 5 phases of which Moldova is still in phase 1:[127]

- Phase 1: e-Customs System (ASYCUDA World)
- Phase 2: License and Certification System (national single window and process re-engineering)
- Phase 3: Logistics Platform (national center for eLogistics and multi-modal supply chain control)
- Phase 4: Integrated National Platform
- Phase 5: Cross-border e-Trade with EU and EaP[128] (regional exchange of e-documents)

Most of the trade related procedures in Moldova have to be carried out on paper and the processes and documents concerned are often duplicative and cumbersome.

[127] Study on the Harmonization of the digital markets in the Eastern Partnership: eTrade, eLogistics & Digital transport corridors, May 2018.
[128] Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova, and Ukraine.

The study makes several recommendations for Moldova including:

- moving towards implementation of a "National Platform for eLogistics (Phase 3)" including an integrated, multi-modal supply chain system that can track cargo flows by starting with a pilot program using RFID technology in partnership with EAP and one EU country
- developing a Single Window Portal to fill bill of lading and e-manifests,
- allowing for electronic signatures to be used in all EAP countries as all countries but Moldova currently allow for this and the absence of such a policy impacts shipments through Odessa and Chornomorsk.

CASE STUDY: IMPACT OF CONGESTION ON TRUCKING INDUSTRY COSTS

Traffic congestion is a serious impediment to freight logistics efficiency. Economic growth can increase congestion as consumers use their added buying power both to purchase cars and to import and transport more goods. Countries often struggle to deal with increased congestion as the planning process for improving roads and transportation systems does not allow for an immediate response. Large-scale capital projects, such as new ports and corridors or improvements to them, can take several years from concept to construction completion.

The trucking industry is especially vulnerable to the impact of congestion as its costs increase relative to increased fuel consumption, added labor costs as delivery times increase, more wear and tear on trucks, and equipment utilization efficiency. Additionally, driver availability for deliveries also decreases as more hours are required per delivery, while extended delivery times bear the risk of exceeding the maximum driving time governed by a country's hours of service rules. Trucking companies thus resort to team driving (e.g. two drivers in the same cab for the same delivery) or increase delivery times to their customers due to mandatory driver rest requirements. Delivery delays in turn also create inefficiencies and increase costs elsewhere such as in inventory and warehousing.

Several studies have addressed the impact of delays created from inefficiencies at ports and border crossings. For example, Kent and Fox show that removing time delays in a Costa Rican port can have the effect of increasing GDP by nearly 0.5 percent.[129] Londoño-Kent, in documenting the impact of up to a 3-day delay caused by Mexico's truck corral system at the U.S.-Mexican border, estimated welfare gains to be $8 billion for both Mexico and the United States by eliminating efficiency constraints at the border.[130] These studies not only demonstrate the substantial impact that delays have on logistics costs, but also the degree to which countries have come to rely on logistics systems for economic growth.

A number of studies have been conducted that demonstrate the impact of delay on the freight industry, though these have focused primarily on the U.S. trucking industry. In the United States, for example, a 2006 study estimated congestion imposed an added $10 billion on freight transport

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[129] Kent, Paul E. and Alan Fox, "Is Puerto Limon a Real Lemon? The Impact of Port Inefficiency on a National Economy", in The International Handbook of Maritime Economics, edited by Kevin Cullinane, 2011.

[130] Londoño-Kent, Pilar, and Alan K. Fox, "U.S.-Canada and U.S.-Mexico Border Crossing for Trucks: 20 Years after NAFTA." Conference presentation at "NAFTA at 20: Effects on the North American Market", 2014, available at: http://www.dallasfed.org/assets/documents/research/events/2014/14nafta_fox.pdf; see also Londoño-Kent, Maria del Pilar, Institutional Arrangements that Affect Free Trade Agreements: Economic Rationality Versus Interest Groups, The Erasmus Research Institute (ERIM), Rotterdam, Holland, 2006 and Londoño-Kent, Maria del Pilar and Hercules Haralambides, "Supply Chain Bottlenecks: Border Crossing Inefficiencies: The United States and Mexico Trucking Case", International Journal of Transport Economics, Volume XXXI, June 2004.

equating to an hourly truck delay cost of $30/hour and about $34/hour for the added inventory costs of congestion.[131] A more recent study estimated nearly a billion hours of delays in the U.S. trucking industry in 2015, equivalent to an added congestion cost of $63.4 billion. In other words, the amount of delay is equivalent to about 362,000 commercial truck drivers sitting idle for an entire year and an added cost of $0.23 per vehicle mile traveled.[132] The availability of similar analyses conducted in other countries or world regions is scarce. However, one study addressing the impact of congestion in Europe estimates the effect of delay is valued at $8.9 billion for heavy-duty freight vehicles in the European Union.[133]

While it is clear from the literature that congestion has a substantial impact on truck operating costs, we decided to gauge the impact of a decrease in delays on a single trucking company's revenue stream. To do so, we obtained data that are available from the trucking industry in Colombia. We selected a major corridor serving the consumer market in Bogota with related freight imports and exports through the port of Buenaventura, Colombia's leading Pacific coast gateway. One trucking company in Colombia allocates 100 trucks to serve this market. We tested the impact on this company if the *status quo* situation for freight movements between Buenaventura and Bogota was improved by reducing the time attributable to congestion. To test the impact, we first determined the workable hours (the time the trucks are available for contracting) for the fleet of 100 trucks. Assuming trucks do not operate on all Sundays and holidays and the need for downtown for maintenance, we estimate that each truck is available to be deployed 300 days each year and 24 hours per day. This yields about 720,000 truck-hours (100 trucks x 300 days x 24 hours) per year.

Table 25.Trip Time and Truck Trips Required for 100-Truck Fleet Company in Colombia

TRUCK TRIP HOUR REQUIREMENTS	HOURS REQUIRED FOR STATUS QUO SCENARIO	HOURS REQUIRED FOR IMPROVED SCENARIO
FRONTHAUL		
Bogota-Buenaventura	21	18
Rest Time On The Road	10	10
Unload Process Time In Buenaventura	4	4
Load Process Time In Buenaventura	4	4
Rest In Buenaventura	10	10
BACKHAUL		
Buenaventura-Bogota	21	18
Rest Time On The Road	10	10
Unload Process Time In Bogota	2	2
Load Process Time In Bogota	2	2
Rest In Bogota	10	10
Total Hours Front- And Backhaul Delivery Times	93	87
Total Truck Trips Per Year	7,742	8,276

[131] Winston, Clifford and Ashley Langer, "The Effect of Government Highway Spending on Road Users' Congestion Costs", Journal of Urban Economics 60, 2006, pp. 463-483.
[132] Torrey, IV, W. Ford, Cost of Congestion to the Trucking Industry: 2017 Update, American Transportation Research Institute, May 2017, p. 8.
[133] Van Essen, Huib et al, External Costs of Transport in Europe, CE Delft/INFRAS/Faunhofer ISI, September 2011, p. 92.

Source: Nathan

Each truck trip between Buenaventura and Bogota requires a total of 21 hours including a mandated 10 hours rest. However, the loading and discharge process adds time to each truck trip. For ease of analysis, we assume that each truck has a backhaul. As such, the loading/discharge time is required at both points of origin and destination, with 4 hours required for each. As Table 25 shows, the total time required for fronthaul and backhaul deliveries is 93 hours under a status quo scenario. This results in 7,742 trips each year for the entire trucking company fleet.

Colombia's transport regulator sets the maximum freight rates trucking companies may charge for each itinerary. Trucking companies may charge less, especially for larger customers. We were unable to obtain actual sample invoices to determine the degree to which a company may discount from the published rates. Therefore, we assumed maximum rates are charged for each delivery. The published rate for the Bogota to Buenaventura run is $1,149, while the rate from Buenaventura to Bogota is higher at $1,544. Governments frequently will set lower rates for export flows (e.g. Bogota to Buenaventura) as a means to encourage exports and maintain export pricing competitiveness.

Table 26 presents the estimated revenues the trucking company earns when it can achieve 100% utilization of its fleet. Assuming freight rates of $1,149 and $1,544, respectively, for each Bogota-Buenaventura and Buenaventura-Bogota trip, the company generates annual revenues of just over $20.8 million ((93 trips x $1,149 each trip) + (93 trips x $1,544)).

Table 26. Revenue Estimates for 100-Truck Fleet Company in Colombia

TRUCK CYCLE	TRUCK CHARGE	REVENUES GENERATED IN STATUS QUO SCENARIO	REVENUES GENERATED FROM IMPROVED SCENARIO
Bogota-Buenaventura	$1,149	$8,895,558	$9,509,124
Buenaventura-Bogota	$1,544	$11,953,648	$12,778,144
Total		$20,849,206	$22,287,268
Increase in Revenues			6.90%

Source: Nathan.

Based on the information in the tables above, we can now determine the effects of improving efficiency in serving the same Bogota-Buenaventura market segment. As 5 shows for the Improved Scenario, we reduce the time required for each trip, which reflects time lost to congestion. We assume a 3-hour reduction in trip time for both the Bogota-Buenaventura and Buenaventura-Bogota runs. In so doing, the trucking company can reduce its total trip (consisting of both fronthaul and backhaul runs) by 6 hours. Reducing the time means a generation of increased workable time such that the company can increase its trips from 7,742 to 8,272 each year. From a revenue standpoint, revenues increase from about $20.8 million to nearly $22.3 million, representing 6.90% growth (Table 26).

The trucking company, rather than pursing additional deliveries, may also have the option of simply reducing its fleet capacity. The trip time reduction means that the trucking company can deploy fewer trucks to serve the same volume, in our case from 100 trucks to 94 trucks, enabling the company to reduce both capital and operational costs.

The improvements indicated here – reducing trip time from 21 hours to 18 hours – are relatively modest when compared to time lost at border queues. The 3-day or more border queues in

Moldova create an added cost burden to trucking companies serving Moldova, which in the end increases freight rates charged to shippers to reflect higher operational costs. It is clear that increased rates due to inefficiencies in the logistics system can effectively constrain economic growth and this is almost certainly happening in Moldova right now.

5. TRADE FACILITATION BOTTLENECKS AND CONSTRAINTS

In this section, we examine some of the main trade facilitation-related bottlenecks affecting time and cost to trade.

BORDER WAITING TIMES AND COSTS

MOLDOVA BORDER CROSSING TIMES

As discussed in Section 4, BCPs within the trade corridor are physical and administrative bottlenecks, and the time to cross Moldova's borders can be considerable. Waits at Moldova's busiest BCP at Leușeni can top several days and in some instances include queues of over 100 trucks. As described above, bottlenecks at the borders are not necessarily due to Moldovan Customs' processing time, but include queues to enter the BCP, and queues in the "no man's land" between Moldovan and Romanian border control areas. It is clear from our assessment that these additional waiting times can, and often do, exceed the actual processing times by Customs and border police, often many times over. Moreover, the waiting times can be highly variable, depending on the individual BCP, the day and time when the BCP is used, and the levels of other (non-commercial) traffic using the BCP at the time.

There is clear evidence that a major cause of the extended delays occurs when there is a high level of non-commercial traffic crossing from Moldova into Romania. This situation creates a resource pressure on the Romanian side of the border, as the clearance of non-commercial traffic is prioritized by the Romanian authorities.

However, in another example, which is the Tudora-Starokazacie BCP between Moldova and Ukraine, we identified a major variable as being the ability for vehicles to enter the BCP from the Moldovan side because of the limited width of the access road into the border area. Again, the waiting time was largely determined by the volumes of traffic on a particular day or at a particular time, but a waiting time of up to up to half a day is possible.

Many of the problems and excessive delays occurring at Moldovan BCPs are outside of the control of the Moldovan Customs and other regulatory authorities. Some are infrastructural and some relate to the border checks carried out by authorities on the other side of the border.

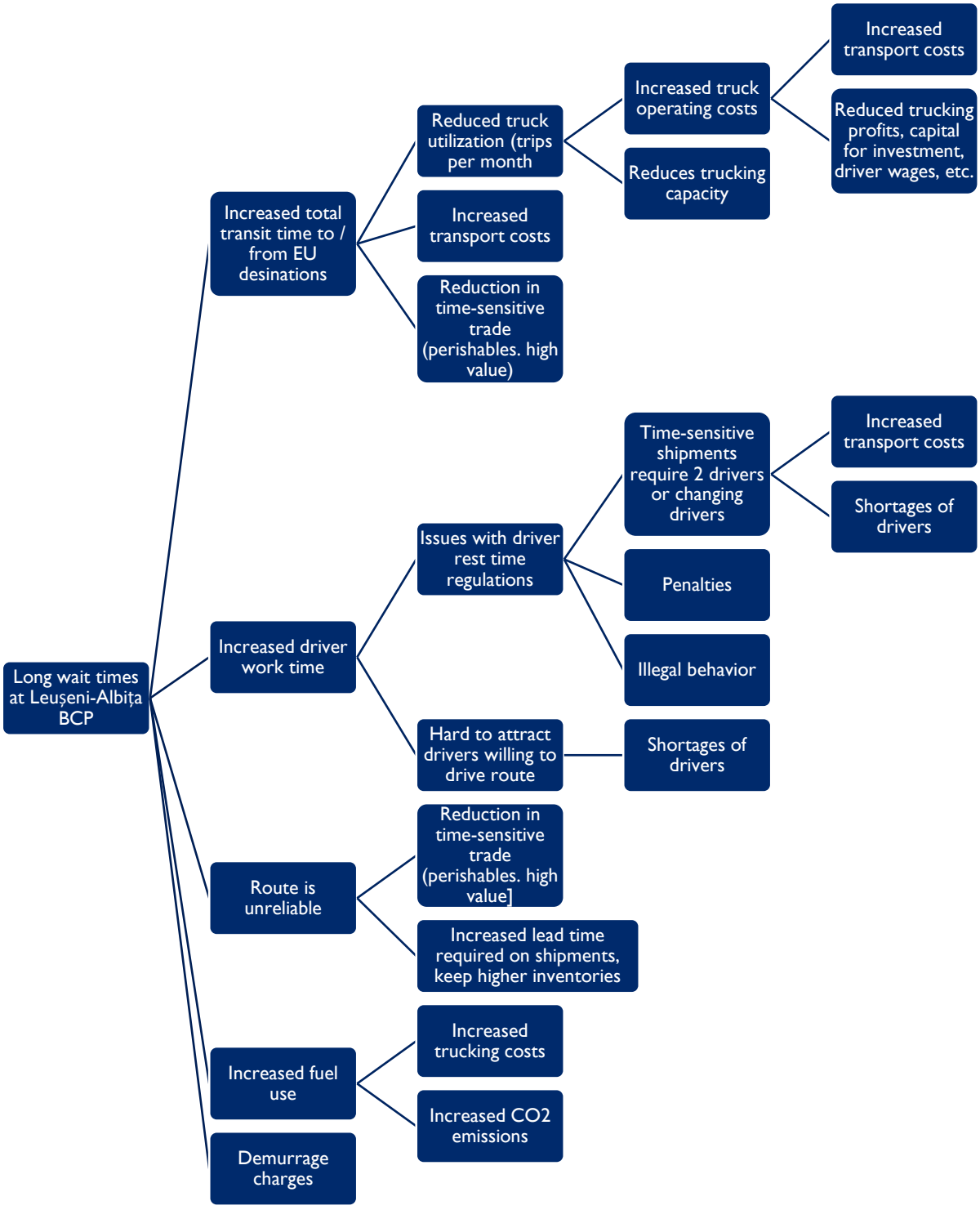
That is not to say that some improvements cannot be made in the operation of Moldova's own border regulatory controls. They clearly can make improvements, and we provide a series of specific recommendations in this report. These steps should not only deliver some savings in terms of processing times and costs but also, critically, should allow the Customs and other agencies to improve their overall performance in terms of improved risk management and meeting their objectives in terms of revenue collection and protection of society.

EFFECTS OF INCREASED BORDER WAITING TIME

Based on international standards and best practices, trucks should typically only spend 30 to 90 minutes at the border (including processing time and waiting time). Queues should be minimal. As discussed above and in Section 3, Moldova's BCPs do not currently meet these standards. Regardless of the reason, or where that time is spent (in queues, in processing on the Moldovan side, in no man's land, in processing on the Romanian or Ukrainian side, etc.), this inefficient transport time has

cascading effects on trade corridor performance. In addition to increasing the transport time to travel Moldova's trade corridors, the variability in time reduces reliability, and there are both direct and indirect costs to transporters and traders. These costs come in terms of direct costs such as additional wages paid to drivers, as well as indirect costs such as increased inventory costs, reduced fleet utilization, higher emissions costs, and reductions in trade. The graphic below depicts an example of some of the chain reaction effects of border delays on the logistics chain and corridor performance.

Figure 34. Example of Effects of Border Delays



Source: Nathan

MEASURES TO REDUCE BORDER WAITING TIME AND COSTS

In principle, there are a number of different steps which can be taken to improve the situation at the border. Many countries around the world have been able to reduce BCP crossing times dramatically (see text box).

However, at the global level, border waiting times have seen a very irregular pattern of change. While considerable progress has been made in reducing the overall costs to business of international trade in the past 40 years, there has not been the same consistent level of progress in the time taken for goods and people to cross international borders.

There are a number of reasons for this, some of which have already been referred to, but the most significant are:

- the increase in levels of international trade which have put immense strains on infrastructure and resources at border posts,
- the increase in the scope and number of regulatory checks and formalities, including sanitary and phyto-sanitary checks, checks for radioactive goods and weapons of mass destruction (WMD), checks to prevent and detect human trafficking, checks against the import or export of controlled drugs, checks for the movement of animals and plants protected under the CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora)convention, and other checks undertaken in the context of protecting society (e.g., environmental protection measures), and,
- the creation of regional customs unions (and single markets), which allow free movement within the region but consequently apply more extensive and thorough checks at the external frontiers. This is a particular issue at the EU borders, where many of the checks listed above may be carried out with particular rigor.

GREECE – A TRADE FACILITATION ROADMAP, 2013-15

In 2012, Greece developed a national trade facilitation strategy based on the principle of simplifying export procedures and reducing export time and cost. The strategy was developed with the Task Force for Greece (TFGR) and the support of the UNECE (United Nations Economic Commission for Europe) and the EU. The roadmap developed identified the following key actions:

- simplification of export procedures
- reorganization of Customs
- automation of procedures
- clear management of the reform process
- communication and training

The aims were to achieve a 50% reduction in the time needed for exports and a 20% reduction in costs.

The full impact of the strategy has not yet been fully felt, but the following achievements have already been demonstrated:

- an improvement in the WB Doing Business report from 100th → 61st
- an improvement in the WB Logistics Performance Index from 69th → 44th (with an improvement in the customs area from 94th→ to 42nd)
- a reduction in export time by 25% and import time by 44%
- a reduction in both import and export costs of approximately 10%

These problems can be made worse by spasmodic issues such as political disputes between neighbors; the use of customs and border control checks as a political and economic tool by governments; and the introduction of new laws or procedures without a full appreciation of their practical consequences and/or a lack of preparation for their introduction.

Despite these issues, significant progress has still been made, particularly where there has been sufficient planning and preparation; where governments have provided adequate infrastructure and

resources at border crossing points; and where positive trade facilitation measures have been implemented. These include:

- greater use of risk management and risk-based controls to select consignments for inspection,
- greater use of inland clearance facilities, taking checks away from the borders,
- greater use of technology including IT systems, scanners, radioactive sensors, closed-circuit television, number plate recognition,
- greater use of and provision for authorized economic operators/trusted trader systems (including dedicated AEO lanes at border points), and,
- better management and flexible deployment of Customs manpower and resources to meet operational needs.

As noted above, actual customs procedures themselves are usually a relatively small part of the process of crossing through a border and are rarely a cause of significant delay in themselves. However, there are many issues related to the customs and immigration procedures where significant problems can occur. The most common of these are:

- lack of availability of customs brokers and/or Customs staff to deal with consignments (because of understaffing, shift changes, lack of coordination in shift patterns),
- lack of appropriate infrastructure and equipment,
- problems with documentation (this includes border police/immigration, insurance, vignette, SPS documents and other requirements, as well as Customs), and,
- congestion due to heavy traffic.

Other, generally less critical areas include the way in which:

- controls and procedures are undertaken, and,
- Customs and other payments at BCPs are managed.

CASE STUDY: TRUCK APPOINTMENT SYSTEMS – TACKLING TRUCK QUEUES AT PORTS AND BORDER CROSSINGS

Delays at border crossing points negatively affect transport corridor performance, transport times, trucking costs, and ultimately trade flows. Governments have begun to develop innovative solutions to mitigate border point congestion and ease traffic flows by using technology. Two cases of successful implementation of using ICT solutions and systems at borders to ease congestion include the Baltic-Russia border and US-Canada border. If these systems can be implemented elsewhere on EU-borders—including those directly with Russia, they can surely be implemented on the Moldova-Romania border (as well as the Moldova-Ukraine border). Further, the Baltic system is PPP-based, making it sustainable.

Baltic States and Russia

In Estonia, before reaching the Narva border crossing between Estonia and Russia, trucks are required to stop at a truck staging area 30 miles away where authorities can confirm vehicle registration and driver identification and where drivers can also, as necessary, satisfy their hours-of-service rest obligations. While in this case there is no indication that the staging area also has weigh stations, presumably they can be installed to ensure conformance with axle load requirements.

GoSwift, the operator via a PPP transaction, characterizes its border crossing management solution as a "wait-loss" program, creates a "virtual" queue by allowing border crossing appointment slots to be given days in advance for both truck and passenger vehicles. The physical queue has been eliminated, providing predictability for border crossing times, enabling truck drivers to plan their driving and rest schedules, and allowing authorities to scrutinize information submitted with passenger car slot requests to reduce illicit trade. Drivers can access wait times by SMS as well as on the web.

Other border crossings in Finland, Lithuania, Estonia, and Russia have also deployed the same queue management service. Prior to the system's deployment in Lithuania, the borders with Belarus and Russia had queues of several kilometers at peak times. The GoSwift system[134] allows transporters to pre-book their arrival times by inputting their information and license plate numbers into a system at www.ltborder.eu (see figure below). Transporters can pre-book a slot or join a "virtual" queue to cross the border. On arrival at the BCP, there are real-time displays showing the number of vehicles in line and guiding trucks to waiting areas. License plate recognition readers capture truck's arrival at the border.

GoSwift has won several awards for its program including a World Summit Award (2013), World Summit Award 2013, Baltic Assembly Innovation Prize (2013) and Estonian best e-Service 2013, [135] and 2015 Transport Achievement Award.[136] According to its World Summit Award, it saves Estonian transporters €4 million/year[137], while its 2015 Transport Achievement Award recognizes a reduction in queue time from 5-6 days to 30 minutes.[138] GoSwift's system has also had social benefits as it provides improved services to truckers, such as restrooms and dining facilities, in truck staging areas and has also had favorable environmental impacts from reduced emissions. Important to note for the Moldova-Romania border, the system has also been credited with reducing illicit trade, as customs and border police receive information in advance of truck arrival, which allows them to improve their ability to perform risk analysis. The program is required for all transporters and is funded on a pay-per-use basis, so has no costs to the government.

Figure 35. Screenshot of Lithuanian State Border Crossing Online Booking System Website

[134] http://www.nedapidentification.com/solutions/cases/crossing-baltic-borders-with-nedap.html
[135] http://www.goswift.eu/wp-content/uploads/2015/04/bordercrossing_-bookletA4_web.pdf
[136] http://2015.internationaltransportforum.org/awards
[137] https://www.worldsummitawards.org/winner/goswift-online-reservation-system-for-border-crossing/
[138] http://2015.internationaltransportforum.org/awards

Source: https://www.ltborder.eu/yphis/index.action?request_locale=lt&

United States and Canada

This example shows the evolution of the US-Canada experience in implementing various programs aimed to reduce border waiting time including: pre-arrival notification, trusted trader programs combined with RFID technology, and development of a real-time system showing waiting times.

For the US and Canada case, it was estimated that $35 million per day of trade was being conducted at the Blaine, WA, border crossing in 2000[139]. US-Canada trade had been growing at a rate of 8.9% per year from 1994-2000 due to the North American Free Trade Agreement (NAFTA), putting strain on the border crossing points and leading to long queues—which were estimated to be adding $40 million per year in additional truck operating costs at the Blaine BCP alone.[140]

A coalition of 60 US and Canadian public and private sector entities initiated the International Mobility and Trade Corridor (IMTC) partnership in 1997. IMTC aimed to develop the first bi-national electronic commercial vehicle operations border crossing system in North America and in 2002 the partnership initiated three projects aimed at automating border crossings, using electronic cargo container seals and freight information exchanges with port terminals. The goal was to develop a regional network of automatic vehicle identification readers and tracking systems connecting the border crossing points, weigh-in-motion weigh stations, and ports via a web-based Trade Corridor Operating System. U.S. Customs would also have access to the information on containers in the system, which could be used to flag containers for inspection in advance of their arrival at the BCP. The initial system was budgeted at $4.35 million (2002 USD).[141]

The Canada Border Services Agency and U.S. Customs and Border Protection then jointly developed the Free and Secure Trade (FAST) program for pre-approved traders in September 2002.[142] The Blaine BCP became one of six US-Canada BCP in a pilot for the FAST program, which used RFID technology in windshield sticker tags, driver identification cards, and inspection booth reader equipment.

In 2009, a study was commissioned to conduct an evaluation survey of wait times and other metrics.[143] The study found that Northbound traffic queues were reduced from 14 minutes to 2 minutes between 2002 and 2009 with the introduction of FAST. However, queues for non-FAST trucks increased to 16 minutes. Southbound, queues were 45 minutes for empty/pre-cleared cargo in 2002 and 70 minutes for general cargo; this was reduced to 7 minutes for FAST cargo and 28 minutes for general cargo in 2009. (Also note that inspection times averaged less than two minutes per inspection).

From 2009-2010, the U.S. Government Accountability Office (GAO) conducted a performance audit of the FAST system. The audit looked at U.S. Customs and Border Protection agency data on inspections and wait times for 2003-2009 at US-Canada BCPs. The study noted that pre-arrival notification is required (30 minutes for FAST and 60 minutes for other trucks) using an e-Manifest.

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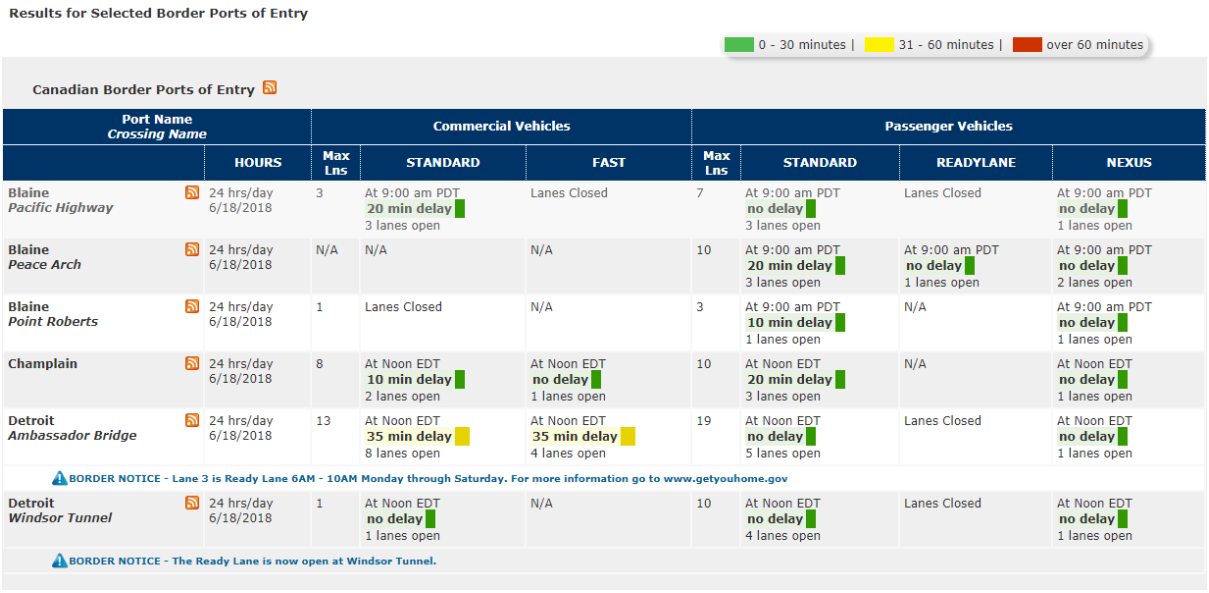
[139] U.S. Department of Transportation, Bureau of Transportation Statistics, North American Trade and Travel Trends, BTS02-07,Washington, D.C., 2001.
[140] Onder, Mike (2002). U.S.-Canada International Mobility and Trade Corridor. https://ops.fhwa.dot.gov/freight/freight_news/us_canada/us_canada.htm
[141] Ibid.
[142] https://georgewbush-whitehouse.archives.gov/news/releases/2002/09/text/20020909-3.html
[143] Border Policy Research Institute, "2009 International Mobility & Trade Corridor Project (IMTC) Commercial Vehicle Operations Survey: Final Report" (2010). Border Policy Research Institute Publications. 97. https://cedar.wwu.edu/bpri_publications/97

Based on the e-Manifest, the shipment is assigned a risk rating (pre-vetting the cargo before it arrives at the BCP). GAO found that despite the implementation of these programs and anecdotal evidence of improvements, it was difficult to measure the impact on waiting times due to poor and inconsistent capturing of BCP waiting times.[144]

US Customs and Border Protection then initiated a $2 million pilot project to test up to 8 potential technology solutions ranging from traffic radar to bluetooth, aimed at automating the progress of capturing wait times at two pilot BCP.[145] Now, this information is available on the U.S. Customs and Border Patrol website in real time at https://bwt.cbp.gov/index.html (see example below).

Figure 36. Screenshot of US Customs and Border Protection Waiting Time Website



Results for Selected Border Ports of Entry

0 - 30 minutes | 31 - 60 minutes | over 60 minutes

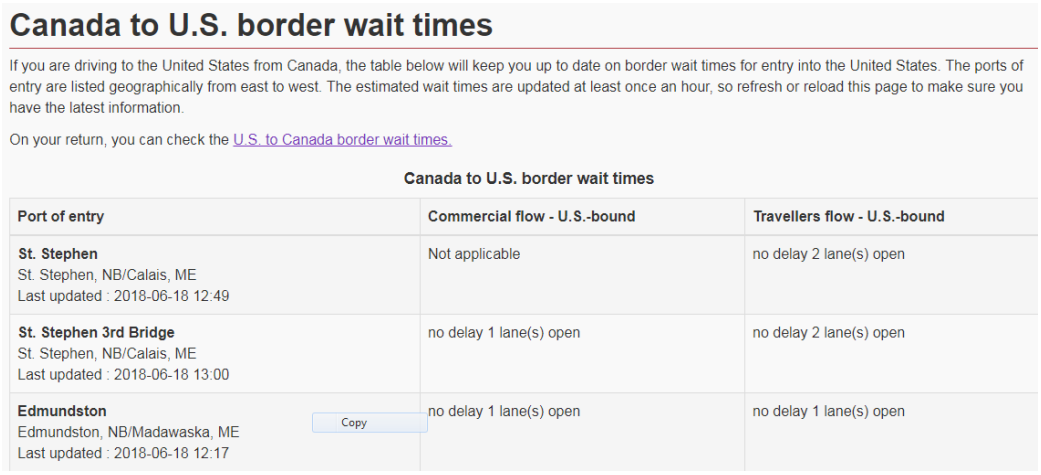
Canadian Border Ports of Entry

Port Name / Crossing Name	HOURS	Commercial Vehicles: Max Lns	STANDARD	FAST	Passenger Vehicles: Max Lns	STANDARD	READYLANE	NEXUS
Blaine *Pacific Highway*	24 hrs/day 6/18/2018	3	At 9:00 am PDT 20 min delay 3 lanes open	Lanes Closed	7	At 9:00 am PDT no delay 3 lanes open	Lanes Closed	At 9:00 am PDT no delay 1 lanes open
Blaine *Peace Arch*	24 hrs/day 6/18/2018	N/A	N/A	N/A	10	At 9:00 am PDT 20 min delay 3 lanes open	At 9:00 am PDT no delay 1 lanes open	At 9:00 am PDT no delay 2 lanes open
Blaine *Point Roberts*	24 hrs/day 6/18/2018	1	Lanes Closed	N/A	3	At 9:00 am PDT 10 min delay 1 lanes open	N/A	At 9:00 am PDT no delay 1 lanes open
Champlain	24 hrs/day 6/18/2018	8	At Noon EDT 10 min delay 2 lanes open	At Noon EDT no delay 1 lanes open	10	At Noon EDT 20 min delay 3 lanes open	N/A	At Noon EDT no delay 1 lanes open
Detroit *Ambassador Bridge*	24 hrs/day 6/18/2018	13	At Noon EDT 35 min delay 8 lanes open	At Noon EDT 35 min delay 4 lanes open	19	At Noon EDT no delay 5 lanes open	Lanes Closed	At Noon EDT no delay 1 lanes open
BORDER NOTICE - Lane 3 is Ready Lane 6AM - 10AM Monday through Saturday. For more information go to www.getyouhome.gov								
Detroit *Windsor Tunnel*	24 hrs/day 6/18/2018	1	At Noon EDT no delay 1 lanes open	N/A	10	At Noon EDT no delay 4 lanes open	Lanes Closed	At Noon EDT no delay 1 lanes open
BORDER NOTICE - The Ready Lane is now open at Windsor Tunnel.								

Source: https://bwt.cbp.gov/index.html

Canada has a complementary website, which shows waiting times at both sides of the border as well.

Figure 37. Screenshot of Canadian BCP Waiting Times



Canada to U.S. border wait times

If you are driving to the United States from Canada, the table below will keep you up to date on border wait times for entry into the United States. The ports of entry are listed geographically from east to west. The estimated wait times are updated at least once an hour, so refresh or reload this page to make sure you have the latest information.

On your return, you can check the U.S. to Canada border wait times.

Canada to U.S. border wait times

Port of entry	Commercial flow - U.S.-bound	Travellers flow - U.S.-bound
St. Stephen St. Stephen, NB/Calais, ME Last updated : 2018-06-18 12:49	Not applicable	no delay 2 lane(s) open
St. Stephen 3rd Bridge St. Stephen, NB/Calais, ME Last updated : 2018-06-18 13:00	no delay 1 lane(s) open	no delay 2 lane(s) open
Edmundston Edmundston, NB/Madawaska, ME Last updated : 2018-06-18 12:17	no delay 1 lane(s) open	no delay 1 lane(s) open

Copy

Source: https://travel.gc.ca/travelling/border-times-us

[144] https://www.gao.gov/new.items/d10694.pdf
[145] Ibid

Benefits of Border Queue Management Systems

The reduced queuing time has clear economic benefits to trucking companies. By reducing queue times, companies can increase their fleet utilizations by decreasing truck cycle times. In so doing, the trucking fleet size can be reduced to serve the same volume of freight or, alternatively, companies can increase their shipment volume capacity.

Truck Entry Control Gate in Aqaba

We can explore the potential macroeconomic benefits by a case Nathan Associates Inc. assessed for a similar technology solution deployed by NTELX at the Port of Aqaba in Jordan as well as a FEZ on the Jordan/Syria border.[146] Similar to the Estonia case, NTELX controls access the port via a gate system (see photo) located along a perimeter 30 miles outside the entrance to the port; the system is referred to as NAFITH (National Freight Information and Transportation Hub). Trucking companies must apply for a permit to gain access into the area cordoned off by gates along a number of access points.

In order to conduct an economic cost benefit analysis, Nathan estimated time savings for both the port and the free zone located at the Jordan-Syrian border as well as other benefits, including savings in operational costs, reduced personnel and material costs, improved reliability, reduced travel time on the hinterland transport system, and the value of improved safety and reduced emissions. Benefits were also estimated for the reduced congestion effects on other transport system users (e.g. less time required for trips) and improved traffic safety, environmental quality, and health conditions. The analysis results are summarized for both the port and free zone truck entry control systems in the table below.

In addition to the benefit-cost analysis, we also considered the broader economic impact of reduced time to trade. We applied a modified version of the Global Trade Analysis Project (GTAP) computable general equilibrium model[147]. We estimated time savings for each truck (and hence the trade it carries) to be in the 8-20 hour range; as truck trade represents about 75% of all traded goods, we estimated a time savings applied to all traded goods in the range of 4.3-8.5 hours. We estimated tariff equivalents to the added costs associated with time loss, thereby representing an effective increase in trade tariffs for imports and exports.

[146] Singh, Pooja, Rafael Enriquez, and Paul Kent, *Economic Impact Assessment of the NAFITH Truck Control Systems in Jordan*, Nathan Associates Inc., January 2011.

[147] The GTAP model was developed by Purdue University to assess the impact of trade policy. See https://www.gtap.agecon.purdue.edu/models/current.asp. As Jordan's social accounting matrix was not yet available in the GTAP database, we applied our Trade Facilitation Impact calculator, which was designed to enable trade impact assessments where data are not available in the GTAP database.

Table 27. Summary of Benefit-Cost Analysis Results

TRUCK ENTRY CONTROL SYSTEM	LOWER RANGE BENEFITS ($ MILLIONS)	UPPER RANGE BENEFITS ($ MILLIONS)
PORT		
Total Economic Benefits	$246.9	$468.1
Total Economic Cost	$67.5	$67.5
Total Economic NPV	$179.4	$400.5
Benefit Cost Ratio	3.7	6.9
Economic Rate of Return	100.5%	249.4%
FREE ZONE AT JORDAN/SYRIA BCP		
Total Economic Benefits	$7.7	$9.9
Total Economic Cost	$3.9	$3.9
Total Economic NPV	$3.8	$6.0
Benefit Cost Ratio	2.0	6.9
Economic Rate of Return	45.9%	63.8%

Source: Singh, Pooja, Rafael Enriquez, and Paul Kent, *Economic Impact Assessment of the NAFITH Truck Control Systems in Jordan*, Nathan Associates Inc., January 2011.

Assuming an estimated time savings for imports and exports to be 10 and 6.5 hours respectively, we calculated a positive impact on GDP in the range of $60.8-$73.1 million and $52.4 and $60.4 million, respectively. We also estimated an increase in employment due to reduced delay in imports and exports would be 0.42-0.5% and 0.14-0.19%, respectively.

As the case in Jordan shows, Moldova has potentially much to gain by improved queuing conditions at its borders and has substantial trade costs by not improving queuing conditions. Additionally, the GoSwift and NTELX cases show that there is sufficient financial and economic incentive to consider a P3 approach for installing such a system at Moldova's borders.

TRANSIT CARGO

There are several regimes which govern transit cargo, imports, and exports including the TIR (Transports Internationaux Routiers) convention and T1 (Transports Internationaux) transit documents. The TIR convention was developed in the 1940s and has been led by the United Nations as a public-private partnership since 1959.[148] The UN uses the International Road Transport Union (IRU) to manage the international guarantee chain, produce, and distribute TIR carnets through its member associations to final beneficiaries (shippers/buyers) via carriers. In Moldova, the member association is AITA (Asociația Internațională a Transportatorilor Auto or International Association of Road Transport), which has 455 members.[149] To be able to benefit from the TIR carnet, trucking companies must fill in a formal request to AITA and submit all the documents required.[150]

With TIR, goods are contained in sealed load compartments, and the contents are detailed in a TIR Carnet. This essential document accompanies the driver and the cargo along its journey. Customs simply has to verify the Carnet and that the seals are intact, rather than spending time to open the

[148] https://www.iru.org/tir/about-tir.
[149] AITA: http://aita.md/index.php/ro/despre-aita/membrii. Not all Moldovan carriers are part of the TIR convention or AITA.
[150] http://aita.md/en/how-to-become-a-member/.

container and physically check the load. At certain points of a journey, under the control of Customs, the seal can be broken and new goods loaded as per the TIR Carnet declaration with a new seal put in place. This process makes TIR an easy and reliable way to transport goods around the world, with the legal certainty that comes from the United Nations TIR Convention and IRU's international financial guarantees. Citing IRU, the European Commission amended the Union Customs Code Implementing Regulation to increase TIR guarantee limits from 60,000 EUR to 100,000 EUR[151] of customs obligations (taxes and duties). The Government of Moldova approved this guarantee to amount to100,000 EUR for goods on import and transiting Moldova.[152]

An alternative to the TIR Carnet guarantee for road transport is the T1 transit document, which is issued by customs brokers under their global financial guarantee to the relevant Customs Authority. For goods originating from the EU to Moldova, for example, the broker has to issue: 1) an intra-EU T1 document that must be closed upon the exit customs point from EU, and 2) an additional national T1 transit document that is issued at the entrance customs point in Moldova and lasts to the final import customs, post-exit BCP for goods in transit. Goods in transit crossing Moldova and then entering, for example, Ukraine, would then need a third guarantee.

Despite the obvious benefits of TIR, many Moldovan traders choose to use T1. Some stakeholders mentioned that TIR was too costly, but understanding is that costs are comparable, at least based on the official rates:

- TIR Cost:
    - 4 vouchers – 412.42 MDL (24.09 CHF)
    - 6 vouchers – 446.65 MDL (26.09 CHF)
    - 14 vouchers – 1031.29 MDL (60.24 CHF)

- T1 Cost:
    - 90-200 MDL, depending on the guaranteed amount

However, T1 is popular for exports going to the EU, a category that has been steadily expanding.

AITA data for 2017 show that 24,772 TIR Carnets were issued for goods loaded in Moldova: 38% issued for trucks going to Russia, then 9% to Belarus, and 4% Ukraine. The small figure for Ukraine reflects the existence of the Ukrainian transit authorization regime.

TIR is an important transit system for non-EU countries, particularly when, as is the case with Moldova, that they are not yet signatories to the Common Transit Convention or part of the New Computerized Transit System. Increased use of TIR could help reduce waiting times at Moldova's borders.

CUSTOMS BROKERS

The purpose of a customs broker is to act as an intermediary between a business and the Customs Service to facilitate the customs clearance process. A professional (licensed) customs broker should have a thorough knowledge of customs legislation and procedures, as well as a wider understanding of the functioning of the import supply chain. They are generally responsible for providing and preparing all required documentation for the trader and undertaking the formalities necessary to clear the goods. However, at the same time, they also have a professional responsibility to the

[151] IRU : https://www.iru.org/resources/newsroom/rise-eu-guarantee-limits-tir.
[152] http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=297501.

government and/or licensing authority, to ensure that their customers are compliant with customs and other regulatory requirements, and to support the collection of the right levels of duties and taxes.

The use of customs brokers remains mandatory in many countries, but the number is slowly decreasing. The Revised Kyoto Convention, as well as many regional trade agreements, strongly discourage the use of a mandatory broker system and the WTO Trade Facilitation Agreement prevents their introduction, if not already in place. In an increasing number of countries, the decision on whether or not to use a broker is a commercial matter for the trader. At the same time, some customs brokers are expanding the range of services they can offer to include advisory services and functions in relation to cargo handling, warehousing, packaging, insurance, and transport.

Licensing and accreditation systems also vary. In some countries, the government licenses the use of brokers and only licensed brokers can operate. In others, anyone can set themselves up as an individual broker or corporate brokerage. In some systems, brokers need to undergo training and pass an exam before being allowed to operate, but this is not the case in all countries.

There are only a limited number of internationally accepted standards for the operation of customs brokers but, in essence, the aim is to ensure that:

- brokers provide a cost-effective service to traders which is more favorable than traders undertaking the work themselves,
- brokers operate to a high standard of professionalism and integrity, acknowledging that, as a professional service, they have obligations to uphold in respect of the proper application of the law,
- brokers are properly trained and have the skills needed to undertake their work (whether this is tested through examination is a matter for individual countries), and,
- brokers are available to traders when and where needed, so that they do not impede the flow of goods.

In Moldova there are currently about 70 licensed customs brokers. A structure exists for the licensing of brokers. Management of this system is undertaken by the National Chamber of Commerce. It is not obligatory to use customs brokers, and many of the larger exporters and transporters do broker work in-house. However, customs brokers are extremely important to small and medium-sized enterprises (SMEs) and smaller traders who lack the personnel or expertise to carry out these functions. Anecdotal evidence suggests that the vast majority of brokers' clients are SMEs.

There is a variable standard of performance for customs brokers. There are some very professional individuals and companies operating in the country, but there are also some brokers whose technical expertise and integrity is, at the least, questionable. Based on interviews, complaints are common; many of them come from customs brokers themselves, who would like to see their business regulated or at least effectively governed. There is no formal training provided to brokers and there is no code of conduct. There is an existing procedure guide but it is very old, not comprehensive, and not readily available.

In addition, customs brokers report several constraints with the current system. Their main issue is that the banking crisis has greatly reduced credit availability and has made banks risk-averse. It is harder to get credit and fees are higher. In some instances, banks are requiring 130% of market value as collateral. This situation affects the brokers' guarantee limits, especially on weekends when MCS

is not releasing guarantees; for transit cargo, guarantees are only cleared when moved to a new customs regime, which does not happen on weekends. In addition, some pharmaceutical companies in Chișinău import to temporary warehouses and only clear when they need the drugs in the pharmacy. This amount of guarantee always stays blocked. There is a similar situation with temporary admissions for construction equipment. These issues can result in some brokers exhausting their guarantee limits over the weekend. Then either they must negotiate with one another via LOC, or trucks have to wait at the border. This situation disproportionally affects smaller traders, as brokers prioritize their largest customers. Finally, ASYCUDA in Moldova is not currently set up to allow brokers to have access to their remaining guarantee limits. To get or confirm this information, brokers have to ask customs officers.

The customs broker regime in Moldova would benefit from a substantial overhaul to increase the professionalism, performance, efficiency, and integrity of the system. It should be acknowledged by both the public administration and the business sector that an efficient and effective customs broker system is of mutual benefit in terms of increasing compliance, protecting customs revenue, and reducing the burden on business.

In addition, to remove some of the financial burdens of the current guarantee system, MCS should consider instituting a reduction in the guarantee percentage for AEO from 100% to a less burdensome amount. This step would reduce the cost of guarantees, especially as banks are currently requiring collateral of over 100%. In addition, as ASCUDYA is upgraded, MCS could consider providing brokers with online access to their guarantee limits.

INTEGRITY AND SECURITY OF THE SUPPLY CHAIN

In determining the efficiency of the overall supply chain, and specifically the role of Customs in its control, it is crucial that the role of Customs be understood and appreciated. The original and still primary function of Customs is to collect duties, taxes, and other payments from importers (and sometimes exporters) of goods. This process requires a range of systematic controls to ensure that the correct amounts of revenue are collected from businesses as efficiently and effectively as possible.

In a modern customs administration, very little of this transactional process now takes place at the borders. The vast majority of payments are made via online banking systems, using customs broker facilities, at inland clearance locations. However, there are still a range of checks which still need to be completed at the borders only some of which relate to revenue collection. These include:

- sanitary and phyto-sanitary checks,
- checks on goods where there is a risk of diversion before final clearance,
- checks to prevent the entry of prohibited and restricted goods (drugs, firearms, WMD, human beings, etc.), and,
- checks to prevent the export of certain goods (goods requiring export licenses or consignments destined for countries where some trade embargo may be in place).

Mobile customs laboratory at the Leușeni Customs Port

EMIL BOLOCAN FOR NATHAN ASSOCIATES INC.

Customs has a clear and unambiguous responsibility for the protection of society. Their obligations are clearly defined in the WCO SAFE Framework of Standards.

This assessment has not looked specifically at the security aspects of the transport corridor. However, it is important to acknowledge that these responsibilities exist and that they place a burden on Customs which cannot be overlooked. It is also important to acknowledge that the nature of the risks associated with supply chain security are very different from those associated with revenue collection, particularly in terms of the consequences that any security breach may bring.

MOLDOVAN CUSTOMS LEGAL FRAMEWORK

The situation in Moldova, in terms of the legal framework, is currently in a state of flux. This is partly because of the new draft Customs Code, which at this writing (June 2018) is before Parliament, with passage possible in the next 90 days. In addition, the two primary international instruments—the DCFTA with the EU and the WTO Trade Facilitation Agreement—are still in the process of being fully implemented.

Our recommendations in this area are divided into three sections, covering the DCFTA, the FTA, and the national legislation, as follows:

DCFTA implementation

- The effective implementation of the DCFTA with the EU must continue in accordance with the process defined in the DCFTA and its monitoring mechanism.
- Support should be provided to the Moldovan authorities to allow them to effectively monitor the DCFTA implementation. This support should specifically include assistance to apply the new system developed for monitoring (developed in 2017), which is not yet operational.

WCO TFA implementation

- Support should be provided to allow Moldova to fully implement its obligations under the TFA, particularly in relation to Category B (ongoing, long-term) obligations.
- Support for TFA implementation must be coordinated, as now, through the existing mechanism, which includes the National Trade Facilitation Committee (NTFC), reporting to the Prime Minister's Economic Council.
- Support should be provided to the NTFC to allow it to implement the National Action Plan 2018-2019. Specifically, donors and stakeholders should agree on a detailed program of supporting actions, clearly identifying what activities each stakeholder or donor should undertake.

- A review should be undertaken of Category A obligations to ensure that the maximum possible level of compliance has been achieved and the greatest level of benefit is produced for the business sector.

National Customs Code

- The new draft code must be finalized within the foreseen timeframe. (At this writing, this is still an open question.) Outstanding issues with the penalty provisions and other problems with the draft code need to be resolved; this step should be a priority for all stakeholders.
- The implementing regulations for the new customs code should be drafted in accordance with a timeframe which ensures that they are completed in time to meet the target for full application of the new code from 1st January 2020.
- The administrative penalties currently proposed in the draft customs code should be reviewed to ensure they are proportionate, comply with international standards and best practice, and achieve the required balance between compliance, deterrence and enforcement.
- The implementing regulations for the new customs code must take full account of the need to facilitate trade, as well as to meet requirements in terms of revenue collection and security. Specifically, this means that the implementing regulations should be drafted, reviewed, and finalized in such a way that any unnecessary or disproportionate control mechanisms are avoided and/or simplified to the maximum extent.
- The business community should be adequately represented and involved in the process of developing the implementing regulations, not just at the end of the process. Specifically, this step should include the establishment of a joint working group for the drafting of the implementing regulation which includes business sector representatives.

CUSTOMS ORGANIZATION AND STRUCTURE

The current business strategy of Moldovan Customs is well-drafted and meets all the key requirements of a modern business strategy. However, there are some weaknesses in the organizational structure that prevent the organization from effectively implementing the strategy and monitoring the implementation. Some of these weaknesses can be addressed through training and professional development, but others require some organizational restructuring, reallocation of resources, and, in some areas, additional resources to be made available.

Our recommendations in this area are as follows:

- A change management plan to support strategy implementation should be developed. This plan should address the cultural, organizational, and management changes required to achieve full implementation of the business strategy.
- An assessment should be undertaken of the current resourcing of key areas of Customs that relate to trade facilitation. Specifically, these should consider how much additional resources are needed to support:
    - the development of an enhanced and expanded AEO program,
    - the development of more and improved simplified procedures,
    - the development and application of enhanced risk-based controls,
    - the communication capacity of the Customs administration to prepare, circulate and maintain external information to stakeholders (including the development of public notices and clear guidance on rights and obligations of businesses and individuals),
    - the maintenance of an effective database of advance rulings and of appeals to provide for consistency and transparency in the processes, and,

- a more structured and effective process for cooperation with the business sector, including an enhanced role for the customs cooperation committee.

At this stage, we do not know whether the additional resourcing needs of these sectors can be provided within the existing overall resource and budget of the Customs administration. However, if this is not possible, then central government should positively consider any properly formed request from Customs for additional budget and resources in order to fulfil its obligations in relation to trade facilitation.

HUMAN RESOURCES AND TRAINING

The Moldovan Customs Service does not currently have an overall HR strategy. However, it does have a series of detailed policies which cover many areas of HR management, including job descriptions and seat instructions. The challenge is to integrate these existing policies and systems into an overall HR strategy and ensure that this strategy is fully supportive of the overall customs business strategy.

The implications and benefits of doing this go well beyond the scope of this trade corridor analysis and can deliver positive impacts in terms of revenue collection and protection, security of the state and its citizens, and the overall efficiency of the Customs service.

We have limited our recommendations to those areas which directly impact on trade facilitation but the wider benefits should not be ignored.

Our recommendations in this area are as follows:

- a Customs HR strategy should be developed and implemented which fully supports the overall business strategy, specifically in the area of trade facilitation,
- a review of existing systems, policies, and procedures for ensuring the highest level of integrity within the Customs administration, including the application of the current code of conduct,
- a review of the customs training function to identify additional needs in terms of capacity and capability to design and deliver training to all Customs staff in trade facilitation issues and the conduct of Customs staff,
- the development of a new code of conduct for customs brokers, and,
- the development of a training program for customs brokers.

RISK MANAGEMENT

Risk management is a very complex issue. It is also an area which remains a "work in progress" for all Customs services throughout the world. Systems, policies, and procedures are and will remain under constant review and improvement. In that respect, the Moldovan Customs Service is in a relatively strong position. It already has a reasonably effective system for the management of the key risks in relation to revenue collection (i.e., which types of traffic pose the greatest threat to revenue protection).

Our recommendations in this area are as follows:

- the development of an overall risk management strategy for the organization, taking account of the critical importance of risk management in the facilitation of legitimate trade,

- a review of the risk management system to make it more flexible and responsive to identified risks,
- the enhancement of the risk analysis function to allow it to undertake threat and risk assessments in relation to specific commodities, regions, methods of transport, etc., and to collect, collate, and analyze information and intelligence in relation to risks more effectively,
- the development of a government-wide, national risk management structure and system which would promote the exchange of information between government departments and agencies, as well as with the business sector (including the development of national risk profiles and a consistent approach to their application), and,
- the development of an enhanced national IT capacity to collect, collate, and analyze risks to revenue and to security. This functionality would be able to target non-compliant businesses and individuals more effectively, allowing resources to be better targeted and providing the opportunity to simplify the relevant regimes for compliant businesses.

BORDER AND INLAND CONTROLS

The border and inland control procedures that MCS applied appear to have improved substantially in recent years. This progress has been achieved without having any negative impact on overall levels of revenue collection. Indeed, revenue collection levels have increased more than 10% per year over the past three years; in 2017 they were about 20.3 billion lei, in excess of $1.2 billion dollars. (As noted above, MCS currently accounts for the majority of the GoM's revenue.) However, there is room for further improvement in terms of reducing the administrative burdens on business to allow them to be more competitive.

In assessing the functioning of the regulatory aspects of the trade corridor, we also identified considerable disquiet from the business community on the customs valuation process applied by Customs. While this does not necessarily impact directly on the operational and administrative costs related to the trade corridor, the issue cannot be ignored. If, as is claimed, Customs is applying valuations of goods which exceed the actual transaction value of the goods, then this increases the overall costs to traders and the competitiveness of their products. It also creates a climate of resentment and mistrust between traders and MCS.

There is an ongoing review of the customs valuation system in Moldova, funded by the World Bank. Their recommendations have not yet been published. It would, therefore, be premature for this assessment to draw conclusions and make recommendations in this area.

Our recommendations in this area are as follows:

- the drafting and implementation of a border and inland control strategy which supports the overall customs business strategy,
- the completion of the draft integrated border management strategy with full support from the Customs administration,
- the development of a cross-border cooperation strategy(ies) with Romania and Ukraine to reduce duplicate checks, share information on common risks, and align procedures and working practices,
- the enhancement of the customs inland clearance system, specifically through the introduction of a clear and transparent legal base for the operation of inland clearance facilities and the application of predictable and reasonable charges for use of such facilities traders (limited to the actual costs of managing the facilities),

- the improvement of facilities available to Customs for inland clearance of goods, specifically including the construction of a new, single customs terminal in Chișinău with adequate access to traffic and facilities for the inspection and secure storage of goods, and,
- the implementation of World Bank recommendations on the reform of the customs valuation process to ensure the proper application of WTO customs valuation methodology.

INVESTIGATION AND ENFORCEMENT

The powers given to Customs are properly limited by law and, given the broad scope of economic crime (which does not only relate to customs offences), it is right that it requires extensive inter-agency cooperation to apply the full force of the law. Different law enforcement agencies have varying powers and levels of authority. This assessment had not analyzed the powers of other agencies and does not address the division of powers between differing agencies. However, we believe that the MCS has adequate legal authority to enforce the law and to investigate cases of suspected non-compliance. Their competence in certain areas of intelligence gathering could be extended to enhance this capacity, but this issue can also be addressed through improved cooperation with the relevant agencies who have these powers.

Our recommendations in this area are as follows:

- the completion of a high-level review of intelligence functions (e.g., covert surveillance, use of informants, intercepts, and undercover officers), to ensure that Customs have sufficient access to these methods of intelligence gathering, whether directly or indirectly; this review should also consider the admissibility of evidence when such techniques are employed,
- the enhancement of cooperation mechanisms between Customs and other law enforcement agencies (both at home and abroad) to support the sharing of information and the organization of joint controls and joint investigations,
- the development of a customs enforcement strategy that provides the necessary tools and resources to tackle non-compliance, while recognizing that such tools should only be applied where there is a significant risk or suspicion of non-compliance; the strategy should acknowledge and address the fact that the majority of traders do not pose a significant risk in terms of state revenue and security, and include measures to prevent and detect the abuse of enforcement powers and to limit the opportunities for corruption, and,
- the preparation of the new implementing regulations for the customs code, taking full account of the application of proportionate and effective enforcement and investigation actions by Customs.

POST-CLEARANCE CONTROLS AND AUDIT

The Moldovan Customs Service has a functional post-clearance unit. However, the size and technical capacity of the unit falls well short of what is needed to apply the highest international standards and best practice. The reasons for this lack of capacity and functionality are complex and cannot be resolved without considerable effort, both within Customs and in the wider public administration and business environment.

Our recommendations in this area are as follows:

- the preparation of the new implementing regulations for the customs code, taking full account of the need for the effective, consistent, and transparent application of post-clearance and audit based controls by Customs,

- the completion of a review of the opportunities for the more effective application of audit-based controls by Customs, to include:
    - an assessment of the requirements of Moldovan businesses to maintain and retain records which could form an important part of any audit-based checks and validation, and,
    - an assessment of the requirements of other regulatory and inspection agencies in Moldova, including the tax authorities,
- the development of proposals to expand the capacity of the customs audit function, including the allocation of additional human resources, and the provision of equipment and systems and staff training (including management),
- the development of a long-term audit plan, including both long-term and short-term activities, and,
- the development of the customs training function so that they can support and develop the professional development of the audit function (including the provision to bring in external trainers where required).

INFORMATION AND COMMUNICATION TECHNOLOGY

The primary customs IT system in Moldova is the ASYCUDA World system, provided by UNCTAD. The system version currently in operation is now more than 10 years old and in urgent need of an upgrade. A full systems upgrade will address a number of functional weaknesses including:

- the provision of pre-arrival notifications,
- the application of the new common transit system, and,
- enhanced risk profiling.

However, these needs have been defined by others, including the EU Delegation in Moldova and the Moldovan Customs Service; there is no need for us to repeat them in this report. Our recommendations in this area are therefore focused on non-Customs IT systems and particularly systems which will provide benefit to the business sector. We do, however, also address the longer-term issue of the single window in this context.

Our recommendations in this area are as follows:

- A National Trade Information Portal should be established that will provide businesses in Moldova, and elsewhere, with clear, accurate, and useful information on the legislative and regulatory framework for international trade to and from Moldova. This portal should specifically enhance and reinforce the commitments under the WTO Trade Facilitation Agreement in relation to publication of information.
- Consideration should be given to joining the UN Trade Point initiative which supports business-to-business contacts and promotes cross-border and international trade, with the development of a national trade information portal in Moldova.
- Consideration should be given to developing a national valuation database. Such a database would provide the key information necessary for Moldova to apply all WTO-approved valuation methods. Support should be provided to the current Single Window initiative being developed through the EU Customs Twinning Project. Specifically, a coordination and cooperation mechanism should be created, linking the TIP development with the single window development. Such a bridge should provide economies of scale in a number of areas, allow for quicker development of a single window, and encourage a coordinated graphical user interface between the two systems.

- Investigate the possibility of developing a mobile app for reporting conditions at BCPs.

INFRASTRUCTURE AND EQUIPMENT

Moldova has experienced major changes in its trade flows and patterns in the past 10 years as described in detail in Section 1 of this report.

The future needs of Customs are clearly directly linked to the growth of and changes to the levels of traffic. The issues identified in this report will, in themselves, be drivers for future requirements. However, it is important that the needs of Customs in this context are properly and fully understood. This process includes understanding the types of traffic, the Customs regimes which will be applied to them, the risks involved, and how these risks should be prioritized within a limited overall budget.

The current MCS capacity to deal with the existing traffic is limited, but significant improvements are already underway and/or pipelined. In terms of the primary corridor between Moldova and the Black Sea ports of Odessa and its immediate neighborhood, a new border crossing facility is currently under construction at Palanca. This facility includes facilities for both Moldovan and Ukrainian border agencies. The regulatory requirements for this border crossing are largely understood and predictable. They include facilities to undertake inspections of containerized and non-containerized cargo (including scanner capacity), without disruption to the flow of other traffic and the facility to apply risk-based controls to smaller and "non-commercial" vehicles, which may still be carrying commercial consignments. These requirements apply in both directions but primarily relate to the importation into Moldova. The Palanca facility is due to open in late 2018, and all the evidence we have seen suggests that it will be fully fit for purpose, in terms of customs and border facilities.

There has also been significant investment at the Leușeni border crossing, on the Moldovan side. Here the infrastructure is adequate for the Moldovan regulatory controls. However, it is acknowledged that the greater part of regulatory checks at the Moldova-Romania border are on the Romanian side, and that there is a need to disburse the traffic flows into Romania so that the potential of other routes is developed. Therefore, the EU upgrade program is very welcome; it will upgrade the border facilities at the Sculeni-Sculeni and the Giurgiulești-Galati borders, as well as further development at the Leușeni-Albița crossing.

These existing and pipelined projects should significantly improve the customs capacity, not only to facilitate legitimate trade but also to apply effective controls on non-compliant traders. However, there remain some areas where current and future infrastructure needs have to be addressed. These include the following:

- facilities for the inland clearance of customs goods,
- facilities to deal with air traffic, and,
- facilities to meet any other changes in traffic routes and modalities (including the planned investments in rail).

In terms of equipment, MCS has already identified a number of current needs. These needs include security equipment, scanners, and video surveillance and electronic information screens for traders and travelers. The challenge for the Customs administration will be to ensure that the management and operational systems are properly put in place to maximize the impact of these new procurements and investments.

As already acknowledged, the provision of adequate infrastructure for Customs and other border agencies is always a challenge. With the ever-increasing levels of international travel and trade, there is and will continue to be mounting pressure on border agencies to process movements with minimal delay and costs.

In terms of customs controls, one key step has been the move away from controls at the borders to inland clearance and clearance at trader premises. These issues are already addressed at sections 3 and 4, above, to some extent. However, even if the use of such facilities was further extended, there are still a number of activities which either must be done at the border itself or which can be done more efficiently at the border. These activities generally do not relate to customs clearance and payment of import duties, but they do relate to other regulatory checks (some carried out by Customs on behalf of other agencies), checks on movement of people, and anti-smuggling checks.

Our recommendation in this area is to develop a comprehensive customs investment plan to cover a period of up to 10 years. This plan should be coordinated with other border agencies and with the agencies in neighboring countries to maximize the potential for economies of scale (as well as joint controls). Specifically, the investment plan should include the following:

- further development of land border facilities in locations where the level of traffic necessitates it,
- the need to respond to potential increases in rail and air traffic in coming years and to ensure that Customs has adequate facilities in these locations,
- the need to deal with increasing levels of e-commerce, particularly in relation to high-volume/low-value packages sent through the postal system, and,
- the need to address major equipment needs in support of border infrastructure that includes, but is not limited to, the provision of scanning technology and the capacity to use and maintain the equipment, once it is procured.

TRADE COOPERATION MEASURES

MCS has developed some mechanisms for cooperation with the business community. These measures include the impact analysis process for new customs procedures, the work of the Customs Advisory Committee, the establishment of the National Trade Facilitation Committee, and the implementation of the national AEO program. However, there is still more that can be done, particularly in relation to strengthening the national AEO program. Our recommendations in this area focus on that and are as follows:

- The AEO program should be given a new impetus, possibly with a relaunch and a new approach, setting out some clearer benefits for the trade from their participation in the program, including the potential to reduce guarantee levels for compliant traders.
- A simplified process should be developed to allow SMEs to join the program more easily and cheaply.
- Discussions should be held at the central government level (most likely within the structure of the Prime Minister's Economic Council), to develop a national AEO standard that can be applied by all government institutions and agencies, not only by Customs.
- Support should be provided to the development of a program of mutual recognition of AEO programs with all trading partners and should include support to the ongoing CEFTA project to provide for MRAs within the CEFTA region, but the initiative can then be extended to other trading partners as well, including countries within the GUAM (Georgia, Ukraine, Azerbaijan, and Moldova Organization for Democracy and Economic Development) region.

6. COMMODITY-SPECIFIC ANALYSIS

INTRODUCTION

In the above sections on corridor time and cost performance and bottlenecks, we focused on containerized cargo and general truckloads of freight. In this section, we discuss performance-related issues specific to four specific commodities: perishable fruits, wine, textiles, and auto parts.

For purposes of this TCA, what is being traded isn't as important as the characteristics of what is being traded—when those characteristics lead to constraints not faced by other types of traded goods. For instance, in terms of performance, it doesn't matter if the truck contains textiles or apples, unless textiles and berries are traded differently in terms of trade facilitation or transport and logistics issues. In this case, they are treated differently, as one is a perishable good that requires refrigeration and fast transport times, as well as certain phytosanitary documents etc. Therefore looking at constraints that arise due to the perishable nature of berries is our focus—not whether it is berries or plums being shipped. The commodity-specific analysis is not intended to provide an exhaustive analysis of all goods being traded in Moldova, but to use a few examples to highlight important issues.

In terms of trade corridor performance and constraints, things that could influence the results include whether goods are containerized or bulk, whether they are heavy or light, whether they are perishable and require cold storage, whether they are high value, whether they are time sensitive, whether they are agricultural, whether they are dangerous, and many others. In section 3, we focused on general containerized goods or trucks traveling the corridors. Here, we selected 4 commodities that represent various aspects that could impact performance differently:[153]

- perishable fruits are agricultural (needing phytosanitary certificates), require cold storage, and must have fast and reliable transport times
- auto parts are high value and "just in time" goods, which face heavy fines if they arrive late to their destination; they also encompass both imports and exports
- textiles are a high volume, containerized export
- wine is a heavy good that faces SPS requirements, and can be transported via both containers and tank-tainers in bulk; in bottles, it is also breakable

Additionally, all of these are commodities that have seen rapid export growth in the recent past, either in volume, dollar value, or both.

In the sections that follow, we discuss the performance and constraints faced by each of these commodities. In terms of time and cost, we limit our analysis to perishables and shipments of refrigerated containers; auto parts, textiles, and wine shipped in containers should face similar times and costs as discussed in Section 3.

[153] During the fieldwork, it also became apparent that wheat is the largest commodity export from Moldova, and the team considered wheat as one possible study. However, Trans-oil, which holds a near-monopoly wheat exports, would not take a meeting with the team and would not provide any information. An analysis without at least a meeting with the dominant market actor would necessarily be incomplete.

PERISHABLE FRUITS

Production of perishable fruits and vegetables for domestic and export markets offers significant opportunities for Moldova. Good climate and rich soil offer ideal conditions for growing many crops year round. Moldova's top fruit and vegetable exports include apples, table grapes, stone fruits and onions, tomatoes, and root vegetables. The agriculture sector is a key economic driver; in 2015 represented 12 per cent of GDP and accounted for 27 percent of employment.[154] Improving the competitiveness of the sector is also a priority for the Government of Moldova as benefits under the Association Agreement with the EU (including the DCFTA) are realized and access to the European market grows.[155]

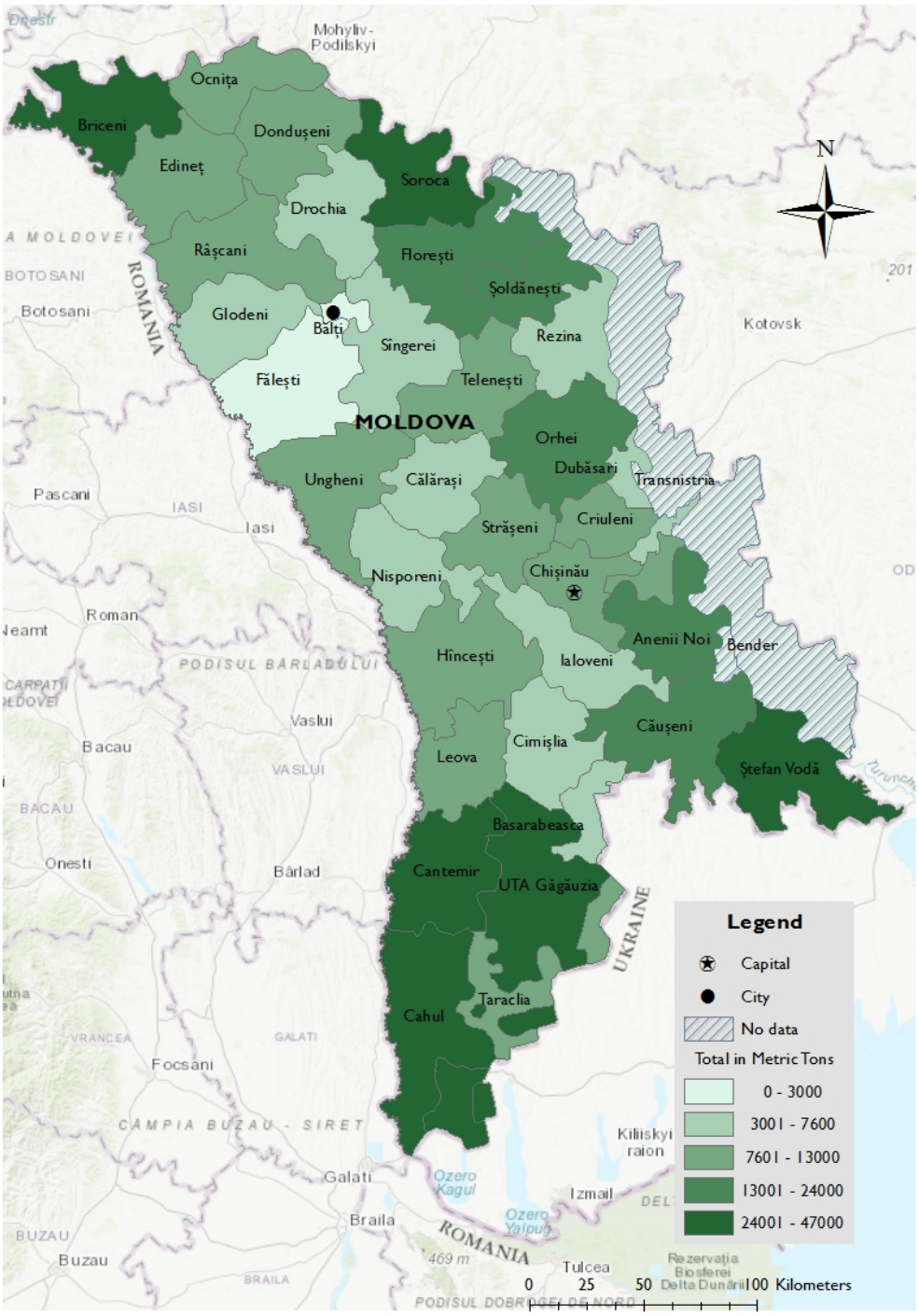
TYPICAL PERISHABLES EXPORT LOGISTICS CHAIN

Fruits and vegetables are produced throughout Moldova and marketed for both local markets and for export to primarily CIS (Russia, Ukraine, and Belarus) and EU markets. A majority of fruits and vegetables are produced in the North of Moldova, although crops are grown in all parts of the country (see map below). Apples and potatoes are mainly produced in the North, while plums are produced in the central regions, and peaches are mainly produced in the South. The exports of fresh fruits in Moldova relies on the import of production equipment, seeds, seedlings, packaging materials and other goods. These materials are imported mainly from Romania, Poland, Belgium and Italy and are brought into Moldova by truck.

Both smallholder and large commercial farms produce agricultural products for export. In 2016 46.8% of agriculture production was done by households and 53.2% was done was agriculture enterprises and farms.[156] After harvest, exporting smallholder producers transport fruits and vegetables using personal trucks to warehouses with cold storage facilities. There, wholesale trading companies purchase fruits and vegetables for distribution. Wholesale trading companies have agreements with international supermarkets and arrange for transport with specialized local and international trucking companies with refrigerated containers. Smallholder farmers interviewed mentioned that they prefer to work with wholesale trading companies because payment is guaranteed and made at the time of sale. By comparison, sales made directly to supermarkets are paid 30 to 60 days only after a delivery is made. Larger commercial farms have cold storage, sorting, and packing facilities on-site, and have agreements with international supermarkets. They use various specialized local and international trucking companies or freight forwarders to transport goods in refrigerated containers. Some large farms may also lease trucks from specialized trucking companies.

[154] http://miepo.md/sites/default/files/reports/Agrifood%20sector%20overview.pdf
[155] http://documents.worldbank.org/curated/en/778601467989461212/Competitiveness-in-Moldova-s-agricultural-sector
[156] http://www.statistica.md/pageview.php?l=en&idc=315&id=2278

Figure 38. Map of Moldovan Agricultural Production: 2016 Fruit and Vegetable Harvest by District (Metric Tons)[157]



Source: Data from Moldova National Bureau of Statistics . Nathan 2018

[157] Gross harvest includes field vegetables, fruits and berries, and grapes

Shipping documentation – which includes invoices, a packing list, the Convention on the Contract for the International Carriage of Goods by Road (CMR), Certificates of Origin, a Customs declaration, and phytosanitary certification – is assembled by the wholesale trading companies and largescale farms. Customs brokers are also employed, especially for smaller producers and wholesalers, and can handle all clearance procedures for shipments. Customs declarations are often transmitted electronically for both imports and exports. According to 2017 customs data, the top border crossing point for Moldovan perishable fruit exports (by value of goods) was Otaci- Mohyliv-Podilskyi (Table 28 below).

Table 28. Top Exports of Perishable Fruit by Border Crossing Point

Border Crossing Point	Mode	Statistical Value in MLD Per Year			
		2014	2015	2016	2017
Otaci-Mohyliv-Podilskyi	Road	60,103,100	154,990,904	26,677,392	23,406,912
Tudora-Starokazacie	Road	46,065,692	145,264,741	9,930,777	3,933,905
Leușeni–Albița	Road	N/A	643,973	154,029	N/A
Criva-Mamaliga	Road	83,137	74,659	33,901	N/A
Sculeni-Sculeni	Road	N/A	N/A	N/A	243,219
Chisinau International Airport	Air	218,349	27,369	N/A	N/A

Source: Customs Service of the Republic of Moldova

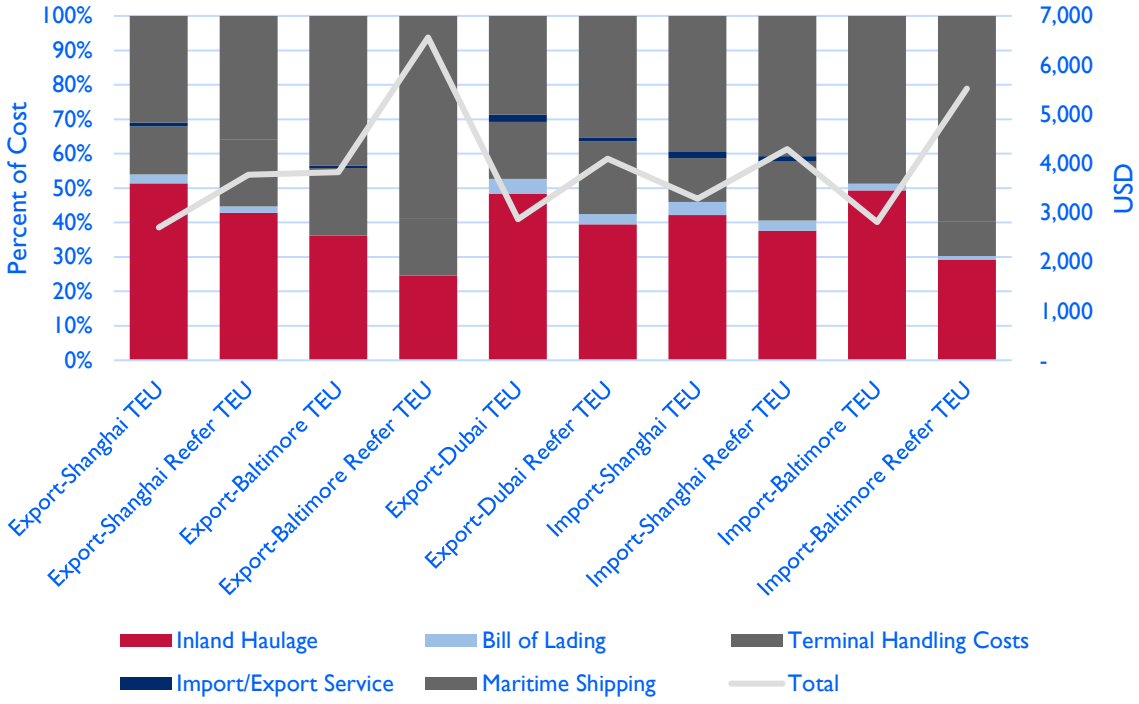
TIME AND COST TO TRADE PERISHABLES

The main modes of transport for fresh fruits and vegetables are by road and sea. Road is the preferred mode of transport and is considered the lowest cost and fastest option. By truck, shipments from farms in Moldova to Europe take 1 to 2 ½ days depending on the destination, the season, and delays at the borders. Shipments to Russia take between 2 and 3 days. By sea, shipments travel via the Odessa, Chornomorsk and Constanța ports. Due to lengthy transport times, sea shipments are limited to perishable goods with longer shelf lives, such as grapes. Via roll-on roll-off ships, perishable shipments take between 23-30 days to reach destinations in the Middle East, such as Dubai.

Perishable goods are shipped in refrigerated trucks of containers (reefers), which typically have additional costs. Reefers always cost more (this is not unique to Moldova), and because there fewer, have greater complexity in staging. Trucks carrying them also require hookups. Table 29 presents spot prices retrieved from the Maersk website for shipping a refrigerated compared to a non-refrigerated 20' container. [158]

[158] Prices for inland haulage are much higher than quoted to the team in interviews, but we were not able to receive clarification from Maersk on why the rates are so high. However, it is irrelevant to our analysis in this section, which focuses on the relative cost of transport for refrigerated vs. non-refrigerated containers.

Figure 39. Maersk Reefer vs Dry Container Spot Shipping Prices, 20' Container



Notable observations include:

- Exports of reefers to Baltimore via the Fish port cost 72% more than a dry TEU. This is due to increased inland haulage, THC at both ports, and shipping costs.
- Similarly, reefer exports to Dubai are 43% more, and China are 40% more.
- Quotes for imported reefer containers were presented through the Fish Port, while non-refrigerated cargo was presented through Constanța. To compare refrigerated/non-refrigerated, we looked at the prices through the Fish Port excluding inland transport costs. Based on this data, reefer imports from Baltimore cost 1.7 times more, and Shanghai cost 44% more.
- Reefer quotes from Dubai to Chișinău were not available as the website said there is no service for this route.
- For reefer shipments to Baltimore, the majority of the increase in transport costs is in maritime shipping costs (81%). For reefers to Dubai and Shanghai, maritime shipping costs were also the largest source of increased costs, but to a lesser extent. See figure below.

In terms of transport time, there is no difference in the time to transport reefers, but it is important to note that perishable goods are more sensitive to transport times and reliability.

Table 30 presents spot prices from a second data source, which allows the user to obtain quotes by commodity under various conditions (refrigerated, hazardous etc). Exports of refrigerated goods from Odessa cost more than double non-refrigerated containers for every port in the table. Reefer imports from Shanghai, Hamburg and Dubai cost 1.8x more, Baltimore 2.6x more, and Mombasa 31% less (likely due to the trade imbalance and excess capacity in that direction). As shown in the table, exports of containers of bottled beverages (such as wine) also had a price premium of exports of dry goods like apparel. For example, exports to Shanghai cost about 22% more. However, import costs were typically lower; it is unclear why.

Table 29. Maersk Reefer vs Dry Container Spot Shipping Prices, 20' Container

EXPORTS																	
FROM	VIA	TO	TYPE	TIME (DAYS)	COST (USD)												
					ORIGIN (MD)				MARITIME SHIPPING	DESTINATION				TOTAL			
					INLAND HAULAGE	BILL OF LADING	PORT THC	EXPORT SERVICE		IMPORT SERVICE	BILL OF LADING	PORT THC	INLAND HAULAGE	ORIG IN	MARI-TIME	DESTIN ATION	TOTAL
Chișinău	Ilyichevsk Fish Port	Shanghai	TEU	57	1,386	-	280	30	835	-	71	98	N/A	1,696	835	169	2,700
Chișinău	Ilyichevsk Fish Port	Shanghai	TEU Reefer	57	1,617	-	550	-	1,350	-	71	186	N/A	2,167	1,350	257	3,774
Chișinău	Ilyichevsk Fish Port	Baltimore	TEU	37	1,386	-	280	30	1,660	-	-	470	N/A	1,696	1,660	470	3,826
Chișinău	Ilyichevsk Fish Port	Baltimore	TEU Reefer	37	1,617	-	550	-	3,865	-	-	530	N/A	2,167	3,865	530	6,562
Chișinău	Ilyichevsk Fish Port	Dubai	TEU	32	1,386		280	30	820	31	123	196	245	1,696	820	595	3,111
Chișinău	Ilyichevsk Fish Port	Dubai	TEU Reefer	32	1,617		550	-	1,450	43	122	313	340	2,167	1,450	819	4,436
IMPORTS																	
FROM	VIA	TO	TYPE	TIME (DAYS)	COST (USD)												
					ORIGIN				MARITIME SHIPPING	DESTINATION (MD)				TOTAL			
					INLAND HAULAGE	BILL OF LADING	PORT THC	EXPORT SERVICE		IMPORT SERVICE	BILL OF LADING	PORT THC	INLAND HAULAGE	ORIG IN	MARITI ME	DESTIN ATION	TOTAL
Shanghai	N/A	Ilyichevsk Fish Port	TEU	37	N/A	71	98	57	1300-1750			320	N/A	225	1300-1750	320	1846-2296
Shanghai	Constanța	Chișinău	TEU	47	N/A	71	98	57	1300-1750		55	260	1,941	226	1300-1750	2,201	3727-4177
Shanghai	Ilyichevsk Fish Port	Chișinău	TEU Reefer	45	N/A	71	186	65	1,750		55	550	1,617	322	1,750	2,167	4,239
Baltimore		Ilyichevsk Fish Port	TEU	41	N/A	-	-	-	1,110	-	-	320	-	-	1,110	320	1,430
Baltimore	Constanța	Chișinău	TEU	46			-		1,210		55	260	1,620	-	1,210	1,880	3,090
Baltimore	Ilyichevsk Fish Port	Chișinău	TEU Reefer	43					3,300		55	550	1,617	-	3,300	2,167	5,467
Dubai	N/A	Chișinău	TEU Reefer	No service available on this route													

Notes: Quoted in USD,,or converted to USD based on the applicable exchange rate from oanda.com. Quotes are for 1 TEU of 18 metric tons, either dry or reefer as indicated.
Source: Spot quotes from Maersk website, May 2018.

Table 30. World Freight Rates Shipping Rates for Various Products, 20' Container to/from Odessa (USD)

PORT	COMMODITY	REFRIGERATED?	HAZARDOUS?	EXPORT		IMPORT	
				20' MIN	20' MAX	20' MIN	20' MAX
Shanghai, China	Dry Goods	N	N	862	953	2,099	2,320
	Fruits/ Vegetables	Y	N	1,751	1,935	3,838	4,242
	Bottled Beverages	N	Y	1,052	1,163	1,721	1,902
Hamburg, Germany	Dry Goods	N	N	1,520	1,681	1,650	1,824
	Fruits/ Vegetables	Y	N	3,087	3,412	3,016	3,334
	Bottled Beverages	N	Y	1,855	2,050	1,353	1,495
Istanbul, Turkey	Dry Goods	N	N	1,018	1,126	2,258	2,496
	Fruits/ Vegetables	Y	N	2,067	2,285	4,127	4,561
	Bottled Beverages	N	Y	1,242	1,373	1,851	2,046
Mombasa, Kenya	Dry Goods	N	N	1,620	1,790	5,158	5,701
	Fruits/ Vegetables	Y	N	3,612	3,992	3,573	3,949
	Bottled Beverages	N	Y	1,976	2,184	4,228	4,673
Dubai, UAE	Dry Goods	N	N	2,069	2,286	2,824	3,121
	Fruits/ Vegetables	Y	N	4,200	4,642	5,161	5,705
	Bottled Beverages	N	Y	2,524	2,790	2,314	2,558
Baltimore, USA	Dry Goods	N	N	2,111	2,333	2,025	2,238
	Fruits/ Vegetables	Y	N	4,285	4,736	5,177	5,722
	Bottled Beverages	N	Y	2,575	2,846	1,659	1,834

Notes: Cargo insured=no. Dubai port = Jebel Ali. 40' costs 28% more than 20'; Odessa (shown here) is 2.9% more than Constanța.
Source: http://worldfreightrates.com/en/freight#, extracted May 11, 2018.

Perishables also face additional costs in terms of air cargo shipments. One quote received from a shipper was that they paid approximately $1,050 for a charter cargo flight plus an additional $2.50 per gross kg. This equates to about $3,550/t. In comparison, Lufthansa cargo prices for non-perishable goods were $1,521/t for exports and $2,890 for imports to Moldova. To put it in perspective, one ton cost the same as it would cost to ship an entire reefer container to Mombasa or nearly two full reefer containers to China.

KEY ISSUES WITH TRADING PERISHABLES

Although Moldova's fruit and vegetables sectors have great potential for growth, several barriers to trade persist:

- Border crossing times are unreliable and vary throughout the seasons. Border posts are ill equipped to handle high traffic volumes, especially during the peak harvest season (September – November) and following periods of inclement weather. Long lines at the

borders put perishable goods at risk of spoilage and international supermarkets impose steep fees on deliveries made outside of scheduled drop-off times.

- Farmers and exporters are challenged to meet high product quality standards and traceability requirements in order to increase exports to the EU. Moldovan producers mentioned they faced difficulties harvesting large quantities of homogenous product consistently for new markets, such as the EU. Limited access to pre-cooling facilities, which help prolong the shelf life of some fruits and vegetables, also make it harder for farmers in Moldova to deliver high quality product consistently.[159]

- Limited capacity at ANSA to conduct phytosanitary inspections can result in delays for producers, especially for smallholder farmers that do not have regular access to assigned ANSA agents. Producers interviewed estimated 3 days to receive phytosanitary certifications and noted that each truck required ANSA inspectors to travel up to 60 km to reach the loading point.

- Issues with access to credit persist, as Moldovan banks perceive high risks in lending to agriculture producers. [160] Producers interviewed noted that due to variable crop production season to season, their poor credit history prevented them from receiving loans or applying for finance leasing. Additionally, farmers are subject to high interest rates and excessive collateral requirements, which further limits their borrowing.

- Russia remains one of Moldova's largest trading partners for fruits and vegetables. However, relations have been strained after Russia's Federal Agency for Sanitary and Veterinarian Control banned imports from Moldovan producers in 2015.[161] A limited list of Moldovan producers recently received permission to trade with Russia, however the process and requirements for becoming an eligible trader are not transparent, and many Moldovan producers must rely on those producers that are eligible in order to export goods to Russia. This presents an undue burden for many producers, considerably limits market access, and puts a strain on farmer earnings.

- High cost of air and sea shipments of perishable goods discourage producers from exporting to new markets in the Middle East and South East Asia. While many producers are interested in exporting to new markets, knowledge of accessible trading routes and pricing information is also limited. There are risks associated with trying to new methods and modes of transport. The USAID High-Value Agriculture project is trying to mitigate these concerns by partnering with Moldovan agriculture producers to connect them with international markets. For instance, they just assisted a producer with sending a shipment of grapes by sea to Dubai. However, as noted above, reefer container shipments to Dubai are costly.

- Air shipments are limited due to lack of sufficient cold storage equipment at Moldovan air freight terminals, and by the lack of cargo plane traffic which are able to carry specialized refrigerated pallets. Furthermore, Many Moldovan agricultural exporters are also located in the North, but both Bălți airports have infrastructure constraints and investment needs.

[159] http://www.undp.org/content/dam/moldova/docs/Publications/inclusive_devt/UNDP_MD_IBT-Report_eng.pdf
[160] http://documents.worldbank.org/curated/en/778601467989461212/pdf/103997-REPF-Moldova-Trade-Study-Competitiveness-in-Moldovas-Agricultural-Sector.pdf
[161] http://www.moldova.org/en/43-moldovan-companies-received-right-export-fruits-russia/

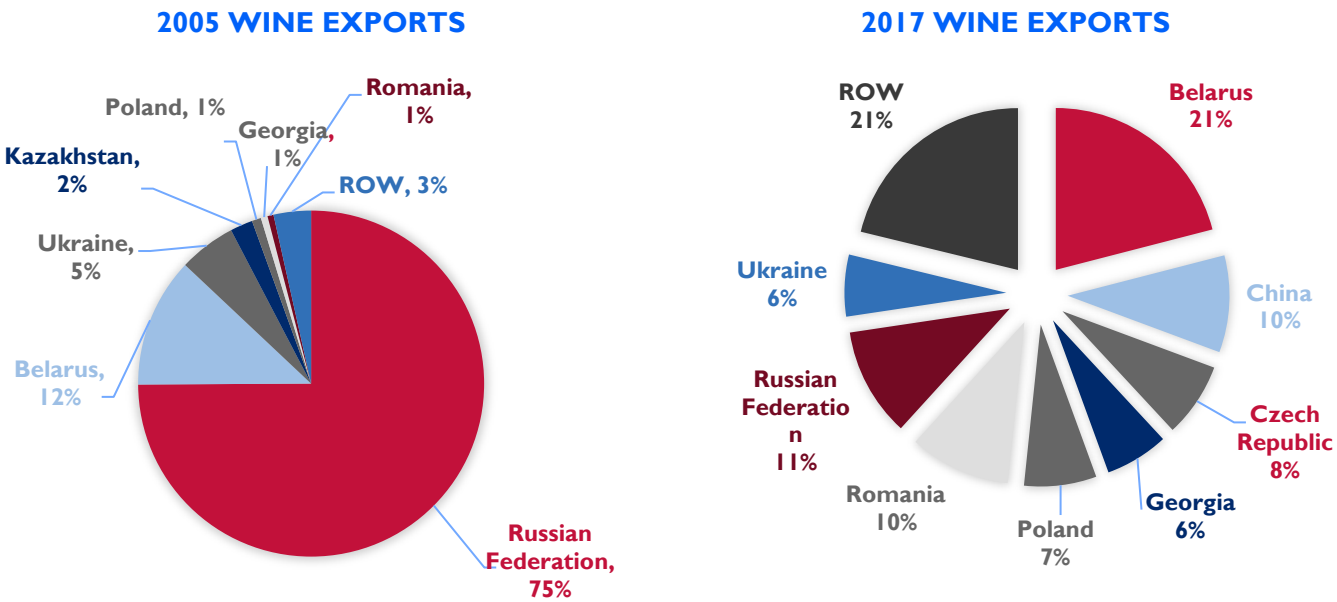
There are no current scheduled flights from either of the airports in the Bălți area, and most producers don't have the economies of scale to afford a full charter flight.

- Knowledge of market trends is limited and farmers prefer to export to traditional markets and grow old varieties of fruits and vegetables that have low demand in new markets such as the EU. One farmer noted that traditional varieties of apple grown for export to CIS countries are considered too small and they are not able to sell these varieties in EU countries.

WINE

A longstanding pillar of Moldova's economy, the wine sector is one of the country's most important exports. The wine sector accounts for 5.3% of the country's total exports and in 2017 Moldova was ranked the 20th largest wine producer in the world[162]. The industry is composed of an estimated 140 companies, which together employ more than 200,000 workers.[163] Traditionally, CIS countries including Russia, Belarus, and Ukraine were top importers of Moldovan wine, with an estimated 75% of Moldovan wine exported to Russia alone in 2005. However, in the past decade – following Russia's increased trade restrictions and bans on Moldovan wine in 2006 and 2013 – Moldovan wine exports have diversified into a number of new markets. In 2015 Belarus, Russia, Kazakhstan, the Czech Republic, and Poland were the top destinations for Moldovan wine, together accounting for 59% of Moldova's wine exports. Notable new export markets for Moldovan wine have included Georgia, Germany, the U.S., and China (Figure 40).

Figure 40. Moldova Wine Export Markets 2005 and 2017 (% of total wine exports)



Source: UN Comtrade

[162] UN Comtrade, http://www.oiv.int/public/medias/5681/en-communiqu-depresse-octobre-2017.pdf
[163] http://www.wineofmoldova.com/en/

TYPICAL WINE EXPORT LOGISTICS CHAIN

Production of wine in Moldova primarily occurs in the central and southern parts in the regions of Valul lui Traian (southwest), Stefan-Voda (southeast) Codru (center) and Bălți (North).[164] Grapes for winemaking are harvested between August and October. Inputs such as equipment, bottles, corks, and specialized pallets for transport are imported, primarily from Europe from Italy, Germany, and Bulgaria.[165]

The majority of wine produced in Moldova is destined for international markets, with only about 10% entering the domestic market.[166] The domestic market for wine in Moldova has remained small due to local preferences for traditional homemade wine, and limited promotion.[167] [168] Wine production in Moldova consists of 88% still wine, 6% sparkling wine, and 6% special wines.[169] Of the wine exported, approximately 60% is shipped in bulk and 40% bottled.[170] By industry standards, Moldova's bulk wine is price competitive and in 2016 was averaging about €0.55 per liter for white and €0.60 per liter for red wine.[171]

The ten largest wineries in Moldova are estimated to have 90% of the export market share.[172] Many of the largest wineries are vertically integrated, operating with private or leased vineyards, processing facilities, storage rooms, and bottling equipment. Wine processers are also common and are estimated to make up 50 percent of the wine producers in Moldova. Wine processers operate with processing and storage equipment and collect fresh or crushed grapes from local vineyards and farming cooperatives.[173]

The majority of wine exporters use trucks to transport both bottled and bulk wine and there are a number of local and international trucking companies and freight forwarders that provide transport services. Wine exported to EU and CIS countries often travels by truck, though exports to Russia may travel by rail. Depending on the terms of sale, wineries may manage their own shipment logistics to destination markets directly, or work with buyers who manage the transportation logistics under Carriage paid to (CPT) or Free Carrier (FCA) terms.

According to data provided by the Customs Service of the Republic of Moldova, the top border crossing point for Moldovan wine exports (by value of goods) is Tudora-Starokazacie (Table 31 below).

[164] http://www.wineofmoldova.com/en/
[165] http://www.fao.org/docrep/012/al176e/al176e.pdf
[166] https://pdf.usaid.gov/pdf_docs/PNADU233.pdf
[167] http://www.ann.ugal.ro/eco/Doc2010_2/Bugaian_Gheorghita_Nistor.pdf
[168] http://www.fao.org/docrep/012/al176e/al176e.pdf
[169] http://www.wineofmoldova.com/en/
[170] https://en.vinex.market/articles/2016/07/28/moldova_infocus
[171] https://en.vinex.market/articles/2016/07/28/moldova_infocus
[172] http://www.fao.org/docrep/012/al176e/al176e.pdf
[173] https://pdf.usaid.gov/pdf_docs/PNADU233.pdf

Table 31. Top Exports of Wine by Border Crossing Point

Border Crossing Point	Mode	Quantity in Liters Per Year			
		2014	2015	2016	2017
Tudora-Starokazacie	Road	63,817,589	72,374,820	85,158,109	82,975,214
Leușeni–Albița	Road	10,308,411	16,451,061	16,016,740	19,263,768
Giurgiulești (PIL, 1, 2, Galati, Reni)	Road/Port	634,494	10,631,224	17,525,791	14,877,326
Otaci- Mohyliv-Podilskyi	Road	3,597,570	4,717,011	6,804,927	14,708,342
Criva-Mamaliga	Road	6,147,403	6,015,543	7,918,228	7,934,820
Valcinet-Mohyliv-Podilskyi	c/f	13,944,405	5,263,077	2,286,693	675,648

Source: Customs Service of the Republic of Moldova

KEY ISSUES WITH TRADING WINE

Wineries interviewed for this study identified the following challenges in the production and export of wines from Moldova.

- The cost of shipments to Kazakhstan and Kyrgyzstan have increased due to shippers avoiding trade routes through Ukraine while relations with Russia remain tense. Kazakhstan and Kyrgyzstan have traditionally been some of the largest markets for Moldovan wine; however, the added costs of transporting wine through Belarus by truck, and from Russia to Kazakhstan by train, in order to avoid routes through Ukraine, have made Moldovan wine less competitive in the local markets and have affected sales. One winery estimated and additional €0.14 per bottle to ship wine through Belarus to Kazakhstan and noted that sales to Kazakhstan are down by at least 50 percent.
- Exporters are not able to request letters of credit for shipments, which poses challenges in negotiation with international buyers. Following the 2014 banking crisis, credit resources from local banks became very limited. International financial institutions that previously supported financial guarantees and other credit mechanisms, also cancelled this assistance after the banking crisis. This especially impacts shipments via Ukraine. At least one exporter mentioned that banks are not accepting payments if goods are shipped via Odessa so they must now export via GIFP. This adds one to two weeks to the transit time, and it can take 45-60 days for a container to reach the US.
- Road conditions en route to Odessa are poor, which can result in damaged shipments of bottled wine. The damage can be costly, as one damaged bottle can affect a full pallet of 600 bottles and result in loss of sale.
- Numerous documentation requirements add costs and can delay shipments. The documentation required with each shipment of wine includes: Certification of Conformity, Certificate of Origin, Certificate of Analysis (lab test results) and Customs Declaration. Exporters not only have to meet Moldovan requirements, but also have to obtain a second set of certificates for the EU. Obtaining the necessary certificates can take between a week and two months for shipments to the EU.
- The Leușeni-Albița border crossing often has long queues during peak harvest season.
- Russia was Moldova's largest market for wine until it placed restrictions on Moldovan wine in 2006. Now some regions (Gagauzia) and select exporters are allowed to export to Russia with duties, but not all Moldovan exporters meet the criteria.

- Moldovan trucking companies are cheaper than foreign trucking companies, but less reliable.

TEXTILES

Textiles produced in Moldova include apparel, rugs, leather and footwear goods. In 2014, the majority of production was in the apparel and rug industry. Together, production accounted for approximately 16% of Moldova's exports in 2014.[174] Moldova remains an attractive source for textile production, largely due to its proximity to the EU and its competitively priced workforce.[175]

TYPICAL TEXTILES LOGISTICS CHAIN

Geographically, a majority of Moldovan textile and apparel producers are located in the Central region. About 61 percent are located in Chișinău, Ialoveni, Orhei, and Straseni, while 21 percent are located in the North, and 18 percent are located in the South. [176] Textile producers are also active in Free Economic Zones (FEZs) across Moldova, including in the Ungheni FEZ in the Center. The industry is largely export oriented, with approximately 78% of goods destined for foreign markets. Textile exports largely consist of apparel (sewed and knitted goods), and carpets and rugs.

With a few exceptions (a small amount of wool yarn), almost all input materials for textiles are not produced in Moldova and need to be imported. These include fabric, thread, trimmings, etc. for garments and wool, and other synthetic materials for rugs. These materials are imported from Italy, Turkey, Bangladesh, India, China, and other countries. Apparel producers in Moldova largely work on a cut and make (CM) or cut, make, and trim (CMT) scheme where materials are imported temporarily for cutting and manufacturing before the finished products are shipped. The main markets for apparel produced in Moldova are EU and CIS countries, namely Italy, the United Kingdom, Germany and Romania.[177] There are two large rug producers in Moldova, Moldabela and Floare-Carpet, whose factories enclose their full value chain. Rugs produced in Moldova are largely exported to the EU, the US, and Japan. Firms located in FEZs import materials duty free and have access to on site Customs Offices, which are open 24 hours/day if needed.

The garment industry is particularly conscious of time, as buyers seek companies able to turn orders around quickly. In order to ship goods, most companies hire local or international shipping or freight forwarding services. Shipments are usually made by road or by sea for ease, cost, and speed. Transport from Moldova to the EU by truck is estimated to take 2-3 days. Rug shipments to Germany from Ungheni, passing through the Sculeni border are estimated to take 4 days.

According to data provided by the Customs Service of the Republic of Moldova, the top border crossing point for Moldovan textile exports (by value of goods) is Leușeni - Albița (Table 32 below).

[174] http://siteresources.worldbank.org/INTMOLDOVA/Resources/trade2.pdf
[175] http://miepo.md/sites/default/files/Textiles%20Report.pdf
[176] http://miepo.md/sites/default/files/Textiles%20Report.pdf
[177] UN COMTRADE. Moldova export markets for HS61 and HS62 products in 2017

Table 32. Top Exports of Textiles by Border Crossing Point[178]

Border Crossing Point	Mode	Statistical Value in MDL Per Year			
		2014	2015	2016	2017
Leușeni–Albița	Road	125,518,981	906,365,807	1,004,933,376	1,083,558,600
Sculeni-Sculeni	Road	222,500,790	376,450,242	528,221,389	469,973,764
Tudora-Starokazacie	Road	191,046,550	181,044,499	159,677,556	204,136,034
Otaci-Mohyliv-Podilskyi	Road	22,861,242	126,183,679	113,274,680	162,625,399
Criva-Mamaliga	Road	60,353,976	99,978,606	68,673,026	82,938,762

Source: Customs Service of the Republic of Moldova

KEY ISSUES WITH TRADING TEXTILES

Textile producers in Moldova encounter the following challenges to exporting:

- Customs procedures for e-commerce transactions are inefficient and require documentation for individual shipments. Companies in the textile sector, especially small and medium enterprises, are interested in using e-commerce more frequently, and the burden of inefficient customs procedures adds delays.
- Access to finance issues also affect traders in the textile sector. One textile firm noted that international buyers all require advance payment.
- The lack of raw materials available in Moldova leaves producers dependent on foreign suppliers for orders and product demands.
- There is limited analysis and information available for exploring new market opportunities, especially with the US and EU. Firms instead rely on traditional trading partners and routes.
- Air transport costs are high and constrain the sector's ability to conduct e-commerce transactions.
- Rail transport could be attractive on price but is simply too slow.

AUTO PARTS

The production of automotive components in Moldova has grown steadily in recent years, as a growing number of automotive companies have sourced the manufacturing of input materials to Moldovan firms, or have established their manufacturing plants in Moldova. Firms such as Germany's Dräxlmaier, the U.S.'s Lear Corporation, and Austria's Gebauer & Griller, amongst others, currently have manufacturing plants based in Moldova. The range of automotive components that are produced in Moldova includes seat covers and other textile parts, cable and wires, wire harnesses, metal parts, and electronic components.[179] Moldova's transport equipment industry made up an estimated 18 percent of exports in 2017 and is projected to grow considerably as Moldova integrates further into this global value chain.[180] Moldova's low labor costs and close geographical proximity to EU and CIS markets combine to offer great opportunities for growth in this sector.

TYPICAL AUTO PARTS LOGISTICS CHAIN

[178] Textiles goods in the following HS groups: 4015, 4104, 4107, 4112, 4113, 4203, 4305, 4303, 5203, 5701, 5702, 5703, 5704, 5705, 5910, 6111, 6117, 6209, 6217, 6307, 6308, 6309, 6401, 6402, 6403, 6404, 6405, 6406, 8308
[179] https://2016.export.gov/romania/build/groups/public/@eg_ro/documents/webcontent/eg_ro_109129.pdf
[180] https://mei.gov.md/sites/default/files/snaipe_2016-2020_eng.pdf

Automotive components producers are largely located within the FEZs and industrial parks across Moldova. A large factor in the growth of the automotive component industry has been the establishment of FEZs, of which there are currently seven in Moldova. The FEZs have played a key role in attracting foreign direct investment and offer low cost and streamlined processes for foreign and domestic investors to build production and service facilities in Moldova. Bălți is one of Moldova's largest FEZs and one of the most active nodes for auto parts production in Moldova. Several producers, including Dräxlmaier and Gebauer & Griller, have operations located within this zone.

The export markets for auto parts produced in Moldova include Romania, Russia, Ukraine, Germany, Italy and China.[181] Input materials, such as component parts, often arrive from China. Moldova largely offers Tier 2 (components) and Tier 3 (parts and raw materials) supplier production of auto parts.[182] Components and parts manufactured in Moldova are often exported to assembly lines located in Europe and elsewhere.

Most auto parts producers in Moldova hire local or international trucking or freight forwarding companies to process shipments by road, rail or by sea. Producers located in the Bălți FEZ shipping to Europe often transport goods by road, crossing the Sculeni border. Producers located in the FEZs, FEZ subzones or industrial parks surrounding Chișinău often cross the Leușeni–Albița border. Customs procedures are conducted within the FEZ. Shipments to Germany from Moldova are estimated to take 2 days. Shipments by rail to China are estimated to take 23 days, and shipments by sea are estimated to take 35 days.[183]

According to data provided by the Customs Service of the Republic of Moldova, the top border crossing point for Moldovan auto part exports in recent years has been (by value of goods) Leușeni–Albița (Table 33 below).

Table 33. Top Exports of Auto Parts by Border Crossing Point[184]

Border Crossing Point	Mode	Statistical Value in MDL Per Year			
		2014	2015	2016	2017
Leușeni–Albița	Road	16,304,703	46,205,427	264,780,662	254,716,777
Tudora-Starokazacie	Road	132,148,498	93,060,734	86,046,246	98,964,947
Sculeni-Sculeni	Road	2,547,920	507,349	3,552,871	11,308,255
Otaci-Mohyliv-Podilskyi	Road	7,599,522	12,896,860	10,543,705	4,000,035
Mirnoe-Tabaki	Road	10,545,038	16,355,719	53,781,346	5,273,558

Source: Customs Service of the Republic of Moldova

KEY ISSUES WITH TRADING AUTO PARTS

The following challenges were identified in the trade of auto parts from Moldova:

- Auto parts are '*Just in Time*' products, requiring fast and reliable deliveries. Late deliveries result in extremely high contractual penalties, which can amount to tens or even hundreds of thousands of euros, as a late delivery can mean stoppage of the entire production line. Delays at Moldova's borders produce high risks for such products. Being held up at Leușeni or Sculeni

[181] 2017 UN Comtrade data for HS 8708 and 8511, by quantity
[182] http://eba.md/app/webroot/uploaded/Automotive/Moldova%20Automotive%202014.pdf
[183] http://miepo.md/sites/default/files/reports/Automotive%20report.pdf
[184] Autopart goods in the following HS groups: 8407, 8511, 8512, 8703, 8707, 8708

could have high penalty costs. Predictability and consistency of border crossing times is critical for auto parts producers to meet delivery deadlines.

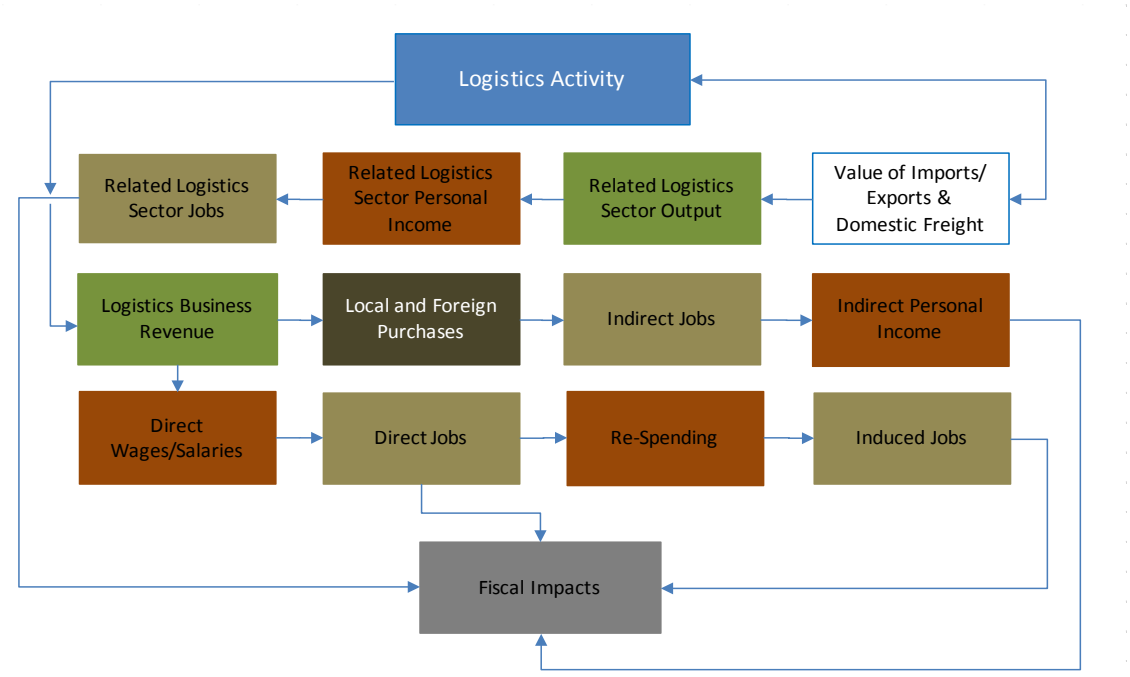
- It is our understanding that due to the speed and reliability requirements of auto part trade, that some companies use paired drivers, where two drivers switch off. This comes at a higher transport cost.
- Some auto part producers would benefit from increased air shipment opportunities given the time sensitive nature of the sector. Currently, air shipment costs are very high and shipments may only be processed out of the Chișinău airport due to the airport in Bălți no longer being operational. A Bălți-area airport would be more convenient for serving auto parts producers in northern Moldova including Bălți and Ungheni.
- The lack of raw materials available in Moldova leaves producers dependent on foreign suppliers for orders and product demands. Producers would like to source raw materials locally to reduce costs and time to complete orders.
- Auto parts are high value goods, which require a high customs guarantee. One customs broker mentioned that every Sunday they have large convoys of auto part inputs coming through the border, which can be 5 convoys of 4 trucks each. Each truck carries 800,000 lei of import duties, totaling 4 million lei of required guarantee ($239,000). Weekends are the biggest bottleneck for customs brokers in terms of guarantee limits, as noted above, because guarantee limits are not unblocked until Monday. This means that the brokers have to make sure to leave open enough of their limit over the weekend to ensure that the auto part customers will be able to cross the border. This means that they sometimes have to turn away other customers, or have other trucks wait at the border until Monday.

7. RECOMMENDATIONS AND ACTION PLANS

A SEVEN-PART STRATEGY FOR IMPROVING LOGISTICS SECTOR PERFORMANCE

We know from global experience that economic growth is related to the performance of a country's logistics system. As we have shown, logistics system inefficiencies in Moldova contribute to extraordinary costs of shipping products in Moldova, as well as to and from regional and global markets. Prior sections have detailed the many challenges Moldova has to address, but doing so will expand economic growth by creating jobs and contributing to fiscal growth. Appropriately calibrated strategies and actions can have a substantial impact on direct and indirect job growth while also aiding fiscal stability – that is, expanding Moldova's ability to meet its short-term and long-term obligations without incurring excessive debt (see Figure 41).

Figure 41. Economic Effects of Logistics Activity



Job Creation

Direct Jobs: jobs that would not exist if logistics activity ceased

Induced Jobs: jobs created due to purchasing of goods and services by logistics sector workers

Indirect Jobs: generated as the result of local purchasing by firms directly dependent on logistics activity

Related User Jobs: jobs held primarily with production and distribution firms using Moldova's logistics system

Local Purchasing

Local Purchases: goods and services purchased by firms dependent on Moldova's logistics system; these purchases create indirect economic impacts

Fiscal Impacts

Taxes, Tariffs, and Fees: Paid by logistics system-dependent individuals, firms, and users to government entities

Employment Income

Personal Income: consists of salaries and wages of those directly employed by logistics activity and includes impact of re-spending measuring personal consumption activity

Indirect Personal Income: includes the salaries and wages received by those employed by firms indirectly engaged in port activity

Value of Economic Activity

Logistics Business Revenues: includes total business receipts by firms providing services in support of logistics services activity or those firms directly providing these sevices

Related User Output: represents revenue generated by shippers and other parties using Moldova's logistics system assets as well as the value of output that is created due to freight moving via the logistics system

As earlier chapters suggest, Moldova will need to take action on several fronts simultaneously, pursuing a multi-part strategy consisting of those critical elements, referred to as strategic enablers, which significantly affect Moldova's ability to appreciably improve logistics sector performance. The strategic enablers include:

1. Improving the Logistics Sector's Institutional Effectiveness
2. Ensuring Supportive Policies and Legislative and Regulatory Frameworks
3. Improving Trade Facilitation
4. Developing Efficient and Productive Infrastructure
5. Providing an Efficient Transport Logistics System
6. Facilitating Sustainable Financing
7. Logistics Sector Promotion

These enablers, their goals, and associated strategies and actions allow Moldova to navigate the course of challenges to realize system performance improvement. We set forth below the rationale for each enabler, each enabler's goal, and the strategies to be executed. These are followed by a set of profiles for actions that consist of projects.

Because a well-charted and successful journey requires the right craft and crew, the strategy calls for adjustments to the institutional arrangements intended to provide a coordinated and collaborative sector improvement strategy. Enabler 1 is thus the most critical enabler, as it addresses the changes required to ensure that Moldova can institutionally anticipate and respond to issues and opportunities the sector faces.

As Moldova improves its logistics facilities and services, a time can be envisioned when more meaningful competition in the region will emerge, placing pressure on Moldova to ensure producers, industry investors, and the trade community that the transport logistics services are provided at the lowest possible cost and highest efficiency to service providers, enterprises, asset operators, and their customers. The strategy calls for on-going logistics system performance analysis to ensure that logistics system users have access and contribute to a competitive logistics system. In so doing, the logistics sector champion agency can determine whether course corrections should be made, and identify emerging challenges and opportunities while staying focused on long-term strategic goals.

1. IMPROVE INSTITUTIONAL EFFECTIVENESS

There are numerous strategies and actions that will need to be carried out simultaneously by several parties. While global best practice illustrates a variety of institutional options governing the logistics industry, improvement success will be tied to designating a champion entity that will be responsible for ensuring effective coordination and collaboration. Such an entity needs to lead, coordinate, support, and advocate for initiatives and projects related to planning, promoting, implementing, assessing, and reporting in support of improving logistics sector performance.

Moldova has a number of options to pursue, but the global practice seems to be assigning logistics sector responsibility to an existing agency in combination with a national logistics counsel consisting of private and public sector representatives. The Ministry of Economy and Infrastructure is particularly well-suited to lead charge for improving the logistics sector and manage the collaborative process needed to realize successful development as agencies relevant to the logistics sector are house within the Ministry, including Trade, Transport, Industry, and Information Technology and Communications.

The Ministry should have a heavy influence on matters of strategy, investment, marketing and promotion, and performance monitoring, with an internal ministerial steering committee established to coordinate policy, ensure an environment of collaboration, monitor implementation of the actions recommended here, identify solutions to mitigate constraints, and develop a logistics performance indicator system to enable sector performance monitoring. A national logistics council serving in an advisory capacity should also be created, consisting of Customs, the Ministry of Finance, and the Ministry of Agriculture, among others, along with logistics, trade, and industry associations.

As Moldova endeavors to improve its logistics sector, it will need the ability to assess conditions and the impact of improvement efforts. The World Bank's Logistics Performance Index identifies weaknesses in Moldova's logistics system, but the analysis does not provide sufficient guidance to mitigate performance constraints or monitor the impact of interventions. Moldova, on a continuous basis, should measure performance and identify impediments to logistics efficiency and take corrective action towards resolving them. This requires improving Moldova's statistical collection and analysis abilities—which requires better use of electronic systems, and coordination with neighboring governments.

Goal

Create and manage an effective institutional arrangement that fosters catalytic and dynamic public-private development of the logistics sector.

Logistics Sector Development Strategies

1. Establish an institutional and organizational framework for logistics sector administration.
2. Develop a system of indicators for monitoring logistics sector performance.

Actions

1. Establish an inter-sectoral logistics steering committee within the Ministry of Economy and Infrastructure.
2. Establish internal procedures for committee structure, meetings, and leadership.
3. Establish national logistics council, to meet quarterly, composed of private and public sector representatives to inform Ministry and steering committee of issues affecting sector performance.
4. Develop logistics performance monitoring system encompassing indicators that enable monitoring and assessment of each sector component.
5. Prepare and issue annual state-of-the-state logistics report.
6. Explore possibilities for cross-border cooperation and information sharing, particularly with the ports in Romania and Ukraine.

2. ENSURE SUPPORTIVE POLICIES AND LEGISLATIVE AND REGULATORY FRAMEWORKS

In order to develop a competitive logistics system, Moldova will need to establish policy and regulatory conditions that generate trade and improve conditions in which freight is processed or moved. This means expanding Moldova's portfolio of access agreements, as in the recently negotiated Ukraine agreement addressing aviation and trucking, and leveraging existing agreements intended to facilitate transport access and cross border movements.

While ensuring conformance with obligations and standards contributes to trade facilitation, success on that front cannot be realized without effective policies on other fronts, including financing and trade facilitation. For example, having an adequate PPP framework, as addressed in Enabler 5 Facilitate Sustainable Financing, sends a message to the global investment community that Moldova is open for investment and intends to improve freight logistics assets while also providing a potential solution for road maintenance contracting.

Moldova will need to establish policy and regulatory conditions that generate trade and improve conditions in which freight is processed or moved.

Goal

Conform to international standards for trade, transport, and logistics through effective policymaking and regulation and continuous enhancements of Moldova's business enabling environment.

Logistics Sector Development Strategies

1. Leverage existing bilateral or multilateral agreements to develop regulations and procedures that allow for improved cross-border transit conditions.
2. Ensure existing rules, regulations, and bi-lateral and international agreements enable the application of border traffic management systems to mitigate border congestion.
3. Enhance road maintenance performance to ensure sufficiently adequate road conditions for road freight shipments along port and cross-border access corridors.

Actions

Trade and Customs

1. Devise system that allows for pre-notifications and pre-clearance of arrivals.
2. Assess the merits for employing a vehicle appointment system to mitigate extended queuing at border crossing gates.

Aviation

3. Further promote air transport liberalization and competition, new routes, increased services, and air connectivity.
4. Ensure that air transport agreements encourage use of aircraft that can enable easy access to the cargo holds for standard air freight containers.
5. Private operators in coordination with the Moldovan government effectively promote and improve quality standards for freight handling at its international airports.

Trucking

6. Effectively promote competition amongst domestic and international freight transport operators.

7. Improve the regulatory framework for the freight forwarding industry by updating the legislation to develop minimum standards and requirements to operate, and developing a framework in which a professional freight forwarding association can operate.

8. Build the capacity of ANTA through training programs and investment in equipment and technology.

9. Reduce time to trade by moving ANTA's One Stop Shop to an online system.

10. Continue to liberalize the trucking market to diminish the need for authorizations.

11. Work out an agreement with customs to conduct ANTA's regulatory enforcement activities at the border (authorizations and axle weight controls).

12. Improve institutional capacity for road procurement, construction supervision, and monitoring and evaluation of road construction and maintenance expenditures.

Rail

1. Continue to move forward with the planned restructuring, separating CFM's functions into passenger, cargo, and infrastructure maintenance and allow private sector investment.
2. Work with the MoEI to develop a sustainable and reliable track maintenance program.[185]
3. Ensure adequate safeguards against anticompetitive behavior are in place in the event freight rail service operations are transferred to private sector operator responsibility.

Maritime

4. Improve Moldova's ability to honor its IMO Flag State obligations.

3. FACILITATING LEGITIMATE TRADE

Expanding on Enabler 2, this enabler focuses more specifically on improving trade facilitation. This means leveraging existing agreements intended to facilitate transport access and cross border movements, in particular the Deep and Comprehensive Free Trade Agreement, but also other relevant trade agreements such as CEFTA and the GUAM free trade area. Several of the actions listed below are already included in Moldova's DCFTA Action Plan. Donors, including the EU, USAID and the IFC, are already engaged with some DCFTA-related issues. However, much work remains to be done, and there is still space for additional donor engagement.

Goal

Removing unnecessary barriers to trade, simplifying regulatory procedures and reducing burdens on business through the better application of risk based controls.

Strategies

1. Improve levels of trader compliance by making it easier to meet regulatory requirements and making requirements clear and transparent.

[185] The Ministry of Economy and Infrastructure will also have to develop a financing mechanism for covering the cost of passenger services under the restructuring as it will no longer be cross-subsidized by freight; however, passenger services are not included in the remit of our TCA.

2. Ensuring that customs and other regulatory agencies manage risks effectively and deploy adequate resource to address those risks whilst maximizing the facilitation of legitimate trade.
3. Developing a more effective partnership between customs and the business community in the development and application of controls.

Actions

1. Expand and enhance the risk management capacity of customs and develop more effective risk profiles.
2. Expand and enhance the national AEO program to deliver more material benefits to traders and making it easier for SMEs to join and comply with the program.
3. Review the existing deployment of customs resources in the light of current risks and levels of traffic to ensure they provide the best possible level of control with the minimum of disruption to legitimate business.
4. Develop a national trade information portal to provide clear, accurate, reliable and up-to-date information on trade-related legislation, procedures and policies.
5. Develop the post-clearance audit function within customs to allow it to more effectively apply checks and controls at a systemic level, rather than at the transaction level and reduce the number of physical and documentary inspections.
6. Develop the implementing regulation for the new national Customs Code in partnership with business representatives, taking full account of the opportunities to simplify procedures and facilitate legitimate trade.

Appendix C provides more detail on issues and recommendations related to trade facilitation.

4. DEVELOP EFFICIENT AND PRODUCTIVE INFRASTRUCTURE

The report underscores Moldova's need for improvements to its freight logistics assets. This ranges from road, port, and aviation sector improvements to improvements in border crossing facilities and inland water transport. Moldova's economic growth is constrained by the lack of viable options for freight transport, hence harming Moldova's connectivity to regional and global markets. A high degree of connectivity, where importers and exporters have a range of options for receiving and shipping freight, is the hallmark for an effective logistics system. However, the infrastructure associated with producing, moving, and processing this freight, and the underlying backbone services to support it, is a necessary prerequisite for achieving adequate logistics performance.

Transport systems are enablers of trade, while shippers are freight generators, yet viable transport options are limited. As in most countries without their own seaports, Moldova's connectivity is affected by the degree to which access to transport assets of other countries is facilitated, particularly in an environment where the river port is not currently a viable option to most shippers.

Accordingly, the strategy addresses requirements for transportation systems (maritime, aviation, road, and rail) as well as complementary facilities, such as freight consolidation centers to allow small-scale shippers to benefit from economies of scale. Additionally, the development strategy recognizes the environmental and social ramifications that often accompany large-scale development programs.

Goal

Create an environment to facilitate efficient connections of Moldovan businesses to regional and world markets through the development of enabling transportation and logistics infrastructure that

comports with best practice standards and underlying services that support improved logistics performance.

Logistics Sector Development Strategies

1. Increase land, air, and maritime connectivity to provide options for accessing regional and global markets to Moldovan shippers and producers.
2. Diversify Moldova's connectivity to regional seaports, ensuring a cost-effective, timely and reliable alternative to the Ukrainian ports to enhance competition and ensure connectivity despite geo-political risks.
3. Provide better connectivity to Moldova's own river port at GIFP, and ensure that all exporters have equal access there.
4. Provide cold storage facilities for perishable freight.
5. Provide truck staging areas at border crossings and other structural solutions for managing vehicle congestion.

Actions

Maritime

1. Assess the feasibility for improving the navigation access conditions to the port of Giurgiulești through dredging.

2. Assess the feasibility of restarting inland water transport operations from Ungheni to GIFP, and on the Nistru River to Odessa.

3. Promptly complete the procurements for the planned improvements to road and rail access to Giurgiulești, and ensure that the construction and rehabilitation projects move forward in a timely manner.

4. Provide improved access to port options in other countries, particularly enhanced conditions of roads and border crossings accessing Odessa, Chornomorsk, and Constanța. This includes rehabilitating the road to Căușeni and the access road to Palanca (which is planned for 2018). Improvements on the road to Giurgiulești will also provide a shorter route to Constanța. It also requires initiating discussions with Ukrainian authorities on road rehabilitation options from Palanca and Tudora.

Aviation

5. Monitor progress towards, and facilitate the provision of, appropriate freight handling equipment and cold and dry storage in Chișinău International Airport. This includes improvements to customs facilities at the port.

6. Assess the feasibility of investment in the reopening of an airport in Northern Moldova (Bălți International or Mărculești International).

Rail

7. Ensure smooth procurement and planned reconstruction of the railway works on the line to Giurgiulești.

8. Conduct feasibility studies for rehabilitating the central and northern rail network tracks.

9. The Ministry of Economy should develop a short and long term plan for prioritizing rail maintenance projects, and developing a funding / financing solution.

10. Move forward with the purchase of locomotives using the EBRD/EIB funding.

11. Work with the private sector to develop funding or lease programs for acquiring additional rolling stock to replace the poor conditions of old rolling stock.

Industry

12. Assess merits of establishing a dry port in Chisinau. This could include multi-modal transfers from road to rail, freight consolidation centers for LCL shippers, facilities for stuffing/de-stuffing containers, a point for exchanging containers (if supported by one or more shipping lines), warehousing, and inland customs facilities.

13. Assess the feasibility of developing regional freight consolidation centers in proximity to small farmers and LCL shippers.

Surface Transport Connectivity

14. Improve road connectivity to strategic border crossing points.

15. Assess merits of expanding truck access lanes at strategic border crossings.

16. Develop planned bypasses around villages and population centers currently slowing access to GIFP and border points.

Appendix D provides a table summarizing key infrastructure needs required for improving connectivity within Moldova's trade corridors, as well as the status of current and potential projects.

5. PROVIDE AN EFFICIENT TRANSPORT LOGISTICS SYSTEM

Logistics systems have to be designed to meet the needs of prospective customers, special economic zones, ports, airports, and the industrial sector if Moldova hopes to enhance and maintain competitiveness. It is not only a question of infrastructure assets, but also of processes. The World Bank's Logistics Performance Index identifies weaknesses in Moldova's logistics system, specifically in customs, infrastructure, international shipments, logistics competence, tracking and tracing, and timeliness.[186] Having access to timely information can have immediate positive effects on performance in all of these areas. Moldova must continuously monitor for impediments to logistics efficiency, assess system performance, and provide systems and technologies that allow shippers to know the real time status of freight processing, movement, and location. Logistics decisions are based on availability and timely receipt of logistics transaction information. Having access to, and communicating through a system between relevant parties, assists in facilitating planning and reliability of logistics chains.

[186] Moldova's most recent LPI ranking is 93 among 163 countries in the 2016 rankings. See https://lpi.worldbank.org/international/scorecard/column/254/C/MDA/2016?sort=asc&order=International%20shipments#datatable.

Goal

Ensure the availability of and access to a competitive and efficient transport logistics system.

Development Strategies

1. Continuously monitor for bottlenecks and other constraints to transport logistics efficiency.
2. Monitor logistics system performance and assess impact from interventions.
3. Develop and implement logistics technology information, communications, and other solutions.

Actions

1. Identify structural and non-structural interventions for improving logistics performance based on Enabler 1's performance assessment.
2. Assess merits of prospective interventions and establish priorities for logistics performance improvements.
3. Prepare national freight logistics plan setting forth a phased development plan and a regulatory and financing strategy for making logistics sector improvements.
4. Implement priority structural and non-structural projects.
5. Assess needs, prepare design, and implement a logistics community system that enables logistics planning, track and trace capability, and information sharing among relevant parties and determine framework for funding and implementation.
6. Design and implement a border crossing vehicle appointment system.
7. Improve the service and reliability of the railway sector, including assessing the viability of developing a scheduled container shuttle service meeting the weekly container river service to GIFP.

6. FACILITATE SUSTAINABLE FINANCING AND INDUSTRY ACCESS TO CREDIT

Moldova's low credit worthiness ratings indicates that Moldova is facing some risk of adverse economic conditions and may have difficulty in meeting its financial commitments while also substantially increasing borrowing costs should Moldova pursue loans. Combined with budget constraints, Moldova has no recourse but to leverage financing from the private sector to cover some of the needed infrastructure improvements.

Though Moldova has ratified the Convention on the Settlement of Investment Disputes between States and Nationals of Other States, thereby having an objective process in place in the event investment disputes arise, both the UN and the World Bank indicate shortcomings in Moldova's institutional ability to undertake successful transactions. The World Bank provides some guidance for enhancing the prospects of potential transactions while contributing to their bankability. The Bank highlights needed improvements in in the area "Preparation of PPPs", with non-compliance with global standards in the criteria of "Fiscal treatment of PPPs" and "Market sounding and/or assessment", and shortcomings in the areas of "PPPs' prioritization consistent with public investment

prioritization" ("Detailed procedure not regulated"). Additionally, Moldova lacks methodologies in the areas of "Economic analysis assessment", "Fiscal affordability assessment", "Comparative assessment (value for money analysis"), "Financial viability or bankability assessment", and "Environmental impact analysis", while also receiving a score of "0" in the area of Unsolicited Proposals, which has the effect of constraining the receipt of PPP opportunities that the private sector or investment community may identify.

Prevailing law also seems to suggest that a PPP transaction is not one unless there is an equity contribution by the state. World experience is replete with examples where the public contribution is in the form of making public lands or brownfield facilities are available for private sector use. The areas for improvement also imply a prerequisite for having sufficiently prepared staff to prepare and apply the requisite analytical methodologies and a contract framework that is responsive to both public and private sector risk concerns.

Access to credit difficulties has also hampered the ability of the domestic trucking industry to renew its fleet, thereby increasing truck operating costs and hence freight rates to shippers due to reliance on aged vehicles, while other logistics or international trade players are subject to onerous pre-payment requirements or guarantees.

Goal

Secure private sector financing by enhancing institutional capacity to carry out successful PPP transactions and focus multilateral financial institution funding on projects that contribute to the improved logistics sector performance.

Development Strategies

1. Provide a PPP framework that reflects global best practice.
2. Expand institutional capacity of the Ministry of Economy and Infrastructure for prospective project evaluation.
3. Ensure post-transaction monitoring takes place.
4. Mitigate access to financing constraints in the logistics sector.

Actions

1. Assess PPP Unit internal procedures and processes for consideration of potential PPP projects.
2. Define optional procedures through which candidate projects identified by government agencies and private sector may be submitted for PPP consideration and information submission requirements.
3. Prescribe the framework for facilitating submission of unsolicited PPP proposals that can be considered, including the use of Swiss Challenge Rules or similar mechanism.[187]

[187] "Swiss Challenge Rule" is a public procurement process designed to encourage private sector initiatives to engage in a PPP investment mechanism. Under the Swiss Challenge Rules, the receipt of an unsolicited proposal for a project or service to be provided to the public is required to publish a bid and invite third parties to exceed it. The unsolicited proposal bidder is then given the opportunity to match any superior offer submitted by the other third parties.

4. Develop methodologies for screening potential PPP candidates.
5. Assess and refine procurement procedures in relation to best practice standards.
6. Develop procedures for post-transaction monitoring.
7. Create website to set forth the rules for PPP applications, results of screening process regarding the merits of a candidate project, projects placed in the pipeline, tender procedures and bid terms for projects, tender results, transaction awards, and post-transaction monitoring.
8. Create and implement capacity building program addressing PPP processes, candidate submission procedures, methodologies for project appraisal, and other areas that support the ability of staff to prepare and implement successful PPP procedures.
9. Prepare annual PPP progress report.
10. As part of the refinement to the AEO program, consider reducing the customs guarantee percentage required for AEO from 100% to lower amount.
11. Consider expanding ODIMM to include loan guarantees for traders and other participants in the logistics sector.
12. Identify remedies that would facilitate access to financing for trucking companies, customs brokers, traders, and other members of the logistics community; this includes financial sector reforms that are outside the scope of this report.
13. Consider applying tax deferral schemes for importers.

7. LOGISTICS SECTOR PROMOTION

The logistics sector development strategy will need the support of an effective promotion strategy that demonstrates Moldova's clear intent to improve sector performance and inform potential investors, logistics service providers, and shippers of a coming new age of logistics in Moldova. The logistics sector development strategy should pursue different courses simultaneously to the extent that an effective public outreach program is implemented. This means participation in conference events, leveraging Moldova's foreign ministry diplomatic missions, engaging with cross border transport service providers to promote market entry opportunities, and acknowledging "achievers" in Moldova's logistics industry.

Goal

Communicate effectively to increase interest and understanding of Moldova's plans to improve its logistics sector with potential investors, logistics service providers, and industry.

Logistics Sector Development Strategies

1. Create a marketing and promotion strategy to communicate the government's intent and plans for improving Moldova's logistics sector and its performance.

2. Prepare marketing materials specific to the logistics sector aimed at improving sector performance, attracting new industry, improve the performance of logistics services, and encouraging investment in logistics assets and services.

3. Promote new air routes and services in the air transport sector.

4. Promote availability of investment and location opportunities to Moldova's special economic zones.

5. Promote best practices in land and aviation transport sectors through performance recognition awards.

Actions

1. Seek out regional transport and logistics conference event organizer that will partner with the Ministry of Economy and Infrastructure and other local and regional sponsors to organize a national or regional transport, logistics, and investment conference.

2. Send government officials and encourage Moldovan transport and logistics service providers to participate in select regional and international conferences promoting transport, logistics, and industrial development opportunities and Moldova's plans and progress towards improving the logistics sector.

3. In collaboration with the Ministry of Foreign Affairs and European Integration, participate in Diaspora Engagement Hub and other diaspora initiatives to promote investment opportunities in Moldova's logistics sector.

4. Promote and incentivize publication of articles written by foreign and domestic opinion leaders in magazines, journals and electronic media that highlight the value of Moldova's logistics sector.

5. Implement a targeted publicity campaign in international markets through social media.

6. Utilize Moldova's diplomatic missions to target and engage potential logistics asset investors and service providers overseas.

7. Organize annual logistics service quality/performance awards program.

THE CALL FOR ACTION AND PROJECT PROFILES

Moldova's logistics sector development strategy is effectively a navigational chart to guide it towards the noted strategic goals. The strategy's perspective is forward-looking and its destination is a responsive and sustainable logistics system focused on customer, business, and optimal performance. Because the strategy is forward-looking, it is subject to circumstances unforeseeable at the time of inception. Thus, the strategy must be adaptable to future conditions without losing site of the ultimate destination accounted for in its goals.

The promise of this development strategy is that it focuses on providing logistics services and assets while aligning and strengthening finances, people, systems, policies, processes and administration. Through commitment to the development strategy, Moldova will realize its highest potential as a country that meets acceptable logistics sector standards.

As Moldova's future is shaped by ongoing events and emerging trends, expeditious acceptance and implementation of the strategy is paramount to the ability to adequately respond to these coming events and trends. Moldova's Ministry of Economy and Infrastructure should immediately appoint the earlier noted steering committee and support staff to devote the needed time to managing the strategy's implementation, monitoring its progress, and executing actions in the strategy. The development strategy is put into effect through the implementing actions. Some actions require that projects be implemented to gauge the merits of investment or for implementing non-structural remedies for improving sector performance. Profiles for these projects are presented in the following pages.

PROJECT 1. LOGISTICS SECTOR INSTITUTIONAL AND REGULATORY REFORM

PROJECT 2	LOGISTICS SECTOR INSTITUTIONAL AND REGULATORY REFORM
Objective	Institutional and regulatory reform assessment to ensure appropriate institutional and regulatory arrangements are in place to facilitate improved logistics sector performance.
Rationale	The freight logistics industry suffers from substantial delays and costs from inefficiency. Improved regulatory environments are needed to facilitate improvements; relevant regulatory environments requiring improvements include ensuring the PPP framework identifies prospective projects, ensures bankable assessments, and secures private sector interest; providing an enabling environment sufficient to facilitate application of IT solutions for information conveyance and sharing; allowing for the development of logistics-related facilities; and engaging in international agreements or leveraging existing ones that provide ease of cross-border access, among others.
Implementing Agency	Ministry of Economy and Infrastructure in collaboration with the proposed National Logistics Council
Main Beneficiaries	Logistics service providers; transport service providers; shippers.
Timeframe	Feasibility study prepared in year 1 and complete reform package to be submitted for legislative or agency approval, as appropriate, and implemented in Years 2 and 3.
Estimated Cost	$300-$400k.
Potential Impact	Significant impact on logistics efficiency and logistics costs.
Risks and Challenges	Institutional and regulatory reforms subject to delays by vested interests and legislative and agency deliberations.

PROJECT 3. DEVELOP NATIONAL FREIGHT LOGISTICS MASTER PLAN

PROJECT 4	DEVELOP NATIONAL FREIGHT LOGISTICS MASTER PLAN
Objective	Develop a comprehensive, freight logistics plan covering all sectors and modes of transport with potential to be utilized in Moldova (road, rail, IWT, air, and logistics hubs/dry ports). The study should also cover border control post infrastructure and access infrastructure. The study would include feasibility studies for potential projects that could include: • Dredging access to GIFP as well as Moldova's IWW. • Bălți-area airport rehabilitation (Bălți International and Mărculești) in order to rationalize which location is more economically and financially viable • Cahul airport rehabilitation • Multi-modal logistics hub in Chișinău • Railway inland terminal rehabilitation in Ungheni, Bălți • Development of a standard gauge rail connection from Chișinău to Iasi • Road rehabilitation: XXX • Road construction: XXX • OSBP construction at XXXX The feasibility studies would encompass demand forecasts, selecting potential site locations, conceptual designs, order of magnitude cost estimates, economic and financial assessments, and financing strategy and options assessments. Further, it would recommend complementary "soft" improvements required to render the plan effective. For instance, this could include a review of the road fund, PPP law etc. The goal of the study would be to allow the GoM and development partners to rationalize investment needs and better understand the costs and potential benefits of investments. It would also allow Moldova to attract investment into some areas with currently unmet needs.
Rationale	Despite discussion for the potential of the Northern airports, a logistics hub in Chișinău etc., there has been no private investment in these projects to date. Feasibility studies are required to fully assess the improvement costs of many such projects, as well as potential demand and return on investment. The study should present a bankable case for attracting private investors. The study would also rationalize which projects should be prioritized. For example, in the case of Bălți area airports, which airport location has the most potential, based on current infrastructure, investment needs, location / access, etc.

Implementing Agency	Ministry of Economy and Infrastructure, with potential funding from development partners and implementation by a private sector consulting firm.
Main Beneficiaries	• MoEI • Customs Service • Transporter and logistics service providers • Traders
Timeframe	Should begin immediately, with 3 months to attain funding, 3 months to conduct procurement, and up to 1 year to undertake the studies.
Estimated Cost	$ 2 million
Potential Impact	• Initially, the Master Plan would: o Provide the GoM and development partners with a prioritized investment plan o Develop feasibility studies leading to investment in freight logistics infrastructure • Ultimate goals would be to develop Moldova's freight logistics infrastructure, which could have impacts including: o Unhindered and cheaper access to national and foreign markets o Safer transport of passengers and goods o Having a second national airport that can handle passengers and cargo as a backup while also inducing inter-airport competition (positive impact on national and economic security and competitive pricing) o Reducing emissions
Risks and Challenges	• Obtaining funding for the study • There will be winners and losers from the study, and the study could show negative cost-benefit results for some projects • Lack of interest in the private sector for investing in infrastructure even after the study • Vested interests • Lack of statistics and information

PROJECT 5. TECHNICAL ASSISTANCE AND CAPACITY BUILDING SUPPORT TO ANTA

PROJECT 6	**TECHNICAL ASSISTANCE AND CAPACITY BUILDING SUPPORT TO ANTA**
Objective	ANTA has identified several areas where the agency believes it needs technical assistance and training support to increase institutional capacity and the ability of ANTA staff to complete their regulatory functions. These areas include: a. Developing the necessary professional skills and competences to conduct traffic control on the observance, by local and foreign road transport operators in the territory of the Republic of Moldova, of the work / rest regime of drivers, according to Moldovan and EU regulations. This requires training on how to use equipment and software required for the reading of drivers' tachograph card data which is used to verify the driver's work / rest regime compliance. b. Develop training courses in English learning levels B1 and B2 levels under the European Common Reference Framework for Foreign Languages to improve language skills and develop the professional skills and competences required for traffic control. c. Develop regulation on the road transport of perishable and easily altered goods and provide training courses (theoretical and practical) on the rules for transporting perishable and easily altered goods d. Develop a laboratory for verifying the technical parameters required for the transport of perishable and easily altered goods. e. Training courses (theoretical and practical) on program and project management to improve strategic management processes and use of modern tools by ANTA officers f. Training courses for the staff involved in the modernization and provision of public services within ANTA so that the one stop shop can be moved from an on-site to on-line tool.
Rationale	a. ANTA staff need training so that they can better comply with:1) European Agreement on the Activity of Crews of Vehicles Performing International Carriage by Road (A.E.T.R.) of July 1, 1970; and 2) Road Transport Code approved by the Law of the Parliament of the Republic of Moldova no. 150 of 17.07.2014. b. Currently, English knowledge of most employees ranks A1 and A2. Improving language skills are necessary for ANTA staff to regulate and ensure compliance by foreign road transport operators in Moldova to be able to study and review international documents, best practices and case studies, to develop international documents, and to participate in foreign study tours, exchanges and conferences to learn from international experience.

	c. / d. The Republic of Moldova acceded to the ATP Agreement following Parliament Law no. 173 of July 19, 2007 on the Accession of the Republic of Moldova to the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to Be Used For Such Carriage (ATP Agreement), with related amendments, providing the commitment to harmonize and implement the national legislation in line with ATP Agreement provisions. Currently ANTA staff are not qualified to regulate perishable good transport, and the agency does not have the equipment to check the technical parameters of the road transport units provided for the transport of perishable and easily altered goods in full safety. ANTA is also in the process of developing regulations on the subject. The regulation, training and lab equipment will be used to implement the commitments under the ATP Agreement, Road Transport Code approved by Law of the Parliament of the Republic of Moldova no. 150 of 17.07.2014 and National Action Plan for Trade Facilitation for 2018-2020, approved by Government Decision no.1065 of 12.12.2017. e. This training would allow ANTA to fulfil specific objective 2. Harmonizing policy planning, especially of policies relevant to the European integration process and Agenda 2030 for Sustainable Development with the medium-term budgetary framework, aligned to the budgetary process and available public financial resource of the Action Plan for 2016-2018 for the implementation of the Strategy on Public Administration Reform for 2016-2020, approved by Government Decision no.1351 of 15.12.2016 f. Currently, public services are provided at ANTA's One-Stop Shop desk and there is no possibility to provide on-line public services. Moving these services online would reduce the time to trade.
Implementing Agency	ANTA
Main Beneficiaries	• ANTA inspectors • Traffic participants, through mitigation of the road accident risk • Foreign drivers • Shippers and consumers of perishable goods
Timeframe	2 years.
Estimated Cost	a. Driver rest time compliance training: 50 inspectors x €615= €30,750 ($36,242) b. English training: 80 officers x 10,000 MDL= 800,000 MDL ($47,702) c. Perishable goods regulation and training: 8 inspectors x €500 = €4,000 ($4,714) plus technical assistance cost, if required d. Perishable goods lab cost of 100,000 thousand MDL ($5,960) e. Program management training: 5 officers x €500 Euro=€2500 ($2,946) f. Cost to put the one stop shop online (est.) €20,750 ($24,181) g. Training of staff to move one stop shop online: 10 officers x 6000 MDL=60,000 MDL ($3,576)
Potential Impact	• 50 ANTA inspectors trained in the field of carrying out inspections of the work / rest regime of drivers, with certificates obtained • 80 ANTA inspectors with improved English language skills • 8 ANTA inspectors with ability to inspect perishable goods • 5 ANTA officials with better program management skills • Increasing traffic safety in Moldova • Increased institutional capacity • Increased understanding of international experience and best practices • Improved food safety • Reduced barriers and facilitating trade through faster customs clearance of perishable and easily altered goods • Improved strategic management processes and use of modern tools by ANTA officers • Reduced time to fill paperwork and therefore reduced time to trade
Risks and Challenges	Low perceived risk. The challenge may be associated with the lack of English speaking skills and lack of consultants/specialists that speak the local language, for which simultaneous translations will need to be provided.

PROJECT 7. IMPLEMENTATION OF MOBILE WEIGHING POINTS FOR HEAVY GOODS VEHICLES CIRCULATING ON PUBLIC ROADS ON THE REPUBLIC OF MOLDOVA

PROJECT 8	IMPLEMENTATION OF MOBILE WEIGHING POINTS FOR HEAVY GOODS VEHICLES CIRCULATING ON PUBLIC ROADS ON THE REPUBLIC OF MOLDOVA
Objective	Implementation of Weigh In Motion stations for weighing vehicles circulating on public roads of the Republic of Moldova in order to better enforce axle weight limitations.
Rationale	Overloading of vehicles has a negative impact on the quality and deterioration of Moldova's roads. Under Article 5 para 2 of the Road Law (no. 509 of June 22, 1995), the administration of national roads is under the responsibility of ANTA. At the same time, under provisions of Article 8 para 2 of the Road Law (no. 509-XIII of June 22, 1995) and Article 352 para 2 of the Fiscal Code (no.1163-XIII of April 24, 1997), and for the purpose of establishing an efficient system of administrative and regulatory control of heavy and oversized transport exceeding the permissible limits, as well as effectively compensating the premature degradation of public roads, the Government has, by Decision no.1073 of 01.10.2007, approved the Regulation on the authorization, control and performance, on public roads, of heavy and oversized transport exceeding the permissible limits. According to this Regulation, the Ministry is in charge, like in 2008-2010, to implement the network of stationary weighing systems at the international crossing points of the state border, as well as of mobile weighting equipment in the territory of the Republic of Moldova. Thus, one of the main tasks of the Agency is: to monitor and control the observance, on public roads, of heavy and oversized transport exceeding the permissible limits. The Agency has 8 mobile weighing equipment and transport units (leased) to monitor and control the performance on public roads of heavy and oversized vehicles exceeding the permissible limits. ANTA had procured a Feasibility Study on the implementation of the mobile weighing points of heavy goods vehicles circulating on the public roads of the Republic of Moldova, developed by Global Trans Construction SRL., but needs a funding source to implement the program.
Implementing Agency	ANTA
Main Beneficiaries	ANTA, Government of Moldova, road users
Timeframe	As soon as possible
Estimated Cost	357.4 million MDL ($22 million)
Potential Impact	• Weigh stations at 21 strategic points of national roads in the Republic of Moldova • Public service modernized; • Statistical recording modernized; • Decisional transparency. • ANTA in terms of increased penalty collection. • Road Fund, in less road maintenance costs • Road users in reduced truck maintenance costs due to less deterioration of roads
Risks and Challenges	Getting the needed funding, although trucks potentially be assessed a weighing fee to cover system operational and maintenance costs. On this basis, it could be possible to design a PPP arrangement to attract private investment; this has the added value that the private sector, based on a volume incentive system, could be more effective with axle load enforcement.

PROJECT 9. IT SOLUTIONS FOR ENHANCED REAL TIME LOGISTICS INFORMATION CONVEYANCE AND INFORMATION SHARING

PROJECT 10.	IT SOLUTIONS FOR ENHANCED REAL TIME LOGISTICS INFORMATION CONVEYANCE AND INFORMATION SHARING
Objective	Develop and Implement eLogistics System that provides real time track and trace capability to facilitate status reports on freight and vehicles processing and movement.
Rationale	Logistics performance is greatly improved by reducing delays and ensuring availability and timely receipt of logistics transaction information. Having access to and communicating through a system between relevant parties assists in facilitating planning and reliability of logistics services .The system can potentially be financed via a P3 transaction.
Implementing Agency	Ministry of Economy and Infrastructure in collaboration with the proposed National Logistics Council
Main Beneficiaries	All stakeholders along the transport logistics chain, including producers, importers, exporters, and transport and logistics service providers.
Timeframe	Feasibility study prepared in year 2 and system transaction and implementation in Years 3 and 4.
Estimated Cost	To be determined via a feasibility study; estimated cost is in the $300k range; transaction advisory/preparation estimated to be $300, but cost can be recovered as a transaction fee on winning bidder.
Potential Impact	Significant impact on logistics system efficiency
Risks and Challenges	IT projects can be complex; bankable study likely cannot be done with available local capacity. However, there should be high degree of commercial interest in competing for the right to develop and implement the system.

PROJECT 11. MOLDOVA-ROMANIA CROSS BORDER COOPERATION

PROJECT 6	MOLDOVA-ROMANIA CROSS BORDER COOPERATION
Objective	To improve the efficiency of the Moldova-Romania land border in order to reduce waiting times and more effectively target non-compliant traders.
Rationale	The border between Romania and Moldova is of critical importance to Moldova, given that the EU is the major destination for its exports. It is also a critical border for Romania and the EU as it represents an external border of the EU, with all the responsibilities that entails. Given these issues, it is paramount that there is a maximum level of cross-border cooperation between the two countries at all levels. The aim is not necessarily to reduce the levels of checks, but it should be to remove unnecessary checks and unnecessary waiting time and improve the capacities of both sides to apply risk-based controls
Implementing Agency	Moldovan Customs service, Romanian Customs Service
Main beneficiaries	Customs service, Government of Moldova, Moldovan and Romanian businesses
Timeframe	24 months
Estimated cost	TBA (the costs will depend on the extent of the enhancements and improvements which can be afforded)
Potential impact	Improved cooperation will reduce or remove unnecessary or duplicate checks, will improve risk-based selection and will reduce unnecessary waiting times.
Risks	• Lack of in-house expertise to undertake the work • Failure to accurately identify requirements • Lack of political and institutional commitment to bring in changes

PROJECT 12. CROSS BORDER VEHICLE APPOINTMENT SYSTEM

PROJECT 13	CROSS BORDER VEHICLE APPOINTMENT SYSTEM
Objective	To reduce vehicular waiting time at Moldova's borders by developing a vehicle appointment system at key Moldovan BCP. The system could include: customs pre-arrival notification and pre-booking for time slots and/or virtual queues. Trucks would await their appointment at a truck staging area away from the BCP; the area could also have restrooms, dining, and other facilities for truckers. Transporters could access the BCP wait times and queue information via an app or SMS. On arrival, trucks could be identified via license plate recognition systems or via RFID technology. The ideal implementation would be joint-development with Romanian (and eventually Ukrainian) Customs with control systems on both sides of the border, as with the US and Canada.
Rationale	Truckers and shippers incur substantial delays and costs at Moldova's borders. This harms price competitiveness of Moldovan exports, increases trucking operational costs, requires investment in excess fleet capacity to absorb the impact of delay. The system can have an immediate impact on the extent of delays at the borders while allowing for pre-arrival notification and advance clearance of vehicles and freight. System also enables preclearance of passenger vehicles. The system can likely be financed via a PPP transaction. Such a system has provided benefits at the Estonia/Lithuania/Russia borders, as well as the US/Canada.
Implementing Agency	Ministry of Economy and Infrastructure in collaboration with the proposed National Logistics Council and Romanian Customs
Main Beneficiaries	Customs, truckers, and shippers.
Timeframe	Feasibility study prepared in year 1 and system transaction and implementation in first two years after signing of cross-border agreement.
Estimated Cost	To be determined via a feasibility study; estimated cost is in the $300k range; transaction advisory/preparation estimated to be $300, but cost can be recovered as a transaction fee on winning bidder.
Potential Impact	Significant impact on border crossing delays
Risks and Challenges	Moldova will likely need to enter into a cross-border cooperation agreement with border countries to us the system. IT projects can be complex; bankable study likely cannot be done with available local capacity. However, there should be high degree of commercial interest in competing for the right to develop and implement the system.

PROJECT 14. DEVELOP TRADE INFORMATION PORTAL

PROJECT 15	DEVELOPMENT OF A NATIONAL TRADE INFORMATION PORTAL
Objective	To develop a single, comprehensive national trade portal, containing all relevant information for importers and exporters in Moldova
Rationale	A single, comprehensive source of all regulatory information will produce tangible benefits in terms of trade facilitation. There is a potential time and cost saving if accurate and up to date information and guidance can be obtained without the need to seek advice in person or from several locations. In addition, confusion and errors can be avoided if there is a single authoritative reference point. In addition, the inclusion of specific information in a trade information portal will meet Moldova's obligations under Section 1 of the WTO Trade Facilitation Agreement.
Implementing Agency	Ministry of Economy, Economic Council, Customs & other agencies; donor assistance
Main Beneficiaries	Moldovan businesses
Timeframe	12-24 months
Estimated Cost	$200,000 (based on 80 days of external expertise, plus local resources, including IT development)

Potential Impact	A reduction in time and cost of compliance with regulations and a reduction in non-compliant actions (including a reduction in penalties resulting from non-compliance
Risks and Challenges	• Lack of commitment and support from participating agencies • Lack of identification of full information for inclusion • Lack of effective governance model • Lack of resource to maintain and update the portal, once established

PROJECT 16. CAPACITY BUILDING OF PPP UNIT

PROJECT 9.	CAPACITY BUILDING OF PPP UNIT
Objective	Prepare PPP staff to undertake project appraisal and associated analytical methods, develop bankable projects, prepare a pipeline of projects, develop the procurement documents and manage the procurement process, structuring draft contracts, monitor post-transaction performance, and develop the rules for unsolicited (Swiss Challenge) proposals.
Rationale	Moldova has had very limited PPP transaction experience. This is attributable in part to project identification and structuring the project so that it is bankable. Bankable projects tend to lead to successful transactions, while transaction monitoring ensures contractual obligations are being met.
Implementing Agency	Ministry of Finance.
Main Beneficiaries	All users of assets and services that All stakeholders along the transport logistics chain, including producers, importers, exporters, and transport and logistics service providers.
Timeframe	Year 2
Estimated Cost	$400-$450k with $200k in follow-on monitoring and assistance
Potential Impact	Significant impact in leveraging investment for needed infrastructure in all sectors
Risks and Challenges	• No perceived risk, but may needs political will to move forward

PROJECT 17. TIME RELEASE STUDY AND WAITING TIME APP

PROJECT 18	TIME RELEASE STUDY AND WAITING TIME APP
Objective	The two objectives of this activity would be to: -Better understand where border delays are occurring so that they can be addressed. -Increase access to information so that transporters and traders can better plan and time their trips, and avoid BCPs with bottlenecks. Initially we recommend undertaking this activity at Leușeni -Albița as a pilot. The Time Release Study feeds into the app development, as it would assist with mapping out where time measurement should occur. It is our understanding that the last Time Release Study was conducted by USAID BRITE around 2014, prior to many MCS changes, such as e-declarations. Eventually the ideal project would be to develop a cross-border vehicle appointment system, but that project would likely take some time to develop, so we recommend this as a short-term measure to improve the situation in the meantime.
Rationale	Border delays are one of the biggest bottlenecks on Moldova's trade corridors, but actual median queuing time at the top borders is unknown. Current data collection and publication is of official processing times and waiting times within the BCP, but often the longest delays are in queues outside of the BCP or in "no man's land". US Customs and Border Protection has developed a similar online system.
Implementing Agency	MCS in conjunction with the Border Police and Romanian Customs.
Main Beneficiaries	Transporters, traders, MCS, Border Police.

Timeframe	Immediate, with the Time Release Study taking 1-2 months, app procurement taking 3 months and app development another approximately 6 months (approximately 1 year total).
Estimated Cost	TBD
Potential Impact	• Improved efficiency of border processes. • Reduced waiting time at the borders. • More efficient trip timing, reducing transit time.
Risks and Challenges	• Coordination with Romanian Customs. • Implementation of improvements.

PROJECT 19. IMPROVE CONSTRUCTION PROCUREMENT PROCESSES

PROJECT 20	IMPROVE CONSTRUCTION PROCUREMENT PROCESSES
Objective	To improve the road construction procurement and oversight process to avoid procurement delays and to prevent the risk of failed construction projects.
Rationale	Moldova has had mixed results in contract awards and in their supervision. The failure of contract awards suggests problems with the bid terms and specifications, criteria under which contracts are awarded, and ineffective construction monitoring.
Implementing Agency	Ministry of Economy and Infrastructure
Main Beneficiaries	Ministry of Economy and Infrastructure, road users, and shippers and transport service providers.
Timeframe	Year 2 after approval of the logistics sector strategy.
Estimated Cost	$200,000
Potential Impact	Significant impact pf freight shipments and road safety
Risks and Challenges	• No perceived risk, but challenge in obtaining funding

PROJECT 21. IMPROVE REGULATIONS OF THE FREIGHT FORWARDING MARKET

PROJECT 12	IMPROVE THE REGULATORY FRAMEWORK FOR THE FREIGHT FORWARDING INDUSTRY IN MOLDOVA
Objective	The freight forwarding market is relatively new in Moldova and has no up-to-date modern regulatory framework in place. Some regulations used to be applicable from the former Soviet Union times and then new ones were approved in late 1990s. However, these did not respond to the needs and developments of the freight forwarding market. During the last few years a new Road Transport Code, approved in 2014 with most recent amendments in 2017, was adopted and the Road Freight Transport Regulation was approved by the Government in 2016. The UNECE Report published in 2017 "Regulatory and Procedural Barriers to Trade in the Republic of Moldova. Needs Assessment" highlights the importance of "a proper system for testing, training, licensing, accrediting, and monitoring freight forwarders". The report mentions that freight forwarding licenses should be renewable annually, subject to satisfactory performance. In order to have such a proper system in place, firstly one needs to develop the required regulations that would ensure a fair and open rules of the game on the freight forwarding market in Moldova. The administration of the scheme should be given to a suitable representative body, subject to independent external accreditation (e.g. by the International Federation of Freight

	Forwarders Associations). Freight forwarders' licenses should be renewable annually, subject to satisfactory performance.
Rationale	Since there is a lack of minimum standards and requirements to operate for the freight forwarders, a new regulation on freight forwarding that would specifically include provisions related to the minimum standards to be followed by freight forwarding companies, their rights and obligations, dispute settlement, contract related provisions etc. The regulation will use the international best practices, including UNESCAP Guidelines for Minimum Standards and Codes of Professional Conduct for Freight Forwarders, Non-Vessel Operating Common Carriers and Multimodal Transport.
Implementing Agency	MoEI, ANTA
Main Beneficiaries	Freight forwarders
Timeframe	2019
Estimated Cost	$40,000-50,000 for international expertise to assist with developing the regulations
Potential Impact	The new regulation has the potential to ensure proper standards for the freight forwarding sector in Moldova that will raise the services standards and would enhance competitiveness.
Risks and Challenges	• Lack of commitment or inability to comply with the standards

PROJECT 22. IMPROVE PORT STATE CONTROL

PROJECT 12	IMPROVE REGULATIONS OF THE FREIGHT FORWARDING MARKET
Objective	Improve Moldova's regulatory capacity in terms of port state control to abide by international conventions and remove Moldova from the Paris MOU blacklist. Increase the stringency of Moldova's ship flagging so that Moldovan ships meet safety and security standards. Improve Moldova's ability to enforce compliance. To implement this project, Moldova should move forward with the implementation of the Maritime Authority, and seek technical assistance including capacity building.
Rationale	Moldova's blacklisting may not affect transport corridor time or cost, but it affects Moldova's reputation. Further, it is a regulatory responsibility. It also impacts Moldovan ships access to Paris MOU ports, which may not have a huge impact at present, but could constrain future IWT.
Implementing Agency	Maritime Authority or ministry in charge of port state control.
Main Beneficiaries	Moldovan flagged vessels, trading community
Timeframe	As soon as possible, before next review period in June 2019
Estimated Cost	TBD depending on needs assessment
Potential Impact	• Improved compliance with international conventions • Improved perception of Moldova's regulatory enforcement capabilities • Removal from Paris MOU Blacklist • Improved safety, security, and environmental standards of Moldovan-flagged vessels • Ability for Moldovan flagged vessels to access Paris MOU ports
Risks and Challenges	• Compliance requires cooperation by shippers • Requires development of Maritime Authority

PROJECT 23. DEVELOP COMPETITIVE RAILWAY CONTAINER BLOCKTRAIN SHUTTLE SERVICE(S)

PROJECT 14	DEVELOP COMPETITIVE RAILWAY CONTAINER BLOCKTRAIN SHUTTLE SERVICE(S)
Objective	After the EBRD's project rehabilitating the line from GIFP to Curcigan and acquisition of new locomotives, it should be possible for CFM to offer a competitive container block train shuttle service from GIFP to Chișinău, and potentially even from Chișinău to Odessa/Chornomorsk. The market for containers transported by sea in recent years is estimated to be about 18,000, which could bring significant volumes to the railway. In 2017, the railway handled just over 42,000 import/export wagons, of which containers only comprised 7. Container movements on the GIFP-Chișinău rail segment are already priced competitively compared to trucking tariffs, and with improvements in transport time and reliability after the track rehabilitation and locomotive purchases, the railway should be able to attract cargo provided dryage costs are reasonable. The track rehabilitation will also cover the segment up to Curcigan. If an agreement can be worked out with Transnistrian region like as the recent agreement for passenger trains, a container service should also be feasible from Chișinău to the Ukrainian ports. For either service to be successful, it would have to: be a non-stop service, be fast (take max one day), and be reliable in terms of consistency of delivery times. For services to GIFP, the shuttle timing should be coordinated with the weekly sailings to minimize transit times. For services to Ukraine, customs clearances should occur inland at the origin and destination, allowing trains to move non-stop straight through the border. In order to run such a service, CFM would have to sign-on enough customers with guaranteed, consistent traffic so that it could run a 20-40 wagon train per service. In return for guaranteed volumes, CFM could in return offer guaranteed delivery times. If volumes allowed, a second service could eventually handle traffic to Northern Moldova. Initially, the service would likely be once a week to coordinate with the weekly container feeder calls, but if and when traffic increases, service could be increased accordingly.
Rationale	Current rail service is slow and unreliable: poor track infrastructure and lack of locomotives leads to poor performance and unreliable service and it can take up to 5 days for a wagon to travel 270 km from GIFP to Chișinău. Developing a fast and reliable service could increase rail volumes and remove trucks from Moldovan roads. Faster train-turn-times will also increase locomotive utilization. A non-stop dedicated container service would allow CFM to improve reliability and speed. Shippers would benefit from a more cost-efficient method of accessing regional ports.
Implementing Agency	CFM
Main Beneficiaries	• Moldovan shippers • CFM • Village residents along the GIFP-Chișinău corridor
Timeframe	As soon as locomotives are acquired and CFM can guarantee transit times.
Estimated Cost	Once the planned EBRD investments are in place, there should be no other costs for implementing such a service, besides initial marketing and contract development costs.
Potential Impact	• Developing such a service would provide cost savings to shippers (approximately $150-$200 per container minus drayage costs, which could equate to $1 million-$2 million per year based on current volumes). • It would also alleviate some traffic on the roads, having indirect impacts on road deterioration and the environment. It would also have positive social impacts on the villages through which trucks currently travel. • Finally, with guaranteed volumes, it would provide CFM with a consistent source of revenue.
Risks and Challenges	• Delays in track rehabilitation or acquisition of rolling stock would delay the start of such a service, which should not begin until CFM can assure customers of reliability; starting too soon and missing service deadlines would hard the railway's reputation and trust • CFM must be able to meet transit times and reliability measures • Seasonality of cargo could lead to issues with offering year-round service • Inland terminals need rehabilitation

	• Drayage costs to/from the inland terminal could render the service uncompetitive compared to door-door trucking • GIFP terminal processing and sailings must be fast and reliable • For service to Ukrainian ports, an agreement must be reached to traverse Transnistrian region. MD and UA customs would also have to allow for inland clearance

PROJECT 24. FEASIBILITY STUDY FOR BĂLȚI-AREA AIRPORT REHABILITATION

PROJECT 15	FEASIBILITY STUDY FOR BĂLȚI-AREA AIRPORT REHABILITATION
Objective	Initially to develop a feasibility study assessing potential costs, benefits, design and requirements of airport rehabilitation at both Bălți International and Mărculești airports. The study would provide a rationale for which location has the most potential and best cost-benefit balance. It would also present financing options and recommendations. The goal of the study would be to attract investment, and eventually lead to the provision of passenger and freight services in the Bălți area. The study would ideally be part of a broader logistics master plan, but could also be done as a standalone study.
Rationale	Despite all of the talk of the potential of the Northern airports, there has been no private investment to date. A feasibility study is required to fully understand the rehabilitation costs, as well as demand. The study should hopefully present a case to private investors wishing to invest. The study would also rationalize which airport location has the most potential, based on current infrastructure, investment needs, location / access, etc.
Implementing Agency	GoM or development partners
Main Beneficiaries	• Northern producers and traders • Northern population • Airport authorities
Timeframe	The study should be conducted immediately, as soon as funding is identified. As the KIV cargo terminal will not be rehabilitated until 2020-21, now is the perfect opportunity.
Estimated Cost	• Feasibility study: Requires further review, but approximately $400,000-$700,000 • Infrastructure investments: $10 million +
Potential Impact	• Would provide a second national airport that can handle passengers and cargo as a backup in cases of emergency, poor weather, or construction in Chișinău (positive impact on national and economic security) • Easier, faster and cheaper access to foreign markets for Moldova's northern agricultural area • Easier, faster and cheaper air travel for residents of Northern Moldova and Western Ukraine
Risks and Challenges	• Finding an organization to fund the study • There will be winners and losers from the study, and the study could show negative CBA results • Lack of interest in the private sector for investing in infrastructure even after the study • Corruption / vested interests in the PPP process

PROJECT 25. FEASIBILITY STUDY FOR CHIȘINĂU LOGISTICS HUB

PROJECT 26	FEASIBILITY STUDY FOR CHIȘINĂU LOGISTICS HUB
Objective	To complete a feasibility study, including a cost-benefit analysis, of building a logistics hub, either with state/donor funds or as a PPP, in or near Chisinau. The study would ideally be part of a broader logistics master plan, but could also be done as a standalone study.
Rationale	Recent rapid development of Chisinau as a node and a center for transhipping, along with the shortage of warehouse space and the known benefits of concentrating logistical stakeholders in a single location
Implementing Agency	MCS, MoEI, possible donors
Main Beneficiaries	Logistics stakeholders including MCS, truckers, distributors, freight forwarders and customs brokers
Timeframe	Next 3 months
Estimated Cost	• Feasibility study: $200,000 • Logistics hub: 25-30 million Euro
Potential Impact	Would clarify whether this is worth pursuing
Risks and Challenges	• Difficulty of acquiring logistical information; large number of stakeholders • If assessment is positive, no known source for funding the logistics center at this time

PROJECT 27. IMPLEMENTATION OF SYSTEM FOR INTERNAL DCFTA IMPLEMENTATION MONITORING

PROJECT 17	IMPLEMENTATION OF SYSTEM FOR INTERNAL DCFTA IMPLEMENTATION MONITORING
Objective	To populate the existing DCFTA monitoring system with the required data on DCFTA implementation, test and validate the operational functionality of the system and put it in to full operation
Rationale	An effective system for monitoring implementation of the DCFTA will clearly identify gaps and needs, allow the Government to update its action plan, and provide the basis for the provision of continued external assistance, if required
Implementing Agency	MoEI & National Trade Facilitation Committee
Main beneficiaries	Government of Moldova, EU
Timeframe	3 months
Estimated cost	$20,000 (based on the provision of 10 days of external assistance, plus local resource)
Potential impact	Faster and more reliable identification of future needs and better targeting of resources to maximize DCFTA implementation
Risks	• Failure to accurately populate the system • Failure to properly test operational functionality • Lack of resource to operate the system in the long term

PROJECT 28. REVIEW OF DONOR SUPPORT FOR WTO TFA IMPLEMENTATION AND AGREEMENT OF A COORDINATED ACTION PLAN FOR FUTURE WORK

PROJECT 18	REVIEW OF DONOR SUPPORT FOR WTO TFA IMPLEMENTATION AND AGREEMENT OF A COORDINATED ACTION PLAN FOR FUTURE WORK
Objective	To update the assessment of gaps and needs in terms of achieving full WTO TFA implementation, to identify donor support for those needs (where required) and to agree specific donor commitments and action plans to deliver full implementation
Rationale	An accurate assessment of gaps and needs, combined with a coordinated approach to donor assistance is much more likely to deliver effective results
Implementing Agency	National Trade Facilitation Committee, Ministry of Economy
Main beneficiaries	Government of Moldova, Moldovan businesses
Timeframe	3 months
Estimated cost	$10,000 (based on the provision of 5 days of external assistance, plus local resource)
Potential impact	The OECD estimates that full implementation of the WTO TFA, for a lower middle-income country will deliver a reduction of 17.4% of the total cost of trade.
Risks	• Failure to accurately re-assess gaps and needs • Failure to target all potential donors • Failure to provide clear information to donors and to reach an agreed and coordinated approach

PROJECT 29. PROVISION OF TECHNICAL ADVICE TO THE NTFC

PROJECT 19	PROVISION OF TECHNICAL ADVICE TO THE NTFC
Objective	To recruit a long-term technical advisor for the NTFC who can provide advice and support on implementation of the National Trade Facilitation Action Plan and monitor progress against the plan
Rationale	The NTFAP is the key document which brings together all core activities related to trade facilitation in Moldova (not only WTO TFA implementation). Its effective implementation will not only ensure Moldova's obligations are met under the WTO TFA, but it will also support the long-term development of a favorable environment and framework for Moldovan businesses to benefit from the opportunities provided by the growth in international trade.
Implementing Agency	MoEI, NTFC
Main beneficiaries	Government of Moldova, Moldovan businesses
Timeframe	3-24 months
Estimated cost	$150,000
Potential impact	Faster and more reliable implementation of the existing NTFAP and identification of any additional needs which can be incorporated into the existing or future action plans. As above, the OECD estimates that full implementation of the WTO TFA, for a lower middle-income country will deliver a reduction of 17.4% of the total cost of trade.
Risks	• Failure to secure funding for the post • Failure to recruit and retain a suitable expert • Failure to take and follow the advice provided by the expert

PROJECT 30. REVIEW OF WTO TFA CATEGORY A COMMITMENTS

PROJECT 20	REVIEW OF WTO TFA CATEGORY A COMMITMENTS
Objective	To assess level of implementation of Category A commitments and identify measures to enhance compliance
Rationale	Moldova has correctly notified the WTO that it has implemented 20 of the 36 obligations under the TFA. However many of these obligations are neither absolute nor static. A notification that an obligation has been met does not include any qualitative assessment. As with almost all obligations, there is always room for improvement and it is important to monitor continued implementation and additional measures which could be taken
Implementing Agency	National Trade Facilitation Committee
Main beneficiaries	Moldovan business
Timeframe	3 months
Estimated cost	$20,000 (based on the provision of 10 days of external assistance, plus local inputs)
Potential impact	A higher level of effective implementation of the WTO TFA, resulting in increased cost savings to Moldovan businesses
Risks	• Lack of in-house expertise to undertake the review • Failure to accurately identify gaps and needs • Failure to fully implement action plan to address needs

PROJECT 31. REVIEW OF CUSTOMS ADMINISTRATIVE SANCTIONS AND PENALTIES

PROJECT 21	REVIEW OF CUSTOMS ADMINISTRATIVE SANCTIONS AND PENALTIES
Objective	To review the levels of administrative sanctions and penalties defined in the draft Code (and those which pay potentially be included in the Implementing Regulation), to ensure they are consistent with the needs of the Code and proportionate to the offences to which they relate. Also to compare the sanctions and penalties with the sanctions for similar administrative offences in Moldova and against international standards and best practice.
Rationale	Administrative sanctions and penalties are generally a simplified way of addressing relatively minor offences without resorting to use of the criminal justice system. This approach reduces costs to both businesses and the State by making the process quicker and easier. However, it is still important that the penalties the State applies are proportionate to the offences committed and that they support the overall strategy of discouraging and penalizing non-compliance, without being at such a level that the positively discourage legitimate trade.
Implementing Agency	Customs Service
Main beneficiaries	Moldovan business
Timeframe	3 months
Estimated cost	$60,000 (based on the provision of 30 days of external assistance, plus local inputs)
Potential impact	A fairer regime for sanctions and penalties which achieved the aim of discouraging non-compliance, but which does not create unacceptable financial risks to companies which may deter them from trading
Risks	• Lack of in-house expertise to undertake the review • Failure to accurately complete the comparative analysis • Resistance to the adoption of lower sanctions because of the potential loss of power and authority which may come with it

PROJECT 32. PREPARATION OF SECTORAL STRATEGIES AND BUSINESS PLANS FOR CUSTOMS

PROJECT 22	PREPARATION OF SECTORAL STRATEGIES AND BUSINESS PLANS FOR CUSTOMS
Objective	To draft and apply a range of sectoral strategies and business plans within the Customs Service to support implementation of the overall Customs Business Strategy
Rationale	Moldovan Customs has an existing Customs Business Strategy for the period 2017 to 2020 (Vama2020). This Strategy is fully professional and includes trade facilitation as the first of its 5 strategic objectives. However, Customs lacks sectoral strategies and business plans under the overall business strategy (with the exception of the Risk Management Strategy also adopted in 2017). The adoption of such sectoral strategies will assist those sectors to identify and take ownership of the actions required in their areas to support implementation of the overall business strategy. Sectoral strategies for proposed inclusion in this initiative are: - Human Resource Strategy - External Communication Strategy - Border and Inland Control Strategy - Compliance Strategy - Enforcement Strategy - Change Management Plan
Implementing Agency	Customs Service
Main beneficiaries	Customs Service, Moldovan business
Timeframe	6 months
Estimated cost	$80,000 (based on the provision of 40 days of external assistance, plus local inputs)
Potential impact	A higher level of performance by Customs, producing better value for money and meeting their strategic objective of facilitating legitimate trade
Risks	• Lack of in-house expertise to undertake the review • Failure to link sectoral strategies effectively with the overall Strategic Program • Failure to properly or fully implement the sectoral strategies

PROJECT 33. REVIEW OF DEPLOYMENT OF CUSTOMS STAFF AND RESOURCES

PROJECT 23	REVIEW OF DEPLOYMENT OF CUSTOMS STAFF AND RESOURCES
Objective	To assess the suitability of the current deployment of resources against the known and perceived risks and in relation to the achievement of the key objectives in the overall Business Strategy. To provide recommendations for the re-allocation of resources, where appropriate.
Rationale	The Customs Service of Moldova currently has a complement of 1,520 staff. This is within the range of manpower which can be expected for a country of Moldova's size, population and levels of trade. However, it is not clear that the deployment of resources at customs locations (and the ratio of staff in headquarters to outfield personnel) is at an optimal level. This review would consider a range of factors including the numbers needed to adequately staff border crossing points, inland clearance locations and other customs locations. It would also look at the level or resourcing in key centralized and headquarters functions and it would look at providing for greater flexibility within the overall structure and resourcing plan to respond to changes in priorities and risks.
Implementing Agency	Customs Service
Main beneficiaries	Customs Service, Moldovan business

Timeframe	6 months
Estimated cost	$80,000 (based on the provision of 40 days of external assistance, plus local inputs)
Potential impact	A higher level of effective operation by customs and a reduction in operational and administrative bottlenecks as a result of deploying sufficient staff to those areas of activity.
Risks	• Lack of in-house expertise to undertake the review • Failure to accurately identify gaps and needs • Failure to fully implement action plan to address needs

PROJECT 34. REVIEW AND ENHANCEMENT OF CUSTOMS PROFESSIONAL STANDARDS

PROJECT 24	REVIEW AND ENHANCEMENT OF CUSTOMS PROFESSIONAL STANDARDS
Objective	To assess the current level of application of professional standards within the Customs service, including how these standards are developed, applied and maintained. To provide recommendations for a stronger and more effective system for the development and maintenance of professional standards throughout the organization
Rationale	The Customs Service Business Strategy includes a key objective to raise the level of professionalism within the organization. This review will support this aim by providing constructive proposals to link the management, HR, anti-corruption, staff discipline and training elements of the organization into a single, coordinated approach to the development and application of professional standards.
Implementing Agency	Customs Service
Main beneficiaries	Customs Service, Moldovan business
Timeframe	6 months
Estimated cost	$80,000 (based on the provision of 40 days of external assistance, plus local inputs)
Potential impact	A higher level of professional performance by customs staff, a more responsive and constructive approach to business and a reduced level of corruption
Risks	• Lack of in-house expertise to undertake the review • Failure to accurately identify gaps and needs • Failure to fully implement proposals to address needs

PROJECT 35. ENHANCEMENT OF THE CUSTOMS BROKER SYSTEM

PROJECT 25	ENHANCEMENT OF THE CUSTOMS BROKER SYSTEM
Objective	To increase the professionalism and effectiveness of the customs broker system so that it better meets the regulatory compliance needs of customs and the business needs of commercial operators
Rationale	The system for customs brokers in Moldova is regulated and reasonably effective. However, the role of brokers is a key element in the supply chain and ineffective brokerage can result in delays (though incorrect paperwork) and costs though inaccurate or inefficient processing. With the introduction of the new Customs Code (due to become effective on 1st January 2020), this is an ideal opportunity to re-calibrate the system, introduce higher levels of training and introduce an effective code of conduct.
Implementing Agency	Customs Service, Chamber of Commerce, Association of Customs Brokers
Main beneficiaries	Customs Service, Moldovan business

Timeframe	12 months
Estimated cost	$120,000 (based on the provision of 40 days of external assistance, plus local inputs)
Potential impact	A more professional and efficient system of customs brokerage will reduce costs to business and also reduce the risks of revenue loss to the state
Risks	• Lack of in-house expertise to undertake the program • Failure to accurately identify gaps and needs • Failure to fully implement the program

PROJECT 36. ENHANCEMENT OF CUSTOMS RISK ANALYSIS FUNCTION

PROJECT 26	ENHANCEMENT OF CUSTOMS RISK ANALYSIS FUNCTION
Objective	To enhance the capacity of the customs risk analysis function and to improve its ability to identify and target consignments and movements of goods, based on accurate assessment of the associated risks.
Rationale	Risk analysis and risk management are core to a modern customs service. Moldovan customs operates its controls and allocated resource primarily on the basis of the risks it identifies. However, there is concern that the processes for identifying risks are not as effective as they could or should be. This includes the lack of capacity to undertake threat assessments, to identify some of the most serious risks and amend its system of risk profiling accordingly. More effective risk profiling and targeting of suspect consignments and traders, will allow Customs to more effectively allocate resources and intervene. This will reduce the potential disruption to legitimate trade through unnecessary controls.
Implementing Agency	Customs Service and other law enforcement agencies
Main beneficiaries	Customs Service, Moldovan business
Timeframe	6 months
Estimated cost	$100,000 (based on the provision of 40 days of external assistance, plus local inputs)
Potential impact	An enhanced risk analysis function within customs will produce more effective targeting of non-compliant traders and consignments and protection of the revenue, whilst reducing the burden on legitimate trade
Risks	• Lack of in-house expertise to undertake the review • Failure to accurately identify gaps and needs • Failure to fully implement proposals to address needs

PROJECT 37. DEVELOPMENT OF A NATIONAL, CROSS-GOVERNMENTAL RISK MANAGEMENT STRATEGY AND FUNCTION

PROJECT 27	DEVELOPMENT OF A NATIONAL RISK MANAGEMENT STRATEGY AND FUNCTION
Objective	To develop a coordinated, cross-government approach to the identification and management of major risks, including risks of revenue fraud, criminal activity and economic crime. This will be achieved through the preparation of a national risk management strategy and the establishment of suitable structures to implement the strategy.
Rationale	There are a number of risks that threaten the integrity of international trade corridor, including the potential for fraud and other criminal activity. Customs is already undertaking controls based on the risk profiles it has developed but the reality is that those who may be likely to commit customs fraud, will very likely commit other kinds of criminal offences. This can include activities such as drug smuggling, trafficking in human beings, counterfeiting, tax fraud and activities which prevent the operation of a free and fair market. These threats and risks are therefore not exclusive to customs and many other parts of Government, particularly other law enforcement agencies, can all improve their risk management through a coordinated and cooperative approach, including the sharing of information and the development of national risk profiles.
Implementing Agency	Government of Moldova, Ministry of Interior, law enforcement agencies
Main beneficiaries	Government of Moldova, Moldovan business
Timeframe	12 months
Estimated cost	$200,000 (based on the provision of 50 days of external assistance, plus local inputs)
Potential impact	A better ability to understand and respond to major risks to the country, resulting in the better targeting of resources to risks and a reduction in fraud and other criminal activities.
Risks	• Lack of in-house expertise to undertake the work • Failure to accurately identify requirements • Resistance to the implementation of the strategy from economic interests

PROJECT 38. ENHANCEMENT OF CUSTOMS INLAND CLEARANCE SYSTEMS AND PROCEDURES

PROJECT 28	ENHANCEMENT OF CUSTOMS INLAND CLEARANCE SYSTEMS AND PROCEDURES
Objective	To identify improvements to the facilities for the customs clearance of goods
Rationale	Moldovan customs has a satisfactory set of systems and procedures for the inland clearance of goods. However, there are some areas, particularly in terms of the legal base, infrastructure and equipment and long-term capacity for growth which need to be reviewed. This assessment will look at those, and other areas, in order to identify actions required, which will then be integrated in to a new Border and Inland Control Strategy and Action Plan
Implementing Agency	Customs service
Main beneficiaries	Customs service, Moldovan business
Timeframe	3 months
Estimated cost	$40,000 (plus costs for infrastructure and equipment resulting from the review)
Potential impact	Improved inland clearance facilities will deliver savings of cost and time to businesses and delver enhanced capacity to customs to protect the revenue and society
Risks	• Lack of in-house expertise to undertake the work • Failure to accurately identify requirements

	• Lack of finance to undertake infrastructural reforms

PROJECT 39. ENHANCEMENT OF CUSTOMS INVESTIGATION AND INTELLIGENCE CAPACITY

PROJECT 29	ENHANCEMENT OF CUSTOMS INVESTIGATION AND INTELLIGENCE CAPACITY
Objective	To strengthen the ability of Customs to undertake effective investigation and intelligence actions
Rationale	Modern Customs services undertake controls based on identified risks and intelligence received. An effective intelligence and investigation system requires an appropriate legal framework, effective governance structures, a high level of skills and training of the staff, maximum levels of cooperation within the organization, with other agencies, with the business community and the population. The Moldovan customs intelligence and investigation functions are currently of limited scope and functionality. They could potentially collect, collate analyze and act on far more intelligence than is currently the case. In terms of investigation, the ability to be able to effectively investigate and prosecute serious offenders is a key element of the compliance continuum and an encouragement towards voluntary compliance and disclosure.
Implementing Agency	Customs service
Main beneficiaries	Customs service, Government of Moldova, Moldovan business
Timeframe	24 months
Estimated cost	TBA (the costs will depend on the extent of the enhancements and improvements which can be afforded)
Potential impact	Improved intelligence and investigatory capacity will improve the effectiveness of customs in protecting the revenue, protecting society, preventing and detecting fraud and maximizing trader compliance
Risks	• Lack of in-house expertise to undertake the work • Failure to accurately identify requirements • Lack of finance to undertake infrastructural reforms

PROJECT 40. ENHANCEMENT OF CUSTOMS AUDIT CAPACITY

PROJECT 30	ENHANCEMENT OF CUSTOMS AUDIT CAPACITY
Objective	To improve the capacity of customs to increase the volume and improve the quality of their audit-based controls
Rationale	Moldovan customs has a basic but under-developed capability to undertake audits of traders. At this moment, the capacity is under-resourced, under-skilled and inefficient. The move from transaction-based controls to audit-based controls of company systems and accounts is key to modern customs work. An enhanced capacity in this area will allow customs to reduce the number of inspections and simplify procedures for compliant traders whilst, at the same time, increasing their ability to detect systematic fraud and malpractice.
Implementing Agency	Customs service
Main beneficiaries	Customs service, Moldovan business
Timeframe	24 months
Estimated cost	$250,000
Potential impact	A more professional audit function, undertaking a larger number of audit-based controls, will reduce the need for checks at borders and inland, whilst maintaining an effective compliance and enforcement regime and protecting the revenue.
Risks	• Lack of in-house expertise to undertake the work

	• Failure to accurately identify requirements • Lack of finance to undertake institutional reforms

PROJECT 31. ENHANCEMENT OF NATIONAL AEO PROGRAM

PROJECT 31	ENHANCEMENT OF CUSTOMS AUDIT CAPACITY AEO PROGRAM
Objective	To improve the operation of the AEO program, expand the number of members and improve the benefits for both customs and AEOs
Rationale	Moldova has an established and effective AEO program which is one of the most developed in the region. However, the principles underpinning and the approach to AEO programs has progressed considerably since the program in Moldova was adopted. With the new initiatives to increase participation particularly of SMEs), strengthen benefits and expand the scope beyond customs it is important that Moldova invests in updating its program and maintaining its leading position. There are a number of additional benefits which could be considered for AEOs, including preferential treatment of guarantees (including use of insurance facilities as an alternative, or partial alternative, to bank guarantees) and expanding eligibility for deferred payment. However these need to be introduced as part of a wider package of measures to assure the integrity of the program.
Implementing Agency	Customs service, Chamber of Commerce
Main beneficiaries	Customs service, Moldovan business
Timeframe	6 months
Estimated cost	$80,000 (based on 40 days of external assistance plus local inputs)
Potential impact	A larger number of companies joining the program, with enhanced benefits, delivering a greater level of trade facilitation to compliant traders.
Risks	• Lack of in-house expertise to undertake the work • Failure to accurately identify requirements, including potential benefits for all parties • Lack of finance and resource to support the long-term application of the program

PROJECT 32. eTIR PILOT PROJECT

PROJECT 31	eTIR PILOT PROJECT BETWEEN MOLDOVA AND UKRAINE
Objective	To facilitate legitimate trade and transport between Moldova and Ukraine by utilizing ICT solutions and enhancing cooperation of the customs authorities through easier and faster exchange of information.
Rationale	eTIR is a solution that allows paperless cross-border trade having the aim to replace paper TIR Carnet in order to increase the efficiency of trade procedures and reduce fraudulent actions. eTIR helps manage data on guarantees by customs, as well as allows exchange of information among customs authorities. It offers the benefits of risk assessment prior to the arrival of cargos, prevents false submission of customs declarations, reduces risk of fraud, administrative burden and increases the security and control of TIR operations. In 2016 AITA and the Ukrainian Road Hauliers Association had some preliminary discussions with IRU on the opportunity to implement such a project between Moldova and Ukraine. However this did not happen until now. This is a ready solution that can be replicated. Support can be provided by UNECE and IRU in developing and implementing the fully computerized TIR procedures. Looks like there's a strong interest on both sides to move forward with this but just need specific steps that would implement it.
Implementing Agency	Customs authorities of Moldova and Ukraine
Main beneficiaries	AITA, Ukrainian Road Hauliers Association, Moldovan business and transporters
Timeframe	TBC
Estimated cost	TBC
Potential impact	Improve security of transit operations, reduce vulnerability of fraudulent actions and corruption which would ensure protection from revenue losses.
Risks	• Lack of in-house expertise to undertake the work

APPENDIX A. COSTS AND TIMES BY PORT

	DRY TEU, USD, ONE WAY				
COMPONENT	ODESSA	FISH PORT	CONSTANȚA	GIFP-ROAD	GIFP-RAIL
COST (USD)					
Container Guarantee	Unknown	Unknown	120-360	N/A	N/A
Inland Transport (Trucking/Rail)	500-885	400-700	850-1200	450-500	250
TIR/T1	Up to 100	Up to 100	Up to 100	0	0
Border Fees	Dependent on value				
River Transport	N/A	N/A	N/A	400-500	400-500
Terminal Handling Fees	270	270-320	250-260	Unknown	Unknown
Reefer surcharge (optional)	Unknown	230-270	Unknown	Unknown	Unknown
Export Service Fee	Unknown	30 (Exports)	Unknown	Unknown	Unknown
Bill of Lading		55 (Imports)	55 (Imports)		
TIME					
Trucking	4 - 6 hours	4 - 6 hours	8 hours	4 -5 hours	3 - 5 days
Border Control Post	2 - 3 hours	2 - 3 hours	1 - 3 days	0	0
Port					
Trucking	2 – 6 hours	Unknown	20 minutes	Unknown	Unknown
Handling/loading	< 1 day	< 1 day	< 1 day	1-2 days	1-2 days
Customs	< 1 day	< 1 day	< 1 day	< 1 day	< 1day

Source: Interviews, Maersk.com, searates.com.

APPENDIX B. SHIPPING LINER RATES

Searates.com Liner Spot Rates

EXPORTS																							
From	Via	To	Type	Shipping Line	Cost (USD)													Time(Days)					
					Inland Haulage MD	Ukraine Port Fees/THC							Maritime Shipping	Destination		Total	Excl Inland MD		Inland Haulage MD	Ukraine Port	Maritime Shipping	Destination		
						ADE	ERI	EXP	FFC	HDL	ODF	OHC		Fees	Inland Haulage							Port	Inland Haulage	Total
					247	30	15	120	35	45	25	375	650	325	121	1,988	1,741		5 hrs	2-4 days	31 days 16 hrs	1-2 days	44 min	35-38 days
Chișinău	Odessa	Shanghai	TEU	Wan Hai	247	30	15	120	35	45	25	-	1,420	325	121	2,383	2,136		5 hrs	2-4 days	31 days 16 hrs	1-2 days	44 min	35-38 days
Chișinău	Odessa	Shanghai	TEU	Italia	247	30	15	120	35	45	25	Included in O/F	1,230	325	121	2,193	1,946		5 hrs	2-4 days	31 days 16 hrs	1-2 days	44 min	35-38 days
Chișinău	Odessa	Shanghai	TEU	CMA CGM	247	30	15	120	35	45	25	-	1,050	325	121	2,013	1,766		5 hrs	2-4 days	31 days 16 hrs	1-2 days	44 min	35-38 days
Chișinău	Odessa	Baltimore	TEU	Hapag-Lloyd	247	30	15	120	35	45	25	-	1,830	100	402	2,849	2,602		5 hrs	2-4 days	23 days 1 hr	1-2 days	4 min	26-29 days
Chișinău	Odessa	Baltimore	TEU	CMA CGM	247	30	15	120	35	45	25	-	2,180	100	402	3,199	2,952		5 hrs	2-4 days	23 days 1 hr	1-2 days	4 min	26-29 days
Chișinău	Odessa	Baltimore	TEU	"K" Line	247	30	15	120	35	45	25	Included in O/F	2,040	100	402	3,059	2,812		5 hrs	2-4 days	23 days 1 hr	1-2 days	4 min	26-29 days
Chișinău	Odessa	Baltimore	TEU	Maersk	247	30	15	120	35	45	25	-	2,090	100	402	3,109	2,862		5 hrs	2-4 days	23 days 1 hr	1-2 days	4 min	26-29 days
Chișinău	Odessa	Dubai	TEU	MSC	247	30	15	120	35	45	25	375	1,570	411	137	3,010	2,763		5 hrs	2-4 days	18 days 1 hr	1-2 days	18 min	21-24 days
Chișinău	Odessa	Dubai	TEU	HMM	247	30	15	120	35	45	25	375	1,860	411	137	3,300	3,053		5 hrs	2-4 days	18 days 1 hr	1-2 days	18 min	21-24 days
Chișinău	Odessa	Dubai	TEU	ZIM	247	30	15	120	35	45	25	375	1,730	411	137	3,170	2,923		5 hrs	2-4 days	18 days 1 hr	1-2 days	18 min	21-24 days
Chișinău	Odessa	Dubai	TEU	CSAV	247	30	15	120	35	45	25	375	1,700	411	137	3,140	2,893		5 hrs	2-4 days	18 days 1 hr	1-2 days	18 min	21-24 days
Chișinău	Odessa	Istanbul	TEU	CMA CGM	247	30	15	120	35	45	25	-	450	325	151	1,443	1,196		5 hrs	2-4 days	4 days 3 hrs	1-2 days	1 min	7-10 days
Chișinău	Odessa	Istanbul	TEU	Admiral	247	30	15	120	35	45	25	Included in O/F	780	325	151	1,773	1,526		5 hrs	2-4 days	4 days 3 hrs	1-2 days	1 min	7-10 days
Chișinău	Odessa	Istanbul	TEU	Senator	247	30	15	120	35	45	25	Included in O/F	650	325	151	1,643	1,396		5 hrs	2-4 days	4 days 3 hrs	1-2 days	1 min	7-10 days

Chișinău	Odessa	Istanbul	TEU	Hapag-Lloyd	247	30	15	120	35	45	25	Included in O/F	570	325	151	1,563	1,316		5 hrs	2-4 days	4 days 3 hrs	1-2 days	1 min	7-10 days
Chișinău	Odessa	Hamburg	TEU	Hapag-Lloyd	247	30	15	120	35	45	25	-	850	386	239	1,992	1,745		5 hrs	2-4 days	17 days 2 hrs	1-2 days	4 min	20-23 days
Chișinău	Odessa	Hamburg	TEU	Wan Hai	247	30	15	120	35	45	25	Included in O/F	1,290	386	239	2,432	2,185		5 hrs	2-4 days	17 days 2 hrs	1-2 days	4 min	20-23 days
Chișinău	Odessa	Hamburg	TEU	APL	247	30	15	120	35	45	25	Included in O/F	1,160	386	239	2,302	2,055		5 hrs	2-4 days	17 days 2 hrs	1-2 days	4 min	20-23 days
Chișinău	Odessa	Hamburg	TEU	Evergreen	247	30	15	120	35	45	25	Included in O/F	1,050	386	239	2,192	1,945		5 hrs	2-4 days	17 days 2 hrs	1-2 days	4 min	20-23 days
Chișinău	Odessa	Mombasa	TEU	Maersk	247	30	15	120	35	45	25	-	1,700	325	121	2,663	2,416		5 hrs	2-4 days	18 days 11 hrs	1-2 days	7 min	21-24 days
Chișinău	Odessa	Mombasa	TEU	Wan Hai	247	30	15	120	35	45	25	Included in O/F	1,950	325	121	2,913	2,666		5 hrs	2-4 days	18 days 11 hrs	1-2 days	7 min	21-24 days
Chișinău	Odessa	Mombasa	TEU	MOL	247	30	15	120	35	45	25	Included in O/F	1,920	325	121	2,883	2,636		5 hrs	2-4 days	18 days 11 hrs	1-2 days	7 min	21-24 days
Chișinău	Odessa	Mombasa	TEU	Hapag-Lloyd	247	30	15	120	35	45	25	Included in O/F	1,870	325	121	2,833	2,586		5 hrs	2-4 days	18 days 11 hrs	1-2 days	7 min	21-24 days

Source: searates.com

Maersk Liner Spot Quotes

EXPORTS																	
From	Via	To	Type	Time (Days)	Cost (USD)												
					Origin (MD)				Maritime Shipping	Destination				Total			
					Inland Haulage	Bill of Lading	Port THC	Export Service		Import Service	Bill of Lading	Port THC	Inland Haulage	Origin	Maritime	Destination	Total
Constanța	N/A	Shanghai	TEU	41	N/A	-	250	-	300	-	71	98	N/A	250	300	169	719
Ilyichevsk Fish Port	N/A	Shanghai	TEU	43	N/A	-	280	-	835	-	71	98	N/A	280	835	169	1,284
Chișinău	Ilyichevsk Fish Port	Shanghai	TEU	57	1,386	-	280	30	835	-	71	98	N/A	1,696	835	169	2,700
Chișinău	Ilyichevsk Fish Port	Shanghai	TEU Reefer	57	1,617	-	550	-	1,350	-	71	186	N/A	2,167	1,350	257	3,774
Constanța	N/A	Bălțimore	TEU	33	N/A	-	250	-	1,510	-	-	470	N/A	250	1,510	470	2,230
Ilyichevsk Fish Port	N/A	Bălțimore	TEU	35	N/A	-	280	-	1,660	-	-	470	N/A	280	1,660	470	2,410
Chișinău	Ilyichevsk Fish Port	Bălțimore	TEU	37	1,386	-	280	30	1,660	-	-	470	N/A	1,696	1,660	470	3,826
Chișinău	Ilyichevsk Fish Port	Bălțimore	TEU Reefer	37	1,617	-	550	-	3,865	-	-	530	N/A	2,167	3,865	530	6,562
Constanța	N/A	Dubai	TEU	21	N/A		250		250	31	122	196	245	250	250	595	1,095
Ilyichevsk Fish Port	N/A	Dubai	TEU	23	N/A	-	280	-	820	31	122	196	245	280	820	595	1,695
Chișinău	Ilyichevsk Fish Port	Dubai	TEU	32	1,386		280	30	820	31	123	196	245	1,696	820	595	3,111
Chișinău	Ilyichevsk Fish Port	Dubai	TEU Reefer	32	1,617		550	-	1,450	43	122	313	340	2,167	1,450	819	4,436

Imports																	
From	Via	To	Type	Time (Days)	Cost (USD)												
					Origin				Maritime Shipping	Destination (MD)				Total			
					Inland Haulage	Bill of Lading	Port THC	Export Service		Import Service	Bill of Lading	Port THC	Inland Haulage	Origin	Maritime	Destination	Total

Shanghai	N/A	Constanța	TEU	38	N/A	71	98	57	1300-1750			260	N/A	226	1300-1750	260	1786-2236
Shanghai	N/A	Ilyichevsk Fish Port	TEU	37	N/A	71	98	57	$1300-$1750			320	N/A	225	$1300-$1750	320	1846-2296
Shanghai	Constanța	Chișinău	TEU	47	N/A	71	98	57	1300-1750		55	260	1,941	226	1300-1750	2,201	3727-4177
Shanghai	Ilyichevsk Fish Port	Chișinău	TEU Reefer		N/A	71	186	65	1,750		55	550	1,617	322	1,750	2,167	4,239
Baltimore		Constanța	TEU	43	N/A	-	-	-	1,210	-	-	260	-	-	1,210	260	1,470
Baltimore		Ilyichevsk Fish Port	TEU	41	N/A	-	-	-	1,110	-	-	320	-	-	1,110	320	1,430
Baltimore	Constanța	Chișinău	TEU	46			-		1,210		55	260	1,620	-	1,210	1,880	3,090
Baltimore	Ilyichevsk Fish Port	Chișinău	TEU Reefer	43					3,300		55	550	1,617	-	3,300	2,167	5,467
Dubai		Constanța	TEU	26	N/A	122	286	5	975	-	-	260	900	414	975	1,160	2,549
Dubai		Ilyichevsk Fish Port	TEU	26	245	122	286	5	1,025			320	550	659	1,025	870	2,554
Dubai	Constanța	Chișinău	TEU	36	245	122	286	5	975		55	260	1,941	659	975	2,201	3,835
Dubai	N/A	Chișinău	TEU Reefer						No service available on this route								

Notes: Quoted in USD or converted to USD based on applicable exchange rate from oanda.com. Quotes are for 1 TEU of 18 metric tons, either dry or reefer as indicated.
Source: Spot quotes from Maersk website, May 2018.

APPENDIX C. TRADE FACILITATION RECOMMENDATIONS

REGULATORY-RELATED RECOMMENDATIONS

The DCFTA between Moldova and the EU has not yet been fully implemented. Some of the outstanding issues, if fully implemented, would have a significant impact on trade and trade facilitation issues. In relation to trade facilitation matters, as identified in the EC Joint Staff Working Document (SWD (2018) 94), the needs in relation to laboratory diagnostic capacity in relation to animal diseases remains weak and there are concerns about customs valuation. The need to finalize the new Customs Code and to accede to the Common Transit Convention are also key issues. The system for internal monitoring of the DCFTA by the Government of Moldova has been developed, but not fully implemented	Action should be taken to populate the system with the necessary data to allow for effective monitoring	PM's Economic Council, MoE
The WTO TFA has been partially, but not fully implemented in Moldova. Full implementation is a legal obligation but, even more importantly, should deliver benefits to the trade. Whilst Category A obligations have been identified and formally reported as having been implemented, this does not necessarily mean that the issues cannot be re-visited with a view to further strengthening of capacity	The Government of Moldova should prioritize the full implementation of all outstanding obligations under the WTO TFA at the earliest opportunity	MoE/NTFC
	The Government of Moldova should review the level of donor support available to meet its obligations and convene an urgent forum to agree and coordinate this support	MoE/NTFC
	The National Trade Facilitation Committee should be given long-term external technical assistance (possibly through the provision of a long-term advisor) to support full WTO TFA implementation	MoE/NTFC

	The Government of Moldova should review WTO TFA Category A requirements to identify further improvements which can be made	MoE/NTFC/ Customs
The new National Customs Code has been drafted and is currently with the Government for final review before submission to Parliament. It is essential that the code is passed in to law at the earliest opportunity and that the necessary implementing regulations are finalized, in order that the code should come into effect by 1 January 2020.The new Union Customs Code is a radically different document to previous iterations of the EU Customs Code. It's provisions, in many areas, are much more general and less prescriptive in terms of process, with more focus on outcome. This means that the implementing provisions are crucial in determining the procedures which will be adopted and followed by countries applying the Code (or, in the case of Moldova, a national code based upon the EU Code). The main challenges in achieving an effective implementing regulation is that the provisions should be clear and unambiguous and that they should set the right balance between compliance, enforcement and trade facilitation.	The Government of Moldova should maintain its commitment to deliver Parliamentary approval of the new Customs code without further delay.	Government
	Work on the preparation of the implementing regulations for the new Customs Code should be initiated without delay, as soon as the draft Code has been approved, so that the timeframe for preparation allows for the maximum period of drafting, consultation and review	Government/ Customs
	The proposed administrative penalties in both the Customs Code and the implementing regulations should be reviewed to ensure that they are proportionate, comply with international standards and best practice, and achieve the necessary balance between compliance, deterrence and enforcement	Customs
	The implementing regulation should be drafted to ensure that customs has the effective ability to: - Undertake post-clearance controls - Apply effective enforcement controls -	Customs
	A specific and separate review process should be included in the drafting and review of the implementing regulations, to ensure that they maximize the opportunities to facilitate legitimate trade. The existing structure for the review of all legislative acts and procedures with economic impact may be used for this, provided it takes advice from appropriate trade facilitation experts in reaching its conclusions.	Customs
	A joint working group should be established to review progress on the draft implementing regulation. This working group should include customs, legal and business representatives and the group should be involved in the process from the	Customs

	beginning so that they can contribute and provide comments throughout the preparation period.	
The Moldovan Customs Service has a modern and effective business strategy. However, its implementation is hindered, in some areas, by organizational and managerial constraints and limitations. In many areas, sectoral or work area strategies and plans are not developed so the main framework is just the business strategy, which does not provide the necessary level of detail and the actions needed at the sectoral level to support its implementation.	A change management plan to support implementation of the business strategy should be developed and implemented. This plan should address the cultural, organizational and management changes required to achieve full implementation of the management plan	Customs
	A review of customs resourcing should be undertaken, particularly in terms of support for trade facilitation measures. This review should include: - The allocation of customs staff at BCPs and the shift patterns applied, based on levels of traffic and the risks identified - The allocation of sufficient resource to the risk analysis department to allow it to enhance its capabilities - The allocation of sufficient resource to the unit responsible for simplified procedures and the national AEO program, to allow it to maintain the integrity of the existing program and expand it to include new members - The allocation of sufficient resource to support the effective operation of the customs consultative committee	Customs
The Moldovan Customs does not currently have an overall HR strategy. The current role of the HR department is largely administrative, implementing decisions and legal obligations. A dedicated HR Strategy, supporting implementation of the business strategy and giving due attention to trade facilitation issues, would improve the ability of the service to meet its obligations and aspirations. There is a missing element in the process for developing professional standards. This means there is no facility to positively encourage professional standards and no process for taking steps to raise compliance and enforce such standards, short of criminal investigation.	A comprehensive Customs HR Strategy, which supports implementation of the Customs Business Strategy should be developed and implemented.	Customs
	A review of existing systems, policies and procedures should be undertaken to identify and address weaknesses in relation to customs integrity issues, including effective implementation of the code of conduct for customs staff and the application of professional standards	Customs
	Consideration should be given to establishing a 'Professional Standards' Unit within the Customs Service. This unit would work with the HR Department and with the internal investigation unit, to support the raising of professional standards within the service and applying internal (non-criminal) sanctions to staff, where appropriate.	Customs

	A review of the training function should be undertaken to identify and address any weaknesses in relation to their capacity to design and deliver training to customs staff on trade facilitation issues and on customs integrity and professional standards	Customs
The system for the use of customs brokers is functional but not optimal. There are a number of areas where the operation of the system could be improved, both in terms of professional capacity of the brokers themselves and in their capacity to meet and respond to the needs of traders. This requirement is immediate but the process for maintaining professional standards in the future will need to take account of the implementation of the new customs code, when it comes into effect.	The customs broker system should be upgraded and re-launched on the basis of new professional standards. These standards should be prepared in consultation with customs, the brokers, the Chamber of Commerce (CoC) and the wider business community to provide for a comprehensive customs broker system which meets the needs of business and of the customs service	Customs, CoC
	A new code of conduct should be drafted and implemented for the customs brokers in support of the implementation of professional standards. This code should apply the national model for codes of conduct which has already been developed, but it should then be adapted to suit the customs environment. In addition to the code, a manual should also be drafted to provide clear examples of how the code should be applied in the working environment.	CoC, Customs, National Anti-Corr
	Training should be designed and delivered to customs brokers in support of the new professional standards and application of the code of conduct	CoC. Customs
The management of risks and the application of risk-based controls are central to the operation of a modern customs service. Moldovan Customs has a functional risk analysis unit and it operates customs controls on the basis of defined risk profiles. However, there is no overall risk management strategy for the organization. An effective risk management strategy is required so that the main strategic and operational risks can be identified and procedures defined for addressing them.		
	Support should be provided to customs in the implementation of their risk management strategy and action plan	Customs
	The capacity of the customs risk analysis unit should be expanded to allow it to: - undertake threat and risk assessments in relation to specific risks, including in relation to specific commodities, geographic areas or locations, methods of transport etc. - collect, collate, analysis and distribute information related to existing, changed and new risks	Customs

Customs operates its controls on the basis of the risks it identifies in relation to the revenue, to the protection of society and to trade facilitation. Many of the risks are common to other Government institutions and agencies (e.g. tax service, police etc.). All institutions would be able to improve their risk assessment and risk management if information was shared between them. More accurate assessment of risks will allow a better allocation of resource to high risk areas and, as a consequence, reducing the burdens on legitimate business.	A national risk management strategy, with supporting infrastructure and systems, should be established. This system should identify and address the highest level of common risks to the economic and political development of Moldova, including risks to revenue collection, risks created by the activities of organized crime and risks to economic progress.	Government of Moldova, law enforc
Moldovan customs border and inland controls are functional and largely effective, both in terms of processing times and levels of revenue collection. However, there are a number of areas where further improvement is possible and necessary. The move away from customs border procedures to the use of electronic declarations for export and inland clearance for imports has significantly reduced the actual processing time at borders to an average of xx minutes (not that this is the customs processing time, not the total waiting time). Where significant delays do occur, they are usually spasmodic and caused by 'exceptional' (if sometimes still predictable) circumstances. The operation of inland clearance facilities is functional but not efficient. The legal base for their operation is not always clear, the locations are not all ideal and the facilities within them are sub-standard.	A customs border and inland control strategy, which supports implementation of the business strategy, should be developed and implemented. This strategy should include an assessment of potential risks to customs clearance procedures caused by non-standard but still predictable circumstances, and measures needed to mitigate them. The strategy should also include consideration of future developments, including increased levels of trade, greater use of e-commerce and future accession to the CTC.	Customs
	The systems and procedures for the inland clearance of goods by customs should be clarified through the establishment of a clear legal base for the operation of inland customs facilities	Customs
	A review of border and inland customs clearance needs should be completed, based upon current and future levels of commercial activity and the obligations of customs in relation to both enforcement and trade facilitation. This review should include the potential provision for new and improved customs process and clearance facilities and the consolidation of facilities in fewer locations. The review should also include an assessment of infrastructure and equipment needed by customs to undertake full and partial inspections of consignments with the maximum of efficiency.	Customs

A national Integrated Border Management Strategy has been prepared but not yet finalised or implemented.	The current draft IBM strategy should be finalized and implemented at the earliest opportunity	Customs, Border Police, Ministry of
Cross-border cooperation is one of the most practical ways to improve border efficiency and reduce overall border waiting times. A number of initiatives are already underway, primarily supported by the EU and by EUBAM.	Existing measures and initiatives to improve cross-border cooperation should be implemented at the earliest opportunity and with the maximum commitment. These initiatives include - the construction of common border infrastructure - the application of common controls - the sharing of information on risks and on individual traders - the alignment of procedures and working practices	Customs, other border agencies, cr
The application of trade facilitation measures, the operation of an effective AEO program and the protection of the revenue and of society are predicated on the ability of customs to accurately identify and intercept illegal traffic. **Modern customs enforcement is largely determined by intelligence-led, risk-based controls. Initiatives in relation to inter-agency cooperation, cross-border cooperation and cooperation with business (e.g. AEOs), provide the opportunity for Customs to receive and process far greater quantities of information and intelligence. This will only be of value however, if they have the capacity to receive, process and apply that information and intelligence properly. At the moment, the customs intelligence and investigation functions are limited in their capacity and effectiveness.**	A customs enforcement strategy, which supports implementation of the business strategy, should be developed and implemented. This strategy should take account of the need for resources and procedures to tackle non-compliance, whilst recognizing that the majority of traders are compliant and do not pose a significant risk in terms of state revenue and security	Customs
	A review of the customs intelligence function should be undertaken to ensure that customs have the ability and capacity to obtain, analyze and use intelligence information correctly.	Customs
	A review of the customs investigation function should be undertaken to ensure that customs have the ability to properly investigate suspected offenders. This capability is essential, not only to bring offenders to justice but to support the overall compliance strategy.	Customs
	Measures should be taken to enhance the legal and operational framework for cooperation and sharing of information between agencies (particularly customs, the tax department and the police) to support more effective targeting of non-compliant traders.	Customs, tax Dept, police, other ag

	Measures should be taken to develop the capacity for inter-agency operations and investigation, including boy inter-agency and cross border investigations.	Customs, tax Dept, police, other ag
The move from transactional-based controls to audit based controls (primarily on a post-clearance basis) is potentially one of the biggest contributors to reducing time and costs to business. However, in order to allow for such controls to be applied, it requires businesses to develop and maintain systems which offer robust and effective information against which audits can be performed. It also requires customs to have the powers and the capability to undertake audits, including of both manual and computerized records. This includes audits of systems as well as individual procedures and transactions. This is a fundamental change in customs control measures and requires a very different skillset to more traditional customs interventions.	A review should be undertaken of the framework and operational environment for the application of audit controls by Customs, specifically system-based audits. This review should include the legal obligations for record keeping by traders, the requirements of other regulatory authorities and the ability to share information between agencies.	Customs
	The capacity of the post-clearance audit function in Customs should be expanded, including the allocation of additional staff, the provision of effective systems and equipment and the training and development of customs auditors and their management	Customs
	A long-term audit plan, if not already in place, should be developed, to include both short-term and long-term actions	Customs
	The customs training function capacity should be expanded so that they can support the professional development of the customs audit function. Consideration should also be given to developing training programs for businesses to explain what records they need to maintain and how they can strengthen their internal procedures. This option could be considered as a direct benefit for AEOs (i.e. free training)	Customs
Customs valuation is a very important and sensitive issue in Moldova. Separate actions are underway to review the Moldovan customs valuation procedures and this TCA does not duplicate that work. However it is evident that Moldova lacks the capacity to effectively apply the full scope of the WTO Valuation process because of the absence of an effective repository of information on previous valuations and other	A robust national valuation database should be established for customs valuation. This database should support more effective application of WTO valuation rules	Customs

information which would allow it to apply some of the other options available.		
The development and practical application of national AEO programs is a major and growing feature of current and future customs operation. The concept of trusted traders, which receive preferential treatment, is a key way in which the application of risk-based controls can be used to the benefit of compliant and cooperative businesses. The Moldovan AEO system was established in 2012 and there are currently 115 members. This is highly creditable and Moldova is one of the most advanced countries in CEE in that respect. However, the concept and principles underpinning AEO programs has been further developed and refined since its initial conception and there are many new initiatives and features which can and should be adopted in order to maximize uptake, effectiveness and benefit.	A review should be completed of the National Customs AEO program which will provide for a new and enhanced strategy, embracing the most recent developments in AEO systems, particularly in terms of the benefits such systems can deliver for traders	Customs
	A simplified system should be developed to allow SMEs to access the AEO program more easily and more cheaply	Customs
	A Government-wide initiative should be established to create a national AEO standard which will apply across multiple agencies and Government departments	Customs, Government, other agenc
	The Government should encourage and positively support efforts to obtain mutual recognition for AEO programs with Moldova's trading partners. This specifically includes the current CEFTA project in this area and also the new GUAM initiative	Customs, Government

SERVICE–RELATED RECOMMENDATIONS

Moldova currently lacks a comprehensive and robust Trade Information Portal. Lack of access to information, resulting in the presentation of incorrect or incomplete documentation to customs, is identified as a	A National Trade Information Portal should be established to provide businesses in Moldova (and elsewhere) with clear, accurate and useful information on the legislative and regulatory framework for international trade to and from Moldova	Ministry of Economy, NTFC, Customs, other agencies	12-24 months	High

significant factor in extended delays to customs clearance. Provision of clear and accurate information is also a commitment under the WTO TFA. A comprehensive TIP, containing information on legislation and procedures, has the potential to provide a direct time and cost saving to existing businesses, as well as encouraging new entrants to international trade				
Moldova has already committed to establishing a Single Window system for international trade. Initial work is already underway on establishing the legal base for this. Whilst a TIP and a SW are different systems and require different functionalities, there are many commonalities. The stakeholders are likely to be largely the same and the information held on a TIP is likely to be of direct interest and application to users of a SW. Whether or not a TIP is ultimately absorbed into a SW system, or remains as a separate structure, there are obvious benefits in developing a common and recognizable GUI for users.	A coordination structure should be established between the TIP initiative and the work currently being done to prepare for a single window for international trade. This would provide for economies of scale in some areas, allow for more rapid development of the single window and encourage a coordinated approach to the graphical user interface (GUI) for users	Customs, other agencies	3 months	medium
The UN *Trade Point* system is a global initiative which promotes Business-to-Business (B2B) facilities, as well as exchange of knowledge and information on varying national systems and procedures. There are clear benefits for Moldova in developing its	Consideration should be given to Moldova joining the UN Trade Point Initiative which supports B2B contacts	Customs	1 month	Low

national capacity to be able to link in to this global network, in terms of providing Moldovan exporters with information and contacts in their target countries

APPENDIX D. TRADE CORRIDOR INFRASTRUCTURE NEEDS AND STATUS

#	NEED	STATUS	BY	TIMEFRAME	COST[a]
In Progress					

1	Rehabilitation of 37km of R33 Hîncești-Lăpușna (Chișinău-Leuseni corridor)	19.17% rehabilitated	Road Fund	2018	$22.5m
2	Rehabilitation of 55 km of the R16 Bălți-Falesti-Sculeni and 29.9 km of bridge	Final Stage of rehabilitation but delayed	EIB/EBRD	2018, delayed?	$46.8m
Planned					
3	Rehabilitation of 300 km of rural roads	Delayed; retendering	World Bank	2018-2019	$82.5m
4	Railway track rehabilitation (250 km railway section Bender-Basarabeasca-Etulia-Giurgiulesti)	Tendering now	EBRD/EIB	2018-2020	$55 m
5	Purchase of locomotives	Planned	EBRD/EIB	2018-2020	$61.75m
6	Rehabilitation of M3 Chișinău - Comrat - Giurgiulești - RO Border at km 96-151 (55 km), km 151-171 (20 km), km 179-190 (11 km)	Delayed, retendering due to poor performance of initial contractor	Unknown	2018-2021	Unknown
7	New construction of M3 Porumbrei - Cimislia (19km)	Prequalification issued Feb 2018	EIB	2018-2021	$31.2m
8	New construction of M3 Comrat Bypass (18km)	Tendering planned for 2018	EIB	2018-2021	$20.4m
9	New construction M3 Slobozia Mare, Chislita Prut, Giurgiulești bypass (18km)	Tendering planned for 2018	EBRD	2018-2021	$26.4m
10	Construction of M3 Vulcanesti Bypass	Tendering planned for 2018	EU NIF/EBRD	2018-2021	Unknown
11	Bridge over Prut, near Ungheni, access roads, and customs infrastructure	Feasibility study completed; ongoing	Joint Moldovan and Romanian project	2018-2020-	$42m
12	R1 Chișinău–Ungheni–Sculeni–border with Romania (overpass)	Unknown	Road Fund	2018-on	Unknown
13	Access road to Palanca	Tendering now	EU/UNDP	November 2018	Unknown
14	Chișinău ring highway sections	Delayed	EIB	Unknown	$240m
Needs Funding					
15	Additional railway track rehabilitation	TBD	N/A	N/A	TBD
16	Purchase of rolling stock	TBD			TBD
17	Rehabilitation of 133km of M14 Brest-Briceni-Bălți	Project documents prepared in 2012 but needs funding			$155.5m

18	R1 Ungheni-Sculeni (14 km)	As of 2017 funding unidentified, current status unknown			$13.2m
19	Chișinău-Causeni (54km)	No funding identified			$46.8m
Needs Feasibility Study and Funding					
20	M14 Bălți-Chișinău 131 km	Feasibility study and design planned for 2018		2019-2022	$134.4m
21	Chișinău logistics hub	Needs feasibility study	N/A	N/A	Unknown
22	Rehabilitation of Bălți or Mărculești Airport	Needs feasibility study	N/A	N/A	$10 million+
23	IWW Dredging	Needs feasibility study	N/A	N/A	Unknown

APPENDIX E. AIRCRAFT CITATIONS

Flight	Sources (Link) and Date Accessed*
KIV - FRA	https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi
KIV - VIE	http://www2.bombardier.com/CRJ/en/specifications.jsp?langId=en&crjId=900 https://commercialaircraft.bombardier.com/content/dam/Websites/bca/literature/crj/BCA_5446_02_CRJ_Factsheet_Update_CRJ900_EN_vF.pdf https://commercialaircraft.bombardier.com/content/dam/Websites/bca/literature/q400/BCA_5446_03_Q400_Factsheet_Update_EN_vF.pdf https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf
KIV - VIE	http://www2.bombardier.com/CRJ/en/specifications.jsp?langId=en&crjId=900 https://commercialaircraft.bombardier.com/content/dam/Websites/bca/literature/crj/BCA_5446_02_CRJ_Factsheet_Update_CRJ900_EN_vF.pdf https://commercialaircraft.bombardier.com/content/dam/Websites/bca/literature/q400/BCA_5446_03_Q400_Factsheet_Update_EN_vF.pdf https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf
KIV - OTP	https://prijet.com/performance/ATR%2042-300 http://www.regourdaviation.com/en/flotte/atr-42-320/ http://www.team.aero/files/aviation_data/owners_n_operators_guide_e_jets.pdf https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://cargo.ukraine-international.com/poloz/UIA%20E190.pdf https://www.rocketroute.com/aircraft/atr-72-212
KIV – VKO	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf
KIV - DME	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi
KIV - SVO	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf
KIV - LTN	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf
KIV - STN	https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi
KIV - BLQ	https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf http://www.team.aero/files/aviation_data/owners_n_operators_guide_e_jets.pdf https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://cargo.ukraine-international.com/poloz/UIA%20E190.pdf https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi
KIV - MXP	https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi

KIV - BGY	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf
KIV - LED	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf http://www.team.aero/files/aviation_data/owners_n_operators_guide_e_jets.pdf https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://cargo.ukraine-international.com/poloz/UIA%20E190.pdf https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi
KIV - IST	http://www.team.aero/files/aviation_data/owners_n_operators_guide_e_jets.pdf https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://cargo.ukraine-international.com/poloz/UIA%20E190.pdf https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf https://www.jetblue.com/p/Maximum_Dimension_Guide.pdf https://www.precisionaircraft.com/a321/ https://www.iagcargo.com/en/page/fleet/airbus-a321 http://www.fly-car.de/local/media/formulare/airbusindustries.pdf https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf
KIV - FCO	https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf
KIV - CIA	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf
KIV - TLV	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf
KIV - SXF	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf
KIV - KBP	https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi
KIV - ATH	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://cargo.ukraine-international.com/poloz/UIA%20E190.pdf https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf http://www.team.aero/files/aviation_data/owners_n_operators_guide_e_jets.pdf

KIV - VRN	https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi
KIV - BRU	http://www.team.aero/files/aviation_data/owners_n_operators_guide_e_jets.pdf https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://cargo.ukraine-international.com/poloz/UIA%20E190.pdf
KIV - WAW	https://www.flyradius.com/bombardier-q400/specifications-dimensions https://www.airinuit.com/en/fleet/bombardier-dash-8-cargo-300-series https://commercialaircraft.bombardier.com/content/dam/Websites/bca/literature/q400/BCA_5446_03_Q400_Factsheet_Update_EN_vF.pdf https://www.aacargo.com/ship/aircraft-compatibility.html http://www.team.aero/files/aviation_data/owners_n_operators_guide_e_jets.pdf https://freedownload.s3.amazonaws.com/Ejetsv2_Manual.pdf https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.embraercommercialjets.com/AircraftPDF/E170_Ground.pdf http://www.team.aero/files/aviation_data/owners_n_operators_guide_e_jets.pdf
KIV - DUB	https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf

*All links were accessed originally on June 4, 2018 and then again on June 15, 2018

Table 34. Airplane Flight Dimension Citations

Flight	Sources and Date Accessed*
A319	https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi
CRJ9	http://www2.bombardier.com/CRJ/en/specifications.jsp?langId=en&crjId=900 https://commercialaircraft.bombardier.com/content/dam/Websites/bca/literature/crj/BCA_5446_02_CRJ_Factsheet
DHC8	https://commercialaircraft.bombardier.com/content/dam/Websites/bca/literature/q400/BCA_5446_03_Q400_Factsheet_Update_EN_vF.pdf
E195	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf
ATR42	https://prijet.com/performance/ATR%2042-300 http://www.regourdaviation.com/en/flotte/atr-42-320/
A320	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.modernairliners.com/airbus-a320-introduction/airbus-a320-specs/ http://www.fly-car.de/local/media/formulare/airbusindustries.pdf
E190	http://www.team.aero/files/aviation_data/owners_n_operators_guide_e_jets.pdf https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://cargo.ukraine-international.com/poloz/UIA%20E190.pdf
ATR72	https://www.rocketroute.com/aircraft/atr-72-212
B737	https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi
B738	https://www.unitedcargo.com/shipping/productsAndShipping.jsp?name=Aircraft&type=Shippi

A321	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf https://www.jetblue.com/p/Maximum_Dimension_Guide.pdf https://www.precisionaircraft.com/a321/ https://www.iagcargo.com/en/page/fleet/airbus-a321 http://www.fly-car.de/local/media/formulare/airbusindustries.pdf
DH8D	https://www.flyradius.com/bombardier-q400/specifications-dimensions https://www.airinuit.com/en/fleet/bombardier-dash-8-cargo-300-series
E75L /E175	https://www.aacargo.com/ship/aircraft-compatibility.html http://www.team.aero/files/aviation_data/owners_n_operators_guide_e_jets.pdf https://freedownload.s3.amazonaws.com/Ejetsv2_Manual.pdf
E170	https://www.leisurecargo.com/fileadmin/documents/LC_Schedule_2015-Winter_2015-11_FINAL_AC.pdf http://www.embraercommercialjets.com/AircraftPDF/E170_Ground.pdf http://www.team.aero/files/aviation_data/owners_n_operators_guide_e_jets.pdf

*All links were accessed originally on June 4, 2018 and then again on June 15, 2018