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USAID UKRAINE
COMPETITIVE ECONOMY PROGRAM
Sector Selection Assessment Report

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DISCLAIMER: The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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LIST OF ACRONYMS

ACC	American Chamber of Commerce in Ukraine
BSO	Business Support Organizations
CAGR	Compound Annual Growth Rate
CEE	Central and Eastern European
CEP	Competitive Economy Program
Chemonics	Chemonics International
CIS	Commonwealth of Independent States
CMT	Cut, Make and Trim
CUTIS	Canada-Ukraine Trade and Investment Support
DCFTA	Deep and Comprehensive Free Trade Agreement
EAEU	Eurasian Economic Union
EBRD	European Bank of Reconstruction and Development
EEU	Eurasian Economic Union
EU	European Union
FAS	Foreign Agricultural Service
FSU	Former Soviet Union
GDP	Gross domestic product
GOU	Government of Ukraine
HORECA	Hotels, restaurants and catering
IBRD	International Bank for Reconstruction and Development
IT	Information Technology
ITC	International Trade Center
JAA	J.E. Austin Associates, Inc.
Kg	Kilogram
KII	Key informant interview
Kt	Kilotons
MAPF	Ministry of Agrarian Policy and Food of Ukraine
MT	Metric Tons
NBU	National Bank of Ukraine
NES	National Export Strategy
NFDM	Non-fat Dried Milk
NGO	Non-governmental organization
P.a.	Per annum
PB	Particle board
PDO	Protected Designation of Origin
R&D	Research and Development
RCA	Revealed Comparative Advantage
SME	Small and medium-sized enterprise
SSSU	State Statistics Service of Ukraine
TFA	Trade Facilitation Agreement
UAH	National currency of Ukraine (Hryvnia)
UCAB	Ukrainian Agribusiness Club

UHT	Ultra-high-temperature
USAID	United States Agency for International Development
USD	United States Dollar
USDA	United State Department of Agriculture
UVCA	Ukrainian Venture Capital & Private Equity Association
WBP	Wood-based panels
WNISEF	Western NIS Enterprise Fund
WTO	World Trade Organization
YOY	Year-on-year

EXECUTIVE SUMMARY

This report summarizes the findings, conclusions, and recommendations of a sector selection assessment carried out in Ukraine during December 2018 – February 2019. The purpose of the assessment is to assist the United States Agency for International Development (USAID)-funded Competitive Economy Program (CEP) team to select sectors for program support based upon the following criteria: 1) potential for sector growth; 2) potential for the sector to penetrate new export markets; 3) potential for the sector to generate new skilled employment opportunities; 4) potential for entrepreneurship and innovation within the sector; and 5) quality of the business enabling environment and regulatory framework associated with the sector.

BACKGROUND

CEP is a five-year economic growth program based in Ukraine with a period of performance from 2018-2023. The program will promote a strong, diverse, and open economy by enhancing the business environment for SMEs, improving competitiveness in key industries, and enabling Ukraine to benefit from free trade agreements. The objectives of CEP are to: 1) encourage startup businesses and SMEs; 2) increase domestic market competition; and 3) support the competitiveness of Ukrainian firms in domestic and international markets. To achieve these objectives, CEP will implement two categories of activities: 1) activities to increase the competitiveness of Ukrainian firms and promote a competitive economy; and 2) activities to encourage open and efficient trade. The expected results of CEP are: 1) SME friendly-business laws and regulations introduced; 2) Increase in SME sales in domestic, regional, and global markets; 3) New jobs created in selected industries; and 4) New investments in start-ups or business expansion.

METHODOLOGY

To implement this Sector Selection Assessment, CEP deployed a team comprised of specialist personnel, core CEP personnel, and a Ukrainian-consulting firm. The team implemented the assessment in three phases:

1. **Phase 1 – Sector Shortlisting,** through analysis of secondary data related to a long list of potential sectors composed of Ukraine's top 20 export product groups in 2017, representing 85.7% of the country's total exports of goods. This data was analyzed in terms of factors such as achievable growth in domestic and export markets, investment opportunity, in-country value addition, employment opportunity and other factors, to produce a shortlist of five sectors most likely to meet the criteria for selection.
2. **Phase 2 – Sector Assessment.** Building on secondary research and including primary research through site visits and interviews with companies in each of the short-listed sectors, industry associations, GOU agencies and knowledgeable experts; as well as a survey of 100 companies, the team developed a selection score employing a forced ranking scale based on the assessment criteria.
3. **Phase 3 – Validation and Work planning** engaging sector business leaders, association representatives and other stakeholders to inclusively identify strategic

objectives and priorities and plan the implementation. These work plans are due within 45 days of the final approval of the selected subsectors/value chains by USAID.

CONCLUSIONS

Based on the analysis outlined in Phase 1 (Sector Shortlisting), the team identified the following sectors for primary research in Phase 2 (Sector Assessment): apparel and footwear; dairy processing; fruit and vegetable processing; IT services; and wood products and furniture manufacture. Subsequent primary research during the second phase resulted in the prioritization of IT digital products and services, as well as food processing (combining fruits and vegetables and dairy processing), and wood products and furniture manufacture.

Table 1: Comparative Sector Selection Scoring by Criteria

CRITERIA	Weight (%)	Dairy Processing	Fruit/Veg Processing	IT products and Services	Wood and Furniture	Apparel and Footwear
Sector Growth Potential	0.25	0.12	0.15	0.19	0.16	0.12
Sector Potential for Export Market Penetration	0.25	0.14	0.14	0.20	0.14	0.09
Sector Job Creation Potential	0.20	0.10	0.14	0.14	0.10	0.10
Sector Potential for Entrepreneurship and Innovation	0.20	0.10	0.10	0.14	0.11	0.09
Business Enabling Environment and Regulatory Framework	0.10	0.07	0.07	0.08	0.04	0.04
Total Weighted Score	1.00	0.53	0.59	0.75	0.54	0.43

Apparel and Footwear: Despite the country's close proximity to EU markets, the Ukrainian apparel and footwear sector has limited medium-term growth potential due to adverse structural factors that impede the country's competitiveness vis-à-vis current international leaders in mass production (CMT or full package), and performance in the fashion market. The domestic market for low cost goods is highly competitive, and includes "second-hand" clothes and imports, thereby limiting opportunities for domestic producers.

Cost competitive CMT labor supply is constrained by rising domestic salaries as well as out-migration of unskilled workers. The mass production subsector will continue to face intense competition from Bangladesh, China and other low-cost global production hubs, and will also have difficulty in harnessing its comparative advantage of proximity to EU markets. Limitations related to sourcing of inputs, logistics and infrastructure, political uncertainty, and customs operations all present challenges. An important hurdle is the sector's reliance on imported raw materials and components, which makes producers susceptible to logistics delays and currency fluctuations. Although a design and fashion component is emerging in Ukraine, this sub-sector

remains limited in scope and is unlikely to generate significant employment or investment in the near future.

Dairy Processing: Recent years have been challenging for the Ukrainian dairy sector. The closure of the Russian market in 2014 has resulted in oversupply of milk in domestic markets and subsequent lower prices, which, coupled with rising input costs, has undermined the profitability of milk production. As a result, large processors have reduced investments into quality development for small-scale and household farm production, where 77% of milk is sourced, and quality and phyto-sanitary issues remain a challenge. However, dairy processing remains a vital and pervasive component of the economy and rising domestic demand for higher quality and specialized products, as well as exports to the EU opened under the DCFTA, present substantial value-added opportunities for the sector.

Furthermore, in recent years, emerging Ukrainian cheese makers are turning out an exciting range of new products, ranging from traditional varieties to non-Ukrainian types. Likewise, the country is home to a vibrant emerging craft sub-sector, which may generate interest from specialty importers in the EU and USA. Emerging products also include an extensive list of specialty fermented milk products, including kefirs and traditional yoghurts, which can supply growing 'niche' markets.

Fruit and Vegetable Processing: The fruit and vegetables processing sector offers significant opportunities for achieving trade success and competitiveness with differentiated, higher value added products. Favorable agro-ecological conditions ensure the availability of a wide assortment of domestic fruits and vegetables that provide raw materials to a diversified processing sector. A domestic market that is both growing in size and sophistication, as well as new export opportunities opened under the DCFTA, have generated a sense of optimism amongst stakeholders.

Realizing the sector's potential will be inhibited by the challenging financial landscape, and constrained export opportunities to the vast and segmented EU markets due to poor harmonization of product certification and standards regimes, and value chain operations that do not meet EU requirements. Realizing the full potential of the entire sector will require upgrading obsolescent infrastructure and logistics, instilling enhanced management and marketing skills, and demonstrating the viability of innovative new business models.

IT: Digital Products and Services: The availability of a highly qualified and cost competitive labor force has underpinned the emergence of Ukraine as a key provider of IT-related services, and the sector is growing fast in terms of employment, complexity and value-added, as well as in development of new applications and products, and digitally enabled technologies. Besides formal universities that provide STEM education, there are many, and increasing numbers of non-degree opportunities for the aspiring IT workforce.

The sector is currently dominated by outsourcing and heavily dependent on the U.S. market. Digitally enabled product development is currently limited. Many companies base head offices abroad, partly due to the unfavorable prevailing regulatory and legal environment, especially with regard to concerns with IPR protection. The domestic market for IT services and uptake of IT-

enabled operations is undeveloped. There is potential to apply IT-based solutions to many sectors of the economy. Finally, the sector struggles with the availability of skilled specialists, skilled managers and adoption of innovative business models.

Wood products and furniture manufacture: The wood and furniture sector is characterized by low domestic market concentration and is comprised predominantly of SMEs. Although there is an abundance of domestic raw materials, including high-demand hardwoods, there is a state monopoly on forest trees that complicates access to raw material resources. The domestic market is currently filled with cheap and low-quality products, often imported from China.

At the same time, there is growing opportunity on the domestic market associated with the construction boom in residential apartments and improvements in incomes and economic stability may unlock deferred demand. Export opportunities for Ukrainian furniture are currently limited due to inadequate logistics, poor managerial skills, and lack of promotion. There is opportunity to develop the design elements of Ukrainian product lines, and to establish forward relationships with buyers and brands in the EU. Several foreign firms already operate in Ukraine, indicating the opportunity and potential profitability of export orientation. The sector's main hurdle is a negative reputation associated with illegal logging and non-respect of FSC certifications – issues that CEP's approach must deal with by working with and expanding the footprint of responsible companies.

RECOMMENDATIONS

The main recommendations of the assessment team are as follows:

1. **Focus on IT – digital products and services:** Given the high potential for growth and export market penetration, as well as entrepreneurship and innovation, CEP should include sector focus on the IT services sector. CEP's work in this sector would emphasize helping the sector to establish the conditions to enable it to grow and to increase its complexity and value added – in areas such as higher-value outsourcing services, digitally enabled technology, industry applications, and IT-based business services. In order to leverage these growth opportunities, activities related to the IT sector should focus on improving management and marketing skills and introducing new business models, facilitating startups, seeking synergies with other sectors in Ukraine, and promoting uptake of IT solutions by domestic enterprises.

   Focus on Food processing: CEP should address the food processing sector broadly, focusing on higher value-added products (esp. secondary and specialty products), which can be marketed to an increasingly discerning domestic market, as well as into demanding EU and other export markets. While fruit and vegetables are a core of this sector, there are strong opportunities and champions in dairy as well, and possibly meat products and others. The combined sector offers high potential for growth, export market penetration, and entrepreneurship and innovation. The prevalence of this sector across the county can facilitate significant economic impact for a broad cross section of the population. The

assessment found many crosscutting opportunities and constraints to be dealt with across all segments of the food processing sector, including financing constraints on capital asset acquisitions required for expansion and improvement, opportunities for business model innovations, including supply chain partnership between larger existing processors and emerging high-quality foods manufacturers, and management and marketing skills upgrades. CEP's focus on food processing should be closely coordinated with ARDS, to ensure complementarity and synergy.

2. **Focus on Wood products and furniture manufacture:** CEP focus on the wood processing and furniture manufacturing sector will also respond to strong potential for growth, export market penetration, domestic investment and FDI, and entrepreneurship and design innovation. The sector is burdened by the reputation and fact of illegal logging and non-respect of FSC standards. CEP has opportunity to work with responsible businesses to develop design-led product lines, and to promote these products domestically and through export market channels. There are many opportunities for horizontal B2B collaborations. The industry can also build on the interest of EU brands to extend their supply base and access a lower-cost manufacturing base. These responsible entry points can then be extended to build greater respect for certifications and legal behavior.

3. **Prioritize operational efficiency in geographic targeting:** IT clusters are centered on a number of major cities, while food processing is ubiquitous across the entire country. Furniture manufacture is concentrated in Western Ukraine and around Kyiv. A national approach to working with the sectors is unrealistic given the size of the country. Operational efficiency and synergies can be achieved by selecting sites in several poles where multiple selected sectors are represented.

4. **Local Opportunities in other Sectors:** An advantage of the regional focus will be that CEP will be able to engage intimately with businesses and planners and promoters in individual regions; to recognize opportunities in other sectors. With presence in the location, CEP can support these opportunities. CEP could for example, consider opportunities to promote tourism in Western Ukraine or Odessa, including sector-related tourism like agro-tourism related to Carpathian regional specializations, and Odessa, where 'Bessarabian' specializations are prominent.

5. **Building Ecosystems:** During field research, respondents frequently expressed interest in start-up ecosystems development. Ecosystems development is best known in IT and digitally-enabled Technology, but also offers potential for other sectors. Strong ecosystems result from the presence of effective incubators and accelerators, academic institutions that provide relevant graduates and learning opportunities as well as technology commercialization, supportive local administration, and linkages to early stage finance. While this approach currently exists in Ukraine, none of the existing eco-systems are 'world class' and they are often undermined by poor linkages between skills providers and universities and businesses. As a strong local actor, CEP can help to develop Ukrainian ecosystems.

6. **Creative Industries:** Creative industries are a diverse and fragmented group of economic activities, but with a commonality of innovation and imagination, even of artistic nature. Creative industries as a sector, or individual subsectors, were not of a size or nature to stand on their own as a focus sector for CEP. But it is evident that the competitiveness solutions for each sector will require the services of creative businesses (e.g.: digital media, advertising and promotion, branding), and elements of the recommended focus sectors (e.g.: graphics and other digital-enabled media, craft and traditional foods) are themselves creatives.

7. **Emerging Industries:** Another point of attention for the assessment was to identify and consider opportunities to work with emerging industries. Other than IT and digitally-enabled businesses, no emerging industry has reached a scale in Ukraine that enable CEP to consider it to be a focus sector. Yet many novel startups are being created and many are growing, and many synergies between IT and technologies are emerging. There is good basis for considering engineering services and possibly some elements of manufacturing as a growth opportunity, but the entry points are unclear, and scale is insufficient for CEP as a primary focus sector.

   There is clearly opportunity for Ukraine in the smaller, more fragmented businesses and business models, however – particularly in engineering-based technology and manufacturing sectors. These will often have linkages with digital technologies. We recommend that CEP consider project strategies for working with such businesses or collections of businesses, possibly in defined locations but also possibly across several industry sectors. Such approaches could perhaps harness enterprise development methodologies, target shared constraints and needs, promote productivity improvements and improved business models. CEP could investigate these opportunities in depth over the next several months, particularly as the project commences operations in specific geographies.

8. **Recommended Next Steps:** We recommend that Phase 3 constitute the major first part of engagement and implementation with the sector businesses. The recommended next steps are the following:

   1. Between Phases 2 and 3, **identify and vet convening organizations** for each sector and location
   2. Individual preparatory meetings and **2-3 workshops** with business and others sector actors:
      a. **Validate the findings and conclusions** of the Phase 2 sector assessments
      b. Help stakeholders to **target specific strategic objectives**
      c. Stakeholders and CEP **identify and commit to actions to achieve quick wins**
      d. Begin to create **working groups**
      e. **Identify data and information** needed to help define and implement strategies and action plans.

3. Prepare strategic workplans inclusively with the sector actors. Strategic objectives, main elements of strategy, what stakeholders commit to do, how CEP will help.

1. OVERVIEW

This report presents the findings, conclusions and recommendations of the Sector Selection Assessment implemented in support of the Competitive Economy Program (CEP) in Ukraine. This section provides a background and description of CEP, and explains the purpose and criteria of this assessment (see **Annex 1: Scope of Work**).

1.1 PROGRAM DESCRIPTION

CEP is a five-year economic growth program funded by the United States Agency for International Development (USAID) and implemented by Chemonics International (Chemonics), J.E. Austin Associates, Inc. (JAA) and the Berman Group in Ukraine from October 16, 2018 to October 15, 2023. CEP will promote a strong, diverse, and open economy by enhancing the business environment for SMEs, improving competitiveness in key industries, and enabling Ukraine to benefit from free trade agreements. The project will increase market opportunities and competition, catalyzing broad-based economic growth. The objectives of CEP are to: 1) encourage startup businesses and SMEs; 2) increase domestic market competition; and 3) support the competitiveness of Ukrainian firms in domestic and international markets.

To achieve these objectives, CEP is comprised of activity areas falling into two categories:

1. Activities that increase the competitiveness of Ukrainian firms and promote a competitive economy, including activities to improve the business climate, including promoting increased competition in domestic markets; assist new industries and SMEs to develop and compete in markets abroad; and develop export promotion capacity in the GOU.
2. Activities that encourage open and efficient trade, including activities to enhance GOU participation in the World Trade Organization (WTO) and assist the GOU to achieve compliance with WTO and with the European Union (EU)/Ukraine Deep and Comprehensive Free Trade Area (DCFTA) requirements; and help lower the cost of trading across Ukraine's borders.

The expected results of CEP in Ukraine are: 1) SME friendly-business laws and regulations introduced; 2) Increase in SME sales in domestic, regional, and global markets; 3) New jobs created in selected industries; and 4) New investments in start-ups or business expansion.

1.2 ASSESSMENT PURPOSE AND CRITERIA

The purpose of this Sector Selection Assessment is to assist the CEP project team in making the best selection possible of two sectors in Ukraine for initial support, as well as to suggest a third sector for support beginning in Year 2. CEP will specifically focus support on new or emerging industries within the selected sectors. The selection of the sectors is based upon the following five criteria:

1. Potential for sector growth;
2. Potential for the sector to penetrate new export markets;

3. Potential for the sector to generate new skilled employment opportunities;
4. Potential for entrepreneurship and innovation within the sector; and
5. The business enabling environment and regulatory framework associated with the sector.

In order to develop robust recommendations, the sector assessment team also evaluated other factors, which included the potential for female participation and empowerment in each sector, and the potential to engage youth, as well as the regional focus of the sectors assessed within Ukraine (see **Annex 2: Sector Selection Scoring Matrix**).

2. METHODOLOGY

To implement this Sector Selection Assessment, CEP deployed a team comprised of specialist personnel from JAA, core CEP personnel, and a Ukrainian consulting firm, Civitta.

The team consisted of the Team Leader/Value Chain Selection Advisor, Competitiveness and Industry Analysis Advisor, Sector Selection Expert, and Sector Selection and Policy Analysis Expert (see **Annex 1: Scope of Work**). Permanent CEP staff led the information collection and assessment of specific sectors. Civitta, a management research and consulting firm represented in Ukraine, supported the team with logistics and research operations, including initiating and scheduling contacts with entities to interview over the course of this assessment. Civitta was chosen for this role through a competitive tender process.

2.1 ASSESSMENT PHASES

The team implemented this assessment in two consecutive phases, from December 2018 through February 2019. Following the approval of this Sector Selection Assessment report, the team will implement a third phase, planned for February-March 2019. These phases include:

- **Phase 1 – Sector Shortlisting:** During phase one, the team collected data from secondary sources on a long list of potential sectors. Data included size/scale of production, Ukraine and global exports and imports, revealed comparative advantage (RCAs), job trends, and policy barriers. These data were analyzed to produce a shortlist of five sectors most likely to meet the criteria for selection.

- **Phase 2 – Sector Assessment:** During this phase, the team carried out deeper assessment of sectors shortlisted in the Phase 1, with the purpose of identifying the 2-3 priority sectors. Building initially on secondary research, this assessment included visiting selected locations to interview industry stakeholder, including companies, industry associations and local and GOU agencies in each of the short-listed sectors, in order to develop deeper understanding of the sectors and the emerging industries with potential meet the selection criteria in these regions. The team also applied SWOT analysis and Competitiveness Diamond analysis to identify binding constraints and promising areas of action.

- **Phase 3 – Validation and Work planning:** The third phase will engage sector business leaders, association representatives and other stakeholders to validate the findings and conclusions from Phase 2, and to inclusively identify strategic priorities and plan the implementation. During this phase, the team will confirm analyses and conclusions with stakeholders in the selected priority industry subsectors/industries. Simultaneously, through a facilitative participatory approach, the team will work with stakeholders in the selected sector to develop work plans and ensure commitment from a core group of companies for implementation. These work plans are due within 45 days of the final approval of the selected subsectors/value chains by USAID.

2.2 DATA COLLECTION

Throughout this assessment, the team employed a mixed methodology approach to gather information, incorporating secondary data review and qualitative data collection methods, including key informant interviews (KIIs), site visits and observations, and an online survey. The team also drew on extensive previous regional experience with sector selection assessments in similar countries in Eastern Europe, the Former Soviet Union (FSU) and other regions.

DATA REVIEW

The team collected and reviewed published data related to the sectors of the Ukrainian economy, including:

- State Statistics Service of Ukraine (size/scale of production, turnover, employment, and investments),
- International Trade Centre (Ukraine and global exports and imports, RCAs, average distance and concentration of importing countries, and estimation of untapped potential trade),
- Ukrainian Intellectual Property Institute (number of applications for patents and utility models),
- Official websites of Ukrainian government and EU bodies (EU duty and Quotas under the DCFTA).

Data and document review were used to inform Phase 1 – Sector Shortlisting, as well as planning and to provide background and context for probing questions associated with the KIIs throughout Phase 2 – Sector Assessment. All documents utilized in support of this Sector Selection Assessment report are cited in footnotes and included in an annex (see **Annex 3: Selected Bibliography and References**).

KEY INFORMANT INTERVIEWS (KIIS)

KIIs included 1) leadership and senior personnel from many companies, 2) informants from industry associations and government agencies, and 3) other experts. The team selected KII participants purposely based on consultations with industry experts and other project implementing staff. The team conducted more than 115 KIIs during the course of this assessment, (see **Annex 4: Key Informant Interview Contacts**). KIIs were conducted at 11 locations throughout Ukraine, reflecting the geographic spread of the shortlisted sectors.

KIIs consisted of in-depth, semi-structured interviews using discreet interview guides for each level of informant (see **Annex 5: Interview Guide – Agencies and Associations** and **Annex 6: Interview Guide – Companies**). The purpose of the KIIs was to probe information gained through secondary data collection and to develop deeper insight into the challenges and opportunities associated with each short-listed sector, especially understanding of emerging opportunities and industries within the sector.

Figure 1: Interview Sites

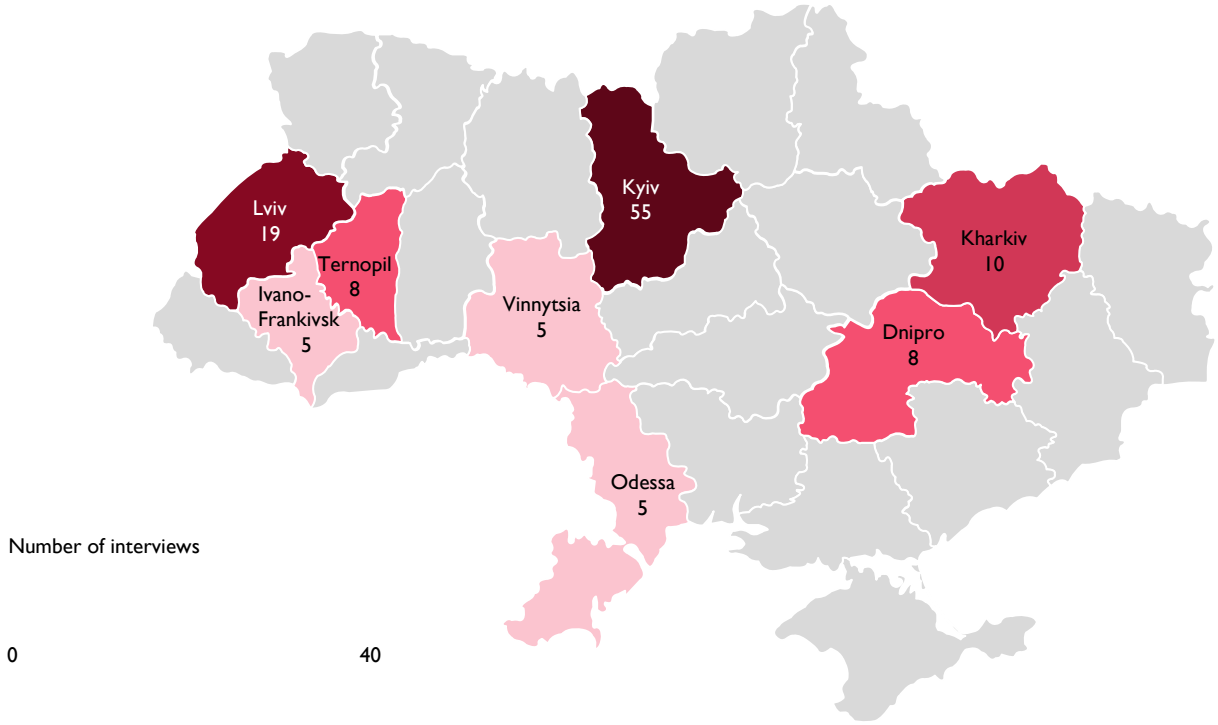


Table 2: Interviews by Location and Stakeholder Group

LOCATION	NO.
Central Ukraine	60
Kyiv	55
Vinnitsya	5
Western Ukraine	32
Lviv	19
Ivano-Frankivsk	5
Ternopil	8
South-Eastern Ukraine	23
Odessa	5
Kharkiv	10
Dnipro	8
Grand Total	**115**

STAKEHOLDER	NO.
Agencies and Associations	38
Companies	
Food and Dairy Processing	24
Outsourcing/IT services	22
Wood processing and furniture	10
Apparel and footwear	12
Other sectors	9
Total	**115**

SITE VISITS AND OBSERVATIONS

Over the course of conducting KIIs, the team also conducted site visits in order to observe prevailing conditions at company facilities firsthand. Site visits included dairy and meat processing plants, furniture manufacturing facilities, information technology (IT) work places, design studios and clothing manufacturing plants, and other types of facilities.

COMPANY SURVEY

In addition, during Phase 2 of this assessment the team deployed an online survey of a purposely selected representative sample of Ukrainian companies operating in the selected sectors. The survey used forced ranking (Likert scale) formatted questions to produce graphic representations of 19 key indicators related to the short-listed sectors (see **Annex 7: Survey Guide**). 100 companies replied to the survey.

2.3 DATA ANALYSIS

The team assessed collected data in real time throughout the KIIs, while survey data was analyzed on an ongoing basis in order to inform probing questions during interviews. While the team conducted preliminary data analysis throughout the field research, intensive data analysis began on January 15 and continued until submission of the Draft Sector Selection Report on February 15, 2019.

It should be noted that official statistics tend to present incomplete data in many respects. Official statistics do not capture full information about companies and their operations that operate informally or in the "shadow". Similarly, employment data is often incomplete, as many workers are engaged as individuals and not as employees, to avoid tax burden. As appropriate, we have attempted to note these inconsistencies in the report, and to use other data or estimates to round out the picture.

Following synthesis of data, the team scored each sector in order to develop conclusions based on the weighted criteria and sub-criteria. Criteria were weighted as follows:

1. Potential for sector growth (25%);
2. Potential for the sector to penetrate new export markets (25%);
3. Potential for the sector to generate new skilled employment opportunities (20%);
4. Potential for entrepreneurship and innovation within the sector (20%); and
5. The business enabling environment and regulatory framework associated with the sector (10%).

Sub-criteria scoring employed a forced ranking scale based on the strength of anticipated performance with five potential options according to the following key: Very low = 10%; Low = 30%; Medium = 50%; High = 70%; Very high = 90% (see **Annex 2: Sector Selection Scoring Matrix**). Subsequently, the team used comparative aggregated scoring to develop sector selection recommendations, and also used conclusions drawn from qualitative findings to

generate recommendations related to emerging and innovative industries within sectors for CEP focus.

3. SECTOR SHORTLISTING

Initially, the team created a list of potential sectors, composed of Ukraine's top 20 export product groups in 2017, which together represent 85.7% of the country's total exports of goods. The list was informed and augmented through a review of recent industry assessments, as well as government priorities such as MEDT's Export Strategy 2017-2021 and Ukraine's Invest documents. The initial list was prioritized by those sectors where both Ukraine export growth and world market growth were higher than average in the most recent five years. The sector list was further refined and finalized during the team's first visit to Ukraine on December of 2018, where the team conducted initial rounds of interviews with key stakeholders, including public and private sector leaders, USAID, as well as other donors.

These 12 prioritized sectors (referred in the report as the long list of industries) includes animal and vegetable fats and oils, IT/digital products and services, wood processing and furniture, apparel and footwear, dairy, honey, light manufacturing, meat, sugars/confectionery, tourism, processed fruits and vegetables, and machinery and mechanical appliances (for the Phase I analyses of the 12 sectors see **Annex 8: Initial Sector Analyses**).

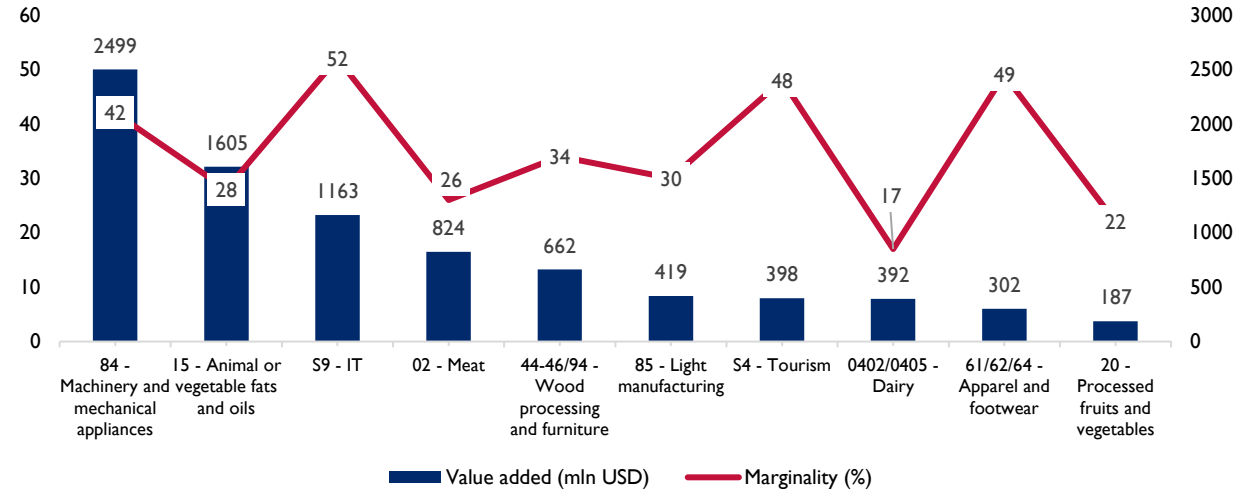
3.1 GENERAL OVERVIEW AND TRENDS

To compare and assess the 12 Ukrainian sectors, the following indicators were considered: Market performance (value added, production, and value added margin), Employment and productivity trends (number of jobs, estimation of informal employment, average income and value added per employee), Engagement of SMEs (employment by the size of enterprise and economic activity), Export trends (export value, top export groups, RCAs, and share in world exports), Investment (FDI stock), and Innovations (number of application for patents and utility models).

The machinery and mechanical appliances industry generate the largest value added (US$2.5 billion) among the 12 sectors. It constitutes 3.2% of the total value added in Ukraine in 2017. The sector is followed by animal or vegetable fats and oils sector and IT services, with US$1.6 billion (2% of total value added) and 1.2 billion (0.9% of total value added), respectively.

On the other hand, higher value-added potential is observed in IT services, apparel and footwear, and tourism, these sectors show the highest value-added margins (value added as a percentage of production value), at 52%, 49%, and 48%, respectively (see **Figure 2**).

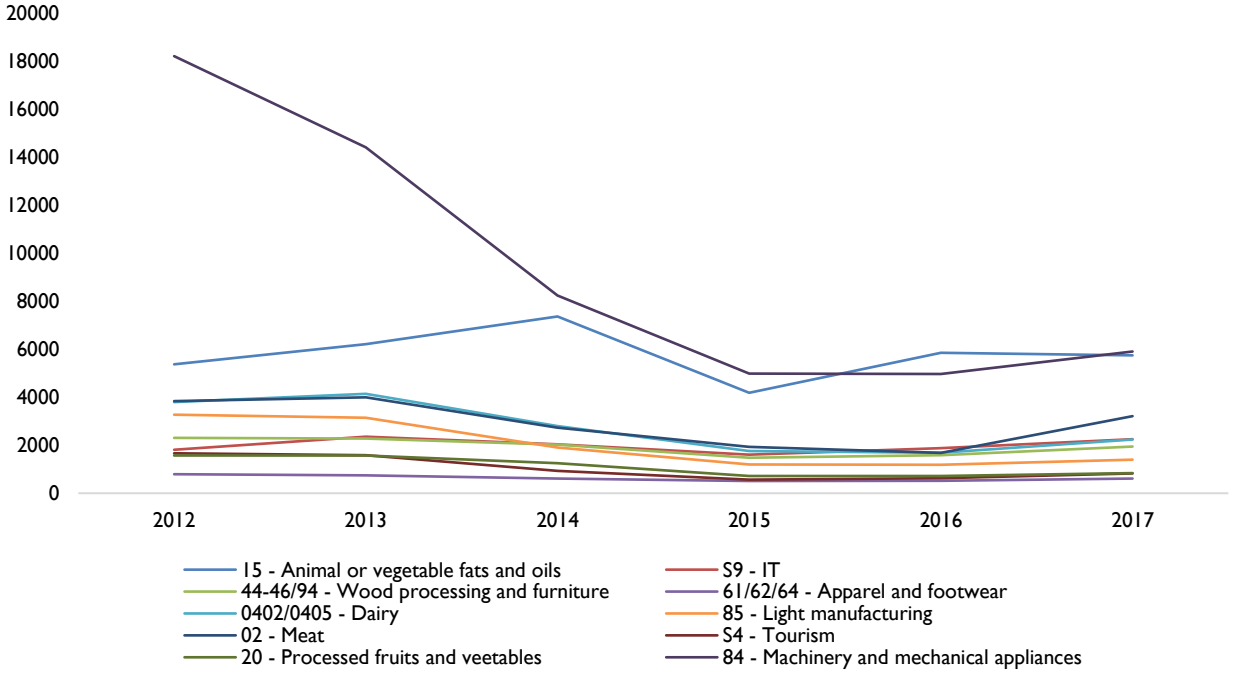
Figure 2: 2017 Value Added and Value-Added Margins of Selected Sectors (US$ million)



Source: State Statistics Service of Ukraine

All sectors have experienced decline in production value between 2014 and 2015, due to the conflict in Eastern Ukraine. The largest sector by this metric in 2012, machinery and mechanical appliances, fell by two-thirds from 2012-2017. By 2017, this sector was almost at the same production value level as the animal or vegetable fats and oils sector. In 2016-2017, most sectors and industries demonstrate slow recovery, most notable of which is IT (see **Figure 3**).

Figure 3: 2012-2017 Production Value (US$ million)

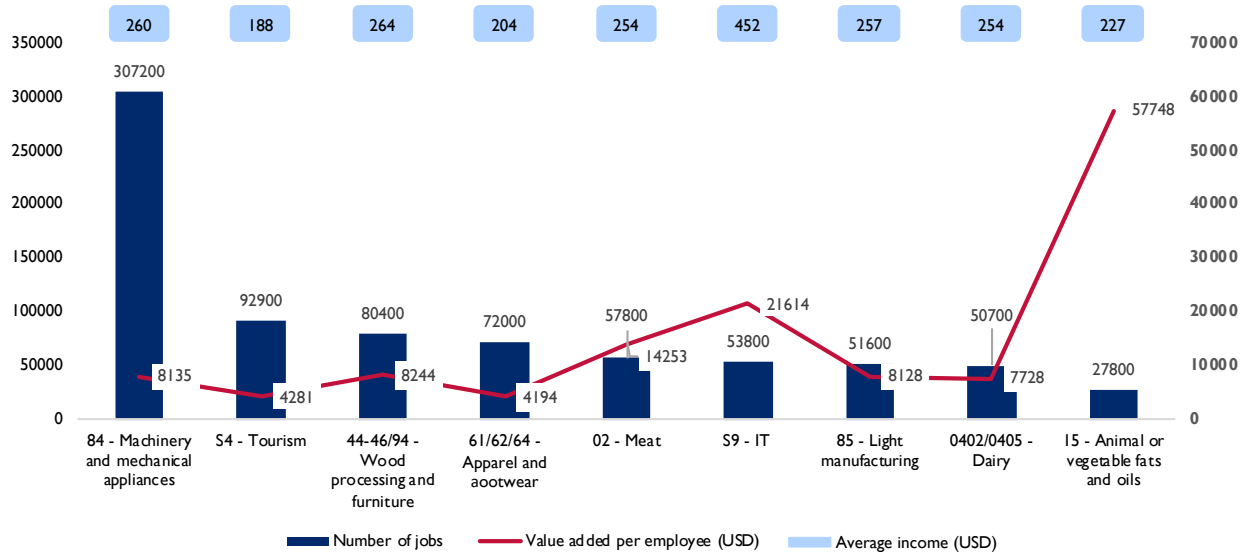


Source: State Statistics Service of Ukraine

Employing 307,200 people (official numbers), machinery and mechanical appliances accounts for the largest number of jobs in Ukraine (5.2% of the total). According to official statistics, the number of jobs in other industries does not exceed the 100,000-threshold. However, the largest average per-employee income is observed in the IT industry (US$452 per month), which is 1.7 times higher than the country average income (US$267 per month).

Productivity, measured as value added per employee on an annual basis, differs widely across the sectors and cannot be measured accurately given the weakness in official statistics. The highest productivity in 2017 is observed in Animal or vegetable fats and oils (US$57,748), IT services (US$21,614), and Meat (US$14,253) sectors; while apparel and footwear industry has the lowest annual value added per employee at US$4,194 (see **Figure 4**).

Figure 4: 2017 Jobs, Average Income and Value added per Employee (US$)

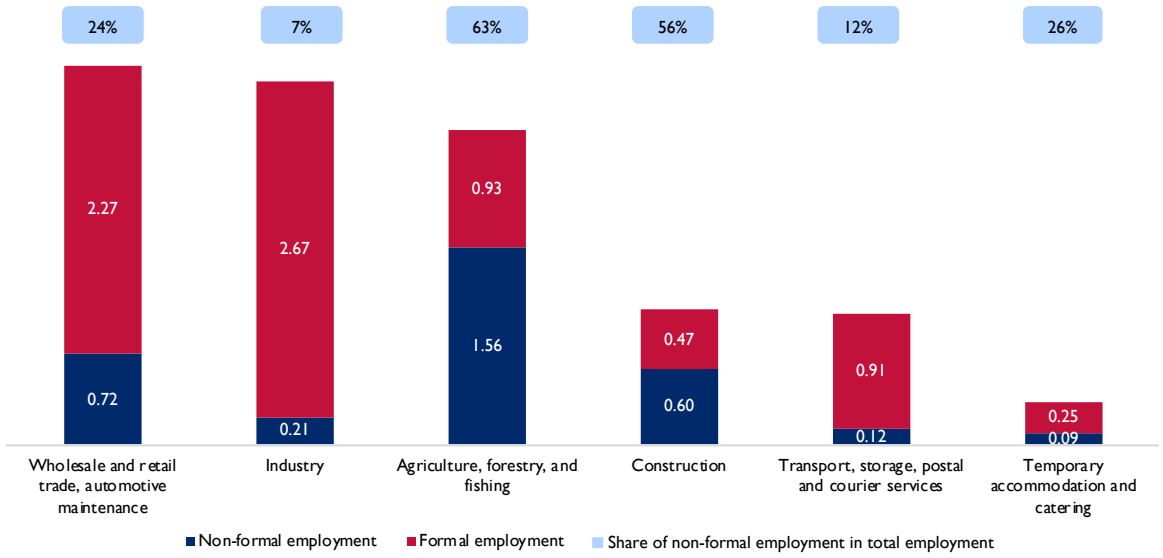


Source: State Statistics Service of Ukraine

As the shadow economy is substantial in Ukraine, the official number (of jobs, numbers of companies, sales, etc.) can be misleading. For instance, according to the SSSU, 23% of working population in Ukraine were employed informally in 2017. However, the Undeclared Work Survey done in Ukraine estimates that this number may be even higher- in a range of 30% to 46%[1]. In terms of informal employment by industry, the most "informal" industries are Agriculture, forestry, and fishing (63% of workers are "informal"), Construction (56%), and Temporary accommodation and catering (26%) (see **Figure 5**).

[1] O. Nezhyvenko; S. Shumska "*Ukrainian Undeclared Work Survey: First Findings*" National University of Kyiv-Mohyla Academy, 2017

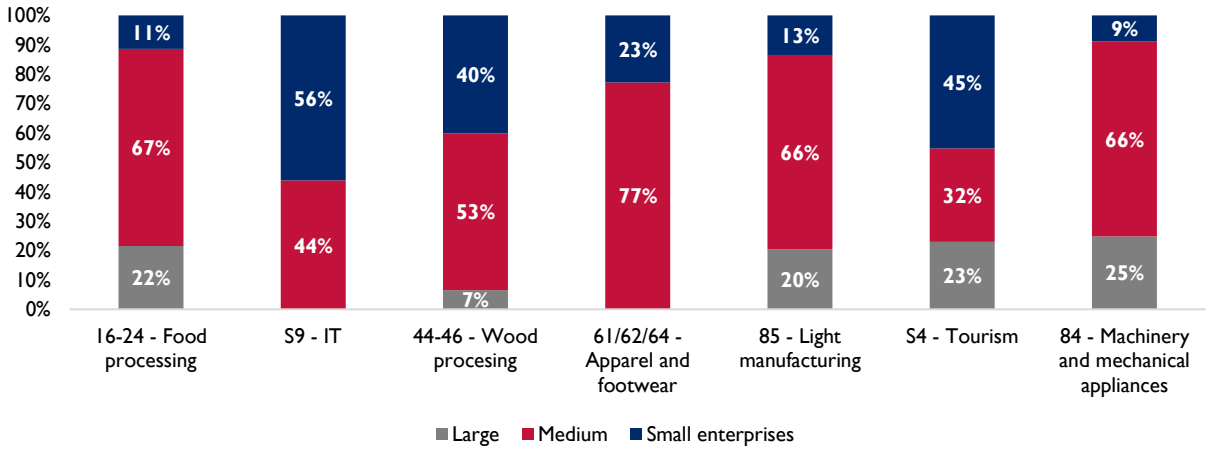
Figure 5: Formal and Non-Formal Employment by Industry 2017 (US$ million)



Source: State Statistics Service of Ukraine, National University of Kyiv-Mohyla Academy

Measured by employment numbers, the percentage employed by SMEs is large in most sectors (see **Figure 6**). Notably, the employment share in SMEs in the IT services and apparel and footwear is 100% (official).

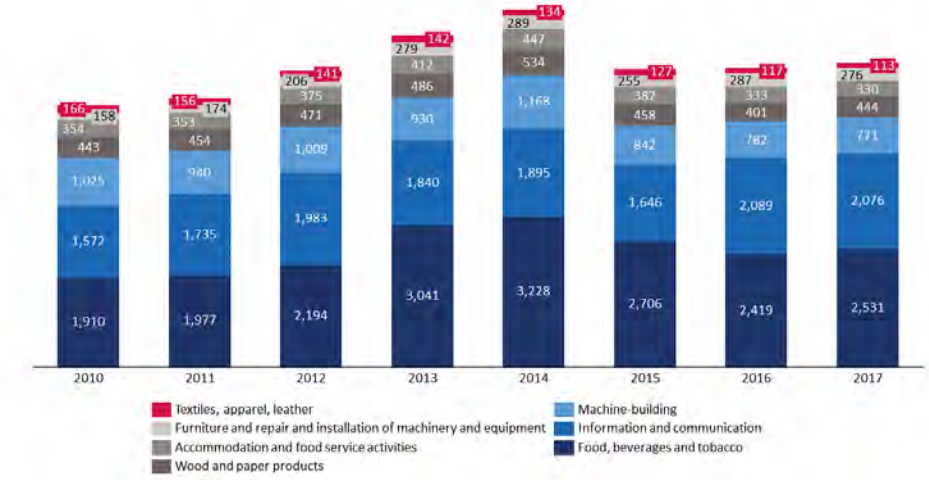
Figure 6: Employment by of Enterprise Size



Source: State Statistics Service of Ukraine

In recent years, the Food, beverages, and tobacco and IT sectors have the highest FDI stock (see **Figure 7**). In 2017, the FDI stock for the food, beverages and tobacco sector was valued at US$2.5 billion (7.1% of total, with annual growth rate in 2013-2017 of -4.5%); and the IT sectors was valued at US$2.1 billion (6% of total FDI stock, with annual growth rate in 2013-2017 of 3.1%).

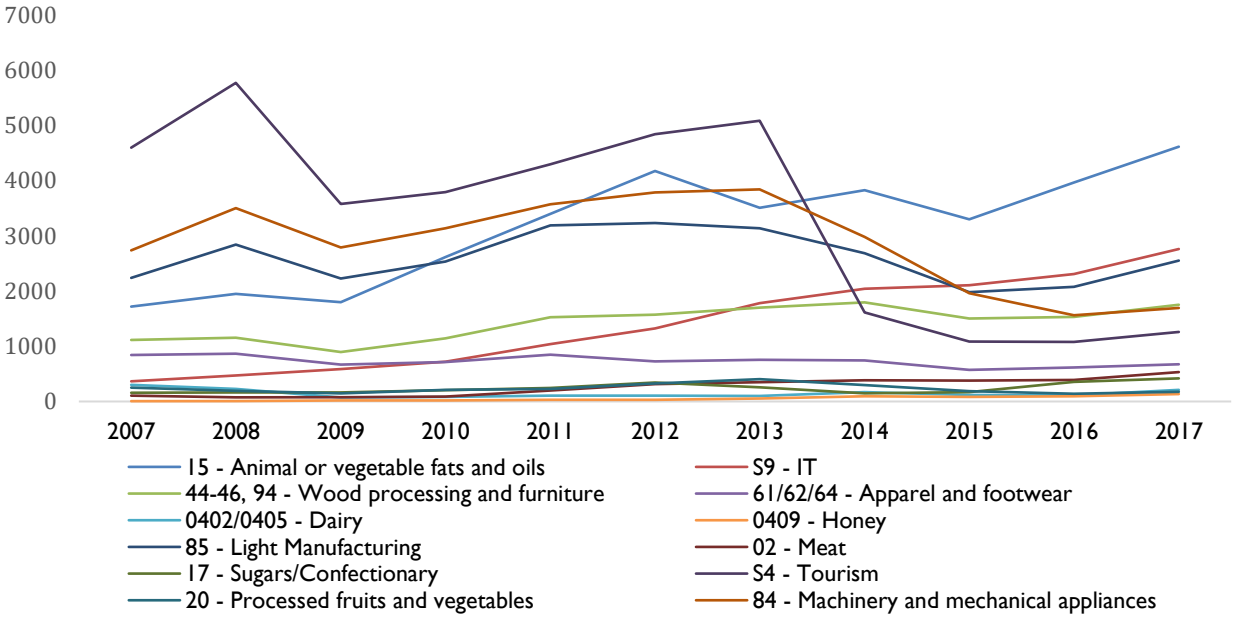
Figure 7: Ukraine FDI Stock 2010-2017 (US$ million)



Source: State Statistics Service of Ukraine

The animal or vegetable fats and oils sector accounted for the largest export value among the analyzed sectors and industries in 2017, reaching US$4.6 billion (8.0% of total Ukrainian exports), with a positive growth trend in the most recent five years (7.1% p.a.). IT services reached US$2.8 billion, with a higher annual growth in the same period (11.6% p.a.). On the other hand, the largest decline within the last decade is observed in the tourism industry (see **Figure 8**).

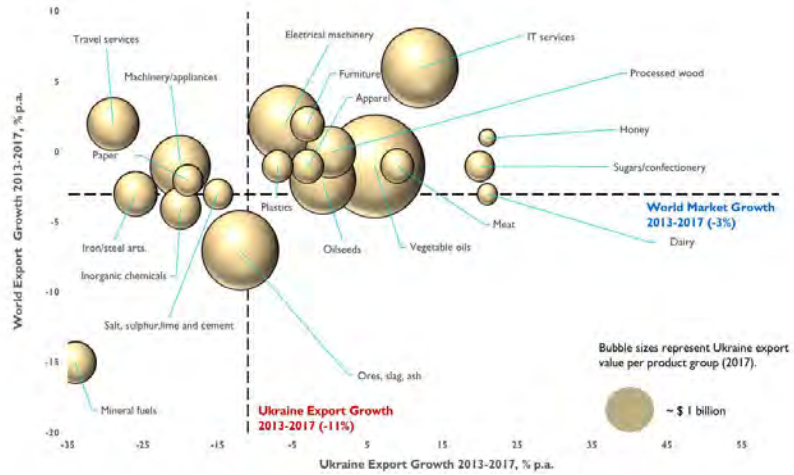
Figure 8: Ukraine Export 2007-2017 (US$ million)



Source: State Statistics Service of Ukraine, International Trade Center

In the most recent five years (2013-2017), the most dynamic export segments of the Ukrainian economy are honey, sugars/confectionary products and dairy each demonstrating over 15% p.a of export growth in 2013-2017 (see **Figure 9**).

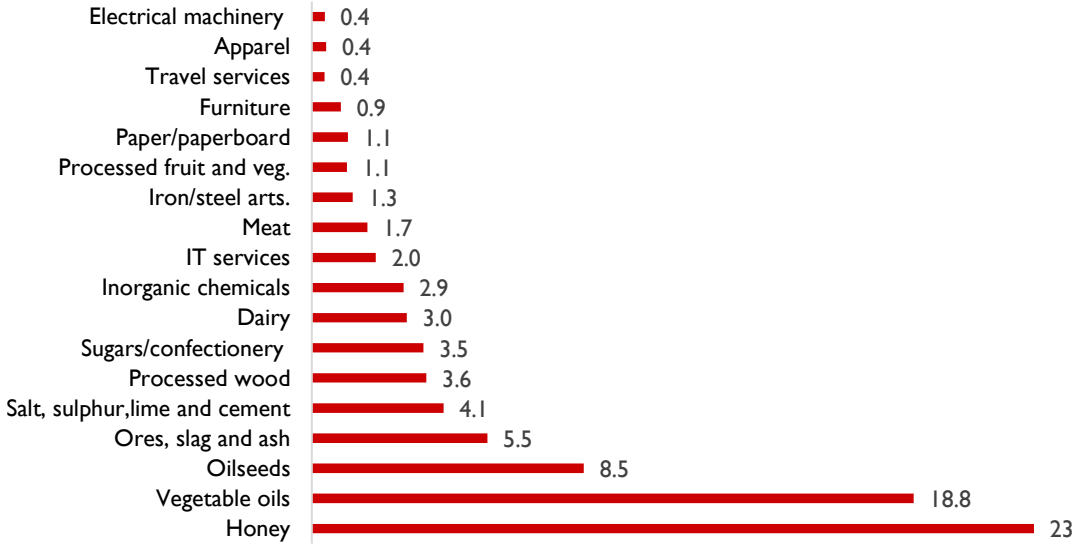
Figure 9: Top Ukrainian Exports



Source: International Trade Center

The export sector in Ukraine exhibiting the highest comparative advantage, as measured by its revealed comparative advantage (RCA)[2], is honey (RCA value equal to 23). Vegetable oil and oilseeds follow with RCA values equaling 18 and 9, respectively (see **Figure 10**).

Figure 10: Revealed Comparative Advantage of Ukrainian Exports in 2017

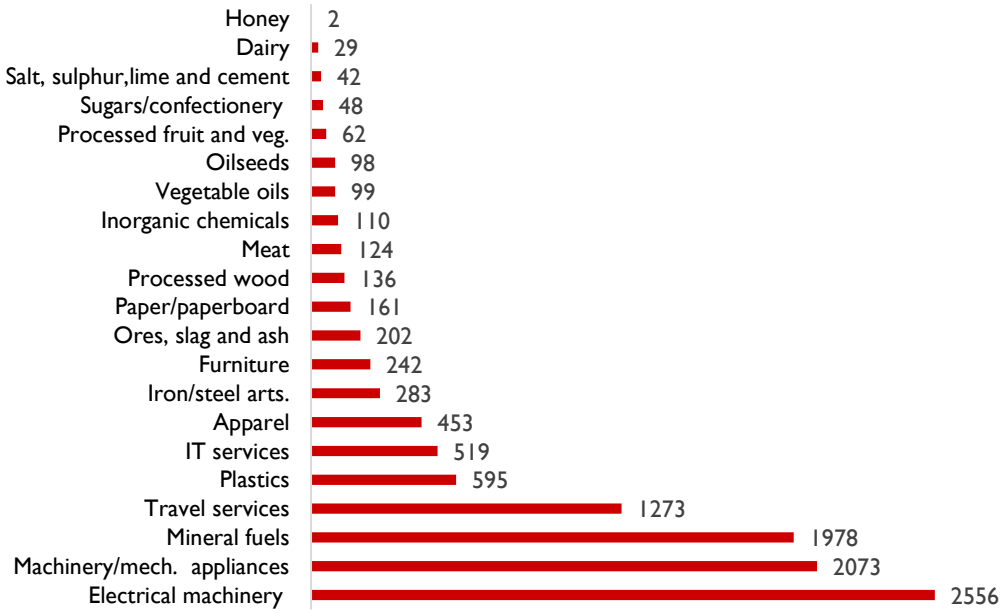


Source: International Trade Center

[2]The RCA index denotes relative production efficiency indirectly based on trading patterns by identify the extent to which an exporting country captures world market share in a particular product relative to the degree at which it captures export market share for all traded goods. An RCA index greater than 1.0 indicates a comparative advantage in producing that product, while an RCA lower than 1.0 identifies a comparative disadvantage.

Nevertheless, these three sectors (honey, vegetable oils, and oilseeds) have relatively small world export markets- under US$200 billion. In the case of honey, world exports only amount to US$2 billion. Among all export sectors of the Ukrainian economy with a higher RCA, IT services have the largest potential market per ITC calculations - valued at US$520 billion in 2017 (see **Figure 11**).

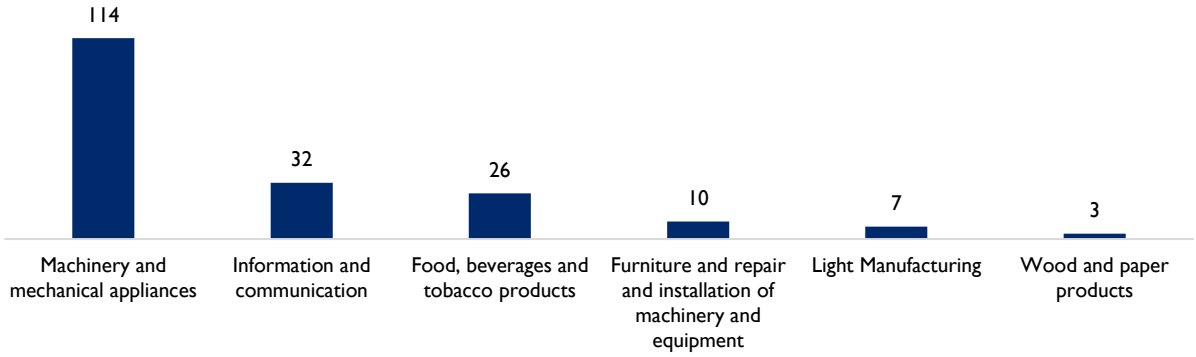
Figure 11: World Exports per Sector in 2017 (US$ billion)



Source: International Trade Center

According to the Ukrainian Intellectual Property Institute (Ukrpatent), the largest number of applications for inventions and utility models came from the machinery and mechanical appliances (114 applications), ITC (32 applications), and food, beverages, and tobacco industries (26 applications) (see **Figure 12**).

Figure 12: Application for Inventions by Economic Activity Type 2017



Source: Ukrainian Intellectual Property Institute

3.2 SHORTLIST SUMMARY

To prioritize this list according to CEP's objectives of supporting industries that have the potential to grow rapidly, succeed in export markets, generate a significant amount of investment and a number of new skilled jobs, the team proceeded to collect quantitative and qualitative information on each sector. Quantitative indicators included:

- Market performance (value added, production, and value-added margin);
- Employment and productivity (number of jobs, estimation of informal employment, average income and value added per employee);
- Presence of SMEs (employment by the size of enterprise and economic activity);
- International trade (export and import value, revealed comparative advantages (RCAs), and share in world markets; average distance and concentration of importing countries, and estimation of untapped potential trade);
- Investment and innovation (FDI stock, and number of applications for patents and utility models).

Based on the analysis of quantitative and qualitative information, the team shortlisted 5 sectors including IT: Digital products and services, Wood processing and Furniture, Apparel and footwear, Dairy processing, and Processed fruits and Vegetables (see **Table 3**).

IT/Digital products and services encompass many emerging technologies and businesses, and also enables many of them. Many Ukrainian startups are based on IT and digital applications. The other shortlisted sectors also incorporate many emerging business models and themes. The data does not, however, point to other distinct emerging industries as being of sufficient size and consistency to be termed a focus sector for CEP, In Phase 2 of the selection process, CEP continues to consider its approach to working with emerging industries.

Table 3: Shortlist Summary

SECTOR	KEY OBSERVATIONS	ABILITY OF CEP TO HAVE IMPACT	SHORTLIST SELECTION
Vegetable fats and oils	Production and exports are high and have grown despite the crises. However, exports are basic commodities with little complexity and by only a few large firms.	Few plausible entry points for CEP. To expand, the large firms can build their own supply chains.	No
IT: Digital products and services	Large and fast-growing sector, providing attractive jobs for young people. Important contributor to value added and high value-added margin. Significant potential for generating	CEP can make many contributions to sector growth, including collaboration financing, workforce development,	Yes

	entrepreneurship, innovation, and improved performance of other industries. Domestic ICT/digital use is at an early stage, which anticipates domestic growth as well.	technology commercialization.	
Wood processing and furniture	Wood processing has performed better than furniture, probably impacted by the regulations to promote value addition. Large domestic market opportunity. Lots of small and medium businesses that the project can assist.	This is an industry that several programs like CEP have worked with effectively in other countries. Contributions can include market linkages and promotion, skills development, improved operations, improved design.	Yes
Apparel and footwear	Ukraine has substantial comparative advantages- such as labor costs and geographic position - that are not reflected yet in trade patterns. Almost all firms are SMEs. Mass contract production is limited but taking place. Potential to build develop creative aspects of the industry through design and fashion innovations. Jobs are not attractively remunerated, but the industry is characterized in many other countries as being a step into higher value manufacturing.	This is an industry that CEP-like projects have worked with effectively in many countries. Opportunities to assists with promotion, workforce readiness, productivity improvements, and capitalize on growth in domestic market. Also, large possibilities for mass production if logistics constraints can be addressed.	Yes
Dairy products	Strong export growth and RCA, employing large numbers although the number of firms is small, and the value-added margin (17%) seems quite low. Possibly excellent	CEP could assist with promotion, value added operations, and advancing quality standards. Worth looking more in-depth. The sector	Tentative

	opportunities for export of value-added dairy products, and an underserved domestic market.	could be opportunistically broached as part of a larger agro/food-processing sector.	
Honey	Strong export growth and very high RCA; large domestic consumption well served by domestic producers. Exports are in bulk, and undifferentiated. The sector is relatively small and there is limited value addition potential.	Not a good match for CEP. Small sector with limited value addition opportunities. The latter could be broached as part of an agro/food-processing cluster. ERA focuses on the sector, perhaps an opportunity for collaboration.	No
Light manufacturing	Large export sector and jobs, but severe declines in recent years. Strong competition from other economies, and dependent on raw materials from abroad. Automotive industry components are a strong performer. Improved logistics at the order and at the ports could open opportunity for substantial investment, especially if accompanied by SEZ-type platforms.	Some opportunities, but there is no obvious entry point for CEP to make a difference. Automotive supply chains typically need little help from a CEP-type project.	No
Meat	Strong export growth, particularly in poultry. Domestic and external market is highly concentrated on a handful of enterprises. The sector products not complex, limiting value addition opportunities.	No entry point or attractive role for CEP. Opportunities could be broached in the context of an encompassing agro/food processing sector approach.	No
Sugars/Confectionery	A small sector in the context of the Ukrainian economy experiencing	No attractive role for CEP.	No

	high growth in external markets. But most exports are sugar- an undifferentiated commodity. Confectionery exports are small and declining recently.		
Tourism	Sector with a large share of the country's employment, and high value-added margin, in spite of crisis induced declines in recent years. Strong SME sector with potential to generate jobs. Priority sector for the government, with on-going public investment in infrastructure.	CEP-type projects have had success in building tourism industry performance. CEP can contribute well to skills, product development, strategies, service quality, promotion. Its most effective entry points will be at a local level.	Yes, but on a location-specific basis
Processed fruits and vegetables	While processed fruits and vegetables is a small sector, agribusiness is widespread in Ukraine, and fruits and vegetables could be the backbone of an agro/food-processing cluster. The sector is mostly composed of SMEs and domestic demand is increasing.	CEP could make effective impact on this sector with interventions to improve market information, promotion, product development, standards and certifications, and operations management. ARDS sees opportunity for considerable value addition/exports beyond ARDS' actions.	Yes
Heavy Manufacturing	While a large sector, its performance has been declining severely due to loss of Russia and CIS markets and obsolete technology. Most employment is concentrated in large firms.	No obvious role or entry point for CEP. Industry improvements will take a long time.	No

4. SECTOR ASSESSMENTS - APPAREL AND FOOTWEAR

4.1 SECTOR OVERVIEW

The final products of the sector are clothes, textiles, shoes and leather goods. Many companies in the sector supply services to produce these goods on the Cut, Make and Trim (CMT) basis.[3]The sector is also represented by emerging creative areas as design and fashion.[4]

Value chain overview, market channels, and value creation

The apparel supply chain includes textile, apparel and accessories production, as well as design and fashion components.[5] Similarly, the footwear supply chain includes leather, footwear production and design. It is worthwhile to discuss each of these sub-sectors separately as each has distinct issues.

Textiles and Fabric Formation

Only a few fabric producers remain in Ukraine, which are insufficient to cover domestic demand. **Table 4** below shows data from the largest woven fabric mills in operation in Ukraine. According to the companies' reports, those making woolen and worsted factories appear to be running at capacity. Much of the woolen production is used for military and other uniforms rather than consumer products. The two cotton process fabric mills cannot compete with new Turkmen textile/fabric producers because of price subsidies for raw cotton. As a result, they are operating at far below capacity.

Table 4: Key Ukrainian Woven Fabric Producers

COMPANY NAME	LOCATION	FABRIC PRODUCED	CAPACITY
Cheksil	Chernihiv	Woolen, worsted, cloth	5-6 million running m per year
Cherkasy Silk Factory	Cherkasy	Cotton, mixes	About 90 million sq.m/year in 1990s
Texterno	Ternopil	Cotton, mixes	3.5 million running m per month
Vladi	Kharkiv, Berezan' /Kyiv Region	Woolen, cloth, non-woven	Woven:~3 million sq.m / year Non-woven: ~5 million sq.m / year

Source: Company reports

According to Golda Vinogradskaya, nearly all the apparel manufacturers get their fabric from four sources outside Ukraine: Europe, principally Italy and Poland; Turkey; the Far East - China, Malaysia, Indonesia and others; India and Pakistan.[6]

[3] This term is used in sales of appropriate services in garment and footwear industries. CUT the fabric/leather, MAKE up the garments/shoes and TRIM them with the provided trimmings such as zips, buttons and decorative elements.
[4] For example, CEP Interviews, Oleh Diakiv, Director, Vinisan, Ternopil, December 17, 2018
[5] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017
[6] For example, CEP Interviews, Golda Viinogradskaya, Head of industry association Fashion Globus Ukraine, December 17, 2018

The commercial fabric market in Ukraine is dominated by wholesalers, which operate bazaars in Odessa, Khmelnitsky, and Kharkiv. They offer a wide variety of fabrics from many sources. The main customers for these wholesalers are small to medium garment manufacturers who are producing for domestic and regional markets. Fabric from this source is not EUR-1 eligible. Nor would this fabric satisfy demands for fabric traceability in markets such as children's apparel.

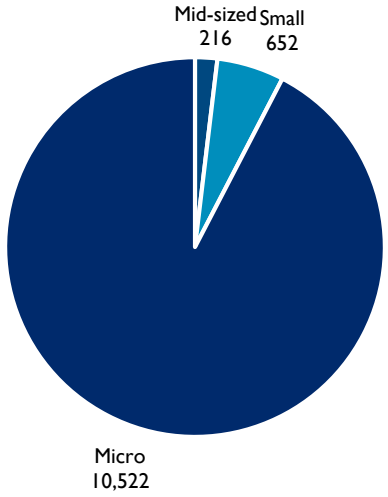
Fabric sourcing is a critical issue for apparel manufacturers. The least reliable and slowest part of the apparel supply chain is the delivery of fabric to the cutting table at the apparel manufacturer. The closer the fabric supplier is to the apparel manufacturer the better. The next best scenario is to have the fabric produced in the same region or country. In this way there are no borders or customs delays and minimal transport delays.

Unfortunately, fabric production is not well-developed in Ukraine. Only a limited variety of fabric is available, and in some cases the quality is not adequate for many markets, particularly exports to the EU. Increased fabric production for the apparel industry would help Ukrainian supply chains be more flexible, and price and response competitive. For exports to the EU, local fabric production is important for making apparel eligible for duty-free exports.

Apparel production

Officially all apparel producers in Ukraine are exclusively micro, small and medium-sized businesses (see **Figure 13**). Micro enterprises, which employ up to 10 workers, account for 92% of apparel producers.

Figure 13: Companies in Apparel Sub-sector by Size (Number of Business Entities)



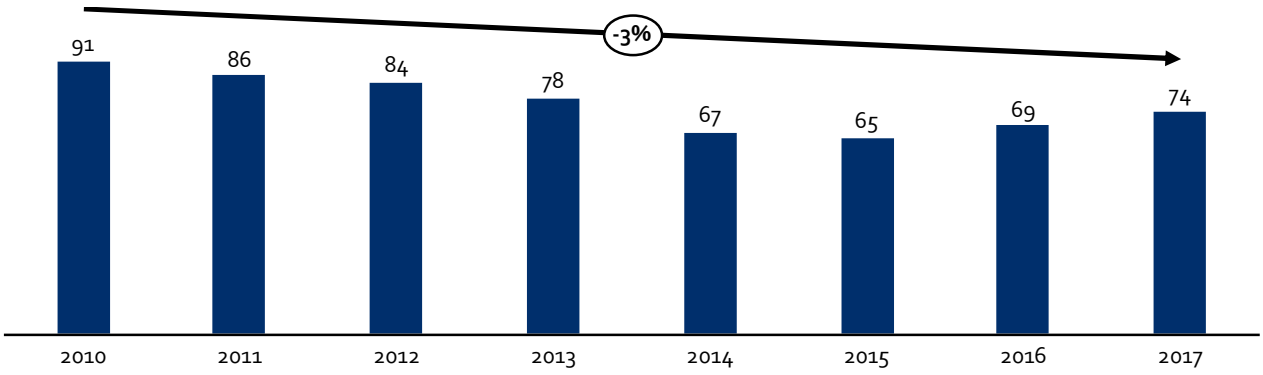
Source: State Statistics Service of Ukraine

However, some large companies in the sector are legally divided into subsidiaries to optimize tax payments. The tax burden for labor under the General Taxation system is 5 to 7 times higher than the firms that work under the Simplified Taxation system.

To understand how the sub-sector will work, we need to describe the different segments of the apparel production.

The most important distinction is between those that are officially declared businesses and those in the *shadow*. The businesses operating in the shadow are those that use the simplified taxation scheme, paying sales tax as a percentage of declared turnover (sales). These businesses do not declare the full salaries they pay their employees, and thus avoid the full 22% payroll tax. These firms are not legally required to file financial statements. Much of the business they do is in cash. Conflicting estimates exist about the number of people employed in the apparel industry in Ukraine. Uklegprom, the association that represents registered apparel manufacturers, reports that 74,000 people were officially employed in 2017.[7] After sharp decline over 2010-2015, official employment in apparel increased in 2016-2017 (see **Figure 14**).

Figure 14: Official Employment in Apparel Sub-sectors in 2010-2017 (`000 people)



Source: State Statistics Service of Ukraine

Uklegprom estimates that the real employment figure is 150,000. Globus Fashion Ukraine (another industry association) believes that 80% of apparel manufacturers are not in these statistics and the real number is about 500,000.[8] Given the diversity and imprecision of these numbers, we can conclude there are no truly reliable estimates of the number of employees nor of the number of apparel production operations. In any estimate, however, the shadow number is likely at least as big as the official number of employees, and probably much bigger.

Another important distinction is between those that are full package production versus those that are simply CMT. This distinction is important because the organization and internal business processes required to do full-package production are much more sophisticated than that required for CMT. CMT is usually an early stage for apparel production when labor costs are low. It attracts foreign buyers who want to produce their products inexpensively. It is easy for another country with lower labor costs to outcompete CMT operations. It is important for CMT operations to evolve into full package production to stay competitive. A role exists, however, for CMT production for domestic markets. In this case, designers, brands, and private label producers may use local CMT manufacturers either to outsource production or to expand capacity during

[7] This is 3.5% of total industrial employment (source is the State Statistic Service of Ukraine)
[8] This number may be exaggerated. According to the EBRD, the peak employment during the Soviet era was 250,000

peak periods. In this case, the CMT producers have a distinct advantage over imported production particularly in the ability to respond quickly and reliably to orders, and to deliver small quantities. The full package producers can be further divided into those that produce according to customer specifications, and those that produce their own designs and even their own brands. A further extension of the latter group is those that do their own retailing, particularly through mono-brand stores. Those that produce for customer specifications have a good position to supply European brands. Production costs are lower than in the EU. Production quality in Ukraine can be very good. Delivery time and the ability to deliver small orders means the Ukrainian suppliers can provide in-season replenishment. This is important for fast fashion and high-end retailers.

A major problem for apparel manufacturers is the inability to obtain EUR-1 certificates for duty-free export to the EU. This is the result of two issues:

- Manufacturers using simplified tax system or those without any registration do not have adequate accounting records and cannot demonstrate sufficient domestic production input.

- Fabric that conforms to EUR-1 rules is in short supply. The fabric must be either EU or Ukrainian origin. The lack of domestic fabric production means the producers have to source from Turkey, India and the Far East.[9] These sources are not EUR-1 eligible.

All the company managers who were interviewed complained it is difficult to recruit young people into the industry. The industry does not have a good reputation among young people in Ukraine. Sewing operators are thought to be low paying, dead-end jobs. Emigration to Poland and other EU countries for higher wages is also a serious drain on the Ukrainian industrial labor supply.
In most factories, the sewing machine operators are paid by piece rate. This means there is a good opportunity to both increase productivity as well as to enable the operators to earn more.

According to the Ukrlegprom estimates, Ukrainian apparel producers at best reach about 60% of the labor productivity in the best practice factories in China, Bangladesh, India, or Pakistan. Only 10% differences in productivity can be explained by use of modern equipment, while the rest is due to non-optimal production organization.

The factories also have a general shortage of middle management and technical labor:

- Qualified managers and supervisors
- Marketers
- Prototype makers
- Industrial engineers (complete absence)
- Sewing machine technicians
- Qualified quality control and quality assurance staff

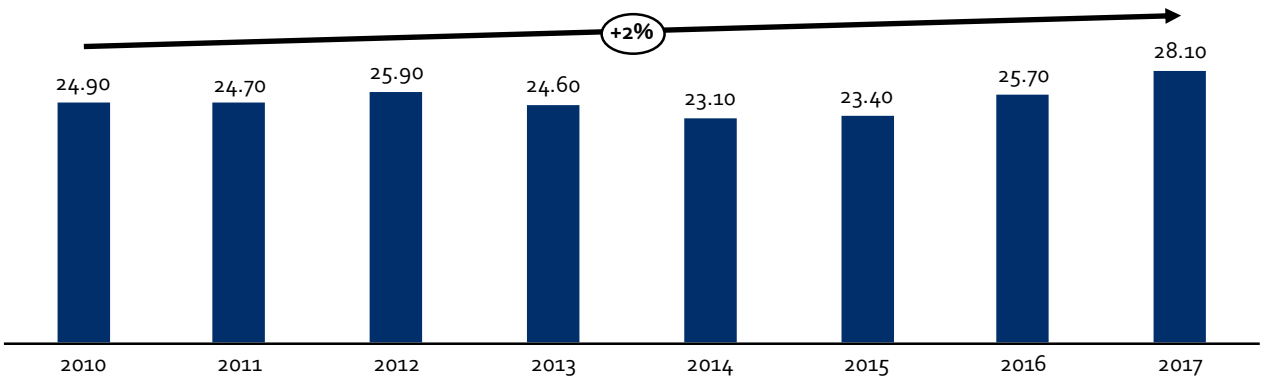
[9] Starting in 2018, Under the Pan-Euro-Med protocol Turkish fabric will qualify. Ukraine has to complete the FTA with Turkey and pass other enabling legislation for this to happen.

Ukrlegprom estimates that about 80-90% of apparel production is done on a CMT basis. The volume of CMT services grew rapidly after sharp hryvnia devaluation in 2014-2015. This is a low margin business and is vulnerable to price competition from lower labor cost countries, but is also a sector that can benefit from hryvnia devaluation.

Footwear Sector

As of 2017, there were 28,100 workers officially employed in leather product manufacturing. The official employment in the industry has been increasing since 2014 (see **Figure 15**).

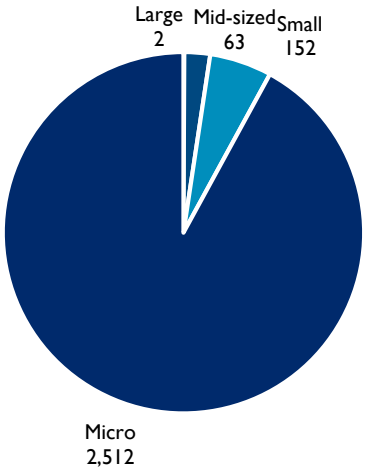
Figure 15: Official Employment in Leather Products Sub-sector in 2010-2017 (`000)



Source: State Statistics Service of Ukraine

Like in apparel, manufacturers of leather products / footwear are mainly micro, small and medium-sized enterprises (see **Figure 16**).

Figure 16: Companies in Leather Products / Footwear Sector by Size



Source: State Statistics Service of Ukraine

According to the League of Footwear Manufacturers, there are 1,500 officially registered footwear manufacturers in total. The largest manufacturer in Ukraine is Rif-1, with about 2,000 employees in Kyiv, Zhytomyr and Berdychiv. They produce about 2 million pairs per year, all exported to the EU. Another substantial company, Mida, has more than 1,000 employees.

The main obstacles the footwear companies face are:

- Financing of new equipment
- Financing of new or expanded facilities
- Difficulty finding enough skilled labor
- Problems with getting VAT refund for exports
- Difficulties in getting into the European market
- Import competition, combined with low domestic purchasing power

The principal distinction among footwear manufacturers is between the larger companies that source their own raw materials, and the smaller ones that are similar to the CMT sector in apparel. A further distinction is between those that are full product cycle businesses with their own retail outlets and those that are selling their products through wholesalers.

The industry appears to be competitive on price, response and quality.

Prices from Ukrainian manufacturers are competitive for comparable quality with Turkey and China. For domestic and European customers, the industry can compete on delivery.

Companies doing their own designs are mainly producing for the domestic market. Although footwear design talent exists, creating branded footwear products for the European or other export markets will require the designers to have more exposure to European footwear fashion. Two barriers exist: (i) language and (ii) the cost of attending fashion shows overseas. Raw material is a problem for the Ukrainian footwear industry. Domestic tanneries cannot supply the demand for local manufacturers either in quantity or quality. Some footwear manufacturers reported that black leather from domestic tanneries was acceptable, but they had to go to Italy to get leather in colors. Turkey and Poland are the other principal leather sources.

The problem with leather supply is that many skins produced locally are exported. An export duty on skins exists, which regularly decreases. Domestic supply is also hindered by a large drop in cattle breeding. Domestic tanneries are not working at full capacity.

Although the technology is generally adequate, investment in new equipment and capacity is important. The principal barrier to capacity expansion and technical improvement is the borrowing cost from banks. The bank interest rate exceeds 20%. Some of the manufacturers complained about difficulties in financing working capital as well.

The footwear industry also faces a problem with the EUR-1 certificate for duty-free exports to the EU. Ukrainian Customs requires that duties on all imported inputs have been paid. This is

practically impossible for manufacturers operating under the simplified taxation system, as they are unable to present documentation showing duties have been paid.

As with the apparel and textile manufacturing sectors, all the footwear producers complained about difficulty finding staff. Some firms provide on-site training, but still have difficulty recruiting people. In addition, the work is seasonal, and during the peak seasons in fall and spring, all companies are competing for skill specialties in short supply. Emigration to the EU also drains the potential work force.

According to market participants opinion, about two-thirds of the footwear production is done in the *shadow.* The tax burden for labor under the General Taxation system is 5 to 7 times higher than the firms who work on the Simplified Taxation system. This creates the same uneven playing field as in the apparel sector. Some firms are legally registered and work on the Simplified Taxation scheme by dividing up into a number of separate entities. Each of which have sales high enough to require them to be under the General Taxation system.

The existence of two taxation systems creates a number of problems. Firms cannot expand beyond a certain point, or they will suddenly face a larger tax burden. Larger firms that are under the General Taxation system face an uneven playing field. Firms that export can get a refund of the VAT they pay. Some firms that export will do so through an intermediate company to avoid having to work on the General Taxation system. The manufacturer acts as if it is doing CMT for the exporter. The exporting company is then able to get the VAT refund. Since the exporting company has few employees, there is not much of a payroll tax burden.

The dual taxation system as it is currently administered causes some distortions in the way businesses operate, and thus are barriers to the industries' growth.

The League of Footwear Manufacturers cited problems with import competition as an important barrier to the industries growth. Nearly all imports are undervalued in order to reduce import duties and VAT payments (about 32% markup in total). As a result, the importers can sell at much lower prices than domestic products. The only possible way for a local producer to compete with undervalued imports is to produce in the shadow and avoid payroll and VAT.

Fashion and Design

Ukraine has a rich design and fashion tradition. The population is well-educated, aware of modern fashion trends and has a number of creative and talented designers working in consumer fashions. In addition, secondary and tertiary level training for design and fashion in apparel and footwear is available and is generally well regarded.

In fact, a number of branded fashion products exist in both apparel and footwear. These compete well on the local market. The publicity infrastructure for creating brand awareness exists as well. The fashion photography, promotion and publicity materials, and retail store displays the project team saw were of good quality; the exact content and style might not work in Western European markets, but probably do reflect the tastes of the local and immediate regional markets. The fashion sector can be segmented into three groups:

- Fashion designers and brands that work exclusively on product design and do not produce their own products for sale. Some of these designers produce designs for manufacturers who might produce and distribute them as private label products. In other cases, the designers outsource production to manufacturers and handle the promotion and distribution themselves.

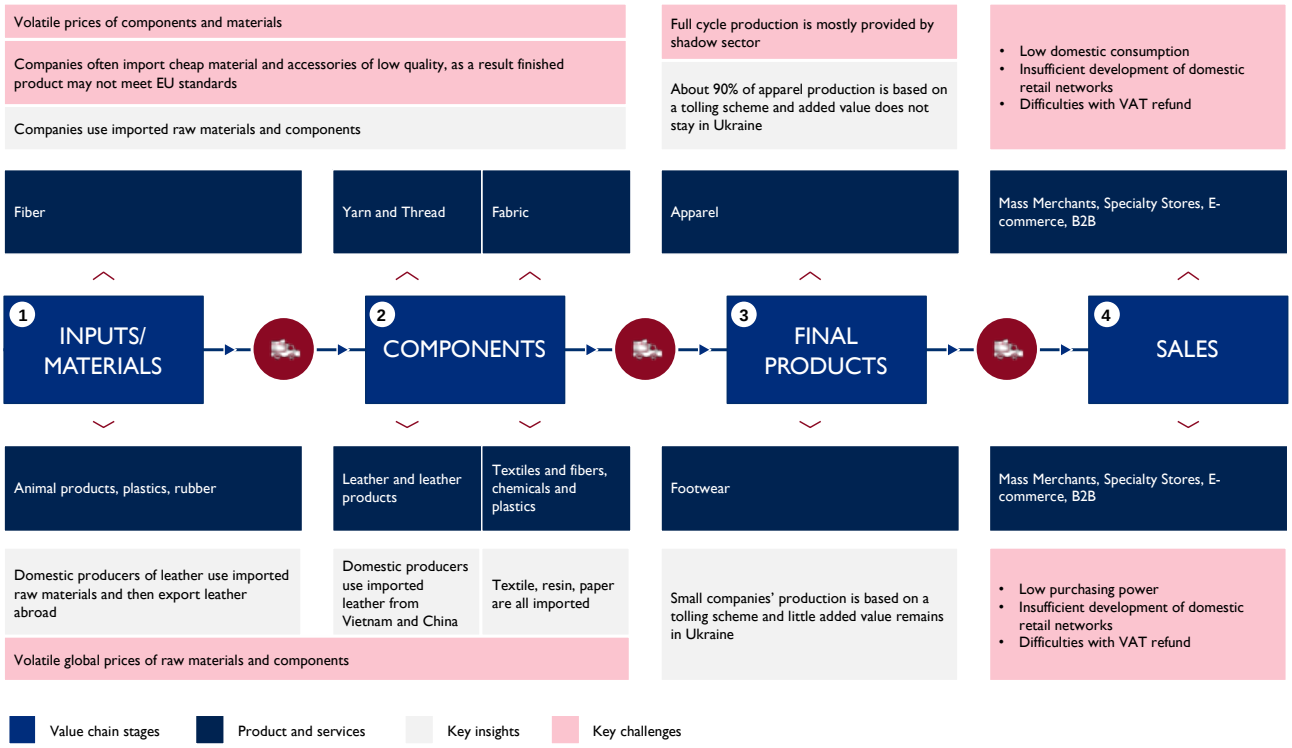
- Designers create their own branded products and produce and distribute these products themselves. Some of these will sell the products in mono-brand stores, while others will distribute through wholesalers or direct to multi-brand outlets.

- Design support companies and organizations that do not necessarily create products but provide services to the design community.

Each of these sectors faces somewhat different challenges. A healthy design and fashion sector is critical for Ukraine's future competitiveness in apparel and footwear. The most important problem for the fashion industry is getting more exposure to European fashion trends. The most effective way for this to happen is for the designers to attend shows outside Ukraine. The cost of these can be prohibitive, particularly for young designers starting out.

The second problem is the lack of education and training available in design and fashion management. Ukraine does not lack creative design talent, but for this to be used in successful businesses, it must be managed correctly. Some of the successful designers in Ukraine have developed these skills through experience, but the growth of this sector is restricted by the lack of people able to manage the design process.

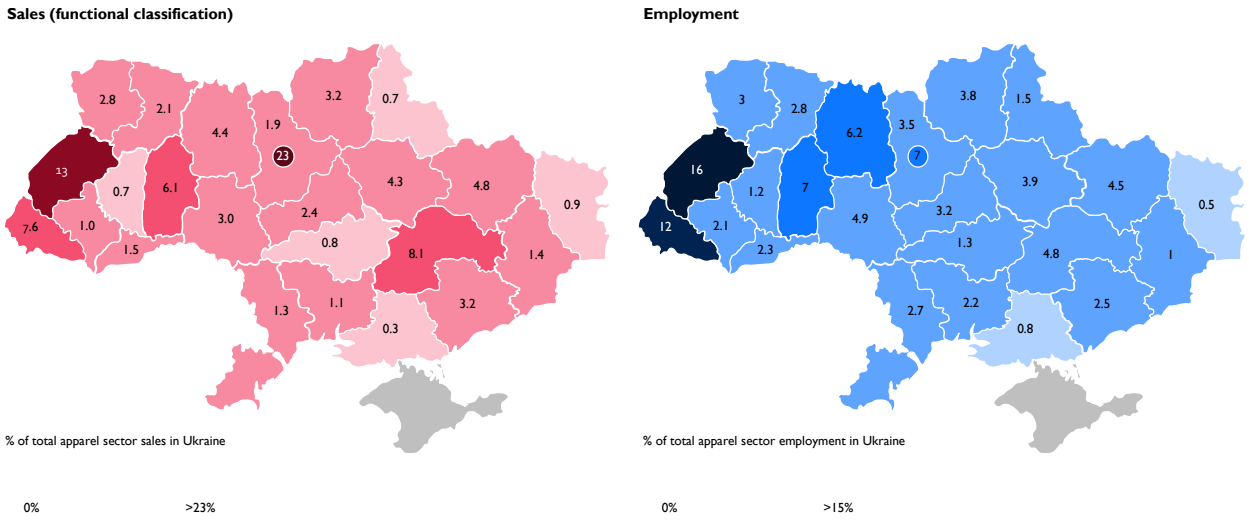
Figure 17: Apparel and Footwear Value Chain Overview



Source: CEP Interviews, Apparel and Footwear industry representatives, January 13-20, 2019 and secondary research data

According to the official statistics, the apparel sector is concentrated in the following regions: city of Kyiv, Lviv, Zakarpattia, Khmelnitsky, Dnipro, Kharkiv and Zhytomyr (see **Figure 18**). Western regions are oriented towards EU markets, while Eastern regions have historically supplied to local densely populated areas and the Russian market.

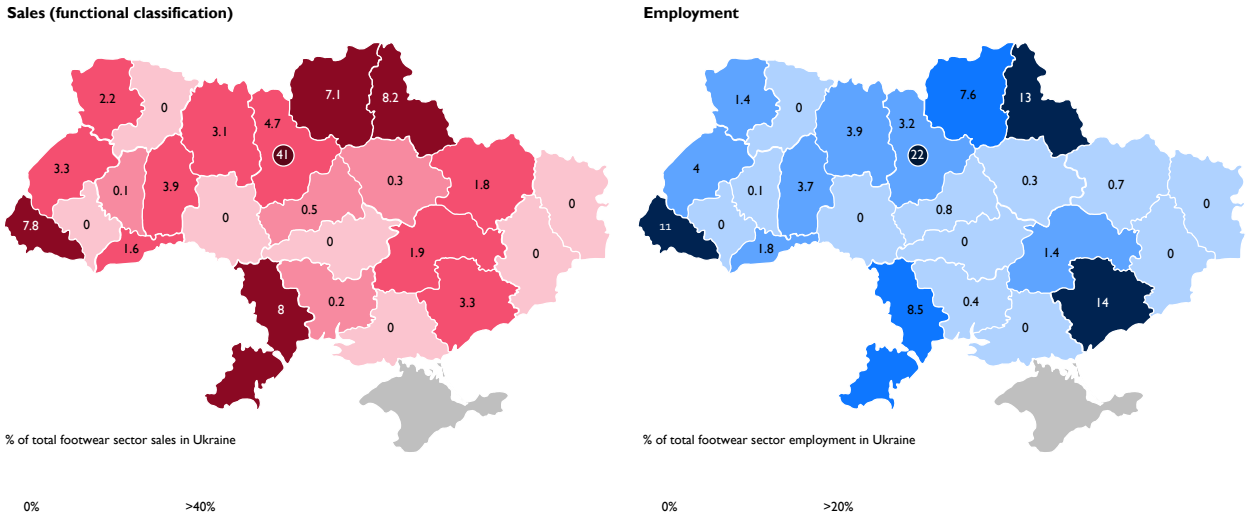
Figure 18: Regional Distribution of Apparel Sector by Sales and Employment in 2016



Source: State Statistics Service of Ukraine

The footwear sector is strongly concentrated in the Capital area, in the North of the country (Chernihiv and Sumy regions) and also in Zaporizhzhia, Lviv and Odessa regions (see **Figure 19**). region (8.2%).[10]

Figure 19: Regional Distribution of Footwear Sector in 2016

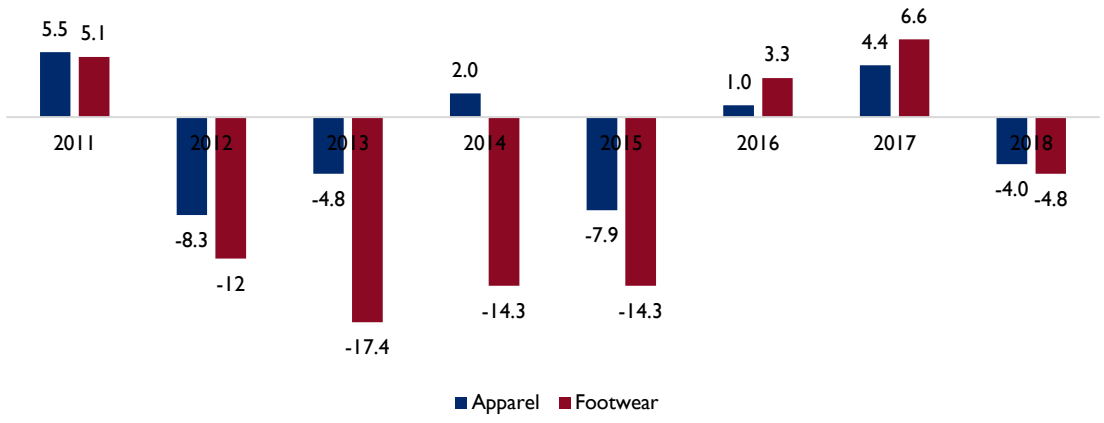


Source: State Statistics Service of Ukraine

Production and market trends

During the period of heightened military operations in the east of Ukraine and the sharp devaluation of the hryvnia in 2014-2015, a sharp drop in official production of apparel and footwear was observed. Moderate growth rebounded in 2016-2017, and was followed by a recession in 2018 (see **Figure 20**).

Figure 20: Real Production Indexes in Apparel and Footwear in 2011-2018 (YoY %)

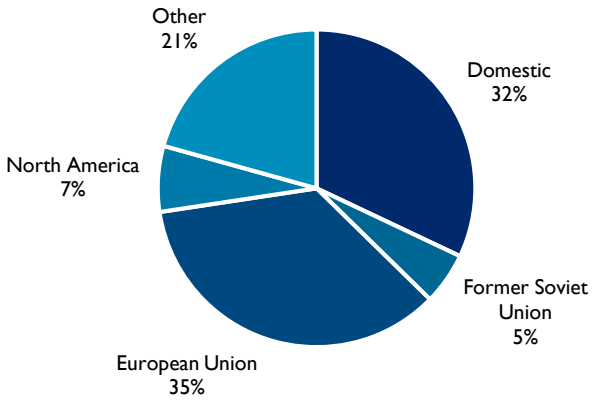


Source: State Statistics Service of Ukraine

[10] State Statistics Service of Ukraine

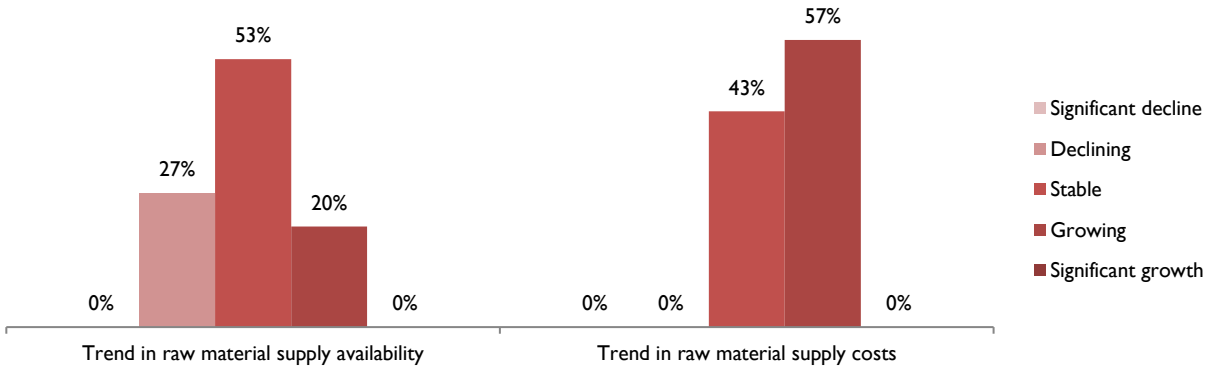
Industry representatives and associations express mostly optimistic views on the future prospects of industry development. One of the biggest opportunities for apparel and footwear industry growth is to export the production. Many foreign apparel manufacturers are looking for sourcing production in Ukraine. However, as companies notice, no investments are made, since investors are not willing to take country-specific risks.[11]

Figure 21: Estimated Sources of Raw Materials and Input Supplies



Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

Figure 22: Availability and Costs of Raw Materials Trends

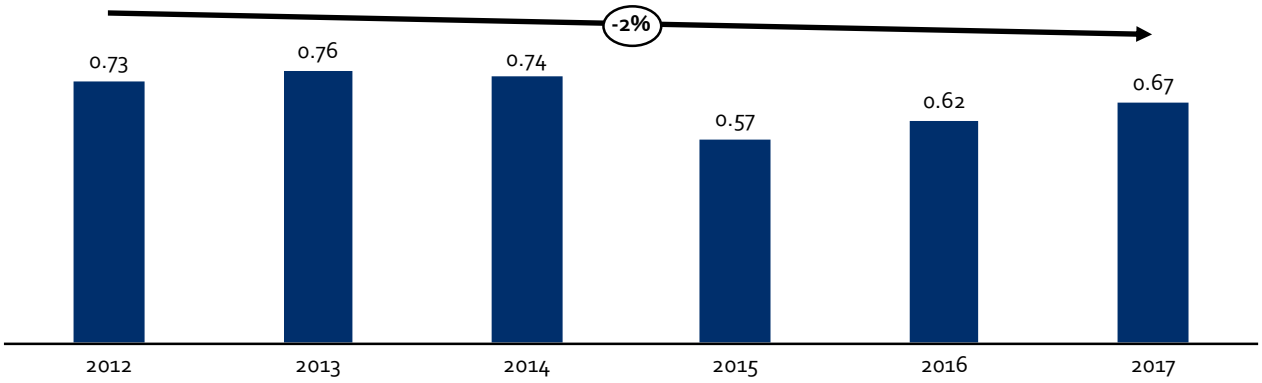


Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

In 2017, exports of the apparel and footwear industry amounted to US$0.7 billion (1.2% of total Ukrainian export), namely the apparel sector exports were valued at US$501 million while the footwear sector exports - at US$171 million. In the period 2013-2015 the annual export volumes declined from the US$0.76 billion to US$ 0.57 billion (-25%). By 2017 the export has grown to US$0.67 billion (+16%) (**Figure 23**).[12]

[11] For example, CEP Interviews, Yuriy Samets, Founder, Sambay, Lviv, December 19, 2018
[12] It should be noted that export statistics exceed official production volumes, in large part because exports are recorded at the price of final products, while most domestic producers sell CMT services, which are only part of the value of goods.

Figure 23: Apparel and Footwear Sector Export (US$ billion)



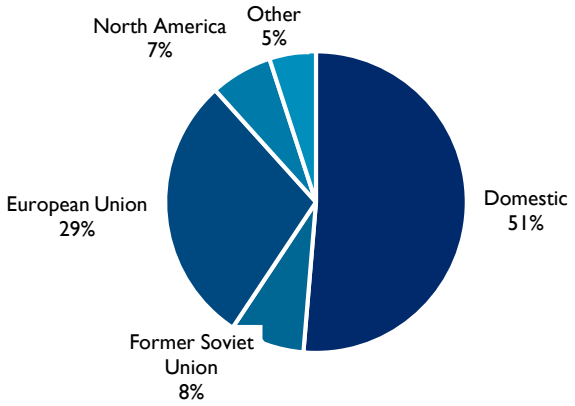
Source: State Statistics Service of Ukraine

The share of apparel and footwear in world exports is relatively small, i.e. 0.11% (44th ranking in world exports). Ukraine can benefit from the DCFTA with the EU; duties on some textiles and apparel (HS 5601, 6303, 6307) have been reduced from 12% to 0%.[13]

The main partners of Ukraine in export trade are the EU, Russia and CIS countries, which accounted for 95% of total exports in 2017. The largest destination for the export of apparel is the EU, accounting for 81% of footwear exports. Since 2014, exports to Russia and the CIS have dropped significantly. A slight increase in the total export of apparel for 2016 and 2017 is because of an increase in exports to the EU.[14] As in the case of apparel, there was a significant drop in all export markets after 2014. Exports to Russia continue to decline, while exports to the EU and CIS began to increase in 2016.[15]

More than half of the surveyed companies perceive the domestic market as the most important (**Figure 24**). They report stable domestic sales and slight increase in export (**Figures 25, 26**).

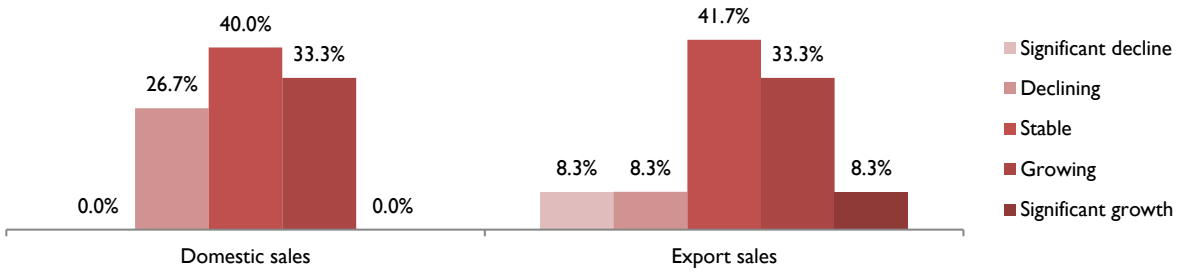
Figure 24: Perceived Importance of Current Markets



[13] International Trade Center website: https://trademap.org/
[14] *"Ukraine: Roadmap of Development of Apparel and Footwear Industries"* JAA for EBRD, 2017
[15] Ibid

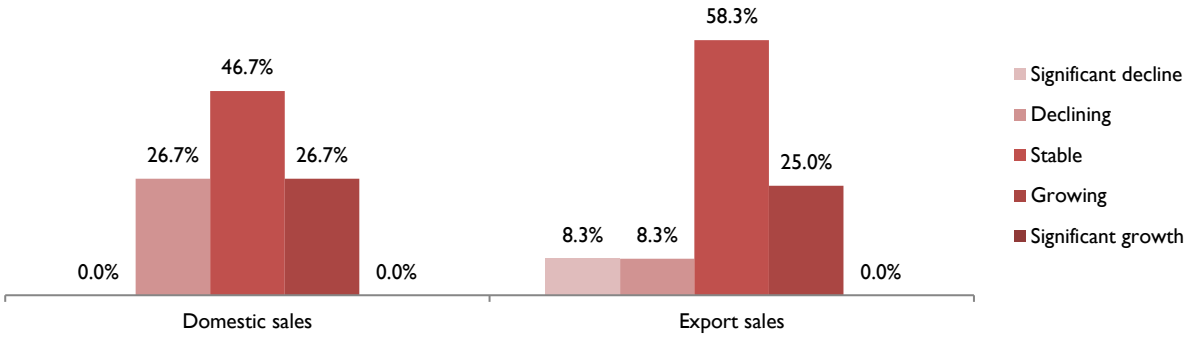
Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

Figure 25: Expected Trend of Domestic and Foreign Sales by Value



Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

Figure 26. Expected Trend of Domestic and Foreign Sales by Volume



Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

Ukraine with its 42 million population has a large domestic market for apparel and footwear. However, more than 80% of inhabitants represent low income consumers oriented on cheap imports and second-hand clothes. These consumers make purchases in organized markets and bazaars.

About 80-90% of domestic apparel production is performed on CMT basis mainly for export to European clients. Ukrainian enterprises enter into direct manufacturing contracts with production divisions of foreign clothing companies and retailers or rely on intermediary services of textile agents.

In 2017-2018, there was a moderate revival in demand for domestic brands from fashion-oriented middle and high-income classes. Ukrainian fashion apparel and footwear are sold in mono- and multi-brand stores, boutiques, other retail outlets and online.

As respondents say, companies working in narrower areas of apparel and footwear production appear to carry out outsourcing orders for those companies which do not consider processing.

The most important industries in terms of customers are footwear, furniture, transport companies, and medical equipment manufacturers.[16]

4.2 SECTOR GROWTH POTENTIAL

SECTOR ACHIEVABLE EXPORT GROWTH

The top three EU destination countries for Ukrainian apparel and footwear, which together account for more than a half of the total imports of apparel and footwear into the EU, are Germany (22% and 20% respectively), the UK (18% and 16%), and France (12% and 14%). Although, according to the *Roadmap of Development of Apparel and Footwear Industries*, Ukraine has no well-developed supply relations with these countries. On the other hand, countries that have shown the highest increase in total import growth of more than 10% p.a. over five years, by 2016, were the countries in the Eastern European region (see **Table 5, 6**).[17]

Table 5: Shares in Total EU Imports of the Largest Importing Countries in the EU in 2016

COUNTRY	APPAREL IMPORT	FOOTWEAR IMPORT
Germany	22%	20%
UK	18%	16%
France	12%	14%
Spain	12%	-
Belgium	-	12%

Sources: "Ukraine: Roadmap of Development of Apparel and Footwear Industries" JAA for EBRD, 2017

Table 6: EU Countries with the Highest Growth Rate of Import

COUNTRIES WITH GROWTH OF APPAREL IMPORT BY >10%	COUNTRIES WITH GROWTH OF FOOTWEAR IMPORT BY >10%
Luxemburg	Poland
Poland	Slovenia
Latvia	Belgium
Slovakia	Hungary
Lithuania	Portugal

Sources: *"Ukraine: Roadmap of Development of Apparel and Footwear Industries"* JAA for EBRD, 2017

[16] For example, CEP Interviews, Oleh Diakiv, Director, Vinisan, Ternopil, December 17, 2018

[17] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017

According to the *Roadmap of Development of Apparel and Footwear Industries*, EU markets have good growth potential:

- Eastern Europe - high growth rates of imports, high growth rates of e-commerce, geographical proximity and language and culture similarities;

- Germany and Italy - these are large apparel markets, they are diverse and offer opportunities for suppliers of niche products; already there are supply relations under tolling schemes with these countries;

- UK - it is one of the five largest markets in the EU. It is also the largest market for coats and jackets.[18]

As respondents say, some companies in Ukraine have already defined the strategic importance of the EU market for themselves, while FSU, North American and other countries are low in importance in terms of target markets for local producers of apparel and footwear.[19]

The largest market close to Ukraine is the EU, with which Ukraine now has a free trade agreement. The per capita income in the EU amounts to US$23,000. The total retail sales of apparel in 2016 amounted to US$400 billion. Since the population in 2016 amounted to approximately 500 million people, per capita apparel spending was about US$800. Apparel consumption is growing by about 2.3% per year.[20]

Among comparative advantages, local producers mention primarily time advantage – Ukrainian producers react faster to the demands of EU market. Products can be delivered to EU destinations within 3 days. Ukrainian companies thus do not need to maintain a large inventory stock of products, which ties up large amounts of working capital – an advantage over producers from Asia that may require 2 or more months of delivery time. The devaluation of the Ukrainian hryvnia from 2014 – 2016 made Ukrainian goods cheaper in export markets and exporting companies more competitive. However, many local companies do not understand business conduct and practices in the EU.[21]

On the other hand, each local producer of the apparel and footwear needs to build brand awareness in foreign markets. Without brand recognition Ukrainian companies will not be competitive in new markets.[22] Ukraine has internal challenges preventing companies from successful entrance into new markets including: corruption, administrative burden and unfair competition.[23]

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[18] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries"* JAA for EBRD, 2017

[19] For example, CEP Interviews, Olha (Owner, Gracia), Oleh Diakiv (Director, Vinisan) and Lars Vestbjerg (General Manager and Head, Sika Footwear and Danish Business Association), various locations, December 17, 2018 – January 10, 2019

[20] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017

[21] For example, CEP Interviews, Lars Vestbjerg, General Manager and Head, Sika Footwear and Danish Business Association, Lviv, December 19, 2018

[22] For example, CEP Interviews, Yuriy Samets, Founder, Sambay, Lviv, December 19, 2018

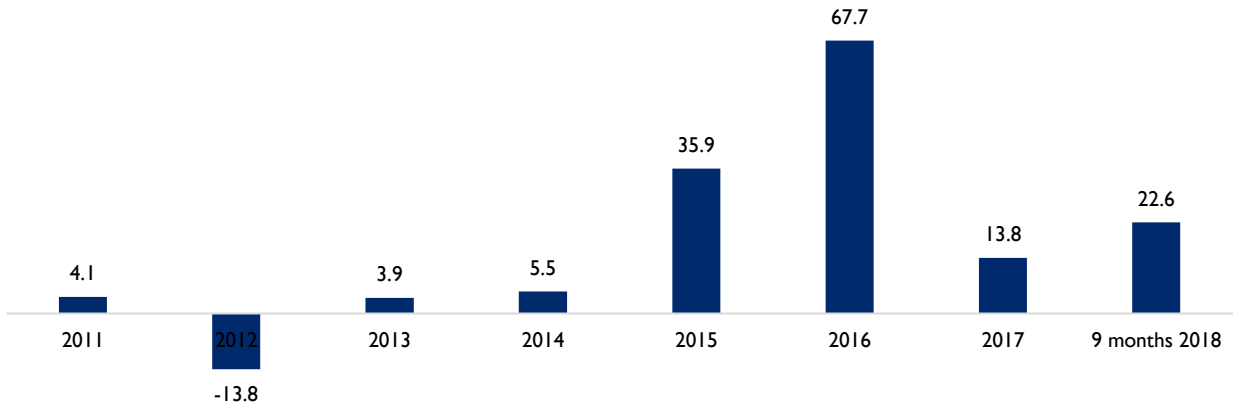
[23] For example, CEP Interviews, Lars Vestbjerg, General Manager and Head, Sika Footwear and Danish Business Association, Lviv, December 19, 2018

"No branding and no known name mean that foreign markets won't buy".[24]

SECTOR INVESTMENT POTENTIAL (FOREIGN AND DOMESTIC)

Total domestic private investment into sectors in 2017 reached US$21 million. Both sectors in total comprise 0.31% of total FDI stock in Ukraine (US$110 million). Despite low absolute figures, capital investment in the sector in real terms showed positive dynamics in the period 2014-2018 (see **Figure 27**).

Figure 27: Capital Investment Index for Textile and Apparel Sector in 2011-2018 (YoY %)



Source: State Statistics Service of Ukraine

At the same time the FDI trends in apparel and footwear sectors were negative (-5.6% p.a. in 2013-2017).

DOMESTIC MARKET

Despite the lack of reliable statistics, it can be argued that Ukraine with its 42 million population has a large domestic market for apparel and footwear. However, more than 80% of inhabitants represent low income consumers oriented on cheap imports and second-hand clothes. Particularly, Ukraine was the third largest importer of second-hand goods globally in 2017.[25]

There is a slight trend of growing consumption of apparel and footwear products in Ukraine, which is most likely due to increased consumption of footwear goods. However, domestic consumption in Ukraine is still low and constitutes a market constraint. Particularly, spending per capita is about US$53 for both apparel and footwear in Ukraine while spending per capita in the EU is about US$700 for apparel.[26]

[24] For example, CEP Interviews, Yuriy Samets, Founder, Sambay, Lviv, December 19, 2018
[25] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017
[26] Ibid

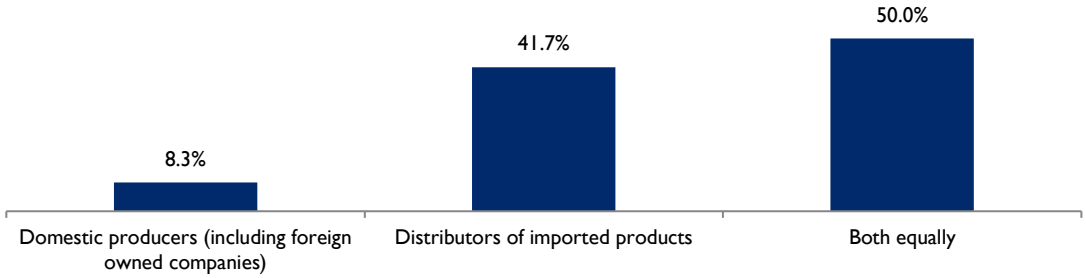
"Ukrainians are ready to consume "UA" products - great possibility to increase domestic market".[27]

The Roadmap of Development of Apparel and Footwear Industries highlight several problems in the internal market such as:

- Slow growth of consumption and low level of per capita expenditures;
- High import competition. [28]

Market participants perceive more seriously competition from imports (see **Figure 28**), which include gray/parallel imports and imports of second-hand products.

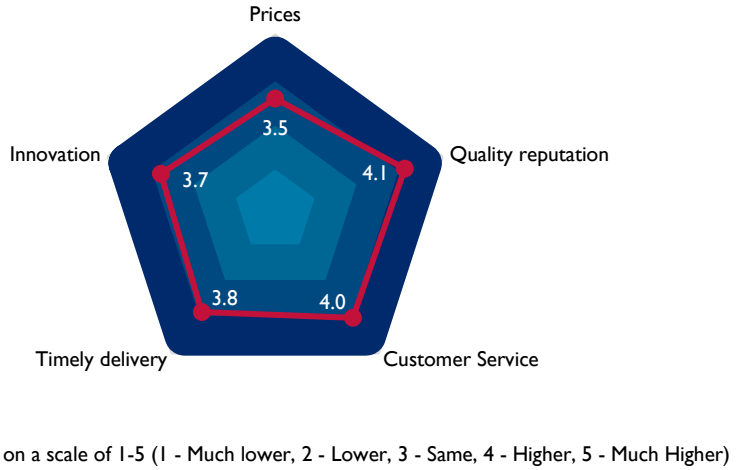
Figure 28: Perceived Main Competitors in the Domestic Market



Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

Competing with local market participants, companies are focusing on product quality and customer service (see **Figure 29**). At the same time, in competition with foreign suppliers, the timing of the order becomes the most important factor (see **Figure 30**).

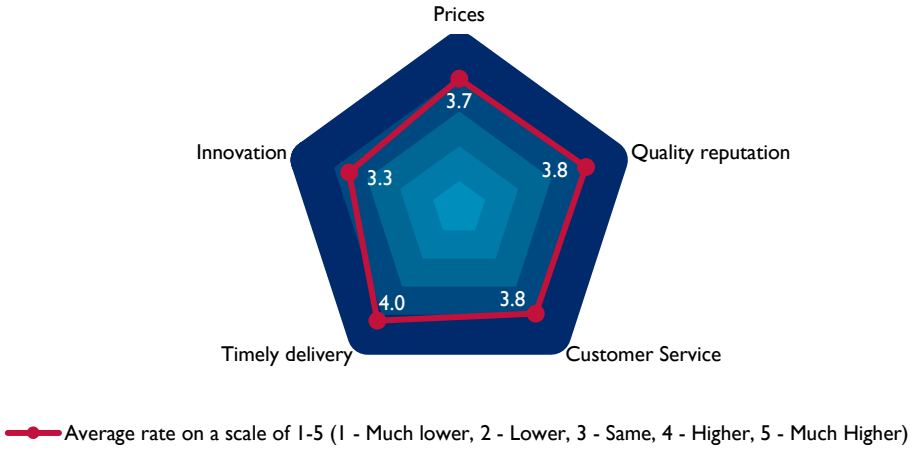
Figure 29: Perceived Competitiveness Compared to Domestic Products



Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

[27] For example, CEP Interviews, Lars Vestbjerg, General Manager and Head, Sika Footwear and Danish Business Association, Lviv, December 19, 2018
[28] Ibid

Figure 30: Perceived Competitiveness of Domestic Products Compared to Import



Source: CEP Online Survey, Apparel and Footwear, January 13-20, 2019

4.3 SECTOR POTENTIAL FOR EXPORT MARKET PENETRATION

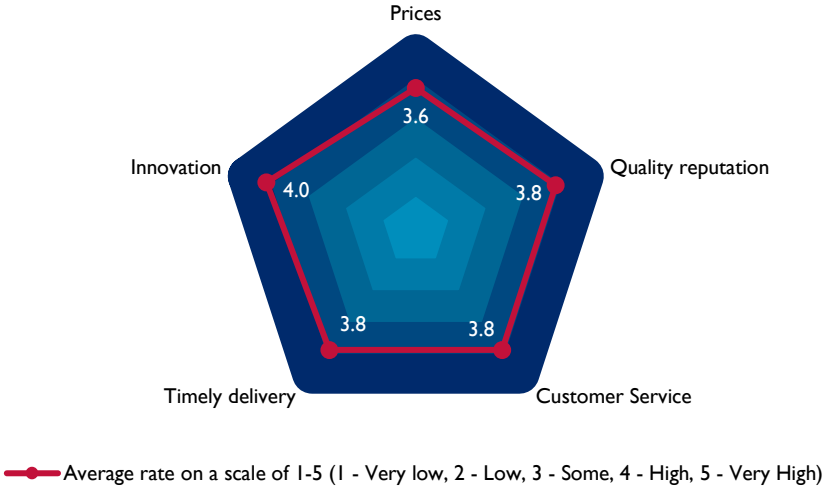
EXPORT COMPETITIVENESS FACTORS

According to the *Roadmap of Development of Apparel and Footwear Industries*, the global apparel market is observing the trend of growing online sales. E-commerce has assumed a key role in the EU and also provides large opportunities for the Ukrainian footwear and apparel industry. In 2016, 61% of Internet users bought products online and 68% of online buyers made purchases from sellers outside the EU. Clothing and sports goods accounted for 61% of all online purchases. 69% of all purchases of clothing were made by buyers aged 16-24.

This growth of e-commerce may be utilized by Ukraine to its advantage. First, online purchases require a quick and reliable response and delivery. Ukraine's immediate proximity to Europe gives it an edge. Second, online suppliers usually place small orders to avoid the need to store and accumulate unsold goods. Likewise, Ukrainian footwear and apparel production is focused on smaller scale production. Moreover, the EU countries with the largest growth of e-commerce (more than 10% per year) include those located close to Ukraine; countries with which some Ukrainian producers already have trade relations.[29]

[29] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017

Figure 31: Estimated Importance of Competitive Factors in 5-10 years



Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

To sell its products on the EU markets, Ukrainian manufacturers should adhere to the following three sets of standards:

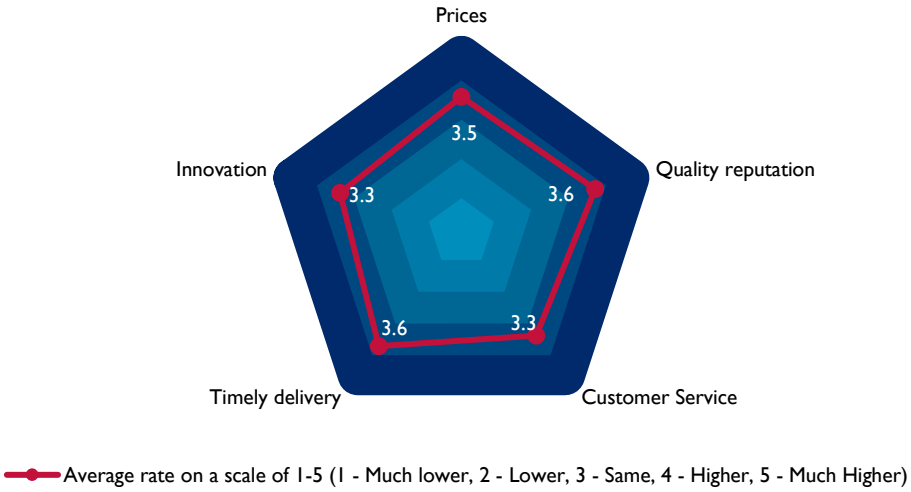
- Mandatory standards for product labelling;
- Voluntary standards for testing products and specifications;
- Voluntary standards for social responsibility. [30]

Industry studies say that the basic requirements for textile products outline labelling issues. They are set out in Regulation (EU) No. 1007/2011. Labelling is also referred to in the main Regulation on footwear (EU) 94/11/C. Producers of apparel and footwear are also encouraged to check with their customers about the need to comply with REACH, provided for in Regulation (EC) №1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the registration, evaluation, authorization and restriction of chemicals (REACH). Those manufacturers who export children's shoes and clothing, as well as protective clothing and footwear, should also check whether there is a need to comply with all the rules regarding such products. Apart from the above mandatory standards, footwear, leather and textiles are subject to several voluntary testing standards as well as specifications according to the European Commission for Standardization (CEN). In addition, some customers may require compliance with social responsibility standards. The standards of social responsibility require that enterprises meet the minimum requirements for observance of workers' safety rules, workers' rights, prohibition of persecution and abuse, safety regulations and observance of local laws and customs regulations.[31]

[30] Ibid
[31] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017

As some business representatives mentioned during interviews, Ukrainian manufacturers have all the prerequisites to meet the standards' requirements, both mandatory and voluntary ones. However, the obsolete equipment and working premises and violation of some workers' safety rules which can be observed in Ukrainian facilities will require additional effort from Ukrainian manufacturers to become compliant with the EU standards for social responsibility.[32]

Figure 32: Perceived Competitiveness of Ukrainian Products Abroad



Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

As business representatives say, Ukrainian companies usually offer the same quality but at a much lower price.[33] The devaluation of hryvnia also creates price advantages for Ukrainian exporters.[34]

In the apparel sector, five largest global brands occupied only 5.4% of the global market in 2016 (compared with 4.1% in 2015). Although the main brands may dominate in marketing trends, the global apparel market is still very competitive, leaving space for possible entry of Ukrainian manufacturers.[35]

In the footwear sector, the market concentration depends on the type of footwear. Brands appear to play a larger role in the athletic shoes market. The ordinary shoes market is more diverse, with a lower concentration of major players. Considering that Ukrainian footwear suppliers are usually small producers of ordinary shoes, they will be more competitive in such a diversified market.[36]

SECTOR COMPARATIVE STRENGTHS AND WEAKNESSES

[32] For example, CEP Interviews, Lars Vestbjerg, General Manager and Head, Sika Footwear and Danish Business Association, Lviv, December 19, 2018
[33] For example, CEP Interviews, Oleh Dyakiv, Director, Vinisan, Ternopil, December 17, 2018
[34] For example, CEP Interviews, Lars Vestbjerg, General Manager and Head, Sika Footwear and Danish Business Association, Lviv, December 19, 2018
[35] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017
[36] Ibid

According to industry research reports, the Ukrainian footwear and apparel industry has potential to compete in terms of cost. First, the salary level in Ukraine is lower than in other countries of the region. Second, Ukraine benefits from the duty-free access to the EU markets under the DCFTA. This advantage is somewhat weakened by the rules of origin of EUR-1, which require the use of fabrics from domestic or EU sources. As a result, cheap fabrics from Asia cannot be used in the production of goods for duty-free import into the EU.[37]

Nevertheless, there are at least two more opportunities for price competition that Ukraine can utilize. First, the recent Pan-Euro-Med agreement with the EU, starting in 2018 after ratification by member countries, allows Ukrainian producers to use Turkish textile and leather materials to produce goods that meet EUR-1 requirements. It further extends the range of products that the Ukrainian industry can offer to European consumers at competitive prices. Second, another option for price competition is the use of European textiles and leather, mainly from Italy (for high-quality products), from Germany (technical fabrics), and from Poland (middle range fabrics). Today, a number of Ukrainian manufacturers use these fabrics to produce goods for European consumers on a toll-free basis. By switching to a full cycle production, these manufacturers will be able to offer European consumers lower total cost of production and a better price.[38]

However, on a global scale, Ukrainian producers face strong competition from Bangladesh (because of low wages and usage of containers for transportation) and India (where wages are one-third of those in Ukraine).[39]

The geographical location of Ukraine and the good transport links with Europe give the footwear and apparel industry an opportunity to be very competitive in terms of the speed of order execution. However, competition in speed of response requires fast and reliable delivery. So, to be competitive at the speed of response, one needs a good internal organization and the ability to quickly obtain raw materials. Competition on the speed of response also requires well-established customs clearance procedures.[40]

Ukrainian footwear and apparel suppliers may be competitive in terms of differentiation. One of the enablers of such differentiation is the availability of talented designers in Ukraine. Particularly, their talent can be used to create a Ukrainian brand product or to provide design services for foreign brands.[41]

Among the comparative advantages, there are low costs of production[42], low price[43], and individual design based on customers preferences.[44]

[37] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017
[38] Ibid
[39] For example, CEP Interviews, Yaroslav Ruschyshyn, Director, Trotolla, Lviv, December 17, 2017
[40] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017
[41] Ibid
[42] For example, CEP Interviews, Yuriy Samets, Founder, Sambay, Lviv, December 19, 2018
[43] For example, CEP Interviews, Yaroslav Ruschyshyn, Director, Trotolla, Lviv, December 17, 2018
[44] For example, CEP Interviews, Olha, Owner, Gracia, Vinnytsya, January 10, 2019

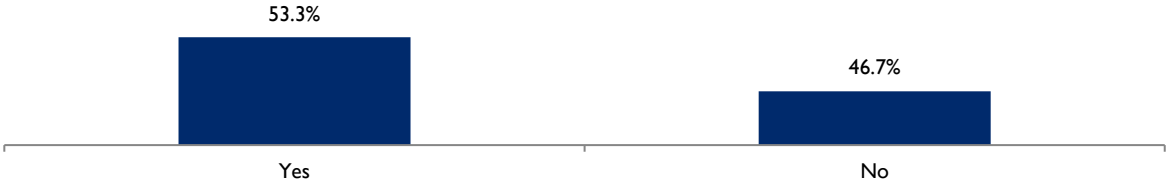
Figure 33: Perceived Challenges in Improving Competitiveness

Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

4.4 SECTOR JOB CREATION POTENTIAL

Market players perceive an emerging trend of substituting human labor with more efficient machines, particularly in production of parts. Automation of the production will decrease the demand for labor.[45]

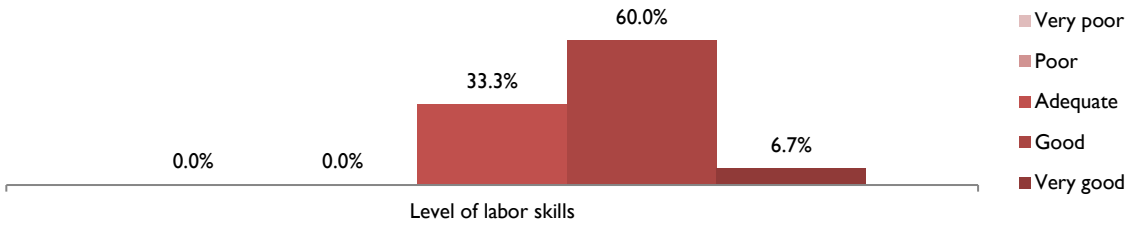
Figure 34: Perceived Sufficiency of Labor Force



Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

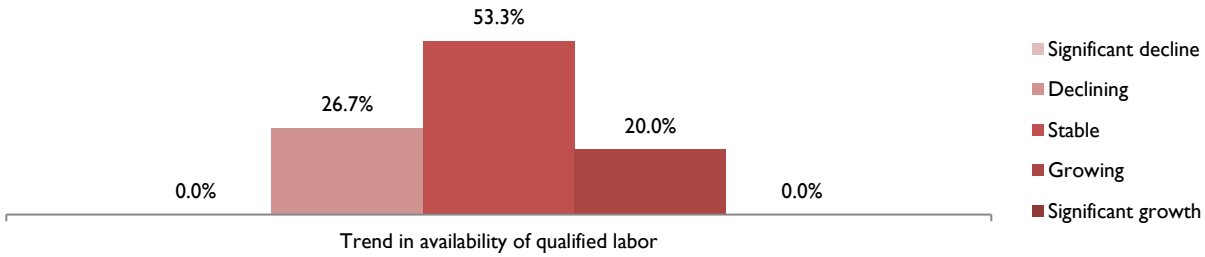
[45] For example, CEP Interviews, Yaroslav Ruschyshyn, Director, Trotolla, Lviv, December 17, 2018

Figure 35: Perceived Level of Qualification of the Workforce



Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

Figure 36: Trend in Availability of Qualified Labor Force



Source: CEP Online Survey, Apparel and Footwear industry survey respondents, January 13-20, 2019

4.5 SECTOR POTENTIAL FOR ENTREPRENEURSHIP AND INNOVATION

EVIDENCE OF SECTOR CHAMPIONS FOR INNOVATION

In Ukraine there are some leaders in the apparel and footwear sector that perform full cycle production, create their own collections and have their own retail outlet networks. Among them are Arber Fashion Group, Voronin, Volodarka (menswear); Andre Tan, Nui Very, Vovk, MustHave (women's outerwear); Bembi (children wear); Riff-1, Mida, Caman (footwear). These companies are successful in domestic and foreign markets and may serve as an example for other market participants. Industry associations help enterprises in the sector to promote exports in new foreign markets, organize trainings to implement best practices for new product development, production and sales. Leading companies that actually changed the rules of the game in the sector and led the rest of the players were not identified during the study.

4.6 BUSINESS ENABLING ENVIRONMENT AND REGULATORY FRAMEWORK

LEGAL AND REGULATORY CONSTRAINTS

Companies and secondary data report that the major constraints in the industry are mainly linked to taxation and operation of customs.[46] The existence of two tax systems allows some shadow companies to use the simplified tax system and therefore pay lower taxes compared to officially operating firms. Another major constraint for companies is the delay in VAT refunds for imported materials. Sometimes the delays exceed several months, influencing firms cash flows.[47] Another problem that reduces the competitiveness of national producers is an imperfect price valuation of clothes imported to Ukraine. Foreign companies may declare lower values of their products and therefore provide lower prices compared to domestic firms.[48]

AVAILABLE SKILLS

There is a deficit of qualified workforce in the industry.[49] It is also hard for companies to attract young people who often consider the work in the industry as low-paying and unpromising. Emigration to Poland is another reason of workforce loss in the industry.[50]

Despite the availability of talented designers, the growth of the industry is constrained by insufficient skills to manage the design process properly.[51] This issue is partly caused by outdated university curriculum.[52] Key types of specialists that are currently missing in the industry are qualified middle and top managers, marketing specialists, prototypes' developers, engineer-technologists, sewing machine technicians, qualified quality assurance staff.[53]

Officially, there are 14 universities, and about 220 technical colleges and vocational schools around Ukraine that provide studies in the light industry programs. Among the best cited by sector stakeholders are Kyiv National University of Technologies and Design and Kyiv Light Industry College. One of the problems is the complete absence of training programs for industrial engineers for the sector. At the same time, Ukrainian Catholic University from the western part of Ukraine has been mentioned by some Western companies as an institution that has good programs for the training of managers that can be potentially employed in the sector.

Employees are mostly provided an introductory training in enterprises. However, some companies may offer the further improvement of their skills.[54]

ACCESS TO FINANCE FOR GROWTH

Companies are mostly relying on their own funds as the industry provides limited sources of finance. SMEs cannot afford loans from banks due to high interest rates (20%+). At the same time, banks do not consider SMEs as credible borrowers due to insufficient quality of financial

[46] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017
[47] For example, CEP Interviews, Yaroslav Ruschyshyn, Director, Trotolla, Lviv, December 17, 2018
[48] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017
[49] For example, CEP Interviews, Yaroslav Ruschyshyn, Director, Trotolla, Lviv, December 17, 2018
[50] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017
[51] Ibid
[52] For example, CEP Interviews, Yuriy Samets, Founder, Sambay, Lviv, December 19, 2018
[53] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017
[54] For example, CEP Interviews, Yuriy Samets, Founder, Sambay, Lviv, December 19, 2018

documentation and overall management. Big companies do not encounter major challenges in acquiring bank financing.[55] Besides banks, there is evidence for emerging alternative sources that include venture capital and special accelerators for apparel producers organized by Ukrainian businessmen.[56]

4.7 OTHER FACTORS

POTENTIAL FOR FEMALE INCLUSION

In Ukraine, the apparel and footwear industries have predominately female employees.[57] Women are present in the sector as owners (especially for the smaller full-branding firms, as opposed to the large cut-make-trim manufacturers), though business representatives noted that the highest concentration of female participation is in the role of seamstress/assembly.[58] According to UNDP, 78% of all independent entrepreneurs working in the manufacture of apparel and footwear in Ukraine are women.[59] The high presence of women in the sector opens multiple avenues for pursuing gender-inclusive economic growth: concentrating on job quality/career prospect improvement for women working in assembly positions, strengthening mentorship networks between established and emerging women-owned businesses with complementary products and business interests, honing in on issues linked to informality, or fortifying elements of the business ecosystem that women find particularly enabling to business growth (as an illustrative example, every woman-owned business interviewed in the apparel sector highlighted the importance of e-commerce as a major marketing channel).

POTENTIAL TO INTEGRATE YOUTH

According to business representatives, Ukrainian youth are not drawn to jobs in the apparel and footwear sector due to low wages and low opportunities for career development. However, technological advancements may influence industry productivity, thereby leading to higher wages.[60] There are also champions present in the apparel sector that prioritize engaging young people as a means of filling their labor skills gap – specifically through directly engaging with secondary or university institutions to source and train young people for employment both through in-house training or advocacy for curriculum development within the targeted institution. As stated earlier, emerging elements of the apparel sector, such as design, are more appealing to youth and have the potential for higher levels of youth integration.

4.8 SWOT AND DIAMOND ANALYSES

SWOT ANALYSIS

[55] For example, CEP Interviews, Yaroslav Ruschyshyn, Director, Trotolla, Lviv, December 17, 2018
[56] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017
[57] Ibid
[58] For example, CEP Interviews, Nataliia Naida, Owner, Framiore, Kyiv, December 9, 2018.
[59] "*Women and Man in Leadership Positions in Ukraine*" UNDP in Ukraine, 2017
[60] "*Ukraine: Roadmap of Development of Apparel and Footwear Industries*" JAA for EBRD, 2017

The analysis of strong and weak sides, as well as potential opportunities and threats of Ukrainian apparel and footwear reveals both "demand" (e.g., new regional partnerships) and "supply" (shrinking labor force) factors. The detailed description is provided in this section.

Figure 37: SWOT Analysis of Apparel and Footwear Sector in Ukraine

Strengths: As noted, Ukraine has signed several free trade agreements with the EU, Canada, CIS, and EFTA that allows for the export of goods under the duty-free regime. A proximity to

European countries helps Ukraine to provide fast delivery (products can be delivered within 3 days), respond quickly to market changes and consumer preferences. Also, Ukrainian apparel and footwear has high quality that is combined with competitive prices caused by low labor costs. Additionally, there is evidence for emerging young designers which can develop own brands successful in domestic and foreign markets.[61]

Weaknesses: Domestic demand is rather weak and limited by low incomes of households. Also, there is lot of gray import of apparel and footwear as well as second-hand imports competing with local producers. Limited domestic fabric, leather and accessories production and heavy dependence in this respect on component imports restrict ability of Ukrainian producers to quickly and flexibly respond to changes in demand. At the same time, Ukrainian producers have much lower labor productivity compared to their competitors in Bangladesh, India and Pakistan. The sector suffers from a shortage of qualified and unqualified personnel caused by the low prestige of work in the industry, labor migration and outdated curriculum in industry-specific educational institutions. Prohibitively high bank interest rates (20%+) do not allow to finance modernization of obsolete equipment, new capital investment and working capital needs. Most of the apparel production is performed on CM or CMT basis and remain vulnerable to the changes in the cost of labor. Export activity of Ukrainian enterprises is restricted by lack of understanding and access to international markets combined with low recognition of Ukrainian brands. Besides this, there are regulatory constraints of trading with the European countries (e.g., issues with receiving EUR.1 certificate, technical regulations and problems with the VAT refund).[62]

Opportunities: Ukraine is close to the European markets with a demand for "fast fashion", high fashion and luxury products at the competitive price. Domestic companies in the sector can train staff in advanced skills and re-engineer production facilities to improve productivity. Considering low labor costs, Ukraine has an opportunity to become "a manufacturing hub" for global brands of apparel and footwear. The realization of above-mentioned opportunities requires financing (e.g. venture capital).[63] Ukrainian business can export initially to bordering countries and then expand to EU, EFTA, Canada, and the Middle East.

Threats: There is an increasing competition on the domestic market from used clothing and footwear, smuggled goods and cheap import from China and other countries of Southeast Asia. Additionally, there is a growing migration of work force to Poland and other countries that is leading to shortage of skilled work force. EU reduces duties on GSP traded apparel and footwear which indirectly reduces advantages of DCFTA for Ukraine. Political and economic instability in the Eastern part of the country may further lessen investment incentives.

[61] For example, CEP Interviews, Apparel and Footwear, multiple locations, December 13, 2018 – January 15, 2019

[62] Ibid

[63] For example, CEP Interviews, Apparel and Footwear, multiple locations, December 13, 2018 – January 15, 2019

DIAMOND ANALYSIS

The competitiveness diamond analysis is presented below for mass production and fashion and design segments of the apparel and footwear sector.

Figure 38: Diamond Analysis of Apparel and Footwear Sector in Ukraine: Mass Production

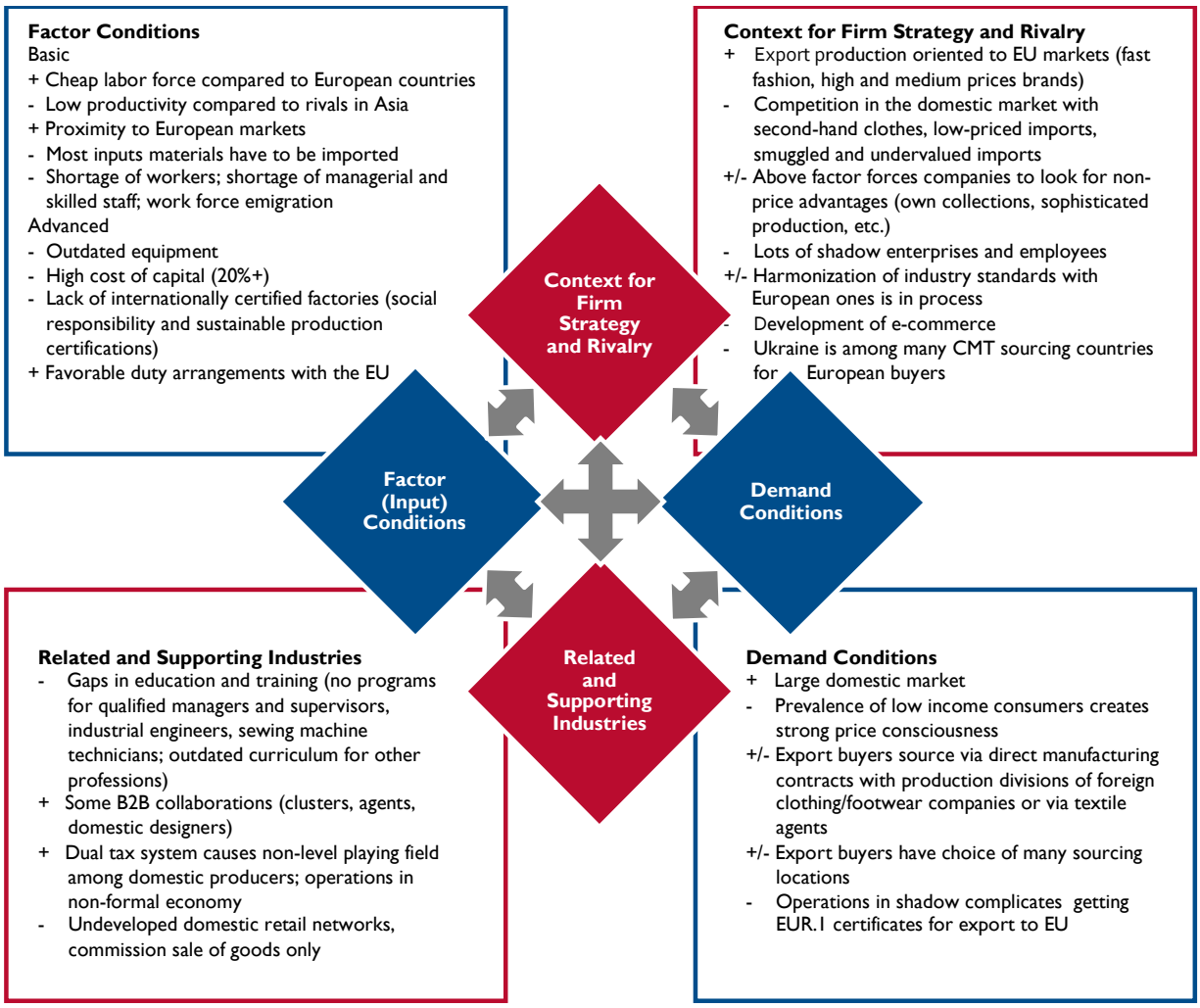
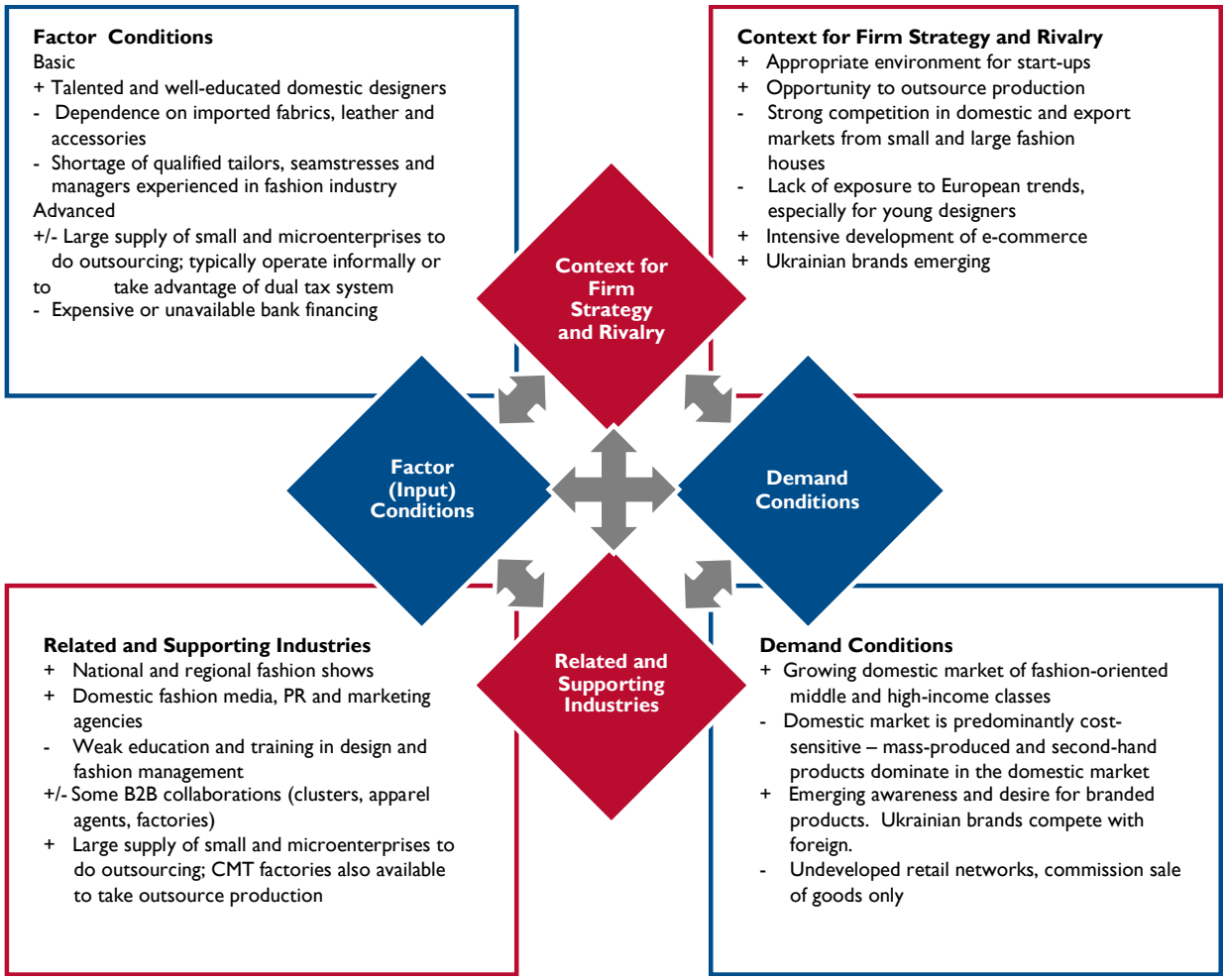


Figure 39: Diamond Analysis of Apparel and Footwear Sector in Ukraine: Fashion and Design



Demand Conditions: Ukraine with its 42 million population has a large domestic market for apparel and footwear. However, more than 80% of inhabitants are low income consumers oriented towards cheap imports and second-hand clothes. These consumers make purchases in organized markets and bazaars. About 80-90% apparel production is performed on CMT basis mainly for export to European clients. Shoe factories in Ukraine produce products under their own brand more often than garment factories. Ukrainian companies perform CM/CMT contracts signed directly with production divisions of foreign clothing/footwear companies or with textile/apparel agents. In apparel, there are mainly CMT export contracts, while in footwear CM export contracts prevail. Shadow operations complicate getting EUR.1 certificates for export to EU.

In 2017-2018, there was a moderate revival in demand for domestic brands from fashion-oriented middle- and high-income classes. Ukrainian fashion apparel and footwear are sold in mono- and multi-brand stores, independent boutiques, other retail outlets and online. The level of recognition and sales of Ukrainian brands abroad is also increasing.

Domestic retail is ready to take apparel and shoes made in Ukraine for sale on commission terms only. This makes retailing very expensive for manufacturers. Fortunately, rapid development of online marketing and e-commerce allows manufacturers and designers to establish direct contact with consumers.

Factor Conditions: Workers of garment and shoe factories can produce high quality products at much cheaper prices compared to European competitors. At the same time, labor productivity in the sector remains well below the level of best practices in Southeast Asian countries (China, India, Bangladesh, Vietnam etc.). The reasons for the backlog are non-optimal organization of production and outdated equipment.

The sector is heavily dependent on import of most fabrics and accessories (from China, Turkey, EU countries) and to a lesser extent on the import of leather (from Turkey, Italy and Poland). The high cost of bank credit (20% +) limits the ability of firms to upgrade their equipment and finance working capital adequately. As in other industries, there is a shortage of workers in the apparel and footwear. Many young people consider work in the sector to be low paying and not prestigious. Labor migration to Poland and other countries is another reason for shortage of employees.

To strengthen the competitive position of Ukraine as a place for outsourcing services for mass production, companies in the sector need international acknowledged social responsibility certification (WRAP, STeP, etc.). International clothing companies position themselves as socially responsible suppliers and require the same values and approaches to running the business from independent manufacturing contractors.

Ukrainian fashion industry has a lot of talented and well-educated domestic designers. Like in mass production, design and fashion segment suffers from dependence on imported fabrics, leather and accessories. There is also shortage of qualified tailors, seamstresses, and managers experienced in the fashion industry. At the same time there is large supply of small and microenterprises to do outsourcing.

Related and Supporting Industries: Sewing, knitting and shoe factories complain that industry universities, colleges and vocational schools do not properly train the following specialists: managers and supervisors, industrial engineers and sewing machine technicians. They also point out outdated curricula for other professions. Designers need managers proficient in the fashion business, who are also not trained in domestic educational institutions.

The sector demonstrates the ability to self-organize through the creation of associations and regional clusters. Clusters have some experience of effective cooperation between designers, prototype makers and manufacturers. Large supply of small and microenterprises is a good environment for outsourcing. CMT factories are also available to take outsource production.

Domestic retail networks remain undeveloped. They are running only commission sales of clothes and shoes produced domestically.

The fashion and design segment is actively supported by regular national and regional fashion shows, fashion media, specialized PR and marketing agencies.

Strategy, Structure, and Rivalry: Many companies in the sector, especially in the CMT segment, are oriented towards the EU market. Ukrainian garment and shoe factories are competitive with European factories on price and with Asian rivals on response time, flexibility and reliability of delivery.

The sector is represented by many small and medium-sized enterprises, who often operate in the shadow economy. There are relatively low entry barriers mainly because of the low capital intensity of the sector. Manufacturers face a non-level playing field with imported second-hand clothes and smuggling or undervalued imports. These factors force companies to look for non-price advantages (own collections, sophisticated production, etc.).

In apparel CMT services prevail, which can be explained by the lack of domestic raw materials, high cost of capital prohibitive to finance inventory, lack of own designers, prototype makers, marketing and sales staff as well as management skills to run full-cycle or full-package production. Shoe factories are more often full-cycle manufactures with own designers and shoe collection development.

Simplified taxation system and the presence of supporting industries create quite favorable conditions for startups in design and fashion. There is evidence for emerging designers which develop own brands becoming successful in domestic and foreign markets. Nonetheless, the emerging design and fashion segment is still poorly integrated with domestic production facilities. The segment experiences strong competition in domestic and export markets from small and large fashion houses. National fashion business is insufficiently exposed to European fashion trends, especially young designers who lack funds to visit fashion shows or receive PR-support abroad.

Intensive development of online marketing and e-commerce allows manufacturers and designers to establish direct contact with consumers.

The sector is in the process of harmonization of industry standards with European ones which is one of the DCFTA's conditions for Ukraine.

Government: The government causes some problems for sector development in the field of taxation, customs and technical regulation.

Ukraine has simplified and common tax systems. The simplified tax system is designed to support small businesses which is good for start-ups in the sector. However, some mid-sized and large companies abuse simplified taxation to reduce tax payments. Some exporting companies also complain about delays with VAT refunds. These are among the reasons for a non-level playing field in the sector. The other reasons for a non-level playing field include poorly regulated second-hand imports, as well as undervalued or smuggled imports of new products.

Ukraine is in the process of harmonization of technical regulations with the EU. All post-Soviet GOSTs in the sector have already been canceled, while many European standards have not yet been adapted. Industry associations highlight the importance to adopt new regulations rapidly to support the competitiveness of exporting companies. Another export-related issue mentioned by the enterprises was getting EUR-1 certificates at customs for export to EU.

5. SECTOR ASSESSMENTS – DAIRY PROCESSING

Ukrainian dairy-processing facilities are disbursed geographically across the country. The sector has a long tradition of manufacturing a variety of well-known though conventional primary and finished products for both domestic consumption and export. However, in recent years with the emergence of a range of innovative small and medium-scale companies, such as Kyiv-based cheese maker Doobra Firma, this sector has demonstrated growing entrepreneurship that may position it to launch more sophisticated Ukrainian products onto the global culinary stage. However, Ukraine also remains a net importer of processed dairy products, particularly ones noted for their high quality, suggesting opportunities for import substitution for processors. Since 2007, the sector has suffered from declining availability of raw material (milk) and declining unit prices coupled with rising input costs (dairy feed), as well as policy challenges related to production and trade.[64] In addition, although the EU-Ukraine DCFTA opened new markets, phyto-sanitary and quality challenges, as well as harmonization problems with export certification regimes, impede many companies from pursuing these potentially more lucrative avenues, despite competitive factor input costs (labor and raw materials). As with other sectors, the prevailing high cost of bank financing inhibits emerging innovators from acquiring processing equipment and limits access to working capital liquidity that could expand production. The USAID-funded ARDS program, which works with the dairy value chain, presents opportunities for project collaboration by improving supply chain relations and market systems that establish platforms to generate greater value-added to products in the sector.

5.1 SECTOR OVERVIEW

The dairy-processing sector is concentrated in terms of both number of processors and most commonly manufactured products. Traditional high-volume processed products include dried skim and non-fat dried milk (NFDM), as well as ultra-high temperature (UHT) packaged milk. Processors in the sector also manufacture significant quantities of cheese such as the mainstay Russian (*Rossiyskiy*) variety. Other high-volume products include butter and cream.[65]

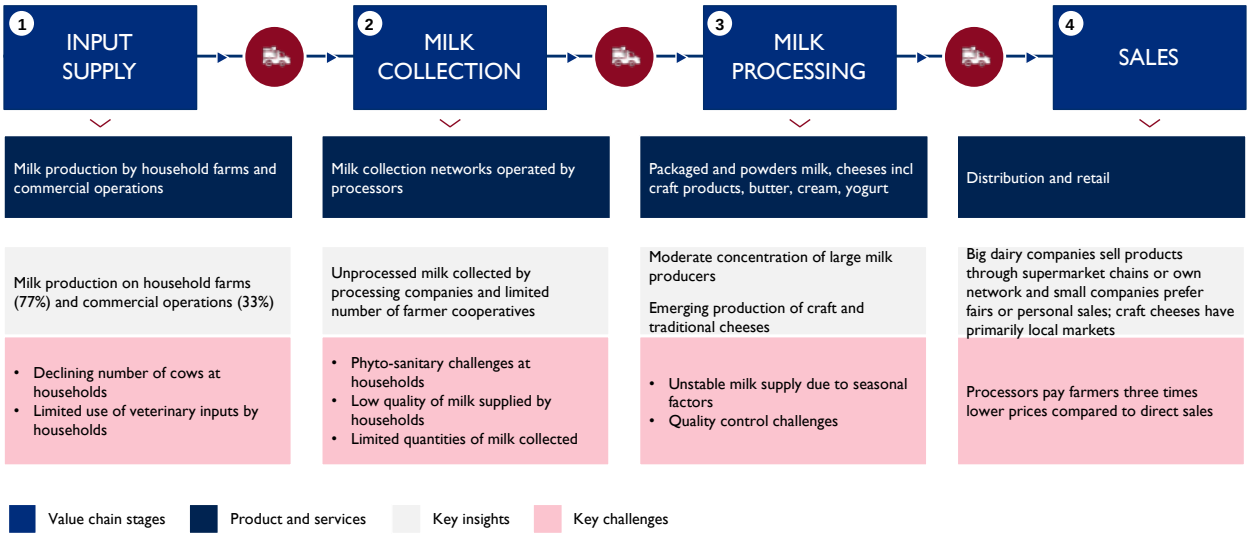
Emerging High Value-added Products: The concentration of producers and products is beginning to change with the emergence of innovative SMEs. Notably, over the past decade small-medium-scale Ukrainian cheese makers have begun turning out an exciting diversity of products, ranging from traditional varieties, such as Carpathian *Brindza* to non-Ukrainian types such as feta, Gouda and pecorino, some of which already compete successfully in their origin EU markets. Interestingly, *Brindza*, a variety of which is also produced in Moldova, Poland, Romania, and Slovakia, has been mentioned for Protected Designation of Origin (PDO) registration (the Polish and Slovak varieties are already registered). Additionally, the country is home to a vibrant emerging craft sub-sector, which may generate interest from specialty importers in the EU and USA. Emerging products also include an extensive list of specialty fermented milk products, including kefirs and traditional yoghurts, which supply growing 'niche' markets for healthy and 'heritage' foods. Ukrainian companies can readily produce these products due to co-located production of yogurt fermentation bacteria, alginates (carrageenan), gelatins, gums (locust bean, guar), pectin, starch, and many other dairy product components.

[64] *"Chain comparison of the dairy sector in Ukraine and Netherlands"* Ukrainian Agribusiness Club, 2017
[65] *"FAO Helps Strengthen Dairy Sector in Ukraine"* FAO, 2018

Value chain overview, market channels, and value creation

The dairy processing value chain map encompasses four stages: 1) milk production; 2) milk collection; 3) milk processing into dairy products; and 4) marketing and sales of primary products onward to wholesale or secondary manufacturing operations, and finished products onward to wholesale and retails networks (see **Figure 40**).

Figure 40: Dairy Processing Overview



Source: CEP Interviews, dairy industry representatives, January 13-20, 2019

Stage one (milk production) is implemented by both household farms and large-scale commercial operations. Generally, the number of dairy cows decreased during the 2007-2017 period with CAGR -3.87%.[66] Specifically, while heads of cattle maintained by agricultural enterprises remained stable at about 0.5 million, there was a drop in the number of cattle kept by households due to poor conditions (CAGR 2.75% in 2010-2017), which in turn lead to high incidence of animal diseases. Likewise, during the last ten years (2007-2017), milking in Ukraine decreased by 39% to 10,200 units. These units are comprised of the following categories: business partnerships (6,100 units), private enterprises (1,900 units), cooperatives (1,000 units), private farms (800 units), and state enterprises (400 units).

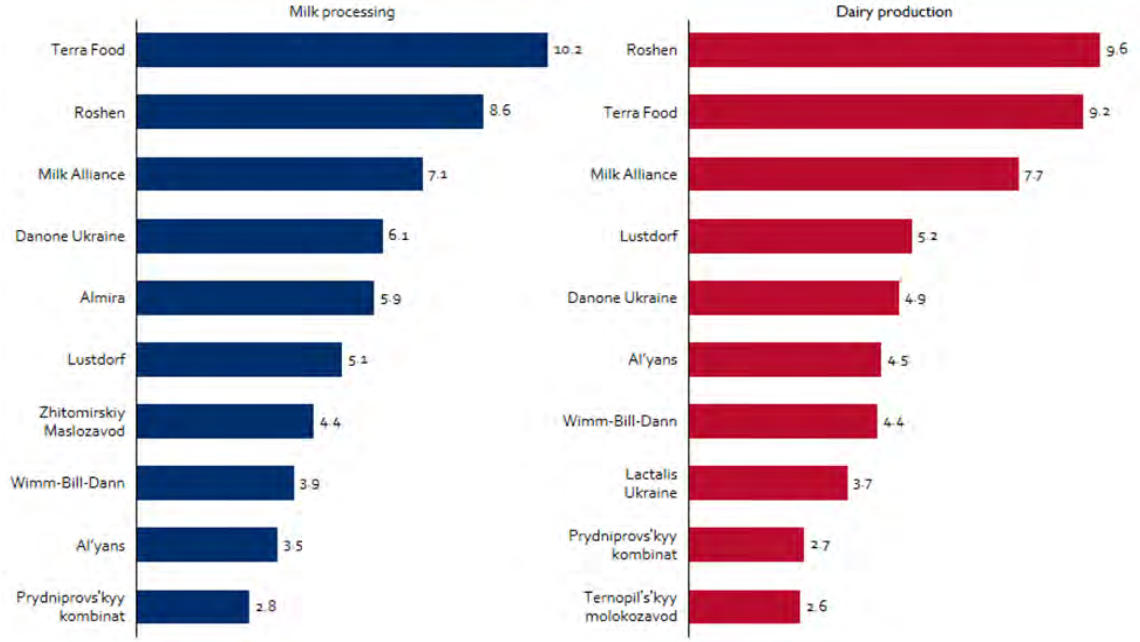
In Ukraine, households are the main suppliers of raw milk, accounting for 77% of total production, while 23% is derived from large commercial operations.[67] In recent years, despite declines in household cattle holdings, both groups have been improving their herds while increasing production of milk per cow. However, commercial agricultural enterprises have continued to enjoy comparatively higher rates of average production of milk per cow, which increased from 3.8 MT per year in 2010 to 6.2 MT per year in 2017 (64%) while household production increased on average from 4.4 MT per year in 2010 to only 4.8 MT per year in 2017 (8%).[68] According to

[66] United States Department of Agriculture
[67] *"Chain Comparison of the Dairy Sector in Ukraine and Netherlands"* Ukrainian Agribusiness Club (UCAB), 2017
[68] *"Agricultural sector of Ukraine"* National Investment Council, 2018

processing sector representatives interviewed, household producers provide very poor milk quality and consequently dairy processing companies are obliged to use milk produced in industrial facilities, especially due to quality demands in export markets. Likewise, this significantly restricts the ability to use household-produced milk as an input.[69] According to KIIs, some dairy processing companies operate integrated raw milk production units themselves to control quality and cope with possible shortfalls in high quality milk supply.[70] Nonetheless, bigger farms/milk production companies are not willing to sell raw milk to the smaller ones, because of "too much effort and logistical headache."[71] As another consideration, processing companies often have to produce milk to diversify risks due to liquidity problems. Additionally, in KIIs a number of small-scale cheese producers described operating their own milk production in order to control quality.[72] In contrast, nearly all of the companies surveyed indicated that their raw materials are obtained entirely from domestic, as opposed to imported, sources (98%).

Subsequently, **stage two (milk collection)** is implemented by two types of entities: 1) milk processors and 2) dairy producers. Both sub-sectors are highly concentrated around a few companies, with the top-ten manufacturers representing 58% and 55% of total market share respectively (see **Figure 41**).[73]

Figure 41: Top Ten Milk Processing Companies and Dairy Producers by Market Share

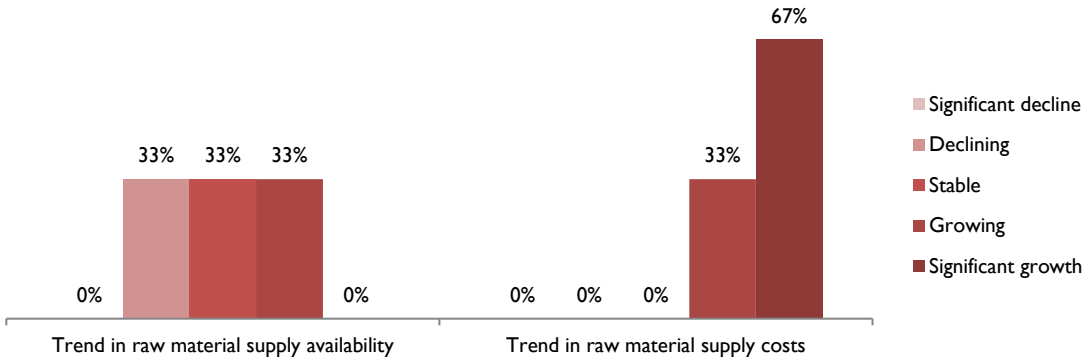


Source: Infographic Report "Ukrainian Agribusiness" Latifundist.com, Top Lead, 2018

[69] Ibid
[70] For example, CEP Interviews, Roman Puchko, Difco International, Dairy Sector Expert, Kyiv, January 15, 2019
[71] Ibid
[72] For example, CEP Interviews, Daria Grytsenko, Analyst of agricultural markets, Association "Ukrainian Agribusiness Club" (UCAB), Kyiv, January 16, 2019
[73] Infographic Report *"Ukrainian Agribusiness"* Latifundist.com, Top Lead, 2018

Stage three is **Milk Processing**. Companies surveyed reported that, while the availability of raw milk generally remains stable, supply costs of raw materials for the dairy industry are growing significantly (see **Figure 42**).

Figure 42: Estimated Availability and Costs of Raw Materials



Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

One of the main constraints to growth within this stage is poor milk quality. Production of cheese and other craft dairy products is highly sensitive to raw materials quality and poor quality has an immediate negative effect on both domestic consumption and exports, especially for cheeses. Thus, as consumer demand for higher quality products grows, the demand for higher quality raw materials from the milk-processing sector has been constantly on the rise, resulting in expansion of sourcing from import markets. To a lesser degree, this situation has also forced some milk processing companies to invest in the development of local raw materials zones to improve the quality of dairy farm outputs.[74]

At **stage four (marketing and sales),** large dairy processors enjoy economies of scale that ensure the affordability of products.[75] Typical distribution channels for these producers include supermarkets and integrated distribution networks.[76] At the same time, household and artisanal scale processors sell their products through trade shows and personal sales networks, covering the demand from consumers at the local level although they inevitably lack equipment facilities required to successfully satisfy commercial domestic networks or export demand (such as trucks and cooling tanks).[77]

Locations of importance to the sector operations. Dairy production is spread throughout the country, though higher concentrations of dairy cattle and marketable surpluses of milk in certain regions favor the development of larger enterprises. Likewise, the geography of milk processing companies is highly dependent on the distribution of milk production enterprises because of the need for dairy producers to reduce logistics and transport costs. As a result,

[74] *"Chain comparison of the dairy sector in Ukraine and Netherlands"* Ukrainian Agribusiness Club, 2017
[75] For example, CEP interviews, Olga Pavlos, Deputy Director, Molokiya, Ternopil, December 18, 2018
[76] For example, CEP Interviews, Daria Grytsenko, Analyst of agricultural markets, Association "Ukrainian Agribusiness Club" (UCAB), Kyiv, January 16, 2019
[77] *"Chain comparison of the dairy sector in Ukraine and Netherlands"* Ukrainian Agribusiness Club, 2017

employment and sales in the processing sector are mainly concentrated in Central-North regions **(Figure 43)**. Specific regional concentrations of milk production and dairy processing include:

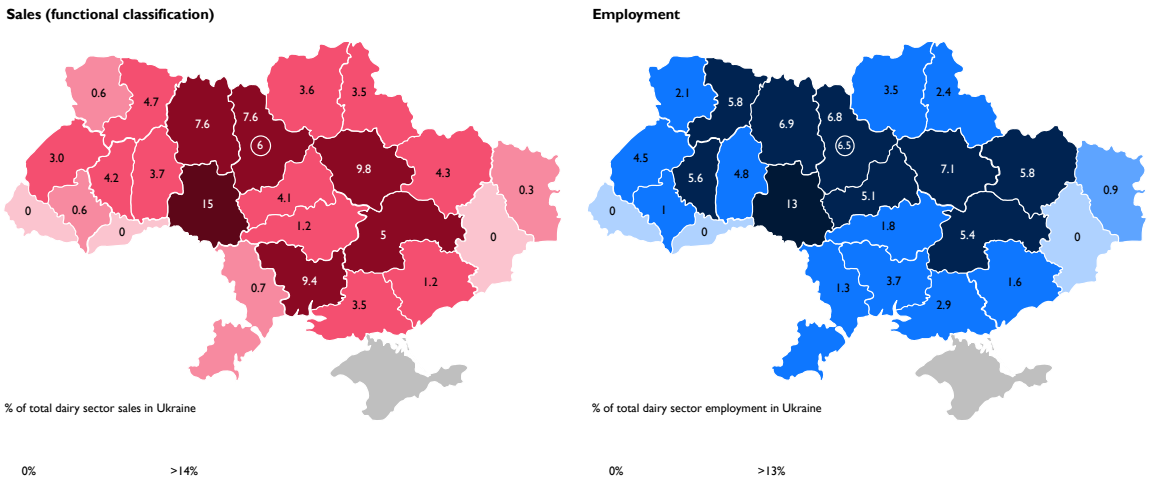
- According to official statistics, around 2/3 of Ukraine's dairy production in terms of value is concentrated in the **Center-North** of the country including the Vinnitsya (19%), Kyiv (16%), Zhytomyr (14%) and Poltava (13%) regions.[78] Butter, condensed milk, curdled milk, the non-processed cheese industry, low-fat milk and cream, high-fat milk and cream production, no-fat dairy production, processed cheese, and fresh cheese production are manufactured in cities in the Center-North part of the country such as Poltava, Cherkasy, Vinnitsya as well as Kyiv, Dnipro and Sumy.

- The **Western part** of the country has only minor concentrations of dairy production. One of the main sub-segments presented there is manufacturing of low-fat milk and cream in Ternopil (home of the large Molokiya dairy unit), flavored liquid yogurts in Lviv, and butter in Khmelnytskyi.

- In the **Eastern** part of Ukraine, the main production center of dairy is Kharkiv, known for condensed milk production, curdled milk production, production of flavored liquid yogurts, and fresh cheese.

- In the **South,** there is intensive production of curdled milk and fresh cheese in Mykolaiv. Also, part of Ukraine's oldest cheese production plants, "Novoodesskyi syrzavod", a part of the Terrafood group of companies, is located in the city of Nova Odessa, Mykolaiv Oblast. This plant has operated since 1944 with a processing capacity of 160 MT per day, producing several well-known cheese brands in the country such as "Ferma" and "Tulchinka".[79]

Figure 43: Regional Distribution of Dairy Processing in 2016



[78] State Statistics Service of Ukraine
[79] Terrafood Group

Source: State Statistics Service of Ukraine

According to the companies interviewed in this research, the major dairy producers have wide distribution networks across cities in Western and Central Ukraine[80] while representatives of the smaller businesses (especially manufacturers of craft dairy products) noted that their sales networks are mainly limited to the larger cities.[81]

Production and market trends

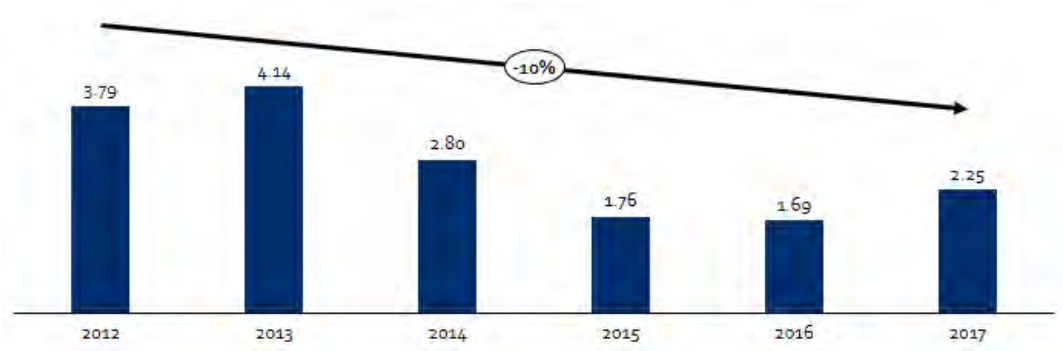
Primary products currently dominate Ukrainian dairy processing, domestic sales, and exports. According to the SSSU, in 2017 Ukraine produced 10.3 million MT of milk. At the same time, exports amounted to 8% of milk produced in Ukraine (853,000 MT of unprocessed milk weight), while imports amounted to only 1% (132,000 MT).[82] Dairy production in Ukraine accounted for US$2.25 billion, which is 13% of total agriculture production of Ukraine in 2017.[83]

Ukraine exported butter to 58 foreign markets and occupies the 9th position in the world ranking of **butter manufacturing**, producing US$9.38 million in 2018. Companies presented in the **cheese production segment** dealt with 47 export markets in 2018.[84] **Full cream milk powder production** ranked 11th place in the world in 2018. Companies presented in the segment produced full cream milk powder worth US$74 million and exported their products to 64 foreign markets in 2018.[85]

In terms of total value, dairy sector production amounted to US$2.3 billion in 2017. However, despite the sector's vast scale, in the context of the overall Ukrainian economy, the dairy sector generates a limited share of the value-added generated in the country, representing only 0.5% (US$390 million) of all value-added. This reflects the current preponderance of low value-added, products - i.e. value-added represents only 17% of total production value, and a relatively low value-added of only around US$7,700 per employee.[86]

[80] For example, CEP interviews, Yulia Solodkaya and Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[81] Ibid
[82] State Statistics Service of Ukraine
[83] Ibid
[84] Infographic Report *"Grow Ukraine"* The Ministry of Agrarian Policy and Food of Ukraine, 2018
[85] Ibid
[86] State Statistics Service of Ukraine

Figure 44: Dairy-Processing Sector Production (US$ billion)



Source: State Statistics Service of Ukraine

Only about 40-45% of domestic raw milk output is processed into dairy products, compared to 60% on average globally and over 80% in developed countries (the remainder is consumed locally and sold through unorganized retail).[87]

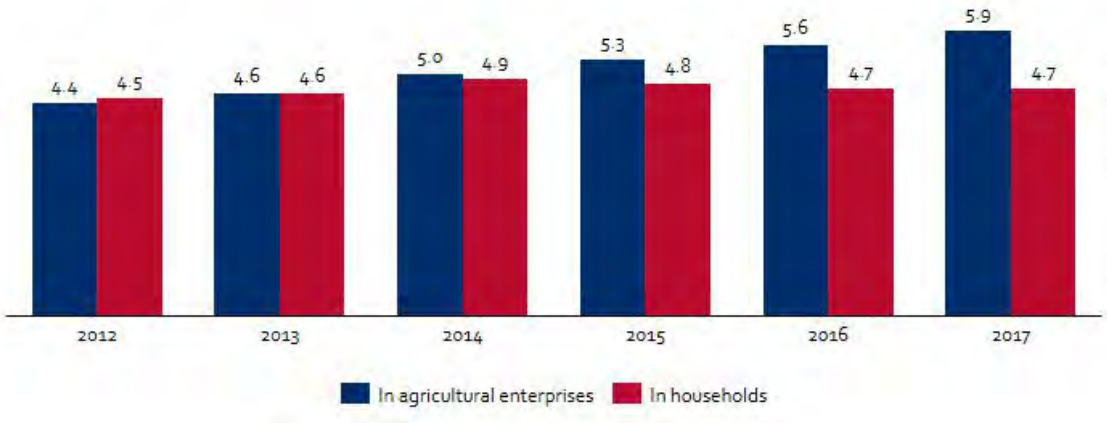
Total dairy production declined in the period of 2012-2017 in terms of value with a CAGR of 9.9%, because of the following reasons: 1) decrease in raw milk production; 2) limited export opportunities to CIS markets; 3) currency devaluation; 4) shortage of domestic consumption of dairy products per capita. Recent market dynamics include:

1. Ukrainian **export** of dairy products to the formerly significant Russian market was restricted because of the official closure of this market to Ukrainian exports after the military conflict began in 2014.

2. Due to the **decrease in milk production** by households (CAGR -2.5% 2010-2017) as the main milk suppliers, total dairy production declined. The main reason of milk production decrease is shortages in cattle headcount.[88]

[87] USDA Dairy World Markets and Trade Report
[88] United States Department of Agriculture Foreign Agricultural Service

Figure 45: Production of Milk per Cow (MT per year)



Source: FAO stat

At the same time, from 2010-2017 industrial milk production increased (CAGR +3.2%). This resulted from larger industrial farms increasing their efficiency with investments in farm upgrades and improved feeding techniques and management as well as veterinary programs. Industrial farms are also benefiting from higher procurement prices as their products are utilized for premium whole dairy products and cheese. However, increasing growth rates of milk production by industrial farms was not enough to prevent the overall decline in dairy production. To note, the share of milk produced by agricultural enterprises increased from 20% in 2010 to 27% in 2017.

3. Significant political and economic shocks undermined the Ukrainian currency – *hryvnia* (UAH) – stability in 2014-15, resulting in abrupt **devaluation** which had a significant impact on the decline of dairy production in value terms. Nonetheless, the exchange rate subsequently stabilized in 2015-16 through National Bank of Ukraine measures. [89]

4. There was **weak consumer domestic demand** from 2014 due to unfavorable economic conditions. Consumer preferences shifted to cheaper goods and products (per capita consumption of milk and dairy products decreased by -1.98% CAGR in 2013-2017).[90]

Current trends in the dairy processing industry related to specific high-volume segments include:

- From 2007-2018, **cheese production** declined along with domestic consumption (by -4.51% CAGR and -2.79% CAGR respectively). Following the closure of the Russian market in 2014, Ukrainian producers were unable to discover new markets for their products mainly because of product quality standards. Some of the cheese manufacturers focused on the lower-price segments of the domestic hard cheese market while other processing companies diverted excess milk supplies to butter and non-fat dried product to benefit from the high price situation in the world market.[91]

[89] National Bank of Ukraine
[90] State Statistics Service of Ukraine
[91] *"USDA Annual Report for Ukraine's Dairy Sector"* USDA FAS, October 20, 2016

- **Butter production** increased by 0.53% CAGR from 2007-2018 in terms of absolute value, driven by high domestic prices and export demand as Ukrainian processors were able to utilize excess milk supplies available after the Russian market closure.[92]

- **Production of dry whole milk powder** decreased by -5.77% CAGR during 2007-2018. Non-fat dry milk remains to be one of the major exportable commodities with multiple diversified markets in Asia and Africa where Ukrainian non-fat dry milk price has a major competitive advantage and maintains production levels. Simultaneously, Ukraine significantly decreased production of whole dry milk, which has limited export markets and limited domestic use as a food ingredient. The non-fat dry milk price increased in 2017, but the margin was much smaller compared to that of butter as Ukrainian processors have little ability to store non-fat dry milk and the Ukrainian government does not regulate the dairy market with non-fat dry milk procurement programs.[93]

Table 7: Production Volume of Dairy Products (`000 of MT)

YEAR	MILK, FLUID	CHEESE	BUTTER	NONFAT DRIED MILK	DRY WHOLE MILK POWDER
2007	12,262	319	100	90	25
2008	11,762	307	85	65	30
2009	11,610	291	75	51	16
2010	11,249	269	79	53	15
2011	11,085	254	76	43	10
2012	11,378	245	88	52	11
2013	11,488	247	93	52	10
2014	11,426	203	115	55	11
2015	10,864	190	103	54	9
2016	10,625	186	103	53	6
2017	10,520	190	109	47	12
2018	10,300	192	106	44	13

Source: USDA

In 2018, fluid milk production also contracted marginally and the Ukrainian dairy industry is expected to continue this slight downward trend in 2019. Simultaneously, larger industrial farms

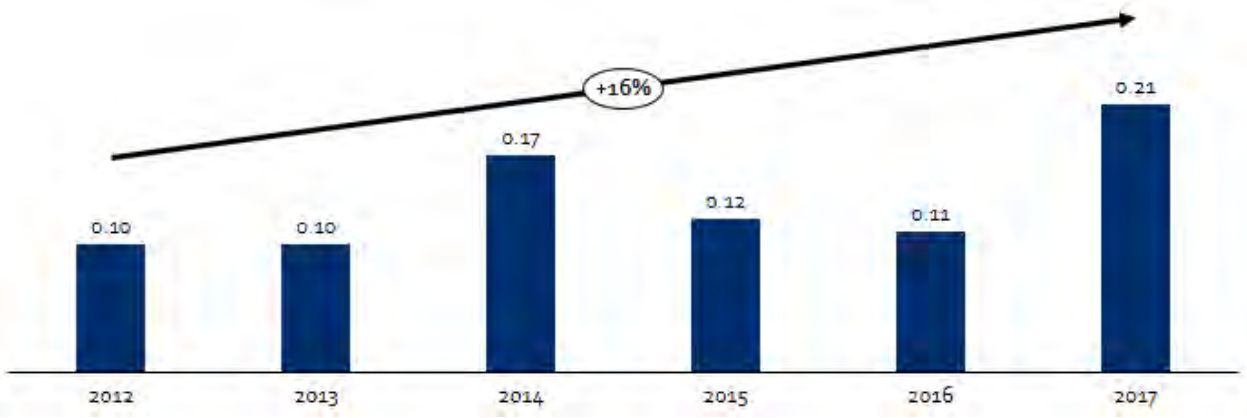
[92] Ibid
[93] Ibid

are increasing their efficiency with investments in farm upgrades and reconstruction, improved feeding techniques, and management and veterinary programs.[94]

According to the Ministry of Agrarian Policy and Food of Ukraine in 2017, exports of dairy products amounted to US$0.2 billion (0.37% of total Ukrainian export), with sector exports growing by 21% p.a. in 2013-2017. This growth is driven by the rising global demand for dairy products. Despite fast growth rates, Ukraine accounted for only 0.73% share in world exports in 2017 (13th ranking in world exports). In addition, Ukraine's dairy exports are diversified and the geographic concentration index of importing countries is only 0.08. The untapped trade potential of the industry equals US$188 million (see **Figure 46**).[95]

In terms of volume, Ukraine is the 9th largest **butter producer** globally, accounting for US$9.4 million in 2018. Ukraine is the 11th largest producer for **full cream milk powder production**. In **cheese production**, Ukraine takes the 10th place globally and produces cheese valuing US$24 million.[96]

Figure 46: Dairy-Processing Sector Export (US$ billion)



Source: State Statistics Service of Ukraine

The EU is Ukraine's largest trading partner, accounting for more than a third of its trade in 2015. Ukrainian exports to the EU reached 40% of its total exports in 2016. The volume quotas that could be used by Ukraine for the duty-free exports of dairy products to the EU in 2017 was as follows:

- Milk, Cream, Condensed Milk and Yoghurts – 8,400 MT;
- Milk powder – 2,200 MT;
- Butter and dairy spreads – 1,800 MT;
- Processed products from milk cream – 340 MT;
- Processed products from butter – 250 MT.[97]

[94] GAIN Report – UP1824 – Dairy and Products Annual, Ukraine, USDA Foreign Agricultural Service
[95] International Trade Center
[96] Infographic Report *"Grow Ukraine"* The Ministry of Agrarian Policy and Food of Ukraine, 2018
[97] *"Chain comparison of the dairy sector in Ukraine and Netherlands"* Ukrainian Agribusiness Club, 2017

The DCFTA provides an opportunity to make the sector more competitive and diversify exports. However, in order to successfully export to the EU, Ukrainian food safety standards must correspond with European counterparts.[98] Currently 16 milk production companies meet the European and Global standards for food safety and are already exporting to the EU.[99]

Ukraine is a net exporter of milk and dairy products. In 2017, exports amounted to 8% of milk produced in Ukraine (853,000 MT, in weight of unprocessed milk weight) while imports amounted to only 1% (132,000 MT). Key export items include dry milk, butter and cheese (see **Table 8**).[100]

Table 8: Export Volume of Dairy Products in Ukraine (`000 of MT)

YEAR	DAIRY, BUTTER	DAIRY, MILK, FLUID	DAIRY, MILK, NONFAT DRY	DAIRY, CHEESE	DAIRY, DRY WHOLE MILK POWDER
2007	4	4	57	62	13
2008	6	16	44	77	21
2009	1	18	27	77	5
2010	1	16	14	79	6
2011	2	11	22	80	2
2012	0	6	26	68	1
2013	3	8	12	59	1
2014	5	7	28	19	2
2015	11	9	35	11	2
2016	9	11	34	8	2
2017	28	14	29	9	4
2018	30	25	22	9	4

Source: USDA

According to the Ministry of Agrarian Policy and Food of Ukraine, the total number of destinations for dairy products equaled 89 export markets in 2018.[101]

Export destination breakdown for dairy products from Ukraine in 2018 was as follows:

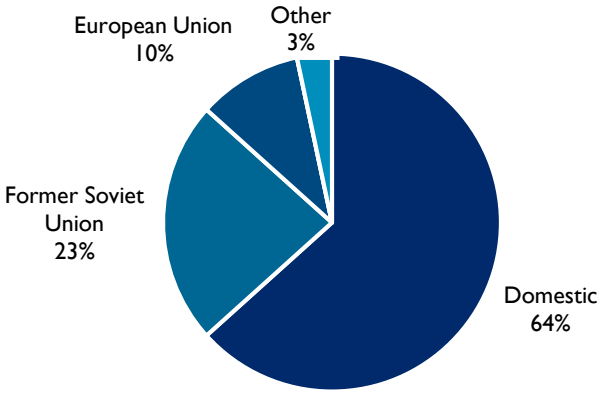
- Europe – 26%;
- EAEU – 18%;

[98] Ibid
[99] Ibid
[100] *"Agricultural sector of Ukraine"* National Investment Council, 2018
[101] Infographic Report *"Grow Ukraine"* The Ministry of Agrarian Policy and Food of Ukraine, 2018

- Africa – 18%;
- Middle East – 18%;
- Asia – 10%;
- Southeast Asia – 8.4%;
- Americas – 1.4%.[102]

At the same time, surveyed companies consider the Former Soviet Union (FSU) a key market with 10% in average (see **Figure 47**).

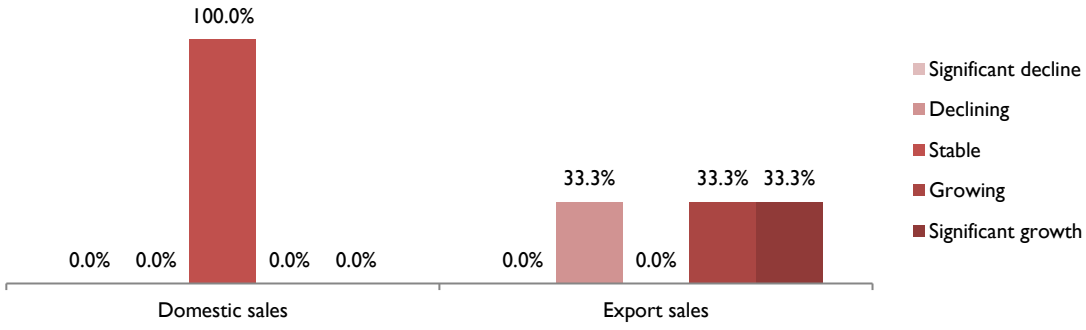
Figure 47: Perceived Importance of Current Markets



Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

All of the companies that participated in the survey expect that the value of domestic sales will remain stable. At the same time, 67% of respondents expect export sales to grow, while another 33% expect them to decline (see **Figure 48**). According to CEP's online survey, perceived importance of the markets by producers differs. Domestic markets lead with 63% of surveyed producers naming them as most important; followed by the FSU with 23%, the EU with 10%, and other markets with 3%.[103]

Figure 48: Estimated Sales Growth by Value

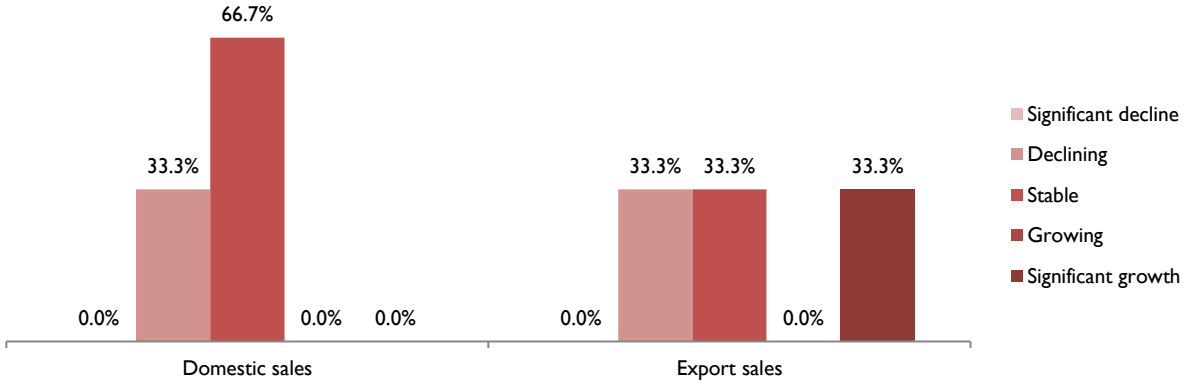


[102] Ibid
[103] CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

In regards to the sales volume of the domestic market, 33% of the respondents believe these will decline, while another 67% expect stabilty. On the other hand, 33% of respondents believe export sales volumes will increase, a sentiment highly represented in the craft sector (see **Figure 49**).

Figure 49: Estimated Sales Growth by Volume



Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

Dairy producers use traditional market chains to distribute their products to wholesalers in order to reach outlets.[104] According to interviews, large producers of dairy products utilize a variety of retail channel types, including supermarket chains as well as, in limited but expanding cases, their own retail outlets.[105] In addition to these channels, some small dairy producers organize fairs and direct sales in order to sell their products locally. According to the KIIs, the most important communication for the marketing channel is face-to-face communication as people respond best when trying products in person. Companies interviewed also confirmed that cheap dairy products are often sold in open-air markets without any record of receipts.[106]

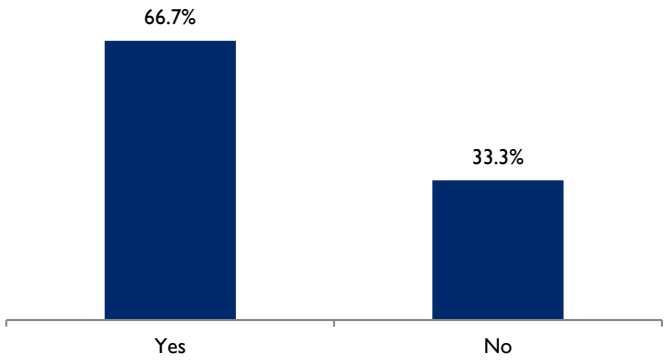
Several companies interviewed over the course of this research shared their experience with distribution channels trends. Craft manufacturers reported using online communication (Facebook).[107] Their sales are made through their own farm stores, grocery stores and trade shows. They noted that in bigger cities there is a growing trend of getting to know more about the origin of the final products as well as the growing trend in Kyiv of consumer willingness to buy unique and exclusive 'green' and eco-products, in line with growing readiness to pay more for better quality products.[108] In one unique case, a group of companies created the cooperative "Hyldiya" uniting small cheese makers in order to respond to larger orders by distributors through aggregating products amongst members.[109]

[104] Themen, Daniel *"Food Losses and Waste in Ukraine – Country Report"* FAO Regional Office for Europe and Central Asia, 2013
[105] CEP interviews, Olga Pavlos, Deputy Director, Molokiya, Ternopil, December 18, 2018
[106] *"USDA Annual Report for Ukraine's Dairy Sector"* USDA FAS, October 20, 2016
[107] For example, CEP interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[108] For example, CEP Interviews, Daria Grytsenko, Analyst of agricultural markets, Association "Ukrainian Agribusiness Club" (UCAB), Kyiv, January 16, 2019
[109] For example, CEP interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018

Workforce and employment trends

According to the SSSU, 50,700 people in total are officially employed in the dairy sector (0.9% of total country employment in 2017). However, the number of jobs declined by 5.1% p.a. between 2013 and 2017. In surveys, 67% of respondent companies assessed the current sufficiency of the labor force as having 'adequate' availability (see **Figure 50**).

Figure 50: Estimated Sufficiency of Labor Force



Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

The average income in the sector (US$254) is almost the same as the country's average in 2017 and it accounted for 96% of the average income at the country level.[110]

In terms of gender income disaggregation, equality in pay is not observed in the sector (income disaggregation is taken for manufacture of food products, beverages, and tobacco products). Women earn, on average, 18% less than men in the industry.[111]

Current B2B outsourcing and trends. Small dairy businesses do not sell in supermarkets, because they do not have the necessary personnel and conditions. Their main B2B cooperation is with restaurants, which sell the product to final customers.[112]

5.2 SECTOR GROWTH POTENTIAL

SECTOR ACHIEVABLE EXPORT GROWTH

World dairy production is forecasted to reach nearly 827 million MT in 2018, up 2% from 2017. In 2018, the FAO forecast an increase of dairy production in all major regions, with the largest gain foreseen in Asia, followed by Europe, North America, and South America. In the context of dairy products types, global dairy exports are forecasted to expand across all the main dairy

[110] State Statistics Service of Ukraine
[111] Ibid
[112] For example, CEP interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018

commodities: butter (+6.3%), SMP (+6%), cheese (+1.2%) and WMP (+0.6%). In terms of volumes in milk equivalent, however, cheese has become the most traded dairy commodity in the world, followed by Skim Milk Powder (SMP), Whole Milk Powder (WMP), and butter.[113] Growing markets create new opportunities for Ukrainian dairy production.

After the major economic and political shock of recent years, Ukrainian milk producers and processors have stabilized production, discovering new export markets for dairy products.[114] As noted in the USDA Gain Report, almost all whole dairy products are sold domestically. Export of dairy products is largely limited to dried milk and cream, butter, cheese, industrial grade and edible casein.[115] There are also export opportunities for sweeteners, flavorings, yogurt fruit preparations, ice-cream components, specialty cheese and yogurt fermentation bacteria, alginates (carrageenan), gelatins, gums (locust bean, guar), pectin, starch, and many other dairy product components. At the same time, according to KIIs, desserts production (such as yogurts, puddings) is also very promising.[116]

According to the Ministry of Agrarian Policy and Food of Ukraine, Ukraine exported dairy products to 89 markets in 2018. However, exports were concentrated amongst 'traditional' primary products, i.e. butter, full cream milk powder, cheese, and whey powder. In addition to further expansion in existing markets, Ukrainian dairy companies may consider entry to several other potentially attractive markets, including:

- **EU market potential.** Big dairy producers stated that the EU market is of the greatest interest to them in terms of potential markets for expansion. They particularly noted the following countries: Czech Republic, Poland, Slovakia, and Hungary. The list of Ukrainian enterprises published in the most recent European Commission's Third Country Establishments List includes only butter, non-fat dry milk, milk, cheese, fluid milk, and whole dairy products producers which suggests Ukrainian processors have only limited penetration of the EU market.[117] At the same time, Ukraine is the largest producer of organic agricultural products in Eastern Europe.[118] The EU is expected to become the world's top exporter of dairy products by 2026, just ahead of New Zealand, suggesting that quality competition will be intense. However, despite the expected strong increase in exports, by 2026 more than 85% of EU milk and dairy products will be consumed within the EU, giving room for Ukrainian dairy production.

- **Middle East and Africa potential**. In addition to EU countries, some Ukrainian enterprises have expressed interest in African and Asian countries (though expanding exports in these markets will require improvements in phyto-sanitary control).[119] The OECD and FAO expect that producers in emerging countries in Asia and Africa will not be able to keep up with the growing local demand for milk powder and ingredients.

[113] "*Dairy market review*" FAO, October 2018
[114] GAIN Report "*Dairy and Products Annual, Ukraine, USDA Foreign Agricultural Service*", 2017
[115] GAIN Report "*UP1715 - Food Processing Ingredients Report_Kiev_Ukraine*", 2017
[116] CEP Interviews, Daria Grytsenko, Analyst of agricultural markets, Association "Ukrainian Agribusiness Club" (UCAB), Kyiv, January 16, 2019
[117] GAIN Report – UP1824 – Dairy and Products Annual, Ukraine, USDA Foreign Agricultural Service
[118] National Investment Council, Agricultural sector of Ukraine, 2018
[119] CEP interviews, Olga Pavlos, Deputy Director, Molokiya, Ternopil, December 18, 2018

These organizations estimate that the shortage of milk powder in Asia and Africa (demand minus local production) will reach 3,600 kilotons (kt) by 2023. In terms of trade with Asia and Africa, Ukrainian NFDM is currently the main exportable commodity, with price as its major competitive advantage.[120] Moreover, cheese shortages in Asia and Africa are forecasted to rise by 9% a year on average for the next ten years, providing a great opportunity for Ukrainian exports.[121]

- **CIS market potential.** After the loss of the Russian market, Kazakhstan, Turkmenistan, and Uzbekistan are the major traditional FSU countries for Ukrainian dairy products, although Ukrainian shipments to these countries have to go through Belarus with special seals, permits, and tracking devices. Dairy processors shipping their dried milk products to Central Asia around Russia found this route to be almost 200 USD/MT more expensive (a 65% transshipment cost increase) and significantly more time consuming.[122] Some small dairy producers also expressed interest in FSU countries.[123]

In terms of key export positions (butter, cheese, milk powder, and full cream milk powder) the potential markets for Ukraine are the following:

- **Butter.** Potential future markets for Ukraine could be China, Saudi Arabia, United States of America, Iran, and Australia.[124] In 2018, estimates of export potential for butter are 30,500 tones, as well as 3,000 tones for dairy spreads and 600 tones for fats and oils derived from milk. Top importers for Ukrainian butter are Morocco, Turkey, EU, Kazakhstan, Georgia, Azerbaijan, and others.[125]

- **Milk ingredients (Dry milk).** There are attractive niches for exported milk ingredients, such as casein, because of a global lack of manufacturers, with a particular shortage in the EU (casein is a milk by-product used in range of industries, especially by meat producers as sausage skins).[126] Whey and modified whey possess current export potential of 30,200 MT in 2018, while products consisting of natural milk constituents have 1,800 MT potential. The most significant trade relationships in terms of imports of Ukrainian whey powder are with China, Malaysia, Vietnam, Uzbekistan, and Pakistan.[127]

- **Full cream milk powder**. Ukrainian SMP (skimmed milk powder) export markets are rather diversified with multiple destinations in the CIS countries, Central Asia, and Africa. Current export potential of milk and cream in solid forms is 34,500 MT as well as for sweetened concentrated milk and cream export potential export potential is

[120] GAIN Report – UP1722 – Dairy and Products Annual, Ukraine, USDA Foreign Agricultural Service
[121] *"Chain comparison of the dairy sector in Ukraine and Netherlands"* Ukrainian Agribusiness Club, 2017
[122] GAIN Report – UP1722 – Dairy and Products Annual, Ukraine, USDA Foreign Agricultural Service
[123] CEP interviews, Olga Pavlos, Deputy Director, Molokiya, Ternopil, December 18, 2018
[124] Dairy Market Review 2018, Trade and Markets Division (EST), Food and Agriculture Organization of the United Nations
[125] Infographic Report *"Grow Ukraine"* The Ministry of Agrarian Policy and Food of Ukraine, 2018
[126] CEP interviews, Eugene Riabkov, Export Manager, Dairy Powders, distributor of Ukrainian casein manufacturer Dairy & Co, Dnipro, January 15, 2019
[127] Infographic Report *"Grow Ukraine"* The Ministry of Agrarian Policy and Food of Ukraine, 2018

22,100 MT in 2018 and 3,900 MT for unsweetened milk and cream in solid forms with fat content >1.5%. Top importers of Ukranian full cream milk powder products are Kazakhstan, Bangladesh, Turkmenistan, Armenia, Georgia, and Azerbaijan.[128]

- **Cheese.** Export potential for cheese (except fresh, grated, and processed) is 8,800 MT, for the fresh cheese, unfermented whey cheese, and curd export potential is 2,300 MT, and 600 MT for processed cheese in 2018. The main consumers of Ukrainian imported cheese are Kazakhstan, Moldova, Egypt, Morocco, Azerbaijan, and United Arab Emirates (UAE).[129] At the same time, the main cheese competitor is the European Union, which exports almost a third of the global total - a share that is expected to increase further. With the closure of the Russian market in 2014, Ukrainian producers were unable to develop new markets for their products. Ukrainian cheese quality often needs improvement and the type and taste of the product limits its distribution mainly to CIS countries.[130]

According to the KIIs, Ukrainian dairy products, especially craft ones, have several competitive advantages, including authenticity, taste, design, and packaging. Higher price is considered to be a major disadvantage. However, the quality of the dairy production is a significant factor in constraining export growth. Being relatively low-efficiency producers, rural households who are the main suppliers of raw materials, use a low-cost production model with a lot of seasonal grazing and minimum usage of expensive feeds or veterinary medicine. The quality of milk from households remains low. However, Ukrainian dairy processors cannot avoid using household milk due to insufficient available quantity of industrially produced milk.

SECTOR SCALABILITY

Some of the determinants of dairy sector scalability include: raw material availability, workforce, production capacity (plant and equipment), as well as distribution of processed and finished goods (see **Table 9**).

Table 9: Assessment of Dairy-Processing Sector Scalability

FACTORS	CURRENT POSPECTS FOR SCALABILITY	ROOM FOR IMPROVEMENT
Supplies of raw materials / industrial inputs	**Satisfactory** – KII and survey respondents stated that raw material (milk) is available; however, the total production of raw milk is steadily decreasing and there is a growing concern about the quality of milk supplied by households.	Certification and standardization of milk quality.
Workforce	**Satisfactory** – There is a sufficient number of employees in the sector. However, skilled employees are not available.	Staff skills development programs.
Business development skills	**Poor** – There are few centers of extension (consulting) service, generally limited to some donor technical assistance projects.	Promotion of business development services (business consulting).

[128] Ibid
[129] Ibid
[130] GAIN Report – UP1722 – Dairy and Products Annual, Ukraine, USDA Foreign Agricultural Service

Production capacity, plant and equipment	**Poor** – Existing equipment is mostly outdated and there is a lack of proper cooling facilities. Finance for upgraded equipment is unavailable.	Better operational management; more investments in facilities; more technical assistance projects.
Distribution of processed/finished goods	**Poor** – logistics and infrastructure (milk collection, storing and distribution) are underdeveloped and expensive; companies struggle with collection of milk from farmers due to the poor quality of milk and access to equipment.	More investments in logistics and infrastructure.

Source: Industry reports and CEP Interviews, Dairy sector survey respondents, 2018-2019

According to one KII respondent, logistics costs are very high in Ukraine compared to other similar countries. In addition, problems with logistics quality and safety have been difficult to address, resulting in challenges to the emerging SME sub-sector which depends on larger companies for raw materials. Traceability systems are not developed in Ukraine, but are important to the development of higher quality products for export. Trucks and cooling tanks are also outdated, which creates a bottleneck within the market as they are not able to maintain the needed temperature for transportation. Consequently, quality of this milk is poor (there can presence of flies, grass, etc. in milk, and high incidence of spoilage).[131]

SECTOR INVESTMENT POTENTIAL (FOREIGN AND DOMESTIC)

Interviewees listed several problems preventing the development of higher value secondary dairy products: 1) lack access to finance for facilities and equipment[132] and 2) price controls on some existing primary products i.e. current legislation prohibits price increases in excess of 15% for "social milk", which is sold by processing plants. However, during the 4th quarter of 2016 there was an attempt to cancel this measure.[133] According to KIIs respondents, the primary challenge faced by emerging dairy processors is raising investments for scaling up building and equipment. They state that there are currently no available financing programs to promote growth in the sector resulting in most of the small dairy business founders using personal savings to fund the launch and scale-up of their businesses.[134] Moreover, some small dairy production companies noted that there is lack of trained professionals (especially cheesemakers) within the Ukrainian market. Those professionals that are available often get their knowledge abroad or are self-educated.

There are no specified tax or other incentives in the industry as the taxation in the sector is the same as in other sectors of Ukrainian economy. A company must pay 18% corporate income tax and 20% of value added tax. Each employee is required to pay income tax (18% of salary) and military tax (1.5% of salary). Additionally, the employer must pay a 22% social tax. Also, companies with revenue lower than US$184 thousand pay Unified tax at a lower rate. Export operations are taxed with 0% tax rate.[135] At the same time, VAT refund remains a major problem for Ukrainian exporters.[136]

[131] CEP Interviews, Roman Puchko, Difco International, Dairy Sector Expert, Kyiv, January 15, 2019
[132] Ibid
[133] *"Chain comparison of the dairy sector in Ukraine and Netherlands"* Ukrainian Agribusiness Club, 2017
[134] CEP interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[135] Ministry of Agrarian Policy and Food website: http://minagro.gov.ua/
[136] "Ukraine Country Profile 2018" American Chamber of Commerce in Ukraine, 2018

DOMESTIC MARKET

Trends in current markets:

- The domestic dairy industry market is relatively underdeveloped, hence, there is a large market and potential for industry growth.[131]It consists of several large players, international companies as well as approximately 100 small companies that are seasonal, as they depend on seasonal inexpensive milk and sell their products through informal channels.[137]

- There was a gradual decrease in dairy product consumption in 2014-2016. According to the SSSU in 2014, the average annual consumption of milk and dairy products in Ukraine amounted to 223 kg per person, in 2015 this was 210 kg per person and in 2016 was 210 kg per person.

- Small producers noted that a culture of cheese consumption is emerging and that demand for craft cheese, as well as other dairy craft goods, is growing. The domestic market is significant for the local producers.

- Decreasing herd sizes (number of dairy cattle), though this is partially offset by growing productivity of individual cows. Considering the dynamics of the reduction of the number of cows and growing milk production, production capacity in the next four years should remain at 10-10.2 million MT. This output will be sufficient to provide milk processors 4-4.2 million MT of milk per year. However, to maintain this output considering the shrinking number of cows in all farms, the productivity of cows must be increased to at least 6.4 MT per cow. Considering the shrinking share of enterprises in milk production, productivity has to be increased to 7.2 MT per head per year. In modern conditions, this increasing performance is possible only by updating dairy cattle in favor of more productive foreign breeds and improving technological equipment.

General requirements to production and circulation of milk and dairy products are provided in the Food Safety Law. As any primary production, dairy should be in line with the key requirements for veterinary, sanitary and phytosanitary control, hygienic control, and food safety. The Law of Ukraine on Milk and Dairy Products provides some special requirements for dairy production, in particular:

- Containers and packages for milk raw materials and dairy products are required to be made from materials permitted by the Ministry of Health;

- Prohibition on separating the process of packaging of dairy products from the manufacturing cycle (except packaging of butter, cheese, and dry milk products by structural subdivisions of one processing plant);

[137] CEP interviews, Olga Pavlos, Deputy Director, Molokiya, Ternopil, December 18, 2018

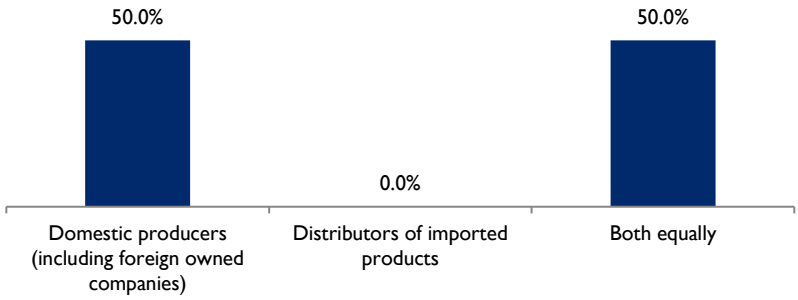
- Prohibition on selling milk and dairy products without a document confirming epizootic animal welfare issued by the State Veterinary Service etc.[138]

In 2018, the Ministry of Agrarian Policy and Food of Ukraine developed and published for public discussion an order "On Approval of Requirements for the Safety and Quality of Milk and Dairy Products". The adoption of this will introduce proper practices for the production, processing, and introduction into circulation of milk and dairy products and will allow the establishment of harmonized regulations, adapted to the requirements of the EU.[139]

KII respondents stated that many people do not know about Ukrainian craft dairy products such as cheese products and prefer imported brands.[131] Imports of higher-quality cheese in the mid-upper market segment increased significantly in 2017-2018, and interviewees expressed an expectation that growing incomes and a shift in consumer preferences toward higher-quality cheese will lead to an even greater increase in imports in 2019. EU countries (Poland for the middle-income market segment, and Germany, the Netherlands, and Italy for the upper-income market segment) are expected to benefit most from this growth in demand.[140]

Domestic producers are considered as their main competitors by half of the surveyed companies while another 50% faces equal competition from both local producers and distributors of imported products (see **Figure 51**).

Figure 51: Perceived Main Competitors in the Domestic Market

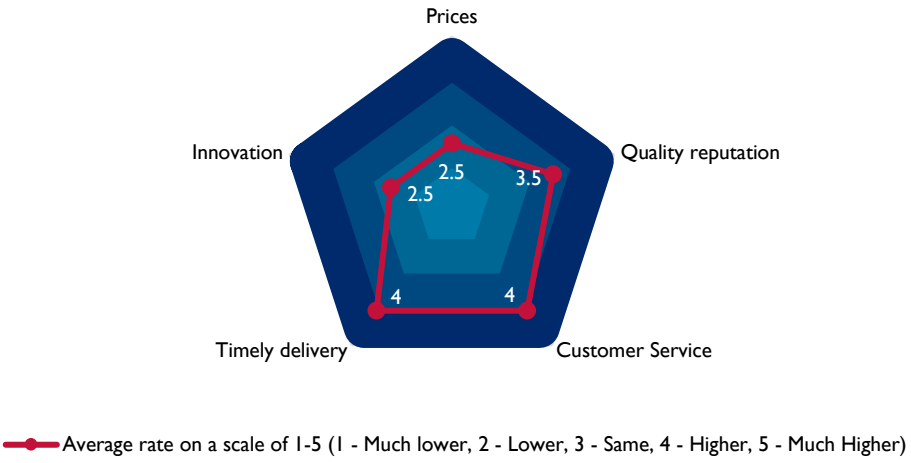


Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

According to the survey, companies compete well on the domestic market in terms of timely delievery, customer service, and quality regulation. At the same time, surveyed companies are quite less competitive in terms of innovations and prices (see **Figure 52**).

[138] Doing Agribusiness in Ukraine: Legal Guidance for Foreign Investors, Ministry of Agrarian Policy and Food of Ukraine, 201
[139] Ministry of Agrarian Policy and Trade of Ukraine, http://minagro.gov.ua/uk/regulatory?nid=26233
[140] GAIN Report – UP1824 – Dairy and Products Annual, Ukraine, USDA Foreign Agricultural Service

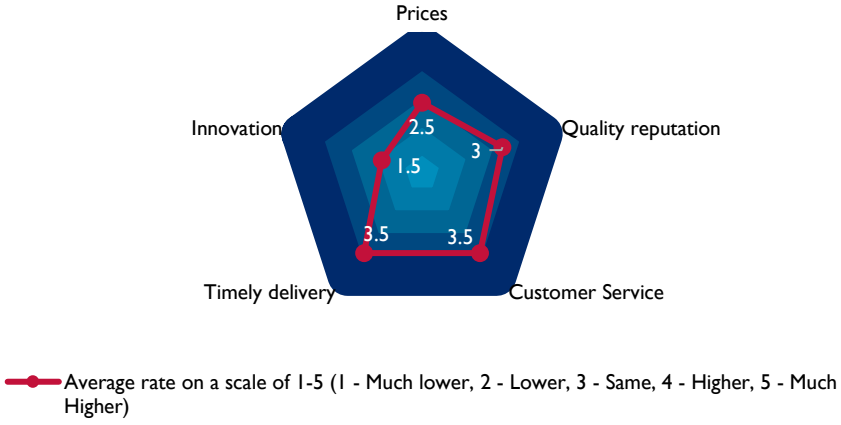
Figure 52: Perceived Competitiveness Compared to Domestic Products



Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

Surveyed companies are significantly more competitive than importers in terms of timely delivery and customer service. The quality reputation of domestic producers is at the same level while in terms of prices and innovations, Ukrainian producers are less competitive than foreign ones (see **Figure 53**).

Figure 53: Perceived Competitiveness of Domestic Products Compared to Import



Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

5.3 SECTOR POTENTIAL FOR EXPORT MARKET PENETRATION

EXPORT COMPETITIVENESS FACTORS

According to survey respondents, among the challenges constraining improvement of Ukrainian dairy producer competitiveness, the most important are lack of financial resources, problems with investment attraction, and difficulties with meeting technical standards. Additional constraints noted included problems with innovations, adoption of modern technologies,

attraction of qualified workforce, improvement of quality management, and increase in efficiency of marketing and distribution (see **Figure 54**).

Figure 54: Perceived Challenges in Improving Competitiveness

Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

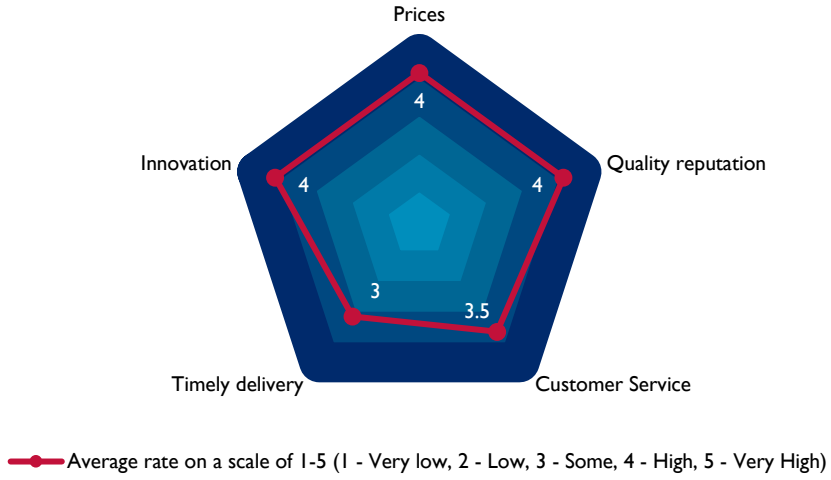
> *"Milk production can be profitable and competitive agribusiness, but the process is lengthy and requires investments.* [141]

Needed investments include reconstruction of farms and qualitative improvements in species composition of dairy herds, as well as modernization and upgrade of milking systems and equipment optimization for animal feed.[142] Milk processors describe investing heavily in recent years in milk collection points in order to purchase milk from rural households. This approach has often been driven by strong competition among processors for raw material supplies, which seldom provide quality price incentives. Processors presume that rural households will continue to play an important role in overall milk supply for milk processors in northern Ukraine. Generally, in Ukraine milk is sold to processing plants that produce dairy products. The difference in milk price for agricultural enterprises and households in Ukraine may be two times the average. Milk after processing in the milk plants is sold mostly in internal markets. If the producer is small, it usually covers the demand from the consumers at the local (regional) level. Nevertheless, more than ten enterprises in Ukraine have access to the European market.[143]

Companies surveyed believe price, innovation, and quality reputation will be among the most important competitive factors in the markets for processed dairy products. At the same time, they stated that customer services and timely delivery will be less important (see **Figure 55**).

[141] CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[142] *"Chain comparison of the dairy sector in Ukraine and Netherlands"* Ukrainian Agribusiness Club, 2017
[143] Ibid

Figure 55: Estimated Importance of Competitive Factors in 5-10 years



Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

Decreasing the share of households in the milk market has led to the increase in the quality of raw milk and higher prices for the products. For example, in 2016 processing plants received 2.4 million MT of milk, of which the share of higher quality milk increased to 15% (in 10.3% in 2015), with high class accounting for 37% (35% in 2015) and first-class accounting for 42% (50% in 2015). In interviews, processors described packaging as an important element for improvement.[144]

The responses regarding quality differ. One company claims that the quality of milk has become worse.[145] Another company provided the opinion that current quality meets market needs or exceeds market needs.[146]

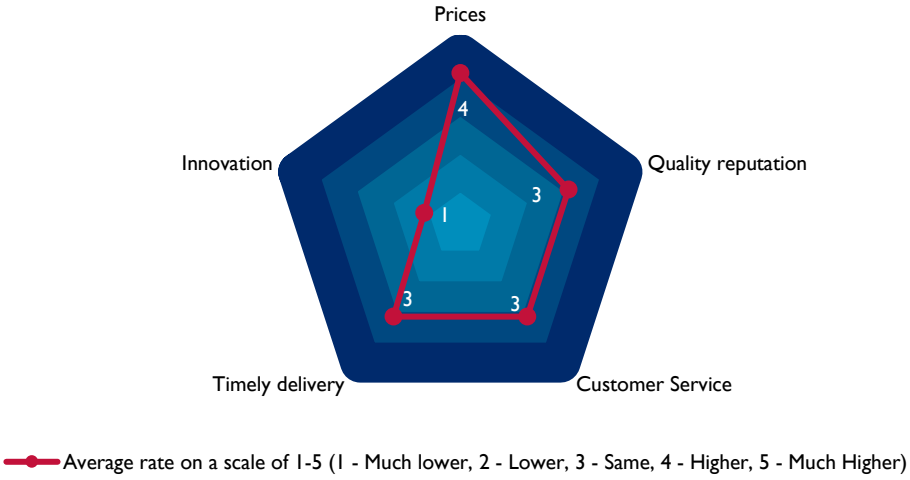
Quality of raw milk is cited as a major problem in the dairy sector in several ways. First, the Ukrainian milk quality standards are far different from Western standards.[147] According to the Ukrainian grading system, the milk from households usually is labeled "second grade". The situation looks more favorably at dairy farms, which supply mostly milk of "first class" grade. More cooperation between the industry and the government is needed to address this issue. As a result, quality and safety systems ensure the control of production quality for producers (but not processes and not enough safety) and key standards meet FSU time requirements in general. There is also a lack of cooperation between control bodies.[148]

According to the companies surveyed, prices are the main competitive advantage of Ukrainian dairy products on the foreign markets. In terms of quality reputation, customer service, and time

[144] Ministry of Agrarian Policy and Trade of Ukraine website: http://minagro.gov.ua/uk/regulatory?nid=26233
[145] CEP Interviews, Olga Pavlos, Deputy Director, Molokiya, Ternopil, December 18, 2018
[146] CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[147] *"Chain comparison of the dairy sector in Ukraine and Netherlands"* Ukrainian Agribusiness Club, 2017
[148] Ibid

delivery, Ukrainian dairy products are competitive with foreign products. At the same time, the level of innovation of Ukrainian products is quite low. (see **Figure 56**).

Figure 56: Perceived Competitiveness of Ukrainian Products Abroad



Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

The price of Ukrainian products is estimated to be lower than the price competitors can offer.[149] However, products are considered to be overpriced for mass-market.[150] Although milk processors in Ukraine are prepared to pay price premiums for better quality milk received from rural household farms, a 50% milk procurement price increase is not realistic for processors as their sales margins are limited by a number of factors including consumer willingness and ability to pay more for dairy products and stiff competition in export markets for processed dairy products (cheese, butter, dry milk, etc.).

At least three characteristics determine the performance and competitiveness of Ukrainian products in export markets. They are 1) participation in international product exhibitions, 2) ability to experiment with new types of products (cheeses), and 3) lack of rigid state regulation.[151]

SECTOR COMPARATIVE STRENGTHS AND WEAKNESSES

Production costs (per a cow) were four times less in Ukraine (US$1,362) than in the Netherlands in 2015 (US$5,408). Particularly, the cost distribution in Ukraine was as follows in 2015: total direct costs – 22% of total costs, total labor related costs – 76%, total building costs – 2%.[152] According to companies interviewed, logistics and infrastructure (milk collection, storing and

[149] CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[150] Ibid
[151] For example, CEP Interviews, Olga Pavlos, Deputy Director, Molokiya, Ternopil, December 18, 2018 and Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[152] "*Chain comparison of the dairy sector in Ukraine and Netherlands*" Ukrainian Agribusiness Club, 2017

distribution) are underdeveloped and expensive compared to foreign competitors, and logistics costs are considered as one of the major disadvantages for the industry.[153]

Among key strengths of Ukrainian dairy processing companies are their ability to experiment and create new types of products (mainly craft products), low level of state regulations, rising level of productivity of raw milk production, and rising purchasing power in the domestic market.[154]

There are several comparative weaknesses of Ukrainian companies such as low skill levels and absence of opportunities for skills improvements, lack of understanding of business models, lack of understanding of sales channels, outdated equipment, low quality infrastructure (bad roads in the villages), mostly inferior quality of raw materials, quality standards that differ from the EU, and increasing feed costs.[155]

5.4 SECTOR JOB CREATION POTENTIAL

50,700 people are formally employed in the dairy sector (0.9% of total country employment in 2017).[156] The number of jobs contracted by 5.1% p.a. between 2013 and 2017.[157] The companies also estimate that employment in the industry is either declining or remains stable.[158] However, respondents also describe this shortage of labor in the industry due to outmigration away from rural production to cities, as well as to other countries, notably Poland.[159] However, one Ukrainian cheese producer foresaw an expansion of people interested in the cheese sub-sector in the near future as new or more interesting offerings become available.[160]

The average monthly income in the sector (US$254) was almost the same as the country average in 2017; it accounted for 96% of the average income at the country level.[161] In terms of gender income disaggregation, gender equality is not respected in the sector (income disaggregation is taken for manufacture of food products, beverages, and tobacco products). Women earn on average 18% less than men in the industry.[162]

5.5 SECTOR POTENTIAL FOR ENTREPRENEURSHIP AND INNOVATION

EVIDENCE OF SECTOR CHAMPIONS FOR INNOVATION

[153] CEP Interviews, Roman Puchko, Difco International, Dairy Sector Expert, Kyiv, January 15, 2019
[154] For example, CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[155] *"Chain comparison of the dairy sector in Ukraine and Netherlands"* Ukrainian Agribusiness Club, 2017
[156] State Statistics Service of Ukraine website: http://www.ukrstat.gov.ua
[157] Ibid
[158] For example, CEP Interviews, Olga Pavlos, Deputy Director, Molokiya, Ternopil, December 18, 2018 and Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[159] CEP Interviews, Olga Pavlos, Deputy Director, Molokiya, Ternopil, December 18, 2018
[160] CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[161] State Statistics Service of Ukraine website: http://www.ukrstat.gov.ua
[162] Ibid

Interviews with industry business representatives revealed several potential lead dairy production firms:

- "Doobra Ferma" is considered to be a leader in technology. This company, located about 120 kilometers north of Kyiv, arranges cheese exhibitions and sells cheese in shopping malls;
- "Makovetskaya cheese dairy" operates the only cheese school in Ukraine;
- "Jersey" is a farm near Lviv considered to be another industry leader due to its innovation in product development.[163]

Interviewees cite five to seven leaders in the dairy processing sector. These include Danon, Milkiland, and "Industrial Milk Company", which are the biggest companies in the dairy processing sector.[164] The most important organization to emerging dairy SMEs is the "Hyldiya" cooperation, which assists members in production and sales.

POTENTIAL FOR ENTREPRENEURSHIP AND INNOVATION

Business representatives state that the number of new startups increases by 10-15% per year. According to SSSU, annual growth in number of enterprises between 2013-2017 in the dairy sector is negative (-5%), providing no evidence of new companies.[165]

According to the responses of companies, main factors that encourage new entrants to the industry include:

- Ability to experiment and create new types of cheeses;
- Minimal investment requirement to start a business;
- Lack of rigid state regulation;
- Lack of production capacities in big companies and necessity to buy the raw material in SMEs.[166]

On the other hand, there are several factors that inhibit inflow of new companies and entrepreneurs:

- Absence of educational programs and unaffordable education abroad;
- Underdeveloped domestic market and culture of cheese consumption;
- High price of imported equipment and absence of nationally manufactured equipment
- Difficulty in meeting conditions of contract with the network.[167]

[163] CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[164] CEP Interviews, Daria Grytsenko, Analyst of agricultural markets, Association "Ukrainian Agribusiness Club" (UCAB), Kyiv, January 16, 2019
[165] State Statistics Service of Ukraine website: http://www.ukrstat.gov.ua
[166] CEP Interviews, Daria Grytsenko, Analyst of agricultural markets, Association "Ukrainian Agribusiness Club" (UCAB), Kyiv, January 16, 2019 and Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[167] For example, CEP Interviews, Igor Boitsun, Organic Milk, Deputy Director for Financial Issues, Kyiv, January 17, 2019 and Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018

There are no specific universities that provide education for cheesemakers. There are a few private educational centers in Ukraine.[168]

An exception to this is the National Association of Dairy of Ukraine "Ukrmolprom". This is a voluntary organization established to inform its members in a timely manner about the situation in the dairy industry that contributes to cost-effective conditions for milk and milk products, their interest in increasing production efficiency, improving the quality of raw materials and finished products, and increasing exports and competitiveness in domestic and foreign markets. Ukrmolprom is cooperating with government authorities: Verkhovna Rada, Ukraine Agriculture Ministry, other ministries, government departments, academic and civil society organizations in order to develop the legal and regulatory framework that will help to improve the legal environment for agricultural producers of milk and dairy products. The principal functions of "Ukrmolprom" in terms of industry advocacy and representation are as follows:

- Preparation of the legislative base;
- Comprehensive analysis of the state of play in the milk and dairy industry;
- Consulting services on issues relating to processing technologies, technical equipment, and safety;
- Studies of market conditions on the domestic and foreign markets;
- Facilitation of marketing of raw materials and ready-made products;
- Development of the regulatory and technical documentation.[169]

5.6 BUSINESS ENABLING ENVIRONMENT AND REGULATORY FRAMEWORK

AVAILABILITY OF VITAL BUSINESS DEVELOPMENT SERVICES

There are no easily available services. There is a lack of high-quality consultants in the industry.[170] One of the companies mentioned that they conduct market analyses by themselves, but they likely will need more specialized promotional services support.[171]

One cheese company stated that enterprises tend to specialize in cheese production only and outsource all other processes.[172]

LEGAL AND REGULATORY CONSTRAINTS

[168] Ibid
[169] National Association of Dairy of Ukraine website: http://www.ukrmolprom.kiev.ua/en/
[170] CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[171] CEP Interviews, Igor Boitsun, Organic Milk, Deputy Director for Financial Issues, Kyiv, January 17, 2019
[172] CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018

Support of dairy and dairy product producers from the state is minimal. By 2017 the only state support for farmers producing milk and milk products was the subsidy in the form of return of VAT from the sale of dairy products. This subsidy was funded by the return of VAT from the sale of dairy products while the funds were accumulated in a special account of each company. Beginning in January 2017, the special regime was completely abolished and dairy producers were switched to a common system of taxation. Such changes in the legislation made milk business more complicated, encouraging producers to go out of business.

At the legislative level, the state is trying to regulate the milk market and support farmers. But over the past three years four drafts of laws were rejected by the state. There are currently five processing and four adopted in first reading of the bills, but none of them has yet entered into force. The basis of these laws is implementation of price controls and regulation of minimum purchasing prices for raw milk as well as dairy products quality regulation such as labeling milk containing products and regulation of food safety and quality of dairy products.[173]

Milk prices are not regulated; direct subsidies are absent. There is no support in attracting preferential loans to upgrade technical equipment or herds. For example, in 2015 industrial milk producers spent about UAH 9.2 billion (US$422 million) on production of dairy products. Meanwhile, in the state budget for 2017, the GOU planned to allocate merely UAH 170 million (US$6.4 million) for the development of the livestock industry in general. Taking into account the activities of the state in recent years and the current political situation in the country, state participation in the regulation of the dairy industry in the near future is unlikely to change.[174] There is no legislation on small cheese dairy production. The industry needs revised laws, which should be based on EU experience.[175] One respondent also said that many manufacturers formalize their business and fixed assets as new companies and subsequently lease their assets to another company, in order to give the appearance that they have no assets and hence avoid tax liabilities.[176]

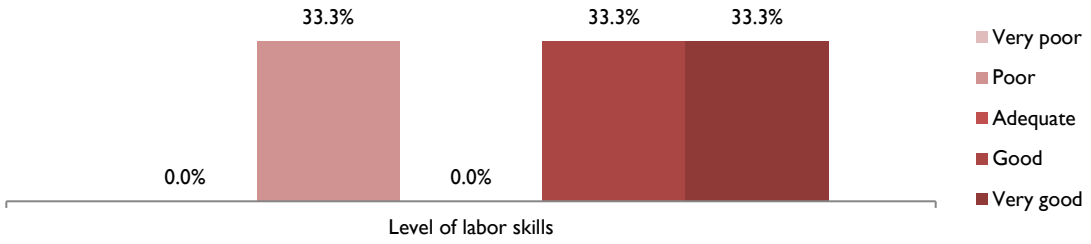
There is a possibility to develop cooperation among cheese enterprises within Hyldiya (union of cheese producers) and to draft the law using their own resources.[177]

AVAILABLE SKILLS

There is a shortage of qualified workers in the cheese sector, but of those available workers, most of the surveyed companies (67%) estimated the level of qualification of the labor force as good or very good (see **Figure 57**).

[173] *"Chain comparison of the dairy sector in Ukraine and Netherlands"* Ukrainian Agribusiness Club, 2017
[174] Ibid
[175] CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[176] CEP Interviews, Igor Boitsun, Organic Milk, Deputy Director for Financial Issues, Kyiv, January 17, 2019
[177] CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018

Figure 57: Estimated Level of Qualification of Labor Force

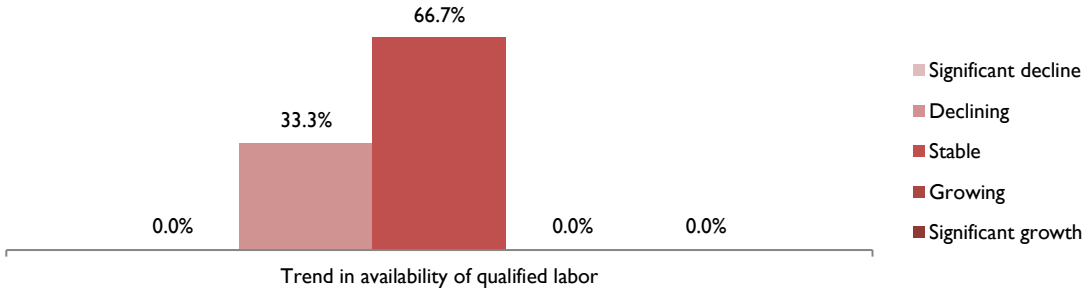


Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

Education centers, which provide high-quality knowledge and skills are mostly absent.[178] One of the interview respondents stated: *"In Zhytomyr region, good workforce is hard to find, migration is a problem".*[179]

Most of surveyed companies (67%) expect the stable level of qualified labor force availability, while another 33% think that it will decline (see **Figure 58**).

Figure 58: Estimated Trend of Availability of Qualified Labor Force



Source: CEP Online Survey, Dairy industry survey respondents, January 13-20, 2019

Upgrading the cheese sector will require improving workforce training and education.[180] There is currently a lack of professional skills related to production as well as marketing and sales skills in the cheese sector.[181] While limited education and training is available in these areas, a notable exception is the Iryna Demyniuk School, which provides courses on basic cheese production.[182]

Currently, there are several opportunities for acquiring new or upgraded skills in the dairy sector:

- **Processing company education for suppliers**. Due to problems with supplying high-quality raw materials, processing enterprises provide active dissemination of knowledge, technology, and training among their suppliers. This is accomplished by having their own

[178] Ibid
[179] CEP Interviews, Igor Boitsun, Organic Milk, Deputy Director for Financial Issues, Kyiv, January 17, 2019
[180] Ibid
[181] Ibid
[182] Ibid

professional stuff engaged in the development and monitoring of their suppliers, advisory support, aid in financing, professional development, and involvement of external consultants. In the cheese domain, no new skills are required during employees' careers. Employees should constantly improve their mastery.[183]

- **Equipment and technology suppliers' education.** Equipment and technology suppliers are the main innovation and technology distribution channel in the dairy sector in Ukraine. Because of unsophisticated information channels and technological backwardness, dairy sector suppliers must conduct active dissemination of knowledge and information through active communication with agricultural producers as well as through seminars, exhibitions and other avenues.[184]

- **Extension service (consulting) education.** Currently, there are only a few centers offering extension services. The experiences of dairy and other agribusiness operators proves the existence of a growing demand for such services. Private extension has also been developing in Ukraine. Public extension has shown insignificant results, despite constant budget financing of such activities. The current financing of public extension services in Ukraine remains rather low. Ukrainian extension services often provide consulting only on general issues, mostly in the area of social and private small business initiatives.[185]

- **Education between partner farms.** For dairy producers, an important distribution channel of experience and technology in Ukraine is communication with other producers. However, such communication occurs only between local producers.[186]

- **Formal education and science**. Currently, the domestic education and science system uses an outdated technical basis and does not meet modern requirements of the market, but remains one of the ways of knowledge and technology transfer mainly through the use of international experience and help from market participants.[187]

ACCESS TO FINANCE FOR GROWTH

Companies predominantly use their own savings to fund their business operations. They do not see any value in development banks, commercial banks, or VC funds.[188] However, the IFC in partnership with the Austrian government is implementing a five-year project that is expected to help 40,000 small- and medium-scale dairy farmers access financing, boost production, cut greenhouse gas emissions, and gain access to export markets.[189]

[183] Ibid
[184] *"Chain comparison of the dairy sector in Ukraine and Netherlands"* Ukrainian Agribusiness Club, 2017
[185] Ibid
[186] Ibid
[187] Ibid
[188] CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[189] "*IFC Launches Program to Help Modernize Ukraine's Dairy Sector and Boost Exports*" IFC Press release, 2018

Company staff cite finance as the primary constraint to sector upgrades. They believe that outside financing will be required for purchasing new equipment and describe financing in the Ukrainian bank system as prohibitively expensive.[190] Alternative financing options or structures are not available.[191]

5.7 OTHER FACTORS

SYNERGIES WITH OTHER PROJECTS AND INITIATIVES

At least three initiatives may provide useful synergies. The "*Development of Dairy Business in Ukraine*" project is aimed at solving the problems faced by small and medium-sized milk producers by creating and strengthening existing cooperatives offering the services necessary for an efficient milk production system.[192] Additionally, the IFC, a member of the World Bank Group, is launching a new advisory program to modernize Ukraine's dairy industry.[193]

Implementing a market systems approach linked to lead firms, the USAID-funded ARDS project[194] works along all stages of the value chains by fostering competition at the supplier level, improving post-harvest and marketing support services for SMEs, linking them to domestic and global supply chains, and co-investing with key processing companies to develop models for the development of the value chain. In interviews with staff at several enterprises, respondents spoke optimistically about the potential to leverage these models and extend supply chain relationships to new and innovative higher value-added enterprises, while also leveraging existing distribution networks and marketing experience.

ALIGNMENT WITH GOVERNMENT PRIORITIES

According to the Action Plan of Implementation of Association Agreement between the EU and Ukraine, the Ukrainian government is expected to implement a number of changes in legislation in order to converge with the European legislation.[195] This relates to the alignment of technical standards of dairy products. Additionally, agriculture and food and dairy in particular, are traditionally considered key industries and are therefore included in the Export Strategy of Ukraine 2017-2021 and prioritized by the National Investment Council.[196] Also, in 2018 the government allocated about US$147,000 under the State Livestock Support Program for the livestock sector (see **Table 10**).[197]

[190] CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[191] Ibid
[192] Agricultural Consultant Service website: http://www.dsks.org.ua
[193] "*IFC Launches Program to Help Modernize Ukraine's Dairy Sector and Boost Exports*" IFC Press release, 2018
[194] "*ARDS Annual Report FY-2017*" USAID, 2018
[195] Action Plan of Implementation of Association Agreement between the EU and Ukraine
[196] Export Strategy of Ukraine 2017-2021
[197] http://ucab.ua/ua/doing_agribusiness/umovi_vedennya_agrobiznesu/derzhavna_pidtrimka

Table 10: 2018 Livestock Sector-Related Budget Areas of State Support Program

AREA OF EXPENDITURES	US$ '000
Partial compensation of the interest rate on bank loans attracted in order to cover the costs connected to the implementation of activities in the areas of sheep breeding, cow breeding, beekeeping, animal husbandry, rabbit farming, silkworm, and aquaculture	7.4
Partial compensation of the cost of construction and reconstruction of livestock farms and complexes, milking rooms, and milk processing enterprises, financed by bank loans	40
Special budget subsidy for keeping meat cattle and dairy cattle	18
Special budget subsidy for raising young cattle born in private households	26
Partial reimbursement of the cost of purchased breeding animals	11
Partial reimbursement of the cost of construction and reconstruction of livestock farms and complexes, milking rooms and milk processing enterprises	44

Source: Ministry of Agrarian Policy and Food of Ukraine website: http://minagro.gov.ua/

POTENTIAL FOR FEMALE INCLUSION

According to a 2011 FAO report, men and women are relatively equally represented as heads of agricultural holdings by number, but some disparities appear when the data is disaggregated further. Only 21% of cattle are owned by farms with women in leadership positions. This ratio is higher when considering rural households (41% of cattle owned by farms with woman head), but significantly lower when considering small enterprises (8.2% owned by female heads) and commercial farms (7.7% owned by female heads).[198] Since more recent robust data is not available on how women participate in the dairy sector, the sector assessment team conducted expert interviews and gathered business representative perceptions on opportunities for women in dairy. Technical experts from the USAID Agriculture and Rural Development Support project noted that women are very active in low-value added dairy production, especially on small farms. This was confirmed by interviews with business representatives who noted that women make up more than 50% of laborer or clerical positions in the dairy sector. When looking at higher level processing, the perception is that, generally, male and female participation is equal in the cheese segment.[199] Business representatives added the additional nuance that women conduct most end-market sales. Opportunities for more equitably engaging men and women are most substantial when focusing in on working with family-owned farm/processing facilities to diversify production and enter new markets. Other donor-funded projects have also successfully been able to tackle the discrepancies in division of labor at different aspects of dairy production and sale.[200]

POTENTIAL TO INTEGRATE YOUTH

The share of workers under age 30 is less than 30% in the cheese industry. However, youth interest for the industry is perceived as high. Some business representatives noted that youth

[198] *"Improving Milk Supply in Northern Ukraine"* FAO, 2013
[199] CEP Interviews, Yulia Solodkaya, Ruslan Solodkiy, Founders, Family cheese factory, Kyiv, December 24, 2018
[200] *"Impact analysis, Improving Competitiveness of the Dairy Sector in Ukraine"* Socodevi, 2015

inclusion may be increased if Ukraine moves toward having a larger cheese consumption culture. Moreover, business representatives shared the need for more management, marketing, and sales skills in the industry. Potential for youth engagement can lie in the business side of the dairy processing sector.[201]

5.8 SWOT AND DIAMOND ANALYSES

SWOT ANALYSIS

Figure 59: SWOT Analysis of Dairy-Processing Sector in Ukraine

Strengths: The Ukrainian dairy sector enjoys a stable and significant quantity demand for basic, low-cost products.[202] Within the sector, households and commercial cattle operations continue improving herd qualities and productivity through investments into new breeds. Likewise, there is a significant presence across the country of large-scale, industrial processing operations, which can serve as lead firms for the sector. These units are complemented by a broad-based tradition of artisan production in rural areas, as well as an emerging craft product sub-sector that is interested in innovation and entrepreneurship.

Weaknesses: Quality raw material access has been reduced by reductions in herd sizes as household farms scale back due to low prices resulting from over-supply coupled with high inputs

[201] Ibid
[202] For example, CEP Interviews, Dairy products, multiple locations, December 13, 2018 – January 15, 2019

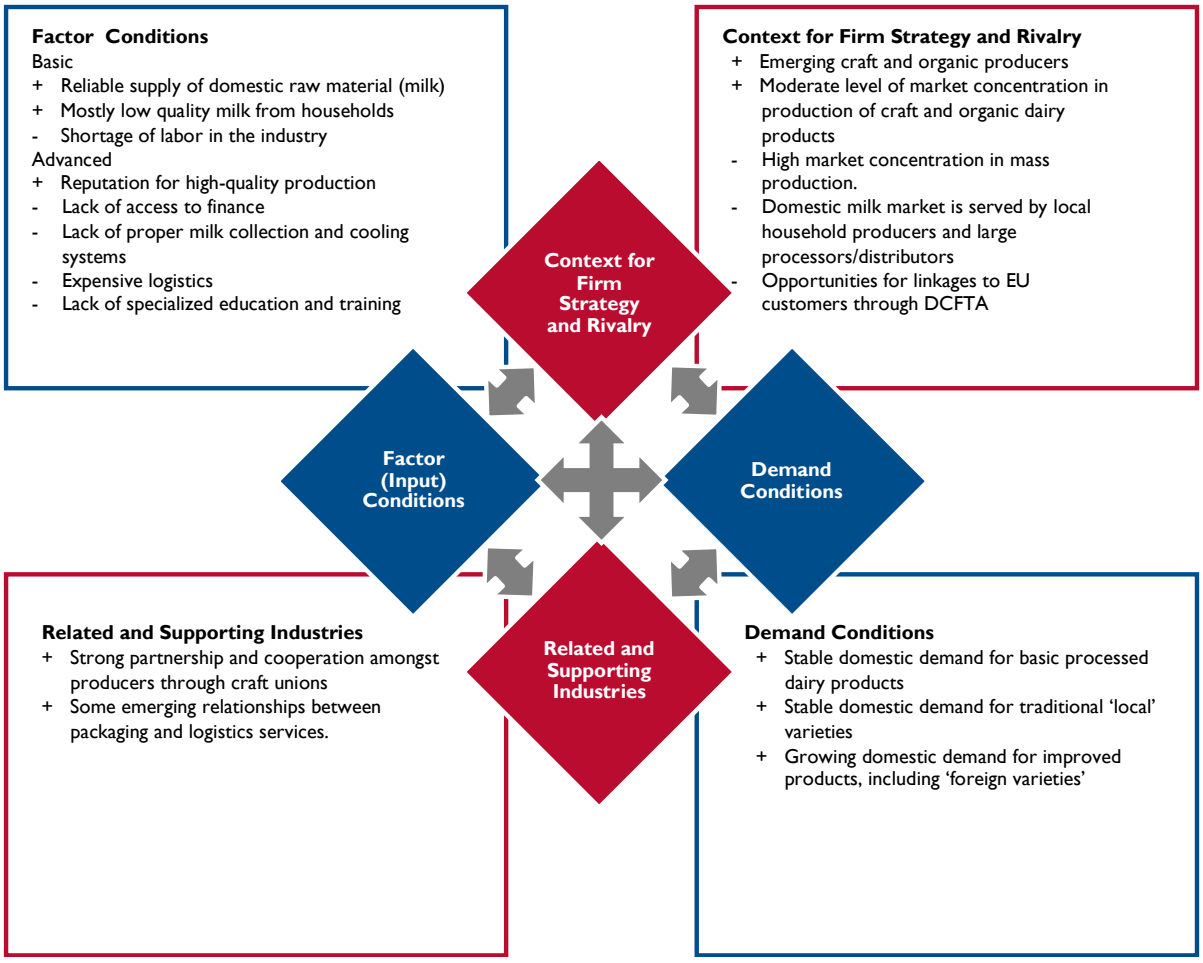
costs (feed, veterinary supplies). In addition, household output is constrained by poor quality levels, as well as phyto-sanitary challenges that make this raw material source unattractive to processors seeking to upgrade offers.

Opportunities: Key opportunities for the dairy processing sector include growing domestic demand for improved quality products, including domestically produced 'foreign' type cheeses such as cheddar, feta, Gouda, etc., as well as some potential opportunities for domestic PDI or PDO certification of regional products, such as *brindza*. The sector also may also enjoy opportunities for expansion into new cost-sensitive markets in Asia, the Middle East and North Africa, as well as growth in existing markets, such as India. Finally, processors that can sufficiently upgrade quality and meet certification and grading requirements enjoy opportunities for expanded exports into EU under DCFTA, which will continue to grow over the upcoming five years.

Threats: Threats to the dairy-processing sector include under-utilization of installed capacity due to the loss of key Russian markets, which is resulting in over-supply and hence lower prices for milk. In addition, higher input prices are placing producers in a precarious position that may result in increased market departures. On-going quality and phyto-sanitary challenges undermine efforts to increase uptake from household farms. In addition, finance constraints prevent the upgrading of production assets that could improve quality and facilitate entry into new DCFTA-facilitated EU markets. Finally, Ukrainian processors face competition in domestic market from countries with lower production costs.

DIAMOND ANALYSIS

Figure 60: Diamond Analysis of Dairy-Processing Sector in Ukraine



Strategy, Structure, and Rivalry: The top ten dairy producers, who control over 76% of the domestic market, drive large-scale production. SMEs occupy a relatively small share in milk processing. Currently, local processors aim to expand into EU markets, as the quality of production improves to meet market requirements. However, the industry is not static and new startups continue to appear especially in craft and organic production.

Demand Conditions: Markets for processed dairy products are characterized by growing domestic demand for higher quality dairy products, including foreign type products. This trend is supported by the positive trend in consumption of healthy products. Consumers want to buy unique and exclusive eco-products and are ready to pay higher prices.

Related and Supporting Industries: Dairy manufacturers often cooperate by establishing partnerships. In some cases, craft unions help members in production and sales. These guilds are useful for the industry to develop and to build trust relations among producers. In addition, industry representatives actively cooperate with packaging and logistics services.

Factor Conditions: Local producers have access to raw materials that are cheap and produced in Ukraine. However, there are also challenges such as shortage of labor, lack of high-quality consultants and insufficient financing for upgraded capital assets, as well as underdeveloped and expensive logistics and infrastructure. Also, there are no universities with specialized education (for instance, for cheesemakers).

Government: Government institutions extensively work on harmonization of technical standards of dairy products in Ukraine with EU standards as a part of the implementation of the Action Plan of Implementation of Association Agreement between the EU and Ukraine. Additionally, all agriculture and food industry (dairy in particular) is included in the Export Strategy of Ukraine 2017-2021 and is considered by the National Investment Council as one of the highest potential industries.

6. SECTOR ASSESSMENTS – FRUIT AND VEGETABLE PROCESSING

Food processing is a ubiquitous component of the Ukrainian economy, employing a wide range of processing technologies. Processing facilities across virtually all regions of the country manufacture a diversity of primary processed products and by-products to supply domestic and export markets, as well as finished and packaged products for wholesale and retail distribution and consumption. As of 2016, this sector was worth over US$15 billion in sales representing over 22% of the nation's industrial activity and 6.7% of total exports. Likewise, in the same year, the sector attracted US$663 million in foreign investment, accounting for 16% of all FDI as producers expanded and improved output by spending on new technologies and production solutions. The country is particularly well endowed with resources for fruit and vegetable production, including low cost inputs such land and labor. Likewise, producers take pride in 'traditional' production methods that are attractive to certain 'niche' markets and a number of domestic varieties provide ideal for export markets. However, lower quality fruit and vegetable processors have struggled to replace Russian demand lost following the conflict in 2014. In addition, the country still relies heavily on imports, especially from the EU. In 2016, imports of processed foods and drinks exceeded exports by over 600%, suggesting there are considerable opportunities for processors to expand sales in the domestic market.[203] Likewise, the EU/Ukraine DCFTA provides EU duty-free import quotas for processed foods exports, which are set to increase over the next five years if companies can upgrade technical, managerial, and marketing skills and introduce new and innovative business models. Also, the supply chain and market systems development work of the USAID-funded ARDS project provides platforms that enable companies to develop processed products with higher value-added through supply chain relations with key processing facilities.

6.1 SECTOR OVERVIEW

Ukrainian processors enjoy access to a wide variety of fruits and vegetables for utilization as raw materials in their operations. Major raw material products include apples, apricots, black currants, blueberries, cabbage, cherries, gherkins, grapes, peaches, plums, raspberries, strawberries, marrow, eggplants, pepper, tomatoes, beans, and green peas.[204] Major outputs include canned products, natural juices and concentrates, ketchup and sauces, frozen fruit and vegetables, dry fruit, processed potatoes, and processed snacks.[205] According to companies interviewed during our research, processed products with significant domestic demand growth include processed berries, corn, mushrooms, and potatoes.[206] Emerging SMEs are capable of producing and marketing many specialty and higher value added products and have access to primary raw materials. These include, among others, protein mixes, soups, spices, fruit fills, and natural sweets. As an example, at a recent export food expo in Kyiv, the Ternopil Regional Export Council presented a range of specialty 'health' drinks, utilizing local cherries and "forest fruits".

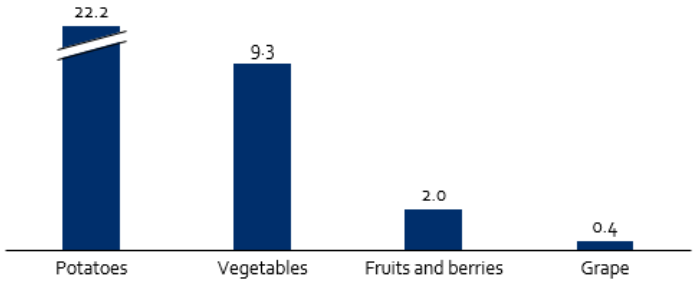
[203] State Statistics Service of Ukraine
[204] "*Value Chain Analysis Report*" CBI Ministry of Foreign Affairs, Kyiv, 2015
[205] Ibid
[206] For example, CEP interviews, Galyna Logosha, Head of Marketing, Artica, Kharkiv, January 11, 2019, and Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018

Prospective Fruit and Vegetable Processing Leaders: The Ukrainian fruit and vegetable processing sector incorporates several potential market-focused flagship products, which may be locally processed into higher value secondary products, including:

- Ukrainian processors are top suppliers of tomato purees to the FSU countries. The DCFTA has opened opportunities for these processors to expand to EU markets, where demand exists for further processed puree products such as prepared sauces and soups. However, this transition will require improved access to investment in order to upgrade consistency and quality of product and packaging, while management teams will need enhanced marketing skills to develop sales of more sophisticated products.
- Ukraine is already one of Europe's top five sources of apple concentrates. Product diversification could expand the range of concentrates to other available fruits, such as cherry and berries, which are available throughout the country and in demand in niche markets as healthy and 'heritage' products, i.e. traditional culinary items. Already, emerging SMEs are utilizing these products as materials for prepared juices, pies, snacks, and as confectionary items, including dried fruits and sweets.
- The country's share of global potato production is 6.2%, making the potato processing sector a potential world leader in production of potato flour and starch, if technical upgrades can be achieved. Access to these products at competitive costs presents opportunities for secondary products, such as certain types of Asian noodles, potato chips, instant soups, and sauces (as thickeners), as well as gluten-free and kosher foods.
- The USAID ARDS project has identified flash freezing of berries as a potentially lucrative opportunity for export to EU consumers and is already working with at least one firm deploying this process. Improved access to finance and sector promotion could multiply the number of firms leveraging this processing technology and extend their reach to new products requiring intact fruits such as pies, tarts, and other traditional pastries.

In all cases, major existing Ukrainian firms may be able to diversify and upgrade product lines through downstream supply chain relations with emerging and innovative SMEs, creating 'subsidiary' product families that will enhance reputation and increase value added.

Figure 61: Major Fruit and Vegetables Produced in Ukraine in 2017 (MT)



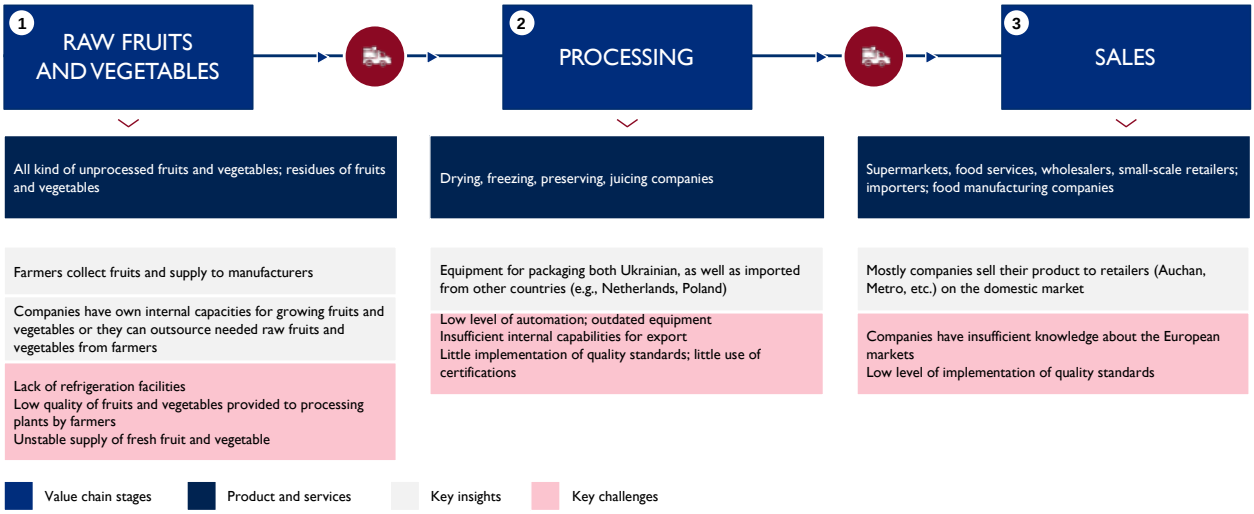
Source: "Infographic Report "Grow Ukraine" The Ministry of Agrarian Policy and Food of Ukraine, 2018

Ukrainian processors are top suppliers of tomato puree to the CIS countries and are one of Europe's top five sources of apple concentrates. Additionally, the country's share of global potato production is 6.2%, making its processing sector a potential world leader in production of potato flour and starch.[207]

Value Chain Overview

The value chain for fruit and vegetable processing encompasses three main activities: 1) inputs supply (raw fruit and vegetables); 2) processing; and 3) sales (see **Figure 62**).

Figure 62: Fruit and Vegetable Processing Value Chain Overview

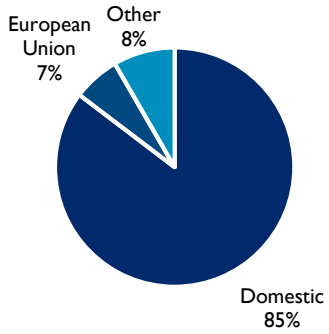


Source: CEP Interviews, Fruit and Vegetables industry representatives, January 13-20, 2019

The first activity (supply of raw fruit and vegetables) is mostly carried out by small-scale domestic entrepreneurs (farmers), who produce and supply processors with fruit and vegetable raw materials. Ukrainian processors source 85% of their raw materials from local suppliers, while 7% of raw materials are imported from the EU and 8% imported from other sources (see **Figure 63**). Only a few companies are vertically integrated through their own fruit and vegetable production operations.

[207] Svedaite, Aurelia *"A Look at Food Processing in Ukraine"* ITE Food and Drink, October 8, 2017

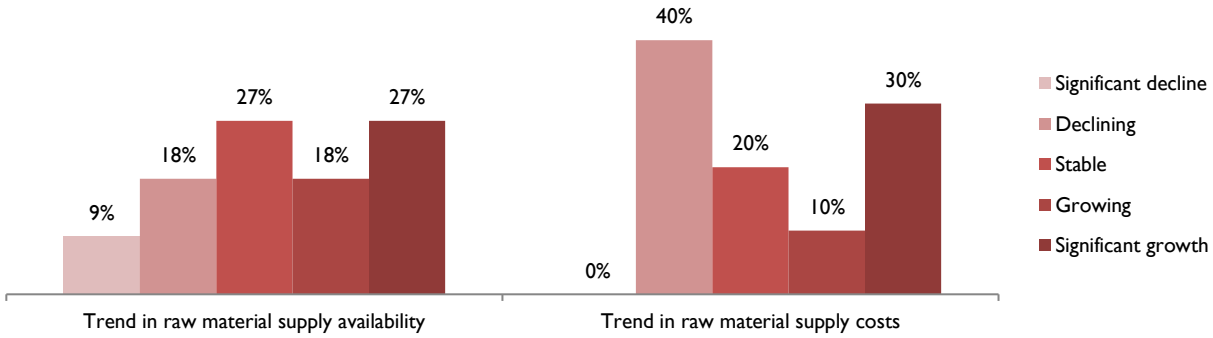
Figure 63: Origin of Inputs for Processed Fruit and Vegetable Processing



Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

Most processing companies surveyed describe supply of raw materials as 'stable' (27%) or experiencing 'significant growth' (27%), while the survey revealed no clear lead regarding raw material costs (raw material supply costs were described most commonly as "declining" -40%- or "significantly growing" -30%) (see **Figure 64**). However, in KIIs, staff at processing companies expressed concern that future fruit and vegetable raw material supply could be subject to disruptions due to the reluctance of farmers to formalize relationships with processing firms through long-term supply agreements.[208]

Figure 64: Availability and Costs of Raw Materials Trends



Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

According to a government report, in 2017, 543 fruit and vegetable processing firms were engaged in the second main activity. Around 5,000 firms (official numbers) were engaged in food processing overall. The firms are predominantly SMEs utilizing domestic processing equipment. The production process requires substantial modernization and is poorly automated.[209]

The third activity (sales) is carried out by distributors, dealers, or private retailers. Key outlets are supermarkets, wholesalers, small-scale retailers, food services, importers, and food

[208] For example, CEP Interviews, Peter Myslyvyy, General Manager Agrana Fruit Ukraine, Vinnytsya, January 10, 2019
[209] *"Value Chain Analysis Report"* CBI Ministry of Foreign Affairs, 2015

manufacturing companies. Export sales are performed either directly (more common of the larger producers) or through wholesale trade companies. According to multiple industry sources, export sales are hindered by insufficient knowledge of European markets and lack of quality standards.[210]

Proximity to the base of raw materials defines the location of processing enterprises, which are mainly concentrated in the central and southern parts of Ukraine.[211] The key sector locations per activity are:

1) **Production**: Potato is the most widely produced vegetable in Ukraine and the crop is grown throughout every region of the country, yet production levels are high in the Central and Northern *oblasts* (Vinnytsya, Kyiv and Zhytomyr). Production of other vegetables includes: cabbage – Lviv, Dnipro, Kharkiv, Kherson (together accounting for 40% of country's production), cucumbers and gherkins – Kherson, Zaporizhzhia, Kharkiv, Dnipro (accounting for 40%), tomatoes – Kherson, Mykolayiv (43%).

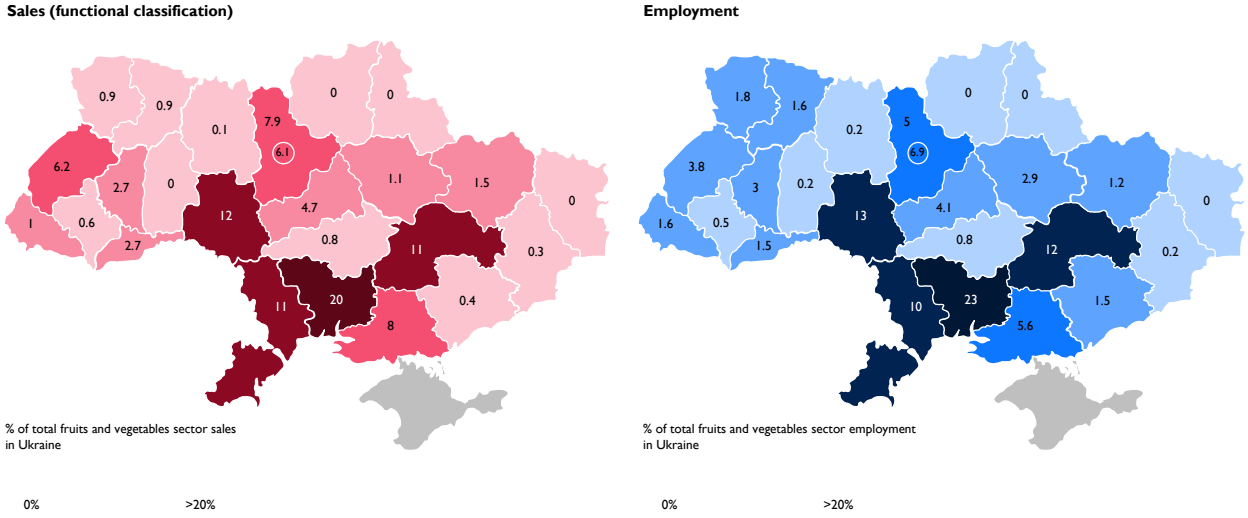
   Production of apple (as a part of Pome fruit) is concentrated in Vinnytsya, Khmelnytsky and Chernivtsi regions (accounting for 45% of the total). Berry production is evenly distributed over the entire country, while grape is highly concentrated in the region of Odessa (62% of total).

2) **Processing**: Apple juice is produced in Vinnytsya, Odessa, and Chernivtsi regions (about 53% of the total), while jam and marmalade production is centered on the Vinnytsya region (53%). Vegetables (excluding potato) and fruit processing are concentrated in the center of the country (Cherkasy, Kyiv and Vinnytsya regions, providing 44% of production).

3) **Sales:** The highest volumes of domestic sales take place in the Central and Southern regions of Ukraine. Domestic points of sales are located in big cities, where major supermarkets are situated (see **Figure 65**).[212]

[210] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018
[211] "*Value Chain Analysis Report*" CBI Ministry of Foreign Affairs, 2015
[212] For example, CEP interviews Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018

Figure 65: Regional Concentration of Fruit and Vegetable Processing Sector



Source: State Statistics Service of Ukraine

Production and international trade trends

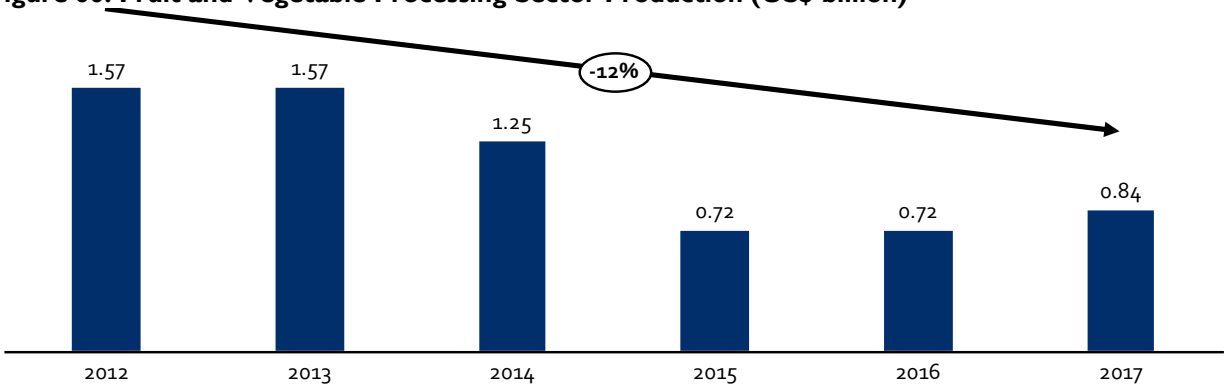
Overall, production of processed fruit and vegetables declined nearly 10% p.a. from 2012 to 2017. According to the SSSU data, the total production value of processed fruits and vegetables in Ukraine was over US$840 million in 2017. The factors behind the decline include labor shortages, lack of industrial capacity and poor raw materials base development for dried and frozen fruit and berries, low level of production culture, and problematic pricing policy for organic products.[213]

Specifically, the SSSU reports declines of 6.8% p.a. declined in production volumes of tomato juice (2011 through 2017), 5.3% of apple juice, 7.2% p.a. of mixed fruit and vegetables juice, and 5.3% p.a. of non-concentrated juice from single fruit or vegetable from 2011 to 2017. Canned vegetables, fruit, nuts, mushrooms as well as jams and fruit jellies production also dropped significantly (8.2% and 4.1% p.a., respectively).

Positively, production of concentrated tomato puree increased 6.2% p.a., and canned corn production increased 0.4% p.a. during the same period.

[213] For example, CEP Interviews, Peter Myslyvyy, General Manager Agrana Fruit Ukraine, Vinnytsya, January 10, 2019

Figure 66: Fruit and Vegetable Processing Sector Production (US$ billion)



Source: State Statistics Service of Ukraine

Industry sources stated during interviews their anticipation of positive market growth and stable levels of production.[214] Several of these companies also described production becoming more automated. However, they also explained that as production of berries grows (blueberry and raspberry in particular), processing companies face an urgent need for international certification required for increased exports.[215] Further, they reported an increasing global demand for organic products, which they felt is likely to have a positive influence on their sector.[216]

According to the SSSU, domestic sales of processed fruit and vegetables experienced a steep, 15% p.a. decline from 2013 to 2017. **Table 11** breaks down the sales decline per category.

Table 11: Fruit and Vegetable Processing Sector Domestic Sales ('000 MT)

GROUP	SUBGROUP	2013	2014	2015	2016	2017	CAGR
Juices	Tomato juice	46,387	31,970	18,883	17,263	18,489	-21%
	Unconcentrated orange juice	35,701	23,577	12,157	11,300	11,405	-25%
	Grapefruit juice	3,926	2,113	1,837	2,456	2,282	-13%
	Pineapple juice	10,506	7,646	5,129	5,298	4,316	-20%
	Grape juice	1,150	358	29	0	0	-100%
	Apple juice	31,8930	235,063	92,822	59,760	70,035	-32%
	Mixtures of fruit and vegetable juices	20,9168	138994	90,302	81,085	89,985	-19%
	Unconcentrated juice of any single fruit or vegetable, not fermented and not containing added spirit (excluding orange, grapefruit, pineapple, tomato, grape and apple juices)	71,744	56,814	23,887	22,490	25,052	-23%
	Other fruit and vegetable juices	8,155	4,307	4,312	4,922	10,746	7%
	Total	**705,670**	**500,841**	**249,358**	**204,574**	**232,311**	**-24%**
Frozen fruit and vegetables	Frozen vegetables and mixtures of vegetables (excl. potatoes)	9,597	10,872	11,484	3,823	5,379	-13%
	Frozen fruit and nuts	12,537	11,416	11,085	11,570	14,344	3%
	Total	**22,134**	**22,289**	**22,570**	**15,393**	**19,723**	**-3%**
	Prepared or preserved mushrooms and truffles	0	774	607	0	0	-
	Preserved sauerkraut	2,027	1,456	960	1,361	12,738	-11%

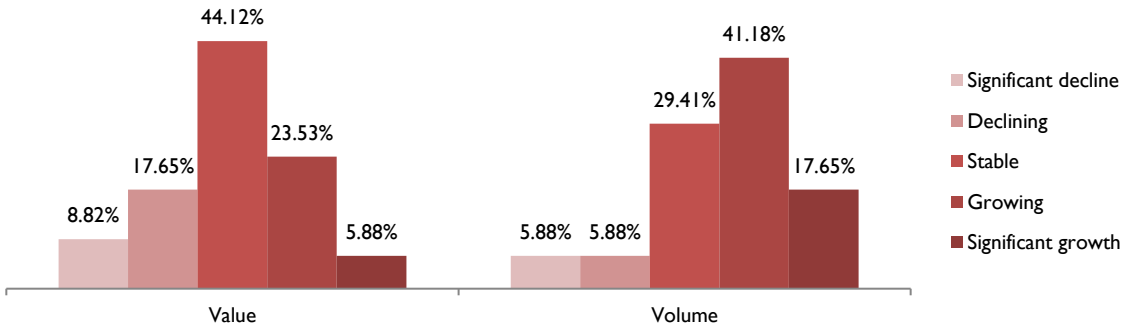
[214] For example, CEP interviews, Iryna Lukashyk, Sales Director, Liqberry, Kyiv, January 11, 2019, Galyna Logosha, Head of Marketing department, Artica, Kharkiv, January 11, 2019 and Natalia Sudarkina, CEO, Agro-patriot, Odessa, January 9, 2019
[215] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018
[216] For example, CEP Interviews, Peter Myslyvyy, General Manager Agrana Fruit Ukraine, Vinnytsya, January 10, 2019

Canned fruit and vegetables	Prepared or preserved sweetcorn	13,545	15,733	13,180	10,339	12,658	-2%
	Vegetables (excl. potatoes), fruit, nuts and other edible parts of plants, prepared or preserved by vinegar or acetic acid	65,826	38,539	16,238	12,450	14,910	-31%
	Fruit, prepared or preserved	3,863	1,723	1,181	902	1,029	-28%
	Potatoes prepared or preserved, including crisps	14,303	10,497	12,107	11,731	16,418	4%
	Beans, preserved otherwise than by vinegar or acetic acid, except prepared vegetable dishes	7,248	5,816	2,820	2,939	2,864	-21%
	Peas, preserved otherwise than by vinegar or acetic acid, except prepared vegetable dishes	17,877	16,989	10,603	8,605	8,800	-16%
	Preserved tomatoes	1,876	1,144	1,259	397	593	-25%
	Total	**126,566**	**92,671**	**58,956**	**48,724**	**58,545**	**-18%**
Jams, purees and fruit preparations	Unconcentrated tomato puree and paste	1,514	835	155	0	49	-58%
	Concentrated tomato puree and paste	80,388	68,660	51,530	64,041	73,723	-2%
	Citrus fruit jams, marmalades, jellies, purees or pastes	0	0	0	1,196	0	-
	Jams, marmalades, fruit jellies, fruit or nut purees and pastes,	55,618	48,789	34,296	34,956	38,997	-8%
	Dried potatoes in the form of flour, meal, flakes, granules and pellets	55,371	40,173	26,148	26,080	26,487	-17%
	Dried vegetables (excluding potatoes, onions, mushrooms and truffles) and mixtures of vegetables	0	0	0	1,478	1,711	-
	Vegetables and mixtures of vegetables	25,209	23,750	6,165	6,693	8,947	-23%
	Prepared or preserved groundnuts	18,830	13,677	12,031	17,082	15,622	-5%
	Prepared or preserved nuts (other than groundnuts); and other seeds and mixtures	33,521	33,003	26,390	31,117	21,881	-10%
	Groundnuts and nuts, shelled and sunflower seeds, peeled	0	0	0	0	1,048	-
	Dried fruit; mixtures of dried nuts and/or dried fruit	924	1,805	1,094	2,065	992	2%
	Total	**271,375**	**230,693**	**157,809**	**184,710**	**189,457**	**-9%**

Source: State Statistics Service of Ukraine

Looking forward though, most companies expressed confidence that the sector will benefit from growth in demand for processed fruit and vegetables in terms of value as well as volume. Only 25% expected declines in value, and even less (11%) in volumes (see **Figure 67**).

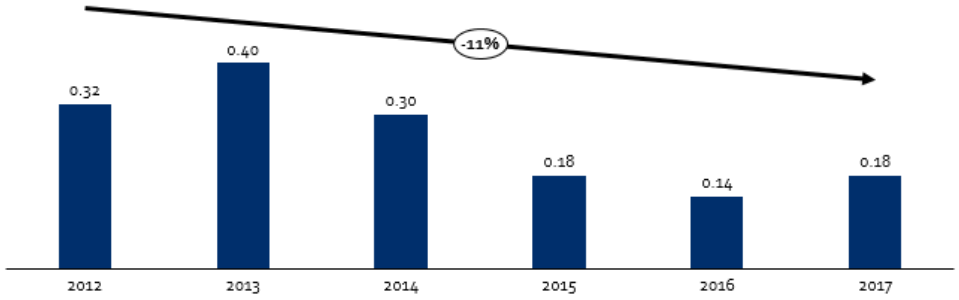
Figure 67: Expected Trend of Sales in the Domestic Market



Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

In foreign markets, Ukraine's exports of processed fruit and vegetables contracted at a rate of 11% p.a. from 2012 to 2017. In 2017, they amounted to US$177 million, contributing only 0.3% to total Ukrainian exports. Ukraine's share in world exports was only 0.3% in that year, ranking 42th globally among exporting countries of this product group (see **Figure 68** and **Table 12**).

Figure 68: Fruit and Vegetable Processing Sector Export (US$ billion)



Source: State Statistics Service of Ukraine

Table 12: Fruit and Vegetable Processing Sector Export Sales ('000 MT)

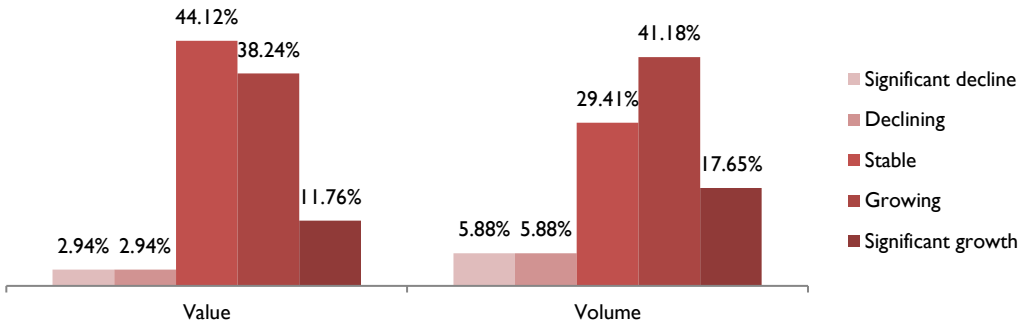
GROUP	SUBGROUP	2013	2014	2015	2016	2017	CAGR
Vegetables, fruit prepared by vinegar	Cucumbers and gherkins	10781	3417	2220	2220	1682	-37%
	Vegetables, fruit, nuts and other edible parts of plants	20521	11852	3762	4237	4615	-31%
	Total	**31302**	**15269**	**5982**	**6457**	**6297**	**-33%**
Tomatoes, prepared otherwise than by vinegar	Tomatoes, whole or in pieces	2014	1255	352	194	331	-36%
	Other tomatoes	31457	26012	20326	36289	42637	8%
	Total	**33471**	**27267**	**20678**	**36483**	**42968**	**6%**
Mushrooms and truffles, prepared otherwise than by vinegar	Mushrooms	47	34	79	97	88	17%
	Truffles	15	0	0	0	0	-100%
	Other mushrooms and truffles	29	6	13	32	71	25%
	Total	**91**	**40**	**92**	**129**	**159**	**15%**
Vegetables prepared otherwise than	Potatoes	52	53	21	140	63	5%
	Vegetables and mixtures of vegetables	8	136	95	64	208	126%
	Total	**60**	**189**	**116**	**204**	**271**	**46%**

by vinegar, frozen							
Other vegetables prepared otherwise than by vinegar, not frozen	Homogenized vegetables	1	1	0	6	1	0%
	Potatoes	36054	30743	16537	15952	15692	-19%
	Peas	1636	1423	515	786	931	-13%
	Shelled beans	2357	1831	384	296	380	-37%
	Unshelled beans	19	13	21	6	10	-15%
	Asparagus	1	0	0	2	2	19%
	Olives	47	25	6	6	13	-27%
	Sweetcorn	731	549	193	461	931	6%
	Vegetables and mixtures of vegetables	15790	9116	2116	2102	3316	-32%
	Total	**56636**	**43701**	**19772**	**19617**	**21276**	**-22%**
-	Vegetables, fruit, nuts, fruit-peel and other edible parts of plants, preserved by sugar	16	2	17	46	11	-9%
Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking	Homogenized preparations of jams, jellies, marmalades, fruit or nut purées and nut pastes	60	18	9	162	211	37%
	Citrus fruit	7	5	2	1	7	0%
	Other fruit	2731	2013	1320	1649	1827	-10%
	Total	**2798**	**2036**	**1331**	**1812**	**2045**	**-8%**
Fruit, nuts and other edible parts of plants, prepared or preserved, whether or not containing added sugar or other sweetening	Groundnuts	3657	2384	1372	1761	1906	-15%
	Nuts and other seeds	23028	15065	10372	7935	6754	-26%
	Pineapples	132	117	87	75	63	-17%
	Citrus fruit	5	2	4	0	0	-100%
	Pears	60	80	127	81	2	-57%
	Apricots	600	506	300	124	174	-27%
	Cherries	1091	919	538	486	809	-7%
	Peaches, incl. nectarines	470	509	334	314	301	-11%
	Strawberries	3445	2839	1606	1486	1449	-19%
	Mixtures of fruit, nuts and other edible parts of plants	5771	0	0	0	0	-100%
	Cranberries	0	137	180	138	144	-
	Other mixtures of fruit, nuts and other edible parts of plants	0	5988	4579	3688	3849	-
	Fruit and other edible parts of plants	1508	2175	1869	1892	1921	6%
	Total	**39767**	**30721**	**21368**	**17980**	**17372**	**-19%**
Fruit juices, incl. grape must, and vegetable juices, unfermented, not containing added spirit	Orange juice	4378	3136	1369	1109	1052	-30%
	Grapefruit juice	250	178	131	111	113	-18%
	Single citrus fruit juice	0	1	1	5	6	-
	Pineapple juice	11	55	69	127	58	52%
	Tomato juice	8207	6298	3110	2007	2481	-26%
	Grape juice	150	4876	848	784	1160	67%
	Apple juice	219373	161066	102021	47046	68917	-25%
	Juice of fruit or vegetables	5853	1678	5968	5412	11078	17%
	Mixtures of fruit juices	1827	1262	1017	943	1297	-8%
	Total	**240049**	**178550**	**114534**	**57544**	**86163**	**-23%**

Source: ITC

Many companies surveyed by CEP, 50%, expect foreign sales to grow by value, and nearly 59% in volume terms. A minimal number of companies expect declines. (see **Figure 69**).

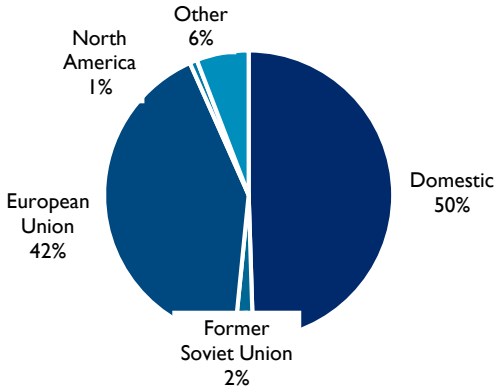
Figure 69: Expected Trend of Foreign Sales



Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

These companies perceive the EU market as being of equal importance to the domestic market due to recent decreases in duties stemming from the DCFTA (see **Figure 70**). Prior to the agreement, the EU duty on fruit juice (HS 2009) was 34%. DCFTA reduces this to 0% duty applicable to the first 10,000 MT with the amount increasing to 20,000 MT over the next five years.

Figure 70: Perceived Importance of Current Markets



Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

Market chains and channels

According to companies surveyed, the preferred model in the domestic market is "processor-wholesaler-consumer". For example, companies supply on a wholesale basis to large supermarkets (e.g., Auchan, Metro, Silpo, and Fozzy Group) with branded products or operate under private label schemes. In contrast, in recent years companies with integrated HORECA chains have emerged (e.g., MAFIA) as well as a few employing direct sales (e.g., e-commerce, trade fairs).[217] General distributors currently handle most higher value secondary products, though dedicated distribution will likely increase as the volume of products grows. HORECA chains will likely increase in importance as intact fruit and vegetable products become more

[217] For example, CEP interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018 and Galyna Logosha, Head of Marketing department, Artica, Kharkiv, January 11, 2019

common. Aggregation of SME outputs will likely be an important catalyst for improvements in distribution systems for these secondary higher-value products.

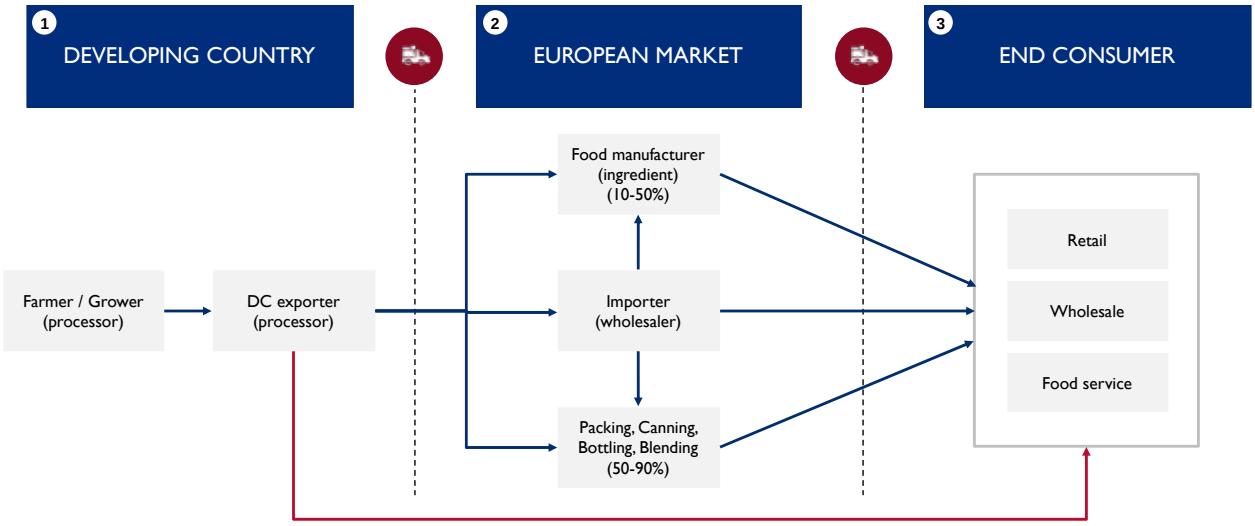
In order to **export to the European market**, Ukrainian fruit and vegetable processors interviewed by CEP describe employing the following market channels:

- **Importers acting as intermediate traders** source semi-processed fruit and vegetables, implement additional processing (e.g., cleaning, mixing, and blending), and then supply higher value-added products to retailers. According to companies interviewed, Ukrainian companies usually sell semi-processed products to Poland for further processing and distribution on the EU market.[218]

- **Wholesale retail and food service. The end consumer is reached directly through this channel.** According to the interviewed companies, some Ukrainian processors already work with European retail companies under private label schemes.[219]

- **Food processors** are the largest consumers of processed fruit and vegetables as ingredients. Increasing demand for food safety motivates them to procure only Corporate Social Responsibility (CSR)-certified products, maintain a long-term relationship with suppliers, or even integrate vertically. Companies interviewed did not mention any Ukrainian company using this model (see **Figure 71**).[220]

Figure 71: European Market Channels for Fruit and Vegetable Processing Sector



Source: The Centre for the Promotion of Imports (CBI), Agency of the Netherlands Ministry of Foreign Affairs

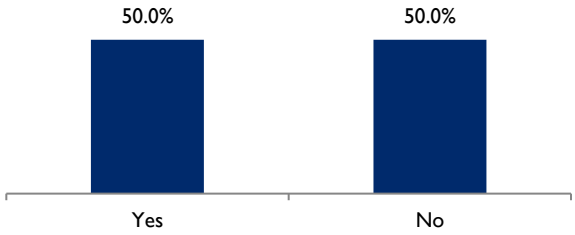
Employment trends

[218] For example, CEP Interviews, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018
[219] For example, CEP Interviews, Liubov Semeniuk, Head of The Board, Vinnytsya Food & Gustatory Factory, Vinnytsya, January 10, 2019
[220] The Centre for the Promotion of Imports (CBI), Agency of the Netherlands Ministry of Foreign Affairs

Ukrainian statistics do not breakdown employment figures for the processed fruits and vegetables sector. However, data on the manufacture of food products, beverages, and tobacco products shows the average income accounting for 96% of the country's average, with women earning on average 18% less than men in the sector.

Among companies surveyed, the opinion is split about the sufficiency of the labor force in the sector (see **Figure 72**). The companies indicated that the sector experiences shortages of both skilled workers (e.g., agronomists) and unskilled workers due to lack of proper training and rising migration to Poland or Germany.[221]

Figure 72: Perceived Sufficiency of the Labor Force



Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

6.2 SECTOR GROWTH POTENTIAL

SECTOR ACHIEVABLE EXPORT GROWTH

According to the International Trade Center (ITC), in 2017 Ukraine exported processed fruit and vegetables to more than 70 countries. Key current export products for Ukrainian processed fruit and vegetables include the following:

- **Prepared or canned tomatoes.** According to MAPF, Ukraine exported prepared or canned tomatoes to 35 countries in 2017, mainly to the EU. Products with the highest export potential included prepared or canned tomatoes, whole or in pieces. As noted above, Ukrainian processors have opportunities to add greater value to processed tomato exports through the development of prepared products, such as sauces and soups.

- **Frozen, dried, prepared, or canned vegetables (excluding tomatoes)** were exported to 50 markets in 2017, mainly the EU, Russian Federation, and Belarus. The most promising products in terms of exports included vegetables (uncooked or cooked by steaming or boiling in water), frozen fruits and vegetables, potatoes (prepared or canned other than by vinegar or acetic acid, excluding frozen), vegetables (prepared or canned by vinegar or acetic acid, excluding cucumbers and gherkins), shelled or unshelled

[221] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018

green peas (uncooked or cooked by steaming or by boiling in water, frozen), cucumbers and gherkins (prepared or canned by vinegar or acetic acid), vegetables and mixtures, (prepared or canned not by vinegar, non-frozen).

- According to MAPF, **fruit juices** were exported to 46 markets in 2017 and products with the highest export potential included the following: apple, orange, grape and tomato juice, juice of fruit or vegetables, and fruit juices mixtures.

- **Frozen fruit and berries** were exported to 20 countries in 2017, mainly to the EU. Products with the highest export potential include frozen fruit, nuts and berries (mostly blueberries), frozen raspberries, blackberries, mulberries, and frozen strawberries.

- **Jams and jellies** were exported to 46 markets, with the largest importers being Belarus and the Republic of Moldova. Products with the highest export potential are nuts and other seeds, including mixtures, prepared or canned; jams, jellies, marmalades, purées or pastes of fruit; mixtures of fruit, nuts, prepared or canned; fruit, prepared or canned; strawberries, prepared or canned; and cherries, prepared or canned.[222]

Ukrainian processed fruit and vegetables have several competitive advantages in foreign markets:

- **Convenient location.** Ukraine is located at the crossroads of international trade and has transport linkages to both EU and CIS key markets.

- **Favorable natural conditions.** Suitable climate for the majority of horticulture products and fertile lands lead to the exceptional taste and quality of the products. It also creates preconditions for organic goods production.[223]

- **Seasonal advantages in berry processing.** In Ukraine, the beginning of berry harvesting is two weeks earlier in comparison with Poland.[224] Also, in Ukraine blueberries are picked by hand, which is appreciated in Europe.[225]

At the same time, several factors may constrain the success of Ukrainian companies in foreign markets:

- Lack of finances, time, and information needed to get production certificates required by the EU countries.
- Lack of knowledge and experience in the foreign markets and about foreign markets.
- Insufficient level of English among Ukrainians.[226]

[222] Infographic Report *"Grow Ukraine"* The Ministry of Agrarian Policy and Food of Ukraine, 2018
[223] *Value Chain Analysis Report"* CBI Ministry of Foreign Affairs, 2015
[224] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018
[225] For example, CEP Interviews, Galyna Logosha, Head of the Marketing Department, Artika, Kharkiv, January 11, 2018
[226] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018

SECTOR SCALABILITY

The table below depicts CEP's assessment of the processed fruit and vegetables sector scalability, considering five key factors: raw materials supply, workforce, business development skills, production capacity, and distribution logistics. Of them, only the raw material supply is rated as satisfactory, while the rest are rated as poor (see **Table 13**).

Table 13: Assessment of Fruit and Vegetable Processing Sector Scalability

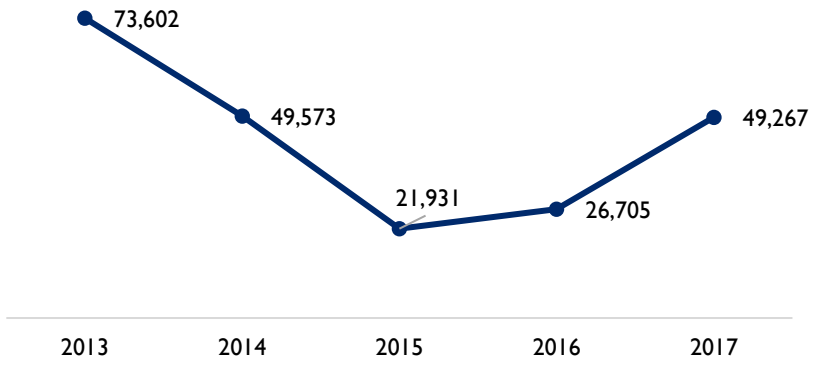
FACTORS	CURRENT POSPECTS FOR SCALABILITY	ROOM FOR IMPROVEMENT
Supplies of raw materials (raw fruit and vegetables)	Satisfactory, there are favorable natural preconditions (climate, productive soils) for growing a wide range of fruit and vegetables; however, farmers prefer selling raw fruit and vegetables to consumers rather than to the processing companies due to higher prices and a lack of proper storages and long stable contracts.	Certification and standardization of processed fruit and vegetables; more storage.
Workforce	Poor, there is a shortage of unskilled labor force during the summer and an insufficient number of qualified specialists (e.g., agronomists).	More skilled (e.g., agronomists) and unskilled workers.
Business development skills	Poor, only a few centers of extension (consulting) services, some donor technical assistance projects.	More professional business consulting (how to export, obtain certifications); improvement of marketing and sales skills.
Production capacity, plant, and equipment	Poor, some companies do not have internal capabilities to export; lack of processing and storage facilities (freezing, sorting, cooling, and storage); and lack of financial resources.	Better operational management; more investments in production facilities and storages; more B2B cooperation to serve large orders and purchase needed equipment.
Distribution of processed/finished goods	Poor, inefficient management of waste (spoiled fruit is returned to farmers).	More investments in logistics and infrastructure.

Source: Industry reports and CEP Interviews, Dairy sector survey respondents, 2018-2019

SECTOR INVESTMENT POTENTIAL (FOREIGN AND DOMESTIC)

The overall processing sector enjoyed US$48 million of domestic investments in 2017 according to the SSSU, mostly generated by SMEs covering growing demand for locally produced foods. Pre-crisis figures in 2013 were most promising, totaling US$73 million. In 2017, domestic investment in processed fruit and vegetable increased by 84% (compared to 2016), almost returning to pre-crisis levels (US$49 million) (see **Figure 73**).

Figure 73: Capital Investment in the Fruit and Vegetable Processing Sector (`000 US$)



Source: State Statistics Service of Ukraine

According to Atlas Trade, the investment required to launch a fruit and berries small processing plant in Ukraine ranges from US$2-10 million, with 50% of capital expenditures allocated to the equipment. However, in interviews conducted by CEP, SMEs cited lack of access to affordable working capital as the most significant factor constraining growth. Also, some producers noted insufficient amounts of existing loan programs from EBRD and other business-focused institutions. [227] In interviews, company's executives cited land sales prohibition and workforce migration as key barriers to investment in the fruit and vegetable processing.[228]

> *"The moratorium on the sale of farmland causes a lot of inconvenience because a free farmland market is important to have the ability to get a bank loan".* [229]

There are no specified tax or other incentives in the industry as the taxation in the sector is the same as in other sectors of the Ukrainian economy. Companies pay 18% corporate income tax and 20% value-added tax. Each employee is required to pay income tax (18% of salary) and military tax (1.5% of salary). Additionally, the employer must pay a 22% social tax. Some companies with revenue lower than US$184,000 can pay unified tax with a lower rate. Additionally, VAT refund remains a major problem for Ukrainian exporters.

DOMESTIC MARKET

In 2017, wholesale market turnover for fruit and vegetables (fresh and processed) was US$91 million.[230] Currently, the fruit and vegetables processing sector occupies a small share in the overall food processing industry (the latter amounts to US$15 billion, accounting for 22% of the

[227] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018 and CEP Interviews, Maksym Golikov, CEO, Zelena Hryadka, Kharkiv, January 11, 2019

[228] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018 and CEP Interviews, Maksym Golikov, CEO, Zelena Hryadka, Kharkiv, January 11, 2019

[229] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018

[230] State Statistics Service of Ukraine

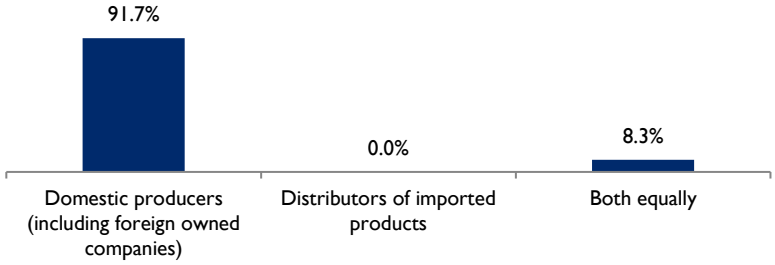
nation's industrial activity in 2016). Official 2017 numbers show 543 processors operating in the sector, compared to 4,956 food processing enterprises overall.[231] The majority of these enterprises are SMEs.

In KIIs, many of these companies expressed the conviction that the domestic market is unsaturated and there is growing demand for processed fruit and vegetables. In terms of product types, in 2016 the sector was focused on the production of canned vegetables amounting to approximately 150 MT. Other products produced in significant quantities included fruit jams (40 MT), juice mixes (20 MT), frozen vegetables (20 MT), and frozen fruit (20 MT).[232]

Changing consumer patterns have fueled demand for processed fruit and vegetables. According to companies interviewed, demand for organic products is increasing due to the growing popularity of a healthy lifestyle and willingness of people to buy ready-to-eat products.[233] There is also a gradual rejection of homemade canning as well as other "unbranded" processed fruit and vegetables due to the presence of industrial analogs at low prices in the market.

Companies surveyed viewed other domestic producers as their main competitors (92%), while another 8.3% considered competition from both local producers and distributors of imported products as equal competitors (see **Figure 74**).

Figure 74: Perceived Main Competitors in the Domestic Market

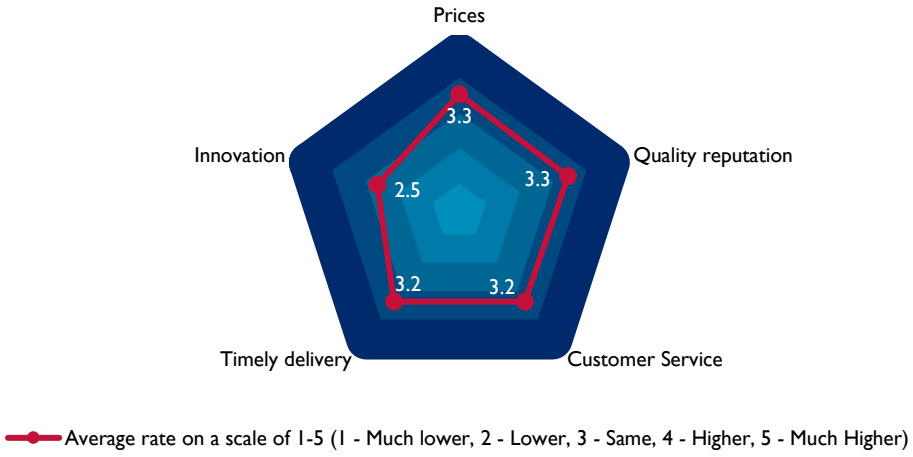


Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

Companies surveyed expressed the opinion that competitiveness is at the same level in comparison with importers in terms of timely delivery, customer service, quality reputation, and prices, while in terms of innovation, Ukrainian producers considered themselves as less competitive than foreign ones (see **Figure 75**).

[231] "Food Processing Ingredients Report" USDA, 2017
[232] State Statistics Service of Ukraine
[233] For example, CEP Interviews, Iryna Lukashyk, Sales Director, Liqberry, Kyiv, January 11, 2019 and Maksym Golikov, CEO, Zelena Hryadka, Kharkiv, January 11, 2019

Figure 75: Perceived Competitiveness of Domestic Products Compared to Imports



Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

Quality, packaging, and other standards and norms. According to companies interviewed, current packaging meets market requirements, but companies need to greatly improve production procedures in order to meet EU market requirements.[234] In addition, interviewees stated that, in order to be certified under Ukraine regulations, enterprises need to use pesticides with specific formal validation, though these kinds of pesticides cannot be certified under Global G.A.P.[235] They also opined that the quality of processing might be improved by using automatic sorting lines, modern refrigerator systems and providing seminars, and trainings for the employees.[236]

Prices for processed fruit and vegetable products are competitive with imported products and are affordable for Ukrainians, so currently, foreign-made processed fruit and vegetables are forced out to leave the Ukrainian market.[237] At the same time though, the processed fruit and vegetables segment in Ukraine faces strong competition from countries outside of Europe such as the USA, Turkey, and Brazil that account for almost half of the total imports of processed fruit and vegetables. [238] Ukraine imports mainly exotic canned fruit, juices and natural canned vegetables, exotic sauces, frozen potatoes, dried fruit, and berries.

[234] Ibid
[235] For example, CEP Interviews, Natalia Sudarkina, CEO, Agro-Patriot, Odessa, January 9, 2019
[236] For example, CEP interviews, Evgeniy Harlan, CBDO and owner, IBerry, 8 January, 2019
[237] For example, CEP Interviews, Natalia Pukshyn, CEO, Blueberry, Kyiv, December 26, 2018 and Ivan Kalinin, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018
[238] What competition do you face on the European processed fruit and vegetables market? https://www.cbi.eu/market-information/processed-fruit-vegetables-edible-nuts/competition-processed-fruit-vegetables

6.3 SECTOR POTENTIAL FOR EXPORT MARKET PENETRATION

EXPORT COMPETITIVENESS FACTORS

Several factors define the export competitiveness of the processed fruit and vegetables sector. Considering the importance of the EU market for Ukrainian processed fruit and vegetables, all requirements and preferences that follow are related to this market:

- **Quality and food safety certifications.** Processed fruit and vegetables should comply with legal and non-legal requirements (e.g., food safety, limited use of contaminants and pesticides, and an absence of mycotoxins, heavy metals). To be allowed into the EU market, companies are required to obtain internationally recognized certification standards including BRC, FSSC 22000, and IFS.[239] According to companies interviewed, Ukrainian producers struggle to certify products to EU standards due to "lack of proper guidance".[240] As one company stated: "*IBRS or IFS certificates are needed. Although certificates are not expensive, the process for obtaining them is very hard.*[241]

- **Safe packaging and informative labeling**. An additional requirement of the EU market is related to packaging and labeling. Exporters of processed fruit and vegetables are required to use 100% ecological and recyclable materials and provide comprehensive information about the content and composition of products. However, according to companies surveyed, Ukrainian products do not face particular challenges in complying with these EU packaging and labeling requirements.

- **Competitive prices.** The processed fruit and vegetables sector faces fierce competition from cheaper products or substitutions (e.g., nectars or jams with a decreased amount of fruit). However, Ukrainian producers consider themselves competitive in terms of price due to relatively low-cost labor and cheaper raw materials. Surveyed companies define comparable prices (low prices with high quality) as one of the key competitive factors of Ukrainian products abroad.

- **Innovation and modern technology.** The market for processed fruit and vegetables demands a variety of product specifications that can be obtained through the introduction of new technologies (e.g., heating, pasteurizing, freezing, and packing). However, surveyed companies report that the existing level of innovation in Ukrainian companies lags behind that of foreign competitors (see **Figure 76**).[242]

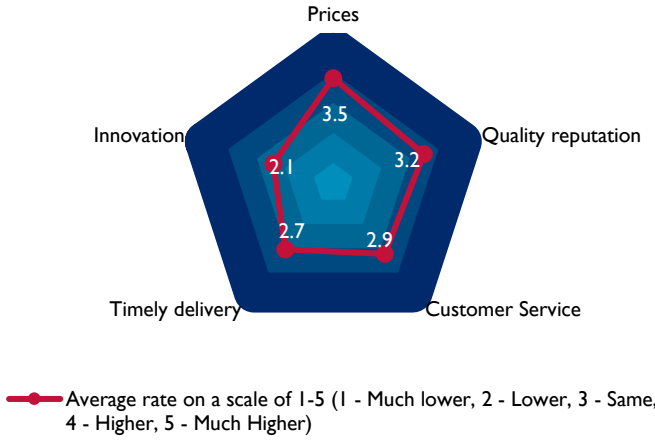
[239] The Centre for the Promotion of Imports (CBI), Agency of the Netherlands Ministry of Foreign Affairs

[240] For example, CEP Interviews, Natalia Pukshyn, CEO, Blueberry, Kyiv, December 26, 2018 and Ivan Kalinin, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018

[241] For example, CEP Interviews, Ivan Kalinin, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018

[242] For example, CEP Interviews, Natalia Pukshyn, CEO, Blueberry, Kyiv, December 26, 2018

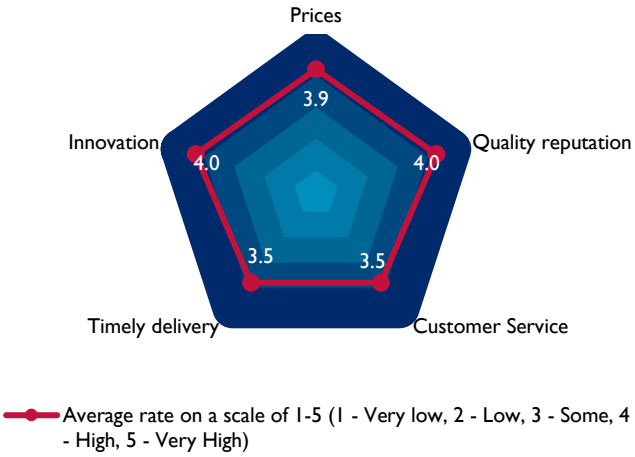
Figure 76: Perceived Competitiveness of Ukrainian Products Abroad



Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

Ukrainian companies see a growing importance of non-price factors of competitiveness, primarily a level of innovation and quality reputation (see **Figure 77**).

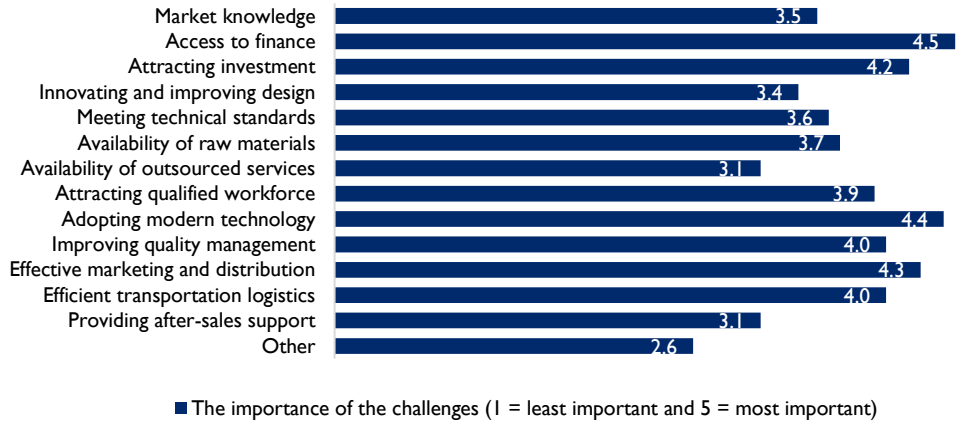
Figure 77: Estimated Importance of Competitive Factors in 5-10 years



Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

Access to finance, adopting modern technology, and effective marketing and distribution are perceived by Ukrainian companies as the top challenges to improve their competitiveness (see **Figure 78**).

Figure 78: Perceived Challenges to Improving Competitiveness



Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

The table below depicts the main suppliers (and Ukraine's competitors) in the EU market for the various segments of the processed fruits and vegetables sector, which is characterized by strong competition in and outside the EU) (see **Table 14**).[243]

Table 14: Main Suppliers of Processed Fruit and Vegetables on the EU Market

SEGMENT	EU SUPPLIERS	NON-EU SUPPLIERS
Frozen fruit and vegetables	Belgium (frozen vegetables) Poland (frozen fruit, mainly frozen berries)	Serbia (berries) China (various) Morocco (strawberries)
Canned fruit and vegetables	Italy (preserved tomatoes) Spain (vegetable mixtures, artichokes, and olives)	China (various) Turkey (peppers/olives) Thailand (pineapples)
Juices	The Netherlands Germany (partly of re-exports)	Brazil (orange) USA (cranberry) Turkey (apple) Thailand (pineapple) Benin and Vietnam (pineapple juice)
Jams, purees and fruit preparations	Germany France	Turkey (nut purees) Mexico (homogenous preparations) Serbia (plum jams/purees) South Africa (peach purees) Sierra Leone and Guatemala (mango puree)

Source: The Centre for the Promotion of Imports (CBI), Agency of the Netherlands Ministry of Foreign Affairs

[243] The Centre for the Promotion of Imports (CBI), Agency of the Netherlands Ministry of Foreign Affairs

COMPARATIVE STRENGTHS AND WEAKNESSES

Favorable environmental conditions coupled with the availability of an inexpensive labor force are Ukraine's main comparative strengths to compete against established suppliers in the EU market. Specifically:

- **Lower costs** due to the lower salaries (US$350 in Ukraine against US$1,140 in Poland) and lower transport costs (processing plants are mainly located near the base of raw materials);
- **Good taste and a broad product range** ensured by the predominantly mild climate with enough sunny days and productive farmlands;
- **Tradition of picking berries by hand** unlike EU suppliers that use mechanical methods;
- **Early harvesting season** in comparison with Poland (a two-week difference).[244]

Despite the aforementioned strengths that enable the production of high quality with a lower-cost product, there are weaknesses impeding the sector development:

- **Export constraints** include a general lack of knowledge on the EU/EFTA market requirements and preferences, insufficient marketing skills, a lack of direct contacts between Ukrainian producers and European companies, a lack of necessary certifications to enter the EU market, lack of a strong image and branding for the Ukrainian fruit and vegetables sector, and a poor level of English among workers.

- **Production constraints** include a lack of storage and refrigeration facilities in horticultural and vegetable farms, low quality of raw materials for processing, a lack of industrial capacities for production of dried and frozen fruit and berries, and unstable supply of fresh fruit and vegetable to processing enterprises (farmers prefer selling raw fruit and vegetables directly on the market due to higher prices and the lack of proper storage facilities).

- **Financial constraints** include a lack of internal financial resources and limited access to long-term loans.[245]

6.4 SECTOR JOB CREATION POTENTIAL

[244] For example, CEP Interviews, Liubov Semeniuk, Head of The Board, Vinnytsya Food & Gustatory Factory, Vinnytsya, January 10, 2019, Peter Myslyvyy, General Manager, Agrana Fruit Ukraine, Vinnytsya, January 10, 2019, Iryna Lukashyk, Sales Director, Liqberry, Kyiv, January 11, 2018, Galyna Logosha, Head of the Marketing Department, Artika, Kharkiv, January 11, 2018, CEP Interviews, Ivan Kalinin, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018, and Natalia Sudarkina, CEO, Agro-patriot, Odessa, January 9, 2018

[245] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018, Ivan Kalinin, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018 and Natalia Sudarkina, CEO, Agro-patriot, Odessa, January 9, 2018

Ukrainian statistics do not provide the exact figures for this sector. Industry executives expect the employment level to remain stable or to grow slightly.[246] However, the market faces two key skill shortage problems: the lack of professional agronomists and the workforce migration to Poland (more details in the section Availability of skills, below).[247]

6.5 SECTOR POTENTIAL FOR ENTREPRENEURSHIP AND INNOVATION

EVIDENCE OF SECTOR CHAMPIONS FOR INNOVATION

In interviews, respondents cited several companies as leaders in this sector, especially in regard to development of higher value-added products. Of note, respondents mentioned: BETEC, a GLOBAL G.A.P certified blueberry processing enterprise founded in 2010 and already supplying EU markets as well as Factoria, which specializes in high quality mustard and flaxseed oils and cakes. Founded in 1993, this company has exports to FSU and EU countries. Sandora, based in Mykolaiv, entered into a joint venture with Pepsi in 2007 and currently occupies a 47% share of the Ukrainian juice market. T.B. Fruit is a vertically integrated juice and processed fruits company based in Lviv while Austria Juice is focused on alcoholic and non-alcoholic drinks, as well as flavor extracts. Additional companies are Fructona, specialized in fresh and frozen berries and extracts; Agrana, an Austrian-Ukrainian joint venture producing fruit purees and extracts; and Liqberry, which is a leader in organic berry sub-products.[248]

POTENTIAL FOR ENTREPRENEURSHIP AND INNOVATION

Industry representatives reported that there is some evidence of emerging startups and new entrants.[249] Particularly, this can be observed in blueberry processing, where five of the 15 companies in Ukraine that work with that product were founded within the last three years.[250] However, they also point to an underdeveloped entrepreneurship support ecosystem across the sector and in pertinent locations.[251] Likewise, linkages between universities and the private sector are weak.[252]

Nevertheless, the innovativeness of the sector was estimated to be high by industry representatives.[253] Some leading multinational food processors have established food processing operations in Ukraine and have been able to offer a range of western-style products at reasonable

[246] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018 and Ivan Kalinin, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018

[247]

[248] For example, CEP Interviews, Iryna Lukashyk, Sales Director, Liqberry, Kyiv, January 11, 2018

[249] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018 and Ivan Kalinin, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018

[250] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018

[251] Ibid

[252] Ibid

[253] For example, CEP Interviews, Ivan Kalinin, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018, Peter Myslyvyy, General Manager, Agrana Fruit Ukraine, Vinnytsya, January 10, 2019, and

prices.[254] Moreover, the market needs innovative solutions, but companies state that they tend to allocate their resources to obtaining certification first.[255]

6.6 BUSINESS ENABLING ENVIRONMENT AND REGULATORY FRAMEWORK

AVAILABILITY OF VITAL BUSINESS DEVELOPMENT SERVICES

According to KIIs, business development services are available in the sector, particularly consulting/advisory services.[256] Companies also use international services, and though they consider their cost to be quite expensive, their quality is well regarded.[257] Also, some companies hire foreign experts as external consultants to increase crop yields.[258] Some companies interviewed stated that there is a lack of domestic companies.[259]

LEGAL AND REGULATORY CONSTRAINTS

Stakeholders cited several regulatory and procedural challenges facing companies in the sector, including:

- **The absence of land market** (due to the moratorium on the sale of farmland). The moratorium makes it difficult for companies to manage their land resources.[260]

- **Obtaining certifications.** The process of obtaining global certifications is considered to be hard for Ukrainian companies. This stems from different sources such as absence of specific regulations (e.g., a law on organic products), lack of harmonization between Ukrainian legislation and other practices, and integration of certification criteria into day-to-day business processes of the company.[261]

- **Unfair competition**. Companies reported the presence of unfair competition in the market, which combined with tax avoidance and bribery, places law-abiding companies at a significant disadvantage.[262]

It is worth mentioning that there are already a number of Ukrainian laws that were adopted after the EU-Ukraine DCFTA agreement. These laws declared Ukraine's adherence to both

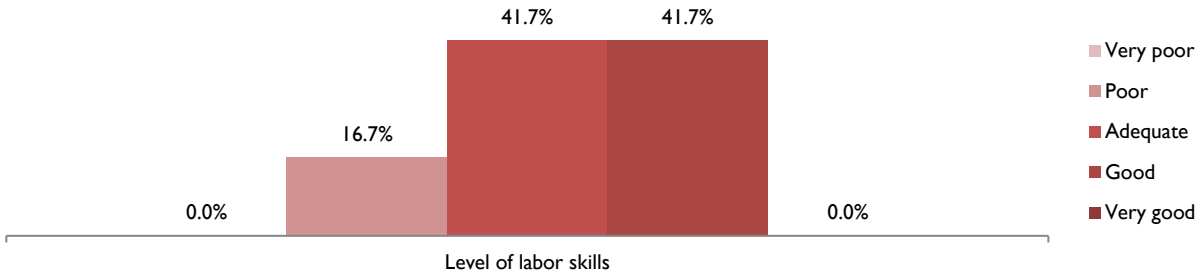
[254] Food Processing Ingredients Report_Kyiv_Ukraine_7-31-2017, Food Processing Ingredients Report, USDA Foreign Agricultural Service
[255] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018
[256] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018, Galyna Logosha, Head of the Marketing Department, Artika, Kharkiv, January 11, 2018 and Iryna Lukashyk, Sales Director, Liqberry, Kyiv, January 11, 2018
[257] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018 and Ivan Kalinin, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018
[258] For example, CEP Interviews, Galyna Logosha, Head of the Marketing Department, Artika, Kharkiv, January 11, 2018
[259] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018
[260] Ibid
[261] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018 and Natalia Sudarkina, CEO, Agro-patriot, Odessa, January 9, 2018
[262] For example, CEP Interviews, General Manager, Agrana Frut Ukraine, Vinnytsya, January 10, 2018

"international and EU norms". However, the laws do not address cases in which international (CODEX-based) regulations and standards differ from those of the EU. Nonetheless, Ukrainian authorities verbally declared adherence to international requirements.[263]

AVAILABLE SKILLS

As the sector relies heavily on a large supply of unskilled labor that could be trained on the job, 82% of the companies surveyed considered the qualification of the labor force in the adequate to good range (see **Figure 79**).

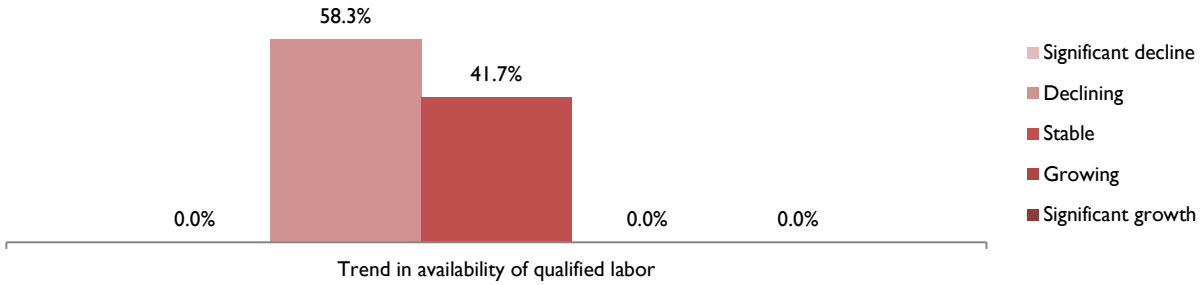
Figure 79: Perceived Level of Qualification of the Workforce



Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

However, Ukraine's proximity to developed EU countries such as Poland and Germany where higher salaries are offered, impedes the companies to retain their employees. As a result, a majority of interviewed companies perceive the availability of qualified labor force declining (see **Figure 80**).[264] In an effort to respond to a challenging labor market, companies tend to increase payroll, provide in-house training, and provide non-financial benefits (e.g., offer a hostel for a living during high seasons).[265]

Figure 80: Trend in Availability of Qualified Labor Force



Source: CEP Online Survey, Fruit and Vegetables industry survey respondents, January 13-20, 2019

[263] Food Processing Ingredients Report_Kyiv_Ukraine_7-31-2017, Food Processing Ingredients Report, USDA Foreign Agricultural Service
[264] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018, Liubov Semeniuk, Head of The Board, Vinnytsya Food & Gustatory Factory, Vinnytsya, January 10, 2019, and Galyna Logosha, Head of the Marketing Department, Artika, Kharkiv, January 11, 2018
[265] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018

According to the surveyed companies, the sector experiences a shortage of agronomists with more advanced skills (e.g., understanding of international standards and practices).[266] Additionally, the scalability of the sector requires upgraded marketing and sales skills, as well as the ability to work with modern technology and equipment.[267]

There are 25 public universities located in major Ukrainian cities, including Kyiv and Kharkiv, that provide relevant degrees (e.g., technologies of food processing) (see **Figure 81**). However, the quality of teaching is inadequate. Industry representatives indicated that graduates lack practical knowledge and skills and that employees obtain most needed skills through their day-to-day practice at work.[268]

Figure 81: Regional Distribution of Universities with Relevant Majors

Source: Osvita.ua (Ukrainian main educaitonal portal)

ACCESS TO FINANCE FOR GROWTH

Access to finance among small-size food processing companies is limited, which restrains their development as well as their competitiveness on the domestic and export markets.

Industry representatives indicated that their current sources of financing are 1) personal savings, 2) bank loans and 3) grants.[269] Despite an increase in the volume of loans, small-sized agricultural companies still have difficulties in accessing bank loans. A main obstacle cited in KIIs is a low level of transparency along with a poor quality of accounting.[270] Another significant challenge is lack of collateral[271]. Banks generally require 100-200% of total loan value as collateral. This is extremely challenging for small-size agricultural companies, especially given the moratorium on farmland sales which effectively prohibits the use of farmland as collateral.

[266] Ibid
[267] For example, CEP Interviews, Galyna Logosha, Head of the Marketing Department, Artika, Kharkiv, January 11, 2018
[268] Ibid
[269] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018 and Iryna Lukashyk, Sales Director, Liqberry, Kyiv, January 11, 2018
[270] For example, CEP Interviews, Natalia Sudarkina, CEO, Agro-patriot, Odessa, January 9, 2018
[271] For example, CEP Interviews, Ivan Kalinin, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018

High interest rate levels make it prohibitively expensive to finance the costs of scaling the business and implementing new technologies. Outside financing will be needed to achieve the required upgrading.[272] Grants or loan guarantees may be helpful as well.[273]

Even though international financial institutions such as EBRD, IFC, and EIB are making an effort to support the companies' development, most small-sized agricultural companies struggle with the lack of affordable capital.

6.7 OTHER FACTORS

SYNERGIES WITH OTHER PROJECTS AND INITIATIVES

There are several programs in Ukraine that support the development of fruit and vegetables processing companies, including HACCP certification with the help of EBRD and other European programs.[274] One company interviewed mentioned participating in the USAID-funded ARDS program, and was one of 14 winners of grants for organic brands. As a result, the production process of the company improved its overall productivity, enabling salary increases.[275] CEP could collaborate with ARDS to facilitate expanded networks of secondary product producers that would leverage existing distribution and marketing networks in order to expand production and sales of higher value-added products. These partnerships would enhance reputations of lead companies while expanding the range of Ukrainian products to include products suited for more sophisticated markets.

ALIGNMENT WITH GOVERNMENT PRIORITIES

Currently the GOU is focused on safety and customer protection, which are directly connected with the processed fruit and vegetables sector. In this regard, Ukraine adopted a single food safety authority model for its food and animal safety control as well as consumer protection. The single regulatory agency is called the State Service of Ukraine on Safety of Foodstuffs and Consumer Protection (SSUFCP). The SSUFSCP is responsible for the safety of veterinary drugs, feed, products of animal origin for food and non-food consumption, other food products, phytosanitary issues (plant quarantine), market control and all aspects of food safety for all imported food products. The Ministry of Healthcare of Ukraine (MHCU) remains responsible for food safety issues in public food establishments and epidemiological control in cases of food-borne illness investigations and elimination of outbreaks.[276]

[272] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018

[273] For example, CEP Interviews, Ivan Kalinin, Founder & CEO, Atlas Trade, Kyiv, December 20, 2018

[274] For example, CEP Interviews, Galyna Logosha, Head of the Marketing Department, Artika, Kharkiv, January 11, 2019 and Iryna Lukashyk, Sales Director, Liqberry, Kyiv, January 11, 2019

[275] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018

[276] FAIRS Country Report "Food and Agricultural Import Regulations and Standards – Narrative" USDA

POTENTIAL FOR FEMALE INCLUSION

The perception of business representatives is that men and women are equally represented in leadership positions in this sector. However, women's participation is greater than men's participation at primary components in the supply chain, in which they are better represented in professional/technical positions.[277] For example, women are more involved in the production processes, while men mostly occupy positions of agronomists and tractor drivers.[278]

POTENTIAL TO INTEGRATE YOUTH

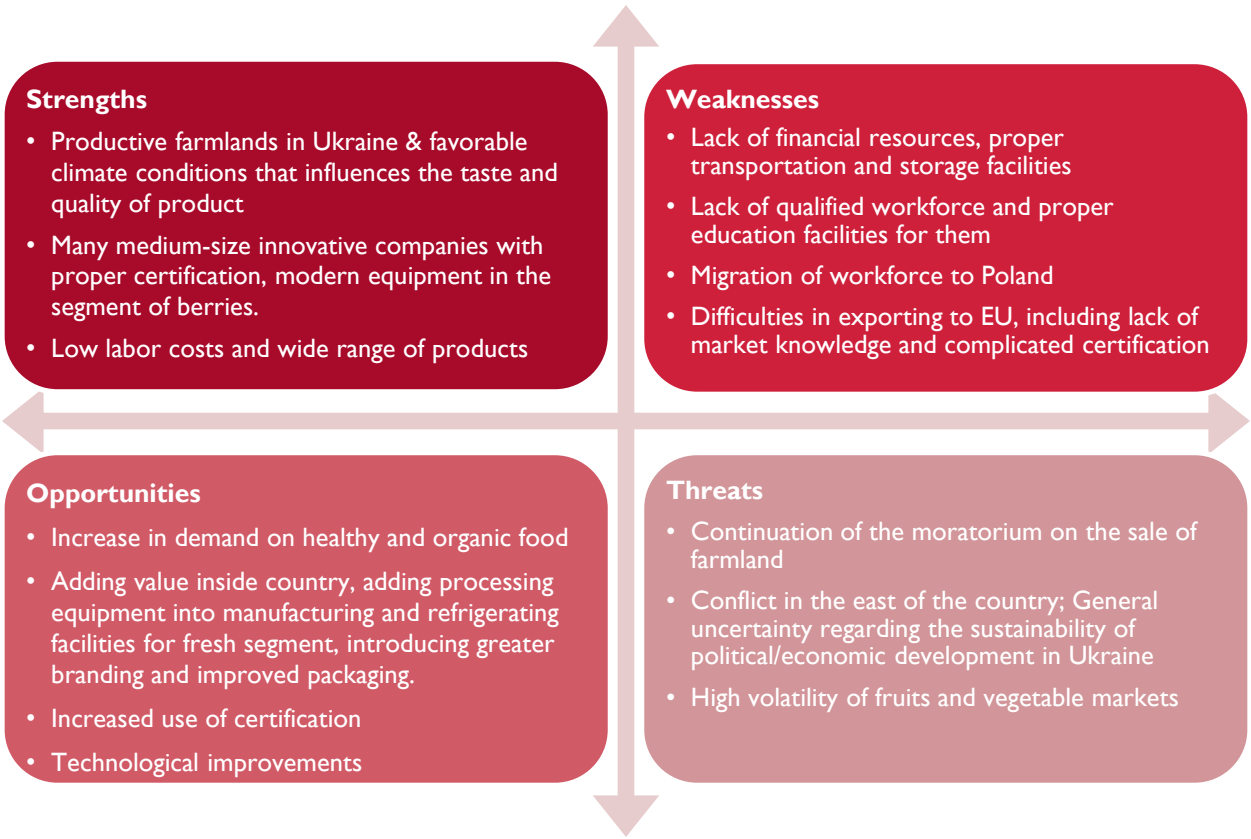
While national statistics on employment are not available, sector representatives estimated that between 20-50% of their workforce is under 30 years old, which indicates that youth makes a relatively high share of employment. However, youth are primarily interested in seasonal employment and not long-term careers in the sector.

6.8 SWOT AND DIAMOND ANALYSES

SWOT ANALYSIS

Figure 82: SWOT Analysis of Fruits and Vegetables Sector in Ukraine

[277] For example, CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018
[278] Ibid



Strengths: Ukrainian companies have an advantage in being able to harvest berries two weeks earlier than Poland.[279] Besides the time advantage, Ukrainian farmlands are highly productive. In comparison to the European producers, Ukrainian labor involved in the fruits and vegetables industry business is currently about 3 to 4 times cheaper, allowing domestic producers to price products favorably.

Weaknesses: Industry representatives highlight several issues hindering the sector's development, such as the lack of equipment (for example, refrigerators and sorting lines for berries processing), which brings the market to a situation with an excess of raw materials and a dumping effect appears. Other weaknesses include an insufficient skilled workforce. Skilled workers receive their training mainly in foreign universities or self-education. Low skilled employees also have poor level of English. Finally, lack of affordable finance as well as a lack of industry consultants postpones or limits business growth.

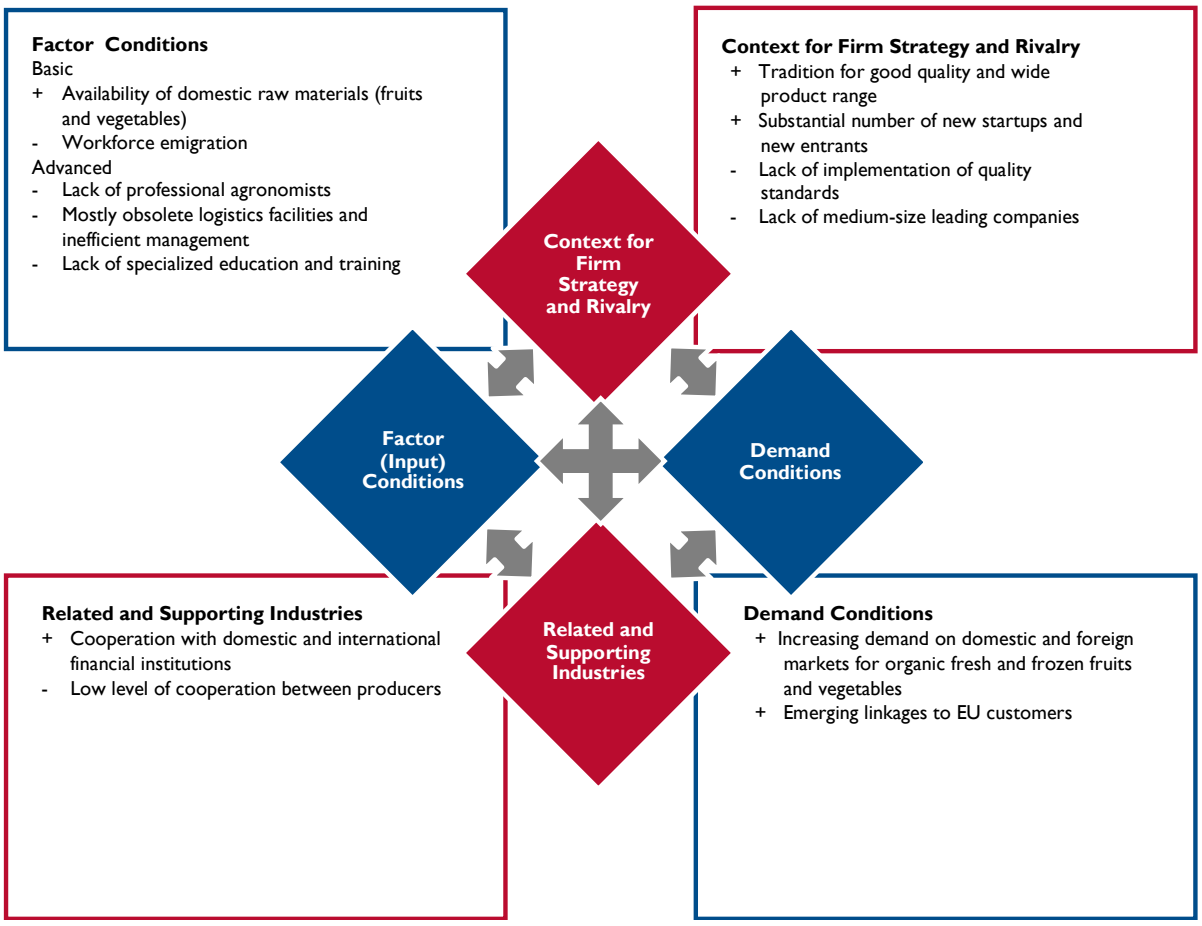
Opportunities: Improvement in perception of frozen fruit quality and acceptability by customers as well as in expectations for demand, are positive for berries and healthy foods in general and may result in significant growth in the industry. Target markets, such as Belarus, Baltic countries, and Germany express interest for Ukrainian products. Moreover, there is available financial assistance from international donors for the industry development.

[279] CEP Interviews, Natalia Pukshyn, CEO, BlueBerry, Kyiv, December 26, 2018

Threats: Major threats to the sector's growth are conflict in the eastern part of Ukraine, strong migration flows of the workforce abroad putting upward pressure on domestic wages, potential disruption of the FTA with the United Kingdom due to Brexit, and high volatility of fruits and vegetable markets.

DIAMOND ANALYSIS

Figure 83: Diamond Analysis of Fruits and Vegetables Sector in Ukraine



Strategy, Structure, and Rivalry: The sector is mostly composed of SMEs. Recently there have occurred a substantial number of new startups and new entrants. There is a great variety of products, but at the same time, the industry suffers from the lack of the implementation of quality standards.

Demand Conditions: Demand and supply in the industry increase, supported by the growing popularity of a healthy lifestyle.

Related and Supporting Industries: Local producers benefit from the cooperation with domestic and international financial institutions. Access to finance is problematic.

Factor Conditions: Companies can easily access raw materials, along with highly productive farmland lands. However, the sector suffers from a lack of professional agronomists and workers due to workforce migration and poor specialized education.

Government: From the legislation side, there is a lack of harmonization between Ukrainian legislation and EU practices. Another significant issue which prevents the industry from further development, is a moratorium on the sale of farmland. Without disregarding these issues, there are specialized partnership programs between local producers and governmental structures (such as the Export Promotion Office), moving the industry to higher levels of competitive performance.

7. SECTOR ASSESSMENTS – IT: DIGITAL PRODUCTS AND SERVICES

7.1 SECTOR OVERVIEW

This section focuses on Ukraine's emerging digital products and services sector, referred to as IT. The IT: Digital products and services sector in Ukraine is composed of ~1,200 companies and a workforce of ~160,000 professionals or more.[280]

The sector encompasses enterprises involved in the production of a wide range of software and hardware, and services involving their application. In this context, this report covers a wide range of enterprises from those working with individual programmers providing code for parts of a software product, to start-up and small companies designing innovative products to medium and large companies providing outsourced software development as well as producing their own branded software solutions. Generally, whether very small or large, these enterprises all operate in the same environment, and to varying degrees, face similar challenges. That are often interconnected in B2B relationships, networks and ecosystems.

In general, the types of enterprises considered as part of this sector include:

- Producers of code for larger companies that integrate their input into complete software products
- Start-up enterprises developing unique software solutions such as those for mobile devices or gadgets
- Companies specialized in digital R&D projects
- Business process outsourcing and outsourced software production services, providing custom software solutions to just about every industry, including service, agribusiness and manufacturing industries.
- Embedded software producers producing software for many uses, such as medical equipment, consumer electronics, wearables, industrial automation.
- Digitally enabled products – aside from outsourcing, Ukrainian IT firms produced and launch their own products.
- Digital hardware producers, including start-ups as well as larger enterprises with capability of producing technologies with embedded software.

IT service providers

IT service providers are engaged by clients to carry out mandates of varying complexity, duration, dollar-value and scope. Projects may be as simple as providing the work of two specialists for a few weeks, or multi-year engagements requiring the company to engage a diverse group of

[280] This reports cites varying figures for numbers of specialists in the IT: Digital products and services sector. These figures vary according to the source used at varying points in the report. While therefore somewhat dissonant, the cited numbers are generally of similar order of magnitude.

specialists. The work is performed per the specific instructions of the client, and the resulting intellectual property (IP), if any, is retained by the client. The services are provided by freelance IT specialists, small and medium outsourcing companies, and large outsourcing companies. 70% of IT professionals are employed in this segment.

Ukrainian IT outsourcing companies are well-known globally; 13 Ukrainian companies are among top-100 global outsourcing companies. Some notable companies include Ciklum, EPAM, SoftServe, GlobalLogic, Luxoft, Eleks, Miratech, and others.[281]

The type of services can be further broken down into out-staffing, outsourcing, and system administration.

1) Out-staffing: The providers provide skilled labor to their client, matching the specific skillset and experience required by the client. The specialists usually take direction directly from the client, and the service provider does not manage the details of the assignment.

2) Outsourcing: Unlike out-staffing, the service provider manages details of the project work, which are very varied in time, scope and needed qualifications. The services can be classified into 4 categories:

- Low value-added contracts: Clients require the providers to complete simple tasks, for example, designing a simple web page. These contracts are typically fulfilled by freelance IT specialists or small domestic outsourcing companies.

- Complex outsourcing contracts: Clients require the development of a product for the sale or use as part of their business operations. Examples include a mobile application, complex websites, or creating data management systems. The assignment would typically require a team with multiple skillsets and experience levels and also include a project manager. These services are typically provided by medium or large outsourcing companies for international markets.

- High value-added contracts: These advanced outsourced projects require the provider to maintain security according to world standards. Examples include projects from banking and financial institutions, large online retailers, as well as enterprise products. A high level of trust is required to safeguard the client's IP. The execution of projects requires a diverse team of senior-level specialists and managers and the contracts usually span several years. They are carried out by medium and large outsourcing companies with international presence.

- Research & Development (R&D): For these engagements, the client requires a set of niche skills to carry out R&D for a particular function or to develop solutions to particular problems. Teams tend to be small with specialized skills beyond general IT and are more expensive.

[281] "*Development of the Ukrainian IT industry*" IT Ukraine Association, 2018

3) System administration: These services are usually provided by either an individual IT specialist or a separate team that manages a company client's internal IT systems operations. Compared to outsourcing, the skillsets needed for system administration are less technically demanding; and the employing company is usually not engaged in providing IT services. These services are in the demand on the domestic market by companies pursuing digital transformation.[282]

Product development companies

Ukraine is mostly known and has established itself as an outsourcing destination. Yet, product development companies are emerging. While outsourcing is often a lower-margin, high volume industry with comparatively lower investment risk, product development involves higher risk but potentially higher returns. Product development companies create their IP, as opposed to working with their clients IP. The growth in product development could be exponential and generate sales from millions of end users as companies develop and sell complex products such as applications, system infrastructure software, online gaming, and hardware products with integrated software, for both businesses and individual consumers (B2B and B2C).

"Ukraine's proficiency in outsourcing gave rise to a growing opportunity for expansion into product development. In noteworthy cases, individual IT specialists met while employed at outsourcing firms and began collaborating on ideas for product development, later electing to form their own product development start-ups. Among these internationally-oriented startups are BPMOnline, DepositPhotos, Grammarly, InvisibleCRM, Jooble, Looksery (acquired by Snapchat in September 2015), MacPaw, Paymentwall, Readdle, Starwind Software, among others. Some of them, like Paymentwall and Grammarly, have developed into global companies while keeping their main R&D office in Ukraine, where they started. A range of international funds invest in Ukraine including, but not limited to, Almaz Capital, the EBRD, Intel Capital, Horizon Capital, Naspers, along with local players such as AVentures Capital and TA Ventures".[283]

Value chain overview, market channels, and value creation

The value chain of the IT: Digital products and services sector can be described as three main interacting links that deliver services to businesses and consumers: human capital supply; services production and development, and product integration, marketing and distribution. These are depicted in **Figure 84.**

[282] Ibid

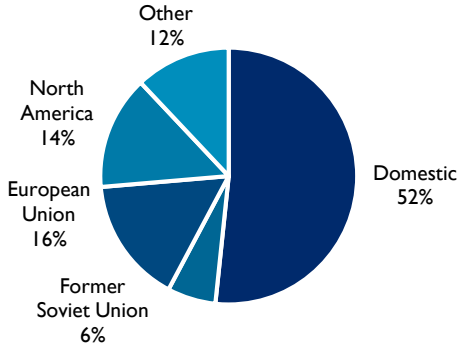
[283] IT Ukraine, "IT Services and Software R&D in Europe's Rising Tech Nation". April 2016 (version 1.11), page 16 in Lewis, Marc et. al. IT Value Chain Study and Action Plan (Draft), USAID Ukraine, November 2018.

Figure 84: IT: Digital products and services Value Chain Overview

Source: Industry reports and CEP Interviews, IT industry survey respondents, 2018-2019

The creation on value for the sector starts with the human capital supply. Of the estimated 160,000 professionals in the workforce, approximately 120,000 are freelancers and 40,000 are employed full-time by companies. According to CEP's survey, IT professionals are predominantly Ukrainians and trained in national universities (see **Figure 85**). However, there is a growing number of IT specialists with alternative non-degree training (e.g., online courses, learning hubs, private training institutions, and company training).[284]

Figure 85: Sources of IT Sector Labor Force



Source: CEP Online Survey, IT industry survey respondents, January 13-20, 2019

The second link is service production and development. The main providers are freelance individuals (system administration and low-level outsourcing contracts), IT service companies (outsourcing, out-staffing services) and product development companies (startups). In the third link, domestic firms, international and multinational companies (typically, from the US and EU)

[284] Ibid

and product development companies conduct product integration, marketing, and distribution to global and local business and consumers.

The market channels used highly depend on the type of IT service or product provider:

1. **Freelance IT specialists** usually are limited in budget and therefore have limited opportunities to promote themselves. They access the IT services market via online freelance marketplaces (predominantly foreign ones) and special job boards. Also, they may write blogs or articles to become recognized by potential clients.

2. **Small and medium outsourcing companies** usually dispose of a client database, hire a sales and marketing manager, moderately invest in marketing and promotion and often participate in conferences and events. They usually rely on the Internet as a primary channel for reaching overseas clients. Also, these companies may hire intermediaries that will introduce them to potential clients on international markets as they cannot open own sales office.

3. **Large outsourcing companies** allocate a significant share of their budget on marketing and promotion using online advertising and direct marketing. They often open sales representative office and sponsor big conferences and events both on Ukrainian and foreign markets to interact with a client directly.

4. **Product development companies** use multiple strategies for reaching potential customers. Companies using online B2C models (e.g., games, subscriptions) rely on low-cost online marketplaces (e.g., app stores, online retail, Amazon) and invest moderately in internet promotion. At the same time, companies offering B2B services with a high unit-price tend to open representative offices in targeted markets.

In the IT services sector, a company will bill a client either at a rate that includes a markup to the cost of labor or at a fixed contract fee based on scope of the project. The labor cost in turn depends upon the skillset of the individual (and the years of experience).

The work of freelancer is generally short-term and project-based, therefore they normally have an hourly rate. The average rate of Ukrainian freelance specialists is approximately US$30-$35 per hour. Data available on job board UpWork reports average hourly rates ranging from US$15-US$80 segmented by one, three and five plus years of experience.[285]

An outsourcing company will negotiate each project with a client based upon the particular set of skills required and the scope of work. On average, a company applies a 50% margin to the employees' salaries. For a basic website design with an abundance of available specialists, the margin may be approximately 30%. Companies that offer services in specialized niche or high-

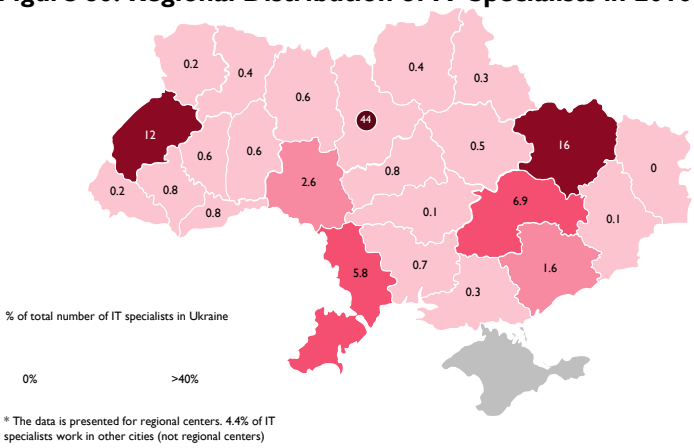
[285] https://www.upwork.com/o/profiles/browse/?q=Ukraine

demand areas may apply much higher margins or charge clients based on the project value for a client, rather than based upon workforce used.[286]

Product development companies labor cost is generally the same as IT services companies; in fact, some of them hire IT service companies to execute activities towards their product development. Successful product development companies can extract substantial margins by scaling their products to millions of end users. As discussed previously, though, while substantial returns are possible, the risk is also very high, as 95% of start-ups fail.

IT production takes place nationwide, with the majority of IT specialists concentrated in the regional city centers. According to official data, 44% of IT specialists are officially registered in Kyiv. Significant representation is also Kharkiv (16%), Lviv (12%), Dnipro (6.9%), and Odessa (5.8%) (see **Figure 86**). At the same time, there is a growing number of IT specialists coming from other regional centers. According to the survey conducted by the DOU.ua, in 2018 the highest growth was observed in Vinnytsya, Zaporizhzhia, Lviv, Poltava, and Khmelnitsky.[287]

Figure 86: Regional Distribution of IT Specialists in 2016



Source: IT Ukraine Association, the Better Reform Delivery Office in Ukraine

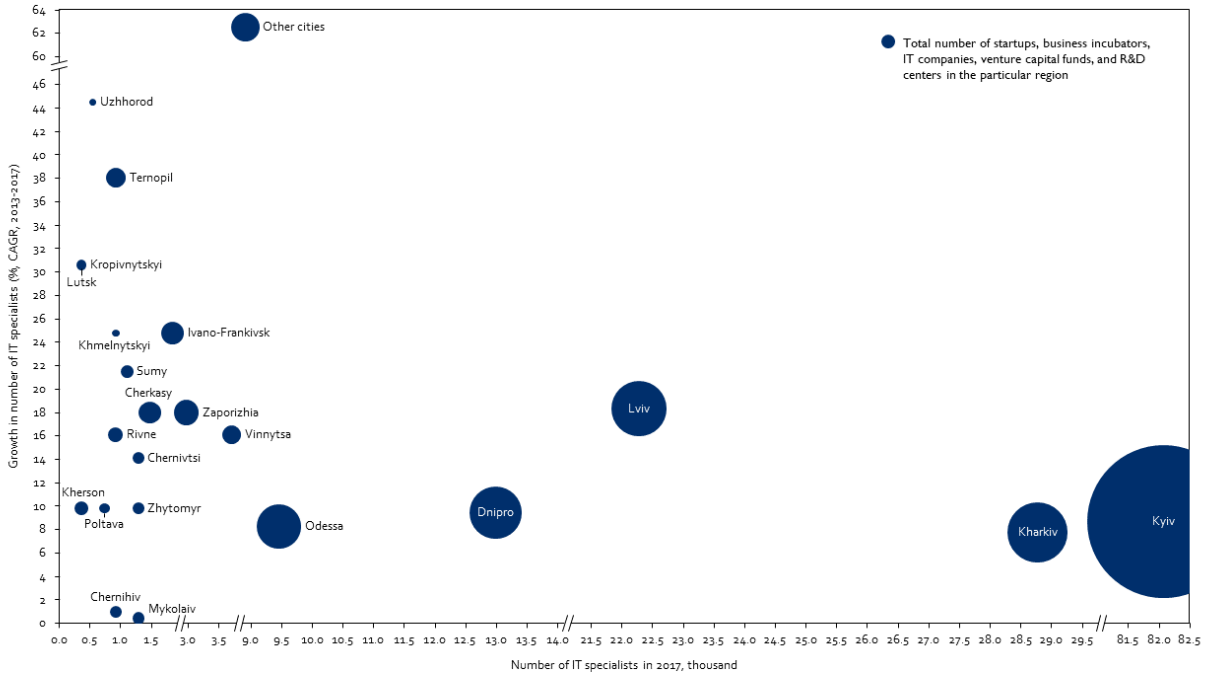
Considering the total number of IT specialists and the level of development of IT ecosystem (e.g., total number of startups, business incubators, IT companies, venture capital funds, and R&D centers), the top IT regional hubs are:

- Kyiv (the highest concentration of IT specialists and the most developed IT ecosystem);
- Kharkiv (second highest concentration of IT specialists, the availability of strong schools and universities, and a large share of product development);
- Lviv (availability of private and public technical universities, emerging IT ecosystem, strong outsourcing specialization and a cooperation with the municipality).

Other prominent locations include Dnipro, Odessa, and Vinnytsya (see **Figure 87**):

[286] Lewis, Marc. Op. Cit., pp. 25-26.
[287] "*Development of the Ukrainian IT industry*" IT Ukraine Association, 2018

Figure 87: Regional Distribution of IT Sector Operations in Ukraine



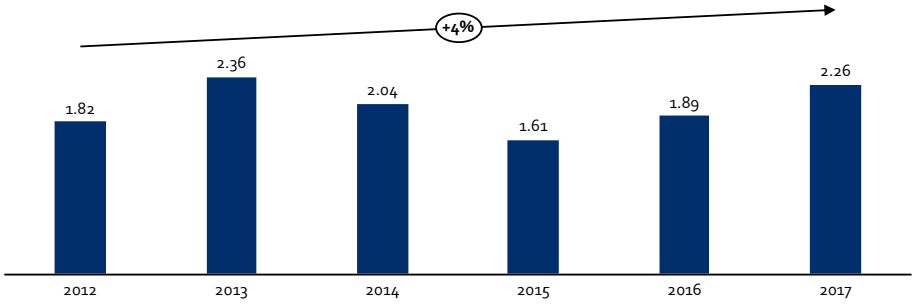
Source: IT Ukraine Association, State Statistics Service of Ukraine, Mapped In Ukraine

Production and market trends

According to the SSSU, in terms of total value, IT production amounted to US$2.3 billion in 2017 with the CAGR of 4% in 2012-2017 (see **Figure 88**).[288] Value added amounted to US$1.2 billion, equal to 1.5% of Ukraine's total.

However, both figures are in actuality much higher as many companies work in shadow or with foreign registration, and some IT services are provided by local freelance experts without being registered in the national statistics. As such, some sources report a sector value of up to US$ 4.5 billion in 2018, representing 3.34 of the country's GDP.[289]

Figure 88: IT Sector Production (US$ billion)

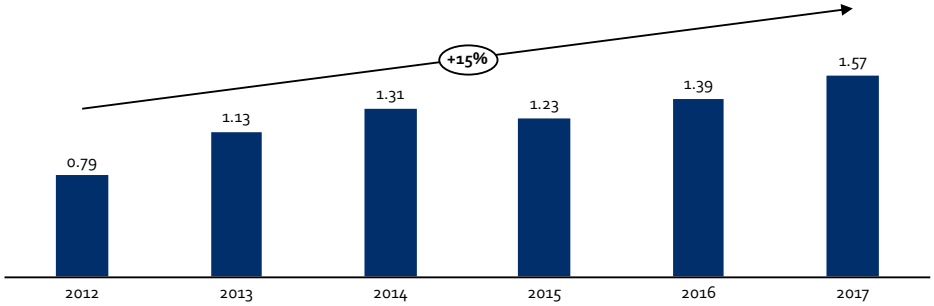


[288] State Statistics Service of Ukraine website
[289] Tokolish, John et.al. "Rapid Assessment Synthesis", USAID, 2018, p.7. IT data must be interpreted with caution as there is a lot of unreported activity.

Source: State Statistics Service of Ukraine

Most IT services are sold in foreign markets, as export sales constitute 70% of Ukraine's total. SSSU reports exports of IT services for US$1.6 billion, growing at 15% p.a. from 2012-2017 (see **Figure 89**).[290]

Figure 89: IT Sector Export (US$ billion)



Source: State Statistics Service of Ukraine

More than half of exports goes to the United States, followed by the United Kingdom (UK). Ukrainian firms have also been cooperating with customers in Germany, Canada, Israel, Sweden, and Switzerland.

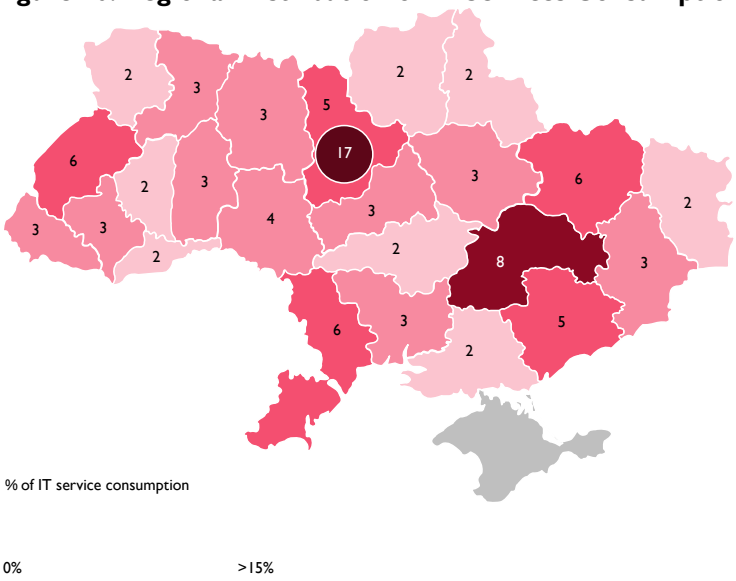
Despite the growth of IT services export, Ukraine's technology exports per capita is only US$170 and lags behind EU countries, for example:

- 11 times lower than the Central and Eastern European regional average of US$1,808;
- 21 times lower than the EU average of US$3,568;
- 29 times lower than the Czech Republic's rate of US$4,965.[291]

According to the SSSU, in 2017 30% of sales of IT services were domestic. Sales in the domestic market are mostly to the financial and public sectors (35% and 16% of total sales respectively), whereas the highest growth was shown by transport and public services. Regionally, Kyiv occupies the highest IT services consumption share (17%), followed by Zaporizhzhia (8%), Lviv, Kharkiv and Odessa regions (6% each) (see **Figure 90**).[292]

[290] State Statistics Service of Ukraine website
[291] State Statistics Service of Ukraine website
[292] "*Information Technology Industry in Ukraine*" AEQUO, IDC and Baker Tilly, 2016

Figure 90: Regional Distribution of IT Services Consumption

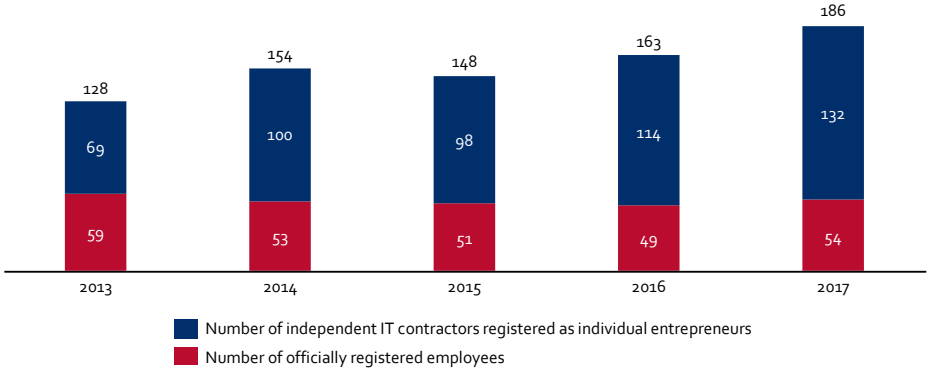


Source: International Data Corporation (IDC)

Workforce and employment trends

The sector's labor market consists of several categories, including private entrepreneurs (working as independent contractors), official full-time employees (counted by the SSSU), and informal IT specialists. In 2017, the SSSU reported that the IT sector employed 53,800 people and that the number of jobs was decreasing by 7.6% p.a. in 2013-2017. However, it should be noted that the latter should not be interpreted as a sign of industry contraction, as the number of private entrepreneurs has risen simultaneously and that the total number of IT specialists in both categories has grown from 128K to 186K. (see **Figure 91**). A large number of IT specialists work with companies as individual entrepreneurs and pay taxes on their own. The vast majority of them are on a simplified tax system and pay a single tax. Such tax revenues grew by an average of 59% during 2013-2017 and amounted to US$0.1 billion in 2017.[293] Many companies interviewed by CEP estimated overall sector employment growth in the order of 20% p.a.[294]

Figure 91: Trend in Employment in the IT Sector in Ukraine (`000 of IT specialists)



[293] "*Development of the Ukrainian IT industry*" IT Ukraine Association, 2018
[294] For example, CEP Interviews, Taras Vervega, SoftServe, Lviv, December 17, 2018

Source: State Statistics Service of Ukraine

Ukrainian tax legislation proposes two systems that regulate a relationship between IT companies and employees. An IT company may hire IT specialists as independent contractors (private entrepreneurs) as long as the salary does not exceed UAH 3 million (US$108,153). Under this plan, the entrepreneur is required to pay income tax (5% of salary) and a fixed fee (22% of minimum wage). The average total amount of taxes paid per month is around US$175. Another option is to hire an IT-specialist as a formal employee. Under this scenario, the employee is required to pay income tax (18% of salary) and military tax (1.5% of salary). Additionally, the employer has to pay a 22% social tax. Considering the high benefits stemming from the first tax plan, most IT specialists are hired as independent contractors.[295]

The growing interest in the IT sector is fueled by high salaries. According to the SSSU, the average income in IT was US$452 per month in 2017, almost 1.7 times higher than the country average. However, a survey of IT specialists indicated the average salary exceeds that of the country by 7 times.[296] The typical contract with a Ukrainian engineer usually includes salary and two-four weeks of vacation time, whereas bonuses and equity sharing are uncommon for non-product companies.[297] At the same time, according to the 2018 annual study conducted by DOU (developers.org.ua) the 130,000 - 160,000 active IT specialists in Ukraine earn average salary of US$2,000. Even so, labor costs in Ukraine still lag far behind the EU and the USA. That serves as an advantage for this industry.

Figure 92: Trend in Average Monthly Salary of IT specialists in Ukraine (US$)

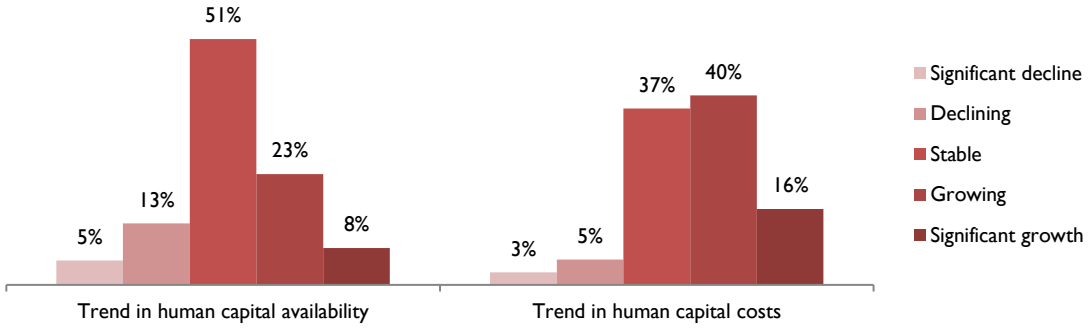
Source: State Statistics Service of Ukraine, dou.ua

It is also noteworthy that Ukraine is ranked the 7th in terms of quality and efficiency of freelance workers in the digital environment and 24th in the top 55 most attractive countries for outsourcing.

[295] "*Development of the Ukrainian IT industry*" IT Ukraine Association, 2018
[296] Shelest, Olexander, Yaroslav Kutovy, Igor Samokhodsky *"Development of the Ukrainian IT-Industry"* IT Ukraine Association and BRDO, October 2018
[297] Sychikova, Yuliya "*IT Ukraine From A to Z: key trends and figures of the Ukrainian IT service and software R&D market*" Ukraine Digital News and AVentures, April 2016

On the other hand, most companies responding to the CEP survey regard the availability of IT specialists positively. The majority (51%) observe a stable number of IT specialists on the market, yet 56% observed growing labor costs (see **Figure 93**). Some companies added that the current market faces shortages of highly skilled employees, including those specialized in artificial intelligence (AI) and the internet of things (IoT).[298]

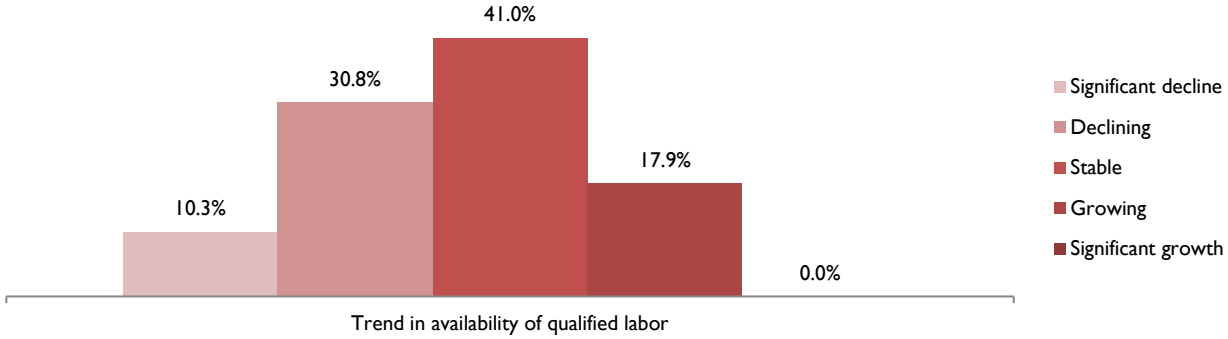
Figure 93: Availability and Costs of IT Sector Inputs (Labor Force)



Source: CEP Online Survey, IT industry survey respondents, January 13-20, 2019

Further, while nearly 60% of the companies anticipate a stable or growing trend in the availability of a **qualified** labor force (see **Figure 94**), a significant 40% expect declines.

Figure 94: Trend in Availability of Qualified Labor Force



Source: CEP Online Survey, IT industry survey respondents, January 13-20, 2019

7.2 SECTOR GROWTH POTENTIAL

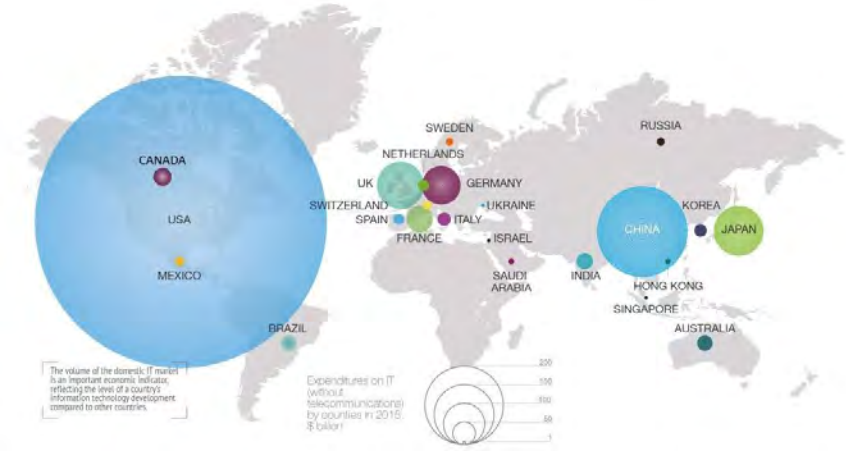
SECTOR ACHIEVABLE EXPORT GROWTH

[298] For example, CEP Interviews, UNIT.City, Kyiv, December 17, 2018

From 2013-2017, global demand for imported IT services show a trend of 6% growth per annum. Ukraine exports have grown at 12%, which is double that growth and thus has doubled is market share in that period. However, its share of the global market is still only 0.5%.[299]

The global leaders in IT spending are North America (33% of expenditures on IT), Asia (33%), and the EU (22%). While some of those markets are already the primary consumers of Ukrainian IT services and products (USA, UK, Canada, and the EU account for around 90% of Ukrainian IT export), the growth of those IT markets should continue its growth trend above GDP growth, with higher growth in developing economies (see **Figure 95**).

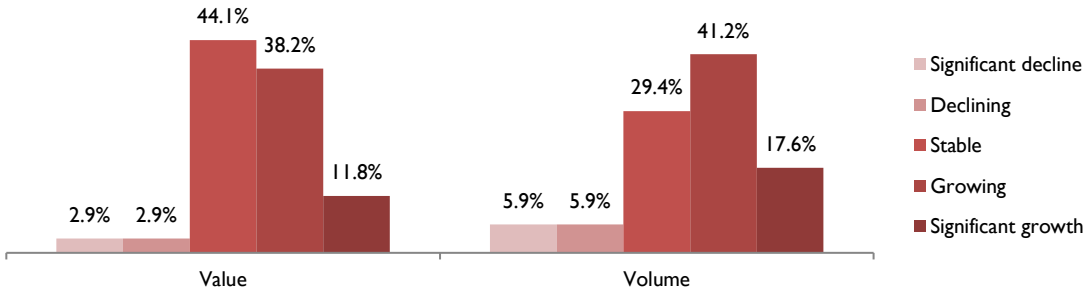
Figure 95: Key global IT markets



Source: International Data Corporation (IDC)

Ukraine's exports are projected to continue their growth trajectory, perhaps reaching US$8.5 billion by 2025.[300] Further, surveyed Ukrainian IT companies expect growth in sales in foreign markets. More than 60% of participating IT executives expect a growth in volume and value of export sales (see **Figure 96**).

Figure 96: Expected Trend of Foreign Sales



Source: CEP Online Survey, IT industry survey respondents, January 13-20, 2019

[299] International Trade Centre, Geneva.
[300] IT Ukraine Association

Besides expansion in existing markets, some interviewed Ukrainian IT companies are considering entry into other EU and CIS countries.[301] Also, some interviewed companies are planning to target African countries that are showing a demand for effective and efficient solutions for public financial management. [302]

SECTOR SCALABILITY

The table below depicts CEP's assessment of the IT services sector scalability, considering four key factors: finance, workforce, business development skills, and marketing and distribution channels. The workforce, business development skills, and knowledge and marketing of distribution channels are rated satisfactory, while access to financial resources is poor. In all four dimensions there is room to improve the sector's scalability.

Table 15: Assessment of IT Sector Scalability

FACTORS	CURRENT PROSPECTS FOR SCALABILITY	ROOM FOR IMPROVEMENT
Financial resources	Poor, companies have inadequate access to finance and therefore mostly rely on self-financing. Banks offer high-interest rates, whereas the number venture capital investors are insufficient.	More financing opportunities, especially early-stage investments; "smart money" (mix of useful connections and funds).
Workforce	Satisfactory, there are lots of talented IT specialists who compete globally in quality and price.	Better quality of teaching in universities (more practical).
Business development skills	Satisfactory, there is an availability of basic business development services (e.g., sales, and design); However, companies struggle with obtaining qualified specialists in advertising and marketing.	Popularization of business development services (business consulting) among IT companies; more networking events and conferences.
Marketing and distribution channels	Satisfactory, companies are knowledgeable in using online marketing tools for promotion; some companies hire intermediaries for expanding on foreign markets. However, some companies lack the understanding of target market specifics.	More training, workshops, and conferences.

Source: Industry reports and CEP Interviews, IT industry survey respondents, 2018-2019

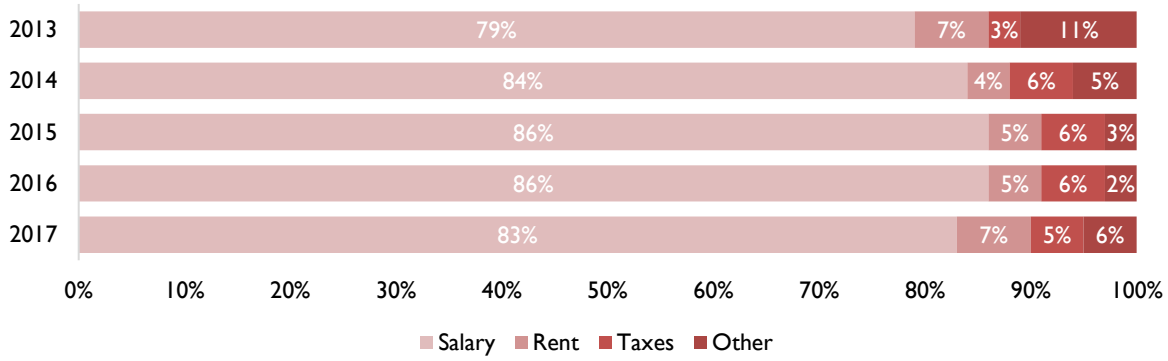
SECTOR INVESTMENT POTENTIAL (FOREIGN AND DOMESTIC)

The IT services sector has a large potential for increased foreign and domestic investments. The sector accounts for 6% (US$2.1 billion) of Ukraine's total FDI stock, and it shows a positive growth trend of 3% p.a. from 2013-2017. The trend reflects the interest of foreign IT companies to invest and develop their business in Ukraine. However, total domestic private investment in 2017 reached only US$640 million. Companies interviewed by CEP indicated that funding opportunities are scarce.[303]

[301] CEP Interviews, Elitsa Zaimova, Head of Methodology, Preply, Kyiv, December 18, 2018
[302] Ministry of Finance, Planning & Economic Development of the Republic of Uganda
[303] For example, CEP Interviews, Oleksandr Solovey, Cofounder, Finmap, Kyiv, January 22, 2019 and Elitsa Zaimova, Head of Methodology, Preply, Kyiv, December 18, 2018

Further, investments in the sector are profitable. According to IT companies accounting, their average cost per one employee amounts to US$2,200 per month. Wages constituted 83% of the total costs of IT companies in 2017. Other noticeable cost components were rent payments (7%) and taxes (5%) (see **Figure 97**).[304]

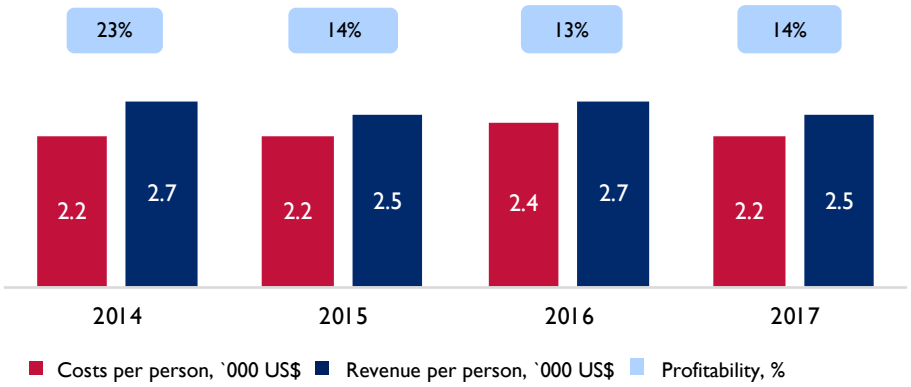
Figure 97: Costs Structure in the IT Company in Ukraine



Source: IT Ukraine Association

Meanwhile, the average revenue per one employee is US$2,500 per month, meaning that the average margin of IT companies was 14% in Ukraine in 2017 (see **Figure 98**).[305]

Figure 98: Trend in Average Profitability in the IT Company in Ukraine



Source: IT Ukraine Association

An alternative way of looking at the sector's profitability was discussed in the value chain overview section above. The main value creator are the skills and experience of the workforce. Companies will bill their clients a multiple on labor costs, with an average mark-up of 30%. That mark-up is lower for work and skill of less complexity, and higher for scarcer skills and more complex work.

[304] Shelest, Olexander, Yaroslav Kutovy, Igor Samokhodsky "*Development of the Ukrainian IT-Industry*" IT Ukraine Association and BRDO, October 2018
[305] Ibid

And in the case of product development, the returns could be much higher due to the possibility of scaling up revenues on the labor costs.

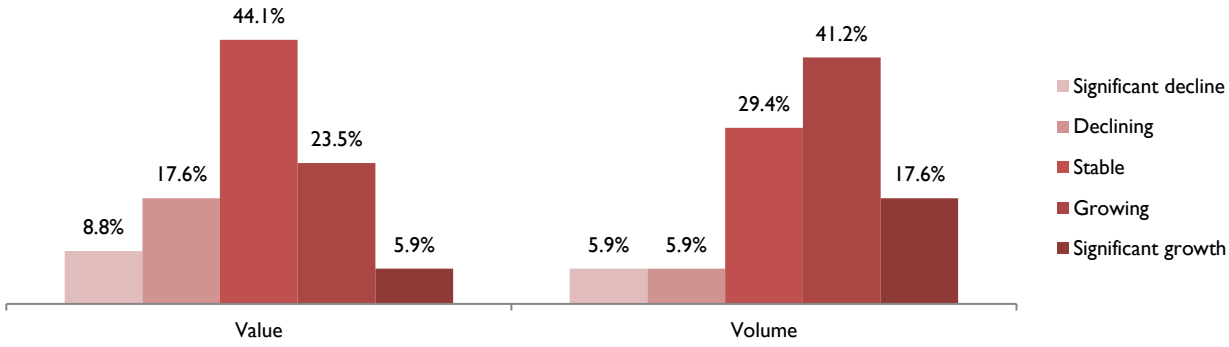
DOMESTIC MARKET

The estimates of the potential domestic market size (in sales values) vary from US$1.4 billion to US$3.2 billion.[306] Although most revenues of Ukrainian IT companies are based on foreign markets, they are also interested in working with the domestic market that is currently undeveloped. Most of the domestic services are supplied to multinational corporations with a presence in Ukraine, since Ukrainian local companies and organizations do not consider digitalization among their key priorities.

In light of this, some IT companies (e.g., EPAM) have started to offer pro bono IT services for local non-governmental organizations (NGOs) and government agencies as part of their corporate social responsibility programs which also represents an investment in market development.

Around 60% of companies surveyed by CEP anticipate high sales growth in volume, while other companies (30%) anticipate increases in value (see **Figure 99**).

Figure 99: Expected Trend of Domestic Sales

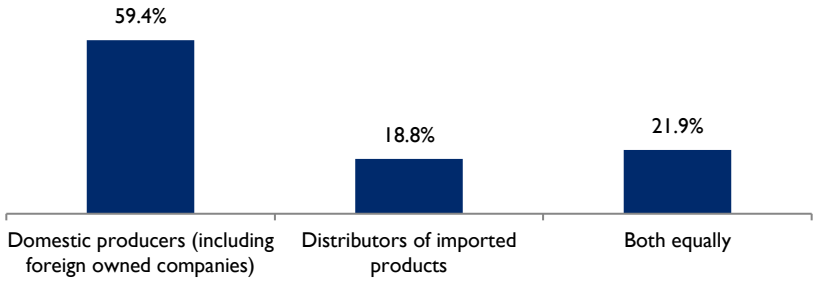


Source: CEP Online Survey, IT industry survey respondents, January 13-20, 2019

Our survey also indicated that domestic IT companies (including foreign-owned) perceive little competition from imported IT services. Nearly 60% perceived the main competitors in the domestic market are other IT companies in Ukraine or independent contractors (e.g., freelance IT specialists) (see **Figure 100**).

[306] "*Ukraine Country Profile 2018*" American Chamber of Commerce in Ukraine, 2018

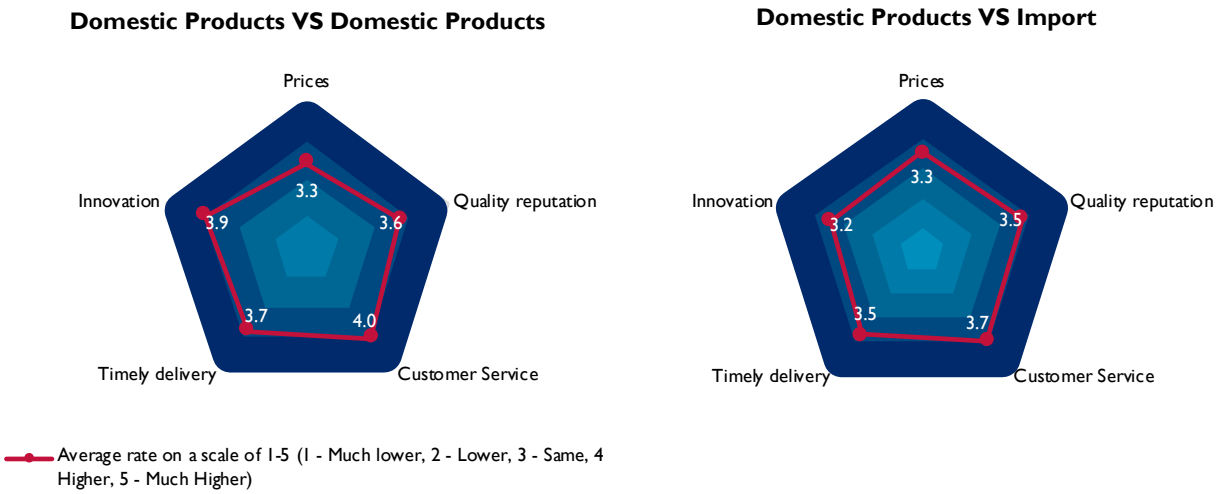
Figure 100: Perceived Main Competitors in the Domestic Market



Source: CEP Online Survey, IT industry survey respondents, January 13-20, 2019

Further, domestic IT service suppliers surveyed list good customer service, innovation, and timely delivery as the key competitive factors on the domestic market. These factors, coupled with quality reputation and comparable price, make domestic IT products competitive against import (see **Figure 101**).

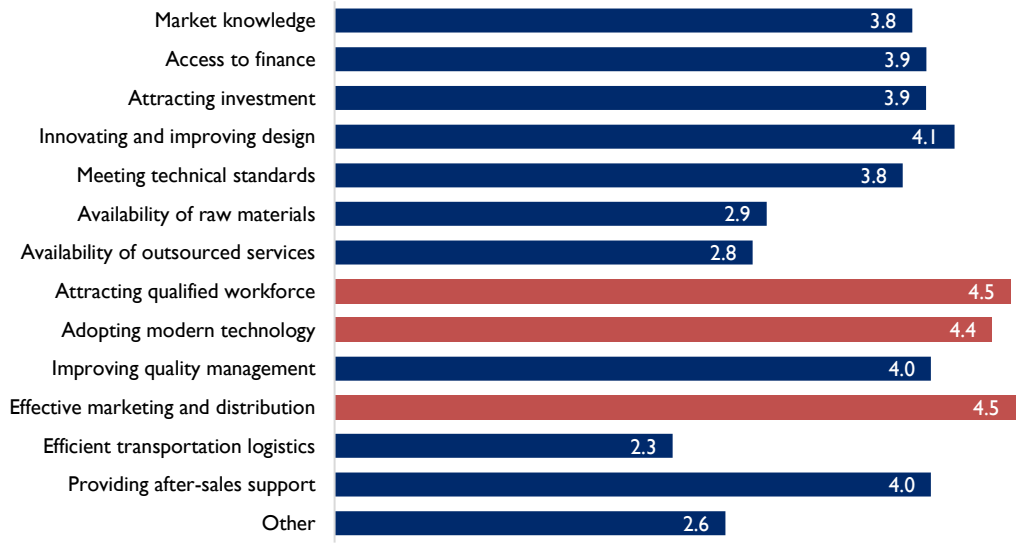
Figure 101: Perceived Competitiveness of Domestic Products



Source: CEP Online Survey, IT industry survey respondents, January 13-20, 2019

Companies in the CEP survey ranked the attraction of a qualified workforce, adopting modern technology, and effective marketing and distribution as the most important challenges faced to improve their competitiveness (see **Figure 102**).

Figure 102: Perceived Challenges in Improving Competitiveness



Source: CEP Online Survey, IT industry survey respondents, January 13-20, 2019

7.3 SECTOR POTENTIAL FOR EXPORT MARKET PENETRATION

EXPORT COMPETITIVENESS FACTORS

Competitiveness in IT services exports hinges upon the following factors:

1) Billing rates according to types of IT specialists (e.g., junior, middle, senior, quality assurance engineers and architects)
2) Labor pool size (number of UI, full-stack, mobile, enterprise, and game developers)
3) Availability of an innovation friendly-environment
4) Programmer skills
5) Attrition rates
6) Communications and cultural compatibility
7) Time zones (overlapping working hours).[307]

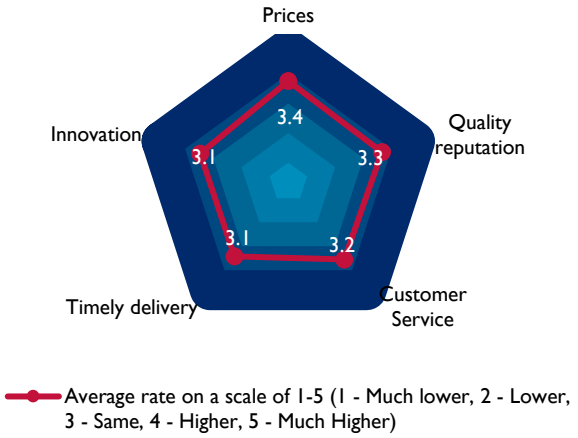
While there are cheaper outsourcing destinations – like India, the Philippines or China – Ukraine provides a superior price/quality ratio. Not only are Ukrainian engineers generally skilled in business process outsourcing and quality assurance services, but they are also able to solve complex technical problems in which deep expertise and innovative approaches may be required. Thus, on top of traditional IT services, a number of Ukrainian companies offer extensive high-tech R&D services as well as develop and commercialize their own products. In addition, many

[307] "*Top Outsourcing Destinations*" Agile Engine website

western and Ukrainian start-ups make use of Ukraine's outsourcing capacities for initial product prototyping and testing.[308]

However, according to surveyed IT companies, the competitiveness of the Ukrainian IT services abroad is average, and mainly driven by low costs, quality reputation, and good customer service (see **Figure 103**). At the same time, some interviewed companies notice, the quality of Ukrainian IT products is much better than the current market requirements.[309]

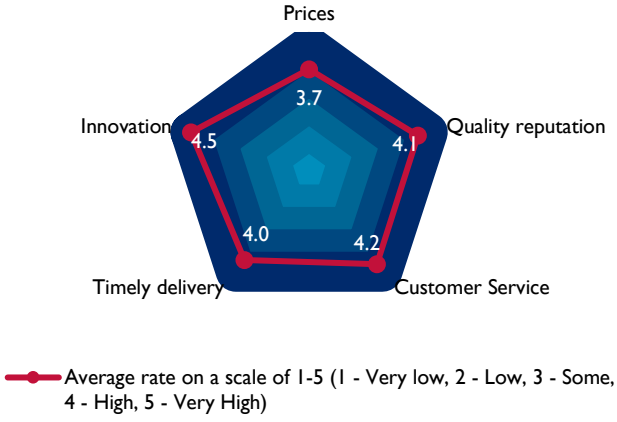
Figure 103: Perceived Competitiveness of Ukrainian Products Abroad



Source: CEP Online Survey, IT industry survey respondents, January 13-20, 2019

Further, these companies expect that the future competitiveness of IT services will be mostly defined by non-price factors including innovation, customer service, and quality reputation (see **Figure 104**).

Figure 104: Importance of Competitive Factors in 5-10 years



[308] Sychikova, Yuliya "*IT Ukraine From A to Z: key trends and figures of the Ukrainian IT service and software R&D market*" Ukraine Digital News and AVentures, April 2016

[309] CEP Interviews, Oleksandr Solovey, Co-founder, Finmap, Kyiv, December 22, 2018 and CEP Interviews, Elitsa Zaimova, Head of Methodology, Preply, Kyiv, December 18, 2018

Source: CEP Online Survey, IT industry survey respondents, January 13-20, 2019

Leading global IT markets (North America, Asia, and the EU) are mainly served by low-cost regional countries. Key suppliers to the EU are countries of Eastern Europe (Poland, Romania, Russia, Czech Republic, and Ukraine), South America (Brazil, Mexico, Argentina, Colombia) for the US market, and China, Philippines, India, Malaysia, and Vietnam) for Asia (see **Table 16**).[310]

Table 16: Key IT Service Providers on Global Markets

KEY GLOBAL IT MARKETS	KEY IT SERVICE PROVIDERS
North America	South America (Brazil, Mexico, Argentina, Colombia)
Asia	Asia Pacific (China, Philippines, India, Malaysia, Vietnam)
EU	Eastern Europe (Poland, Romania, Romania, Russia, Czech Republic, **Ukraine**)

Source: Agile Engine

SECTOR COMPARATIVE STRENGTHS AND WEAKNESSES

Historically famous for its large pool of low-cost and qualified IT specialists, Ukraine holds a status of an attractive outsourcing destination for the North American and European markets. Key comparative strengths of Ukrainian IT sector include:

1) **Low billing rates**. The average cost of Ukrainian IT specialist is US$39 per hour that is on average 17% lower than the billing rates of South American companies and are 5% less compared to other Eastern European countries
2) **Large number of IT specialists**. On average, the total number of Ukrainian IT specialists exceeds the supply of some South American countries by 29% and other Eastern European countries by 17%
3) **Higher level of competence**. Ukrainian IT services labor pool offers qualified specialists recognized by international rankings. Ukrainian IT specialists are 5th in TopCoder ranking, and 11th in the HackerRank Programming Olympics. Additionally, the level of English proficiency and cultural compatibility of Ukrainian developers are significantly higher than other South American and Eastern European countries.
4) **Innovation-friendly socioeconomic environment**. According to the Bloomberg Innovation Index, Ukraine is 42nd among the top 50-innovative economies, particularly Ukraine is characterized by tertiary education efficiency (4th place), high patent activity (27th place), and high-tech intensity (34th place).
5) **Low attrition rates.** The average staff turnover of Ukrainian IT specialists is only 11% that is lower compared to the average rate in South American countries (18%) and other Eastern European countries (13%).[311]

[310] "*Top Outsourcing Destinations*" Agile Engine website
[311] "*Top Outsourcing Destinations*" Agile Engine website

It should be noted, though, that Ukrainian IT companies are less competitive on the Asian market, where price is a key competitive factor. In general, regional players (China, India, and Vietnam) offer 50% lower billing rates compared to Ukrainian IT companies (see **Table 17**).

Table 17: Comparison of Some Global IT-Outsourcing Destinations

COUNTRY	AVERAGE COST PER HOUR, US$	AVERAGE NUMBER OF IT SPECIALISTS, `000	BLOOMBERG INNOVATION RATING	TOPCODER RATING	ENGLISH PROFICIENCY (MAX 100)
Brazil	49.8	66	46	15	50.7
Mexico	44.6	30		35	49.9
Argentina	45	28	49	17	58.4
Colombia	49.2	9	-	37	48.4
China	26	39	21	2	50.9
Philippines	32.6	35	-	-	60.3
India	22.8	630	-	12	57.3
Malaysia	37.8	15	23	-	60.7
Vietnam	18	18	-	11	54.1
Poland	42	43	22	4	61.5
Romania	46.2	30	38	16	58.1
Ukraine	**39.2**	**43**	**42**	**5**	**50.6**
Russia	35	45	26	1	52.3
Czech	45	22	28	26	59.1

Source: Agile Engine

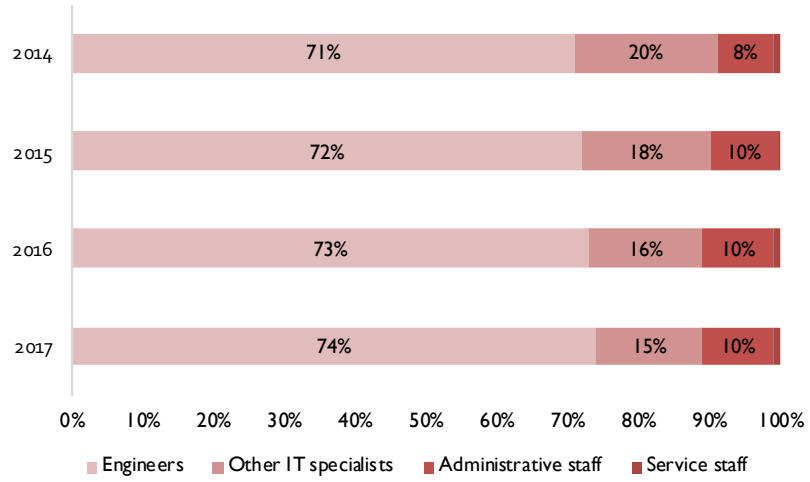
7.4 SECTOR JOB CREATION POTENTIAL

Official statistics and experts' assessments indicate that in recent years the number of IT specialists has increased significantly. According to the research of PwC, the number of IT specialists will reach 158,000 in 2019. It is forecasted that the number of jobs in the industry will grow on average 7% and reach 241,600 by 2025.[312]

32% of IT-specialists are in the age bracket of 21 to 25 years, 32% in the 26 to 30 years, and 18% are in the 31 to 35 years. By specialization, employees in IT companies are engineers (74% of total employees), other IT specialists (15%), administrative staff (10%), with the rest classified as service staff (see **Figure 105**).

312 "*Export-oriented Segment of Ukraine's IT Services Market: Status Quo and Prospects*" PwC, 2016

Figure 105: Specialization of IT Companies Employees



Source: IT Ukraine Association

Female employment share reached 23% in 2018, 3 percentage points higher than in the previous year). Women more often work as testers (24%), developers (23%), non-technical specialists - HR, PR, Sales (20%).[313]

7.5 SECTOR POTENTIAL FOR ENTREPRENEURSHIP AND INNOVATION

EVIDENCE OF SECTOR CHAMPIONS FOR INNOVATION

The IT: Digital products and services sector is led by both mature international companies and/or startups that support the sector in the following areas:

Support for university education

Both international and domestic companies are interested in the development of the IT workforce and have made investments in the development of local IT specialists. Some companies have established partnerships with universities, particularly in the provision of scholarships for talented students (e.g., Ciklum covers costs of master programs), offer certification programs (e.g., CISCO), provide financial and technical support (e.g., SoftServe covers costs for participation in the international Olympiads and to renovate the university facilities), organize open lectures and workshops (e.g., GlobalLogic), and upgrade skills of teachers (e.g., EPAM offers short-term internships). Also, some companies have initiated joint university courses, i.e., Ciklum is a partner of the Master program in Data Science at Ukrainian Catholic University, while EPAM provides courses in Java, JavaScript, DevOps, and Big Data in the main Ukrainian universities;[314]

Upgrading skills IT specialists

[313] "*Portrait of an IT Specialist*", DOU.ua, 2018
[314] "*Development of the Ukrainian IT industry*" IT Ukraine Association, 2018

Companies have also initiated short and long-term internal corporate programs. One of the leading companies is SoftServe that provides several programs, including IT Academy (IT courses for external IT specialists), Training and Development Group (internal courses in hard and soft skills), Language School (groups and individual classes), E-learning team (development of internal online-courses), Certification center (preparation for international certification, e.g., Microsoft and Oracle). Other companies known providing corporate education are EPAM, Intellials, Luxoft, and Ciklum.[315]

Bringing innovation to the market

The innovative development of the sector is mostly driven by new ventures. According to the interviewed companies, there are several lead firms in innovation including Drone.UA (unmanned technologies) aiming at *"shaping Ukraine as the world center of data processing and data analysis"*. Also, there are some impactful startups that develop a completely new direction, e.g., Ajax (wireless security systems), Petcube (hardware and software products for pets), and Grammarly (online grammar checking). Those companies are willing to share their knowledge with other IT sector representatives mainly through organizing and participation in workshops and conferences.[316]

Introducing corporate innovations

There is a growing interest from the established corporations in the implementation of the innovations in the domestic market. Some large Ukrainian companies support startups across various fields, e.g., Myronivsky Hliboproduct (one of the largest agribusiness complexes in Ukraine) in a partnership with Radar Tech launched MHP Accelerator for startups engaged in agrarian innovation. Other corporations that partnered with Radar Tech are DTEK (an energy accelerator), Kyivstar (a telecommunication accelerator), and UKRSIBBANK BNP Paribas Group (a banking sector accelerator). Also, there are some examples in the state-owned enterprises, e.g., Ukroboronprom (a defense industry) launched an acceleration program for cybersecurity while Oschadbank (a state-owned bank) jointly with Mastercard introduced a system of contactless payment in public transport and at social facilities. [317]

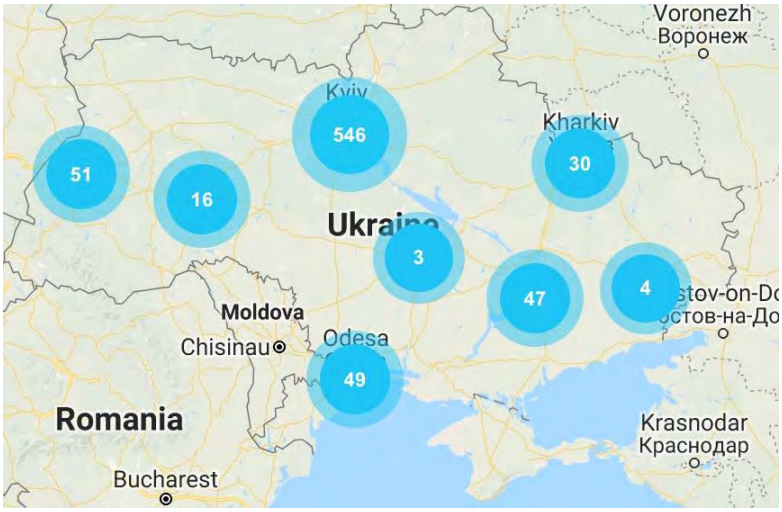
POTENTIAL FOR ENTREPRENEURSHIP AND INNOVATION

In Ukraine "a startup" usually refers to a newly emerged business venture started by mostly young people. [318] Most interviewed companies indicate that there is potential for a substantial number of new startups in Ukraine.[319] Compared to other countries, Ukraine holds high positions

[315] Ibid
[316] For example, CEP Interviews, Oleksandr Davidenko, Chief Operating Officer, Pectube, Kyiv, December 12, 2018 and Elitsa Zaimova, Head of Methodology, Preply, Kyiv, December 18, 2018
[317] Ibid
[318] For example, CEP Interviews, Vitaly Brevus, Director, Founder, Scallhive, Ternopil, December 18, 2018
[319] For example, CEP Interviews, Oleksandr Solovey, Cofounder, Finmap, Kyiv, December 22, 2018, Vitaly Brevus, Director, Founder, Scallhive, Ternopil, December 18, 2018, Dmitry Shemet, Ceo, Rnd64, Kyiv, January 9, 2019, and Igor Belobrov, Director, Dx-Systems, Kharkiv, January 10, 2019

in the global startup ranking by the total number of startups (43rd place out of 137 countries).[320] The exact number of current startups varies across different information sources. According to Mapped in Ukraine, an IT community organization, there are around 750 active startups in Ukraine that are mainly concentrated in big cities with the higher number of IT-related specialists. The main locations of these startups are Kyiv (546) following by Lviv (51), Odessa (49), Dnipro (47), and Kharkiv (30) (see **Figure 106**).

Figure 106: Regional Distribution of Startups in Ukraine



Source: Mapped In Ukraine (IT community organization)

Ukrainian startup products are serving both global and domestic markets and cover a wide range of fields (see **Table 18**).

[320] Global Startup Ranking, https://www.startupranking.com/countries

Table 18: Selected Ukrainian Successful Product Companies

FIELD	SELECTED EXAMPLES
Restaurants	Allset (a table booking and food ordering app) Kodisoft (interactive tables for public institutions including restaurants)
Business-process management	Terrasoft (a platform for business-processes management and CRM) GitLab (a Git repository management)
Security systems	Ajax (a wireless security system and smart homes)
Banking and finance	Monobank (a mobile bank without offices) Paymentwall (a payment service)
Gadgets	Concepter (smartphone accessories) Petcube (smart gadgets for pets)
Software for macOS and iOS	Readdle, MacPaw, and ZeoAlliance
E-commerce	Genesis (an online media, e-commerce) EVO (a marketplace) Competera (a SaaS platform for e-commerce)
Others	Grammarly (an intelligent online text quality checking service) Drone.UA Viewdle (a face recognition technology and video processing) Preply (an online platform that brings together tutors and students)

Source: "*Tech Ecosystem Guide to Ukraine*" UNIT.City, WNISEFF, 2019

Examples of highly-innovative start-ups include:

- Discoperi has developed its automobile information system called "Eye," which scans the road in real time and alerts the driver to all dangers on the route;
- EIT is a unique backpack with a built-in digital LED display which can transmit an image from a smartphone in real time;
- UniVRsee is a platform for publication, distribution and collective creation of content in 360 degrees for virtual reality (VR) masks. The startup helps creators of content find a producer, and it helps consumers watch the video in cinematic virtual reality;
- Kwambio, an additive manufacturing company and a developer of unique products with implementations in a variety of fields;
- Solar Gaps is the world's first smart blinds for collecting solar energy, that uses a window area for green energy accumulation – thus, decreasing electricity bills and reducing CO2 emissions.[321]

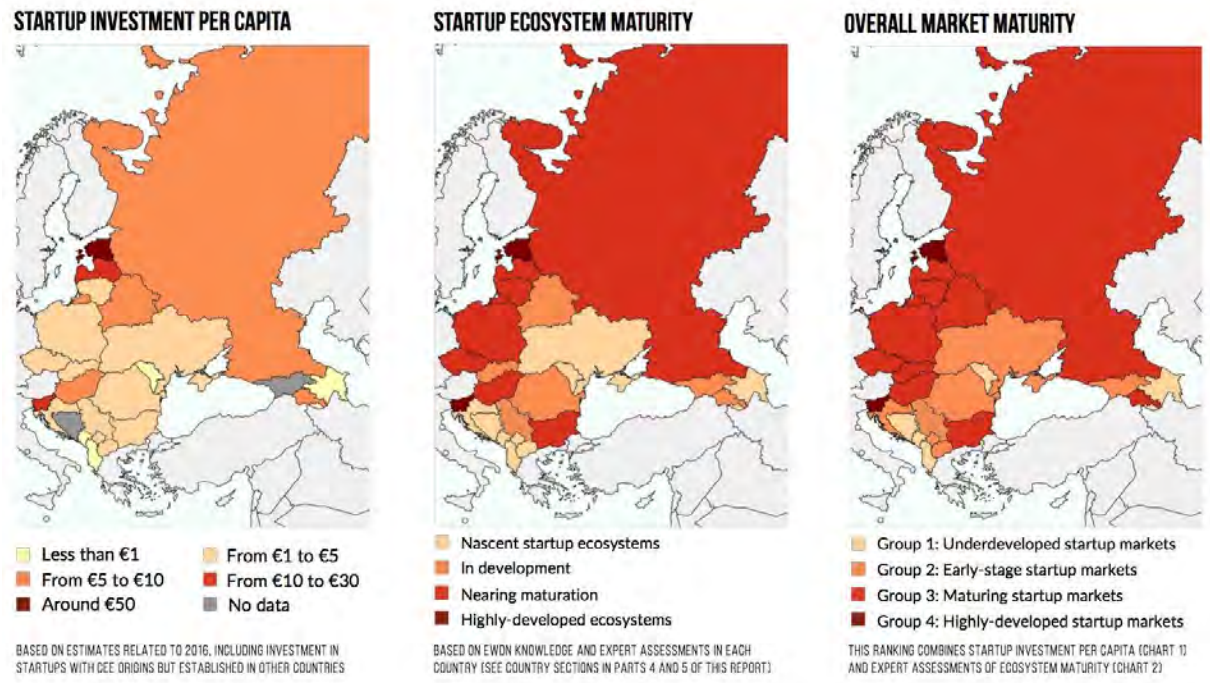
[321] For example, CEP Interviews, Valeriy Yakovenko, CEO And Co-Founder, Drone.UA, Kyiv, January 11, 2019, Elitsa Zaimova, Head of Methodology, Preply, Kyiv, December 18, 2018, and CEP Interviews, Oleksandr Solovey, Cofounder, Finmap, Kyiv, December 22, 2018

In the opinion of IT executives interviewed by CEP, the growth and development of startups in Ukraine is fueled by a large number of passionate youth and talented IT specialists, and the ease of business development offered by good connections to the country's diaspora (particularly in the USA).[322]

However, these executives also noted a list of factors that significantly inhibit startups. These are the absence of a favorable business and legal environment, particularly efficiency of customs services and frequent police and tax inspections; lack of education and mentoring; lack of incubators and accelerators; low domestic demand; and the emigration of qualified IT specialists.[323]

Ukrainian IT services ecosystems are in their early stages of development and lag behind other Central and Eastern European (CEE) by total startup investment per capita and system complexity, defined as the number and effectiveness of involved actors (see **Figure 107**).

Figure 107: Comparison of Entrepreneurship Ecosystems across CEE Countries



Source: East-West Digital News (Internaitonal information and consulting agency)

Nevertheless, the ecosystem has been strengthening due to recent sector growth. The key actors include:

1) **IT business associations** represent medium and large IT service companies, investors, and startups. They are active in government relations (e.g., legislative initiatives and

[322] For example, CEP Interviews, Valeriy Yakovenko, Ceo And Co-Founder, Dron Ua, Kyiv, January 11, 2019 and Vitaly Brevus, Director, Founder, Scallhive, Ternopil, December 18, 2018
[323] For example, CEP Interviews, Oleksandr Solovey, Cofounder, Finmap, Kyiv, December 22, 2018, CEP Interviews, Dmitry Shemet, Ceo, Rnd64, Kyiv, January 9, 2019, and CEP Interviews, Valeriy Yakovenko, Ceo And Co-Founder, Dron Ua, Kyiv, January 11, 2019

advocacy) and industry promotion. These include IT Ukraine Association, Ukrainian Venture Capital and Private Equity Association (UVCA), American Chamber of Commerce (ACC), European Business Association (EBA), and Uangel.

2) **IT service companies** are located across major Ukrainian cities. Besides outsourcing, they may offer consulting, open R&D centers, and provide own education. Key market players are Sigma Software, SoftServe, EPAM, Luxoft, GlobalLogic, Ciklum, N-iX, Infopulse, ELEKS, Intellias, and Miratech.

3) **Clusters** are defined as regional alliances between municipalities and IT companies. Key activities include modernization and development of IT education and promotion of regions through the organization of conferences and events. 20 cities have created their own cluster. The examples are Kyiv IT Cluster, Lviv IT Cluster, Kharkiv IT Cluster, IT Dnipro Community, and Odessa IT Community. [324]

4) **Universities** are beginning to integrate into the IT ecosystem via cooperation with IT companies (e.g., development of IT curriculum). There are around 150 universities that provide a degree in IT. Key tech universities are National Technical University of Ukraine "Ihor Sikorsky Kyiv Polytechnic Institute", Kharkiv National University of Radio Electronics, National Technical University "Kharkiv Polytechnic Institute", Zhukovsky National Aerospace University "Kharkiv Aviation Institute", Lviv Polytechnic National University, Taras Shevchenko National University in Kyiv, and National University "Kyiv-Mohyla Academy".

5) **Alternative education initiatives** include private training courses, paid online courses, and free online resources. Some examples are Computer Academy "Step", Main Academy, CyberBionic Systematics, UNIT Factory, Lviv IT School, Sigma Software University, QALight, Softserve IT Academy, Projector, Ukrainian IT School, GoIT, and uData School. [325]

6) **Innovation platforms** assist emerging startups and promote cross-sector collaboration. Key examples are Radar Tech, Concepter, Ukrinnovate, IoT Hub Accelerator, 1991 Open Data Incubator, Sector X, and AgroHub. [326]

7) **Communities** unite IT professionals in software and hardware development by organizing regular offline networking meetings and workshops. Selected examples are Ukrainians at Tech Events of the World, Data Science UA, Test UA startups, PM community, Bitcoin Foundation, UNIT Residents Club, SaaS Nation Community, IT community, WTECH, Silicon Drinkabout, and Developers.Org.Ua.[327]

[324] "*Tech Ecosystem Guide to Ukraine*" UNIT.City, WNISEFF, 2019
[325] Ibid
[326] Ibid
[327] Ibid

8) **Coworking spaces and hubs** are formal and informal platforms that unite businesses within one territory with the aim to promote experience sharing and mentorship. There are around 50 coworking spaces and hubs across all major Ukrainian cities including:
   - Kyiv (Chasopys.UNIT, Coworking Platforma Leonardo, Creative Quarter, HUB 4.0, DataHub, iHub, 1991 Civic Tech Center, Kyiv Smart City, Blockchain Hub Kyiv, and mOre);
   - Lviv (ITEA Hub, CoMMuna, and Startup Depot);
   - Odessa (Terminal 42 and Impact Hub Odessa);
   - Kharkiv (Fabrika.space and Coworking 365).[328]

9) **R&D centers** are mainly located in Kyiv, Dnipro, Lviv, Kharkiv, Odessa and Vinnytsya. There are over 110 R&D centers in Ukraine. The examples include Ring, Snap, Plarium, Samsung R&D Institute Ukraine, NetCracker, Playtika, Astound Commerce, Siemens, Ericsson, Huawei, Wargaming, Sigma Software, Gameloft, and Playtech. [329]

From the perspective of IT companies interviewed by CEP, the ecosystem still has a significant room for improvement. According to them, more networking events, thematic conferences, and entrepreneurship programs are needed.[330] Additionally, there is a need to upgrade education institutions by developing a more practical curriculum, provide sufficient material and technical base, and development of commercialization of student projects.[331] As one respondent suggested, those issues could be addressed in the framework of partnerships between universities and IT companies (e.g., summer internship for students for obtaining a real work experience).[332]

7.6 BUSINESS ENABLING ENVIRONMENT AND REGULATORY FRAMEWORK

AVAILABILITY OF VITAL BUSINESS DEVELOPMENT SERVICES

Basic business development services (e.g., accounting, sales, and design) are easily available on the market. However, IT companies indicated a shortage of highly qualified specialists in advertising and marketing. [333]

LEGAL AND REGULATORY CONSTRAINTS

Despite recent liberalization in IT sector (e.g., favorable tax regime and simplification of employment of foreigners), there are still legal and regulatory constraints that may impede the further development of the sector:

[328] "*Tech Ecosystem Guide to Ukraine*" UNIT.City, WNISEFF, 2019
[329] Ibid
[330] For example, CEP Interviews, Elitsa Zaimova, Head of Methodology, Preply, Kyiv, December 18, 2018 and Oleksandr Davidenko, Chief Operating Officer, Pectube, Kyiv, December 12, 2018
[331] Sychikova, Yuliya "*It Ukraine From A To Z: Key Trends And Figures Of The Ukrainian It Service And Software R&D Market*" Ukraine Digital News And Aventures, April 2016
[332] For example, CEP Interviews, Level up, 2019
[333] For example, CEP Interviews, Vitaly Brevus, Director, Scallhive, Ternopil, January 18, 2019

1) **Employment of foreigners**. The IT sector relies in part on the supply of skilled foreigners. Although the recent reforms simplified the process of employment of foreign IT specialists by extending the duration of a work permit from 1 to 3 years, there is still a long process of obtaining a work permit. Currently the foreigner needs to submit three documents including a work permit, D-type Visa, and temporary residence permit. In practice, D-type Visa is not issued in Ukraine therefore the foreigner needs to travel abroad to obtain it. According to the sector experts, one of the possible solutions is to introduce an electronic D-type Visa that can be obtained in Ukraine. [334]

2) **Currency control**. In Ukraine 50% of foreign currency revenues of all individual entrepreneurs, legal entities and foreign representative offices are subject to mandatory sale for (conversion into) national currency (UAH).[335] In practice, individual entrepreneurs (64% of exporters of IT services) cannot freely dispose the rest of their foreign currency revenue and therefore have to convert it into UAH. [336] In order to overcome these problems, some Ukrainian startups and IT specialists register in foreign jurisdictions, e.g., Baltic, where there is a startup visa.[337]

3) **Protection of intellectual property**. Insufficient protection and enforcement of intellectual property rights influences the decision of foreign IT companies to initiate or expand operations in Ukraine. According to the ACC, key barriers include the absence of an effective mechanism for combating patent trolls and lack of real and effective liability for infringers of intellectual property rights. However, this challenge is being addressed by Ukrainian administration through the harmonization of IP legislation of Ukraine with legislation of the European Union and the establishment of separate responsible bodies (e.g., National Intellectual Property Authority and High Court on Intellectual property).[338]

4) **Corruption and pressure from frivolous inspections**. By far, though, Ukraine's greatest threat to the further development of the IT sector is its ongoing problem with corruption, which affect Ukraine's reputation as an investment destination. In Transparency International's 2017 corruption perception index (CPI), Ukraine ranked low with a score of 30, placing Ukraine within the bottom CPI quintile globally.[339] Some IT suppliers mentioned that some inspectors are seeking informal or illicit payments.[340]

Further, some companies interviewed consider the absence of a comprehensive strategy of development of IT sector in Ukraine as a problem.[341]

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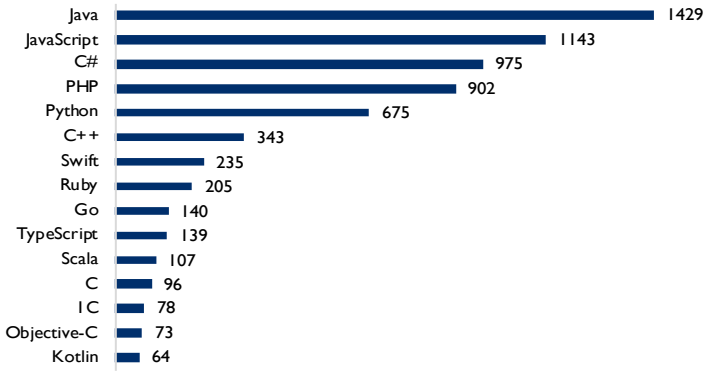
[334] "*Development of the Ukrainian IT industry*" IT Ukraine Association, 2018
[335] "*Conducting Business in Ukraine*" Baker McKenzie, 2018
[336] "*Development of the Ukrainian IT industry*" IT Ukraine Association, 2018
[337] For example, CEP Interviews, Oleksandr Solovey, Cofounder, Finmap, Kyiv, January 22, 2019
[338] "Ukraine Country Profile 2018" American Chamber of Commerce in Ukraine, 2018
[339] Sychikova, Yuliya "*IT Ukraine From A to Z: key trends and figures of the Ukrainian IT service and software R&D market*" Ukraine Digital News and AVentures, April 2016
[340] For example, CEP Interviews, Elitsa Zaimova, Head of Methodology, Preply, Kyiv, January 18, 2019
[341] For example, CEP Interviews, Vitaly Brevus, Director, Scallhive, Ternopil, January 18, 2019

AVAILABLE SKILLS

Ukraine offers the largest IT labor force in Europe. It is the only sector of the Ukrainian economy that has shown immunity to political and economic fluctuation and demonstrated steady growth in a number of jobs and competitive salary levels over the past decade. Good remuneration stimulates the interest of Ukraine's younger population in this profession, resulting in a rapidly-growing number of IT engineers.[342] Around 16,000 students graduate every year, and most of them combine their studies with work. [343]

The majority of Ukrainian IT specialists code in several programing languages and hold a university degree (around 80% of those employed hold a master's degree, 11% a bachelor's degree, with the rest being self-educated) (see **Figure 109**).

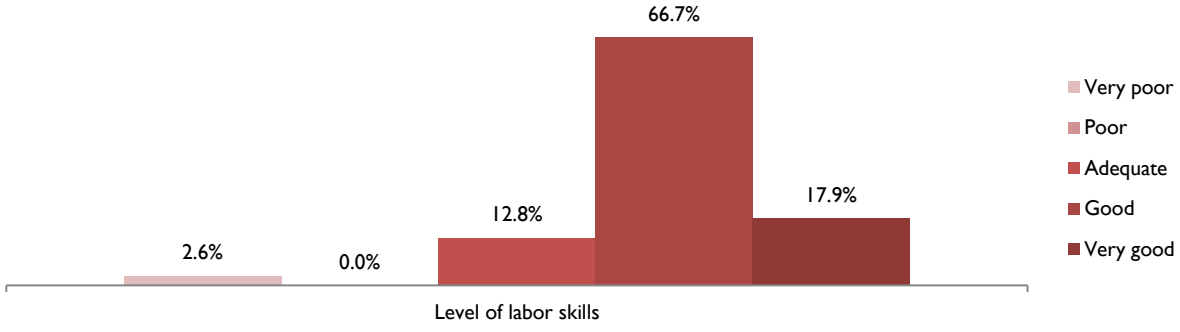
Figure 108: Top 15 Programming Languages by Number of IT Specialists



Source: dou.ua

Most companies interviewed by CEP (nearly 85%) evaluated the labor force qualifications as good or very good (see **Figure 110).**

Figure 109: Perceived Level of Qualification of the Workforce



Source: CEP Online Survey, IT industry survey respondents, January 13-20, 2019

[342] Sychikova, Yuliya "*IT Ukraine From A to Z: key trends and figures of the Ukrainian IT service and software R&D market*" Ukraine Digital News and AVentures, April 2016

[343] "*Tech Ecosystem Guide to Ukraine*" UNIT.City, WNISEFF, 2019

However, further development of the sector requires IT specialists with a new skill-set including project design and management; language; communication and presentation skills.[344] In the opinion of companies interviewed by CEP, in the future the most valuable will be soft skills, as well as advanced technical skills (e.g., AI, IoT, and cloud computing).[345]

The formal education of IT specialists is provided by around 150 universities.[346] However, the distribution of students between higher education institutions is uneven, i.e., top-15 Ukrainian universities account for more than a half of all IT-specialists. In Kyiv, schools and universities that train needed personnel appropriately includes National Technical University of Ukraine "Ihor Sikorsky Kyiv Polytechnic Institute", Taras Shevchenko National University in Kyiv, and National University "Kyiv-Mohyla Academy". There are regional universities in Lviv, Kharkiv, and Odessa.

However, as industry representatives report, there is no clear understanding in universities which skills are required on the market.[347] However, there are alternative options for IT education including Computer Academy "Step", Main Academy, CyberBionic Systematics, UNIT Factory, Lviv IT School, Sigma Software University, QALight, Softserve IT Academy, Projector, Ukrainian IT School, GoIT, and uData School (see **Table 19**).[348]

Table 19: IT Courses and Schools in Ukraine

NAME	NUMBER OF GRADUATES	LOCATION
Computer academy "STEP"	95,000	Kyiv, Kharkiv, Dnipro, Odessa, Lutsk, Lviv, Rivne, Vinnytsya, Mykolaiv, Zhytomyr, Khmelnitsky, Chernihiv, Poltava, Kaminsky, Kryvyi Rih, Zaporizhzhia, Kherson, and Mariupol
Main Academy	Over 6,000	Kyiv, Lviv, Kharkiv, Odessa, Ternopil, Vinnytsya, Mykolaiv, Kherson, Zaporizhzhia, online
CyberBionic Systematics	3,000 annually	Kyiv, online
UNIT Factory	900	Kyiv
LITS (Lviv IT School)	2,000	Lviv, Odessa, Mykolaiv, Ivano- Frankivsk, Chernivtsi
Sigma Software University	600 annually	Kyiv, Odessa, Lviv, Kharkiv
QALight	over 8,000	Kyiv, Lviv
SoftServe IT Academy	1,600 annually	Lviv, Kyiv, Dnipro, Kharkiv, Rivne, Ivano-Frankivsk, Chernivtsi
Projector	1,500 annually	Kyiv, Odessa, Lviv
Ukrainian IT School	1,600 annually	Kharkiv, Mykolaiv
GoIT	over 2,000 annually	Kyiv, online
uData School	90+	Kyiv

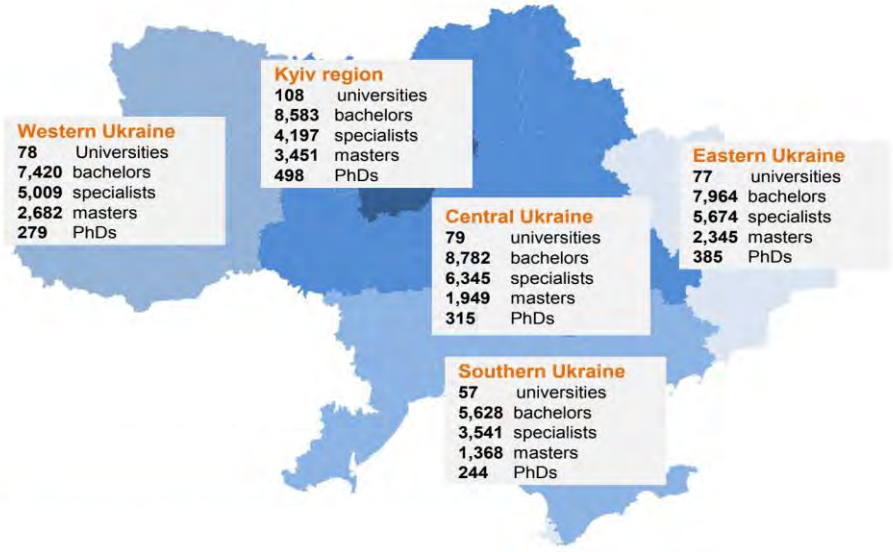
[344] Sychikova, Yuliya "*IT Ukraine From A to Z: key trends and figures of the Ukrainian IT service and software R&D market*" Ukraine Digital News and AVentures, April 2016
[345] For example, CEP Interviews, Elitsa Zaimova, Head of Methodology, Preply, Kyiv, January 18, 2019
[346] "*Tech Ecosystem Guide to Ukraine*" UNIT.City, WNISEFF, 2019
[347] For example, CEP Interviews, Vitaly Brevus, Director, Scallhive, Ternopil, January 18, 2019
[348] "*Tech Ecosystem Guide to Ukraine*" UNIT.City, WNISEFF, 2019

Source: "*Tech Ecosystem Guide to Ukraine*" UNIT.City, WNISEFF, 2019

In spite of the huge number of graduated IT specialists in Ukraine, the quality of their education does not always meet the market requirements. [349] There is a discrepancy between skills demanded in the labor market and actual skills that students get from the universities.[350]

IT specialists have a wide range of training opportunities including private training courses, paid online courses, learning hub training programs, and free online resources. [351]

Figure 110: Number of Graduates with Technical Degrees in 2015



Source: Ministry of Education, Sychikova, Yuliya "IT Ukraine From A to Z: key trends and figures of the Ukrainian IT service and software R&D market" Ukraine Digital News and AVentures, April 2016

ACCESS TO FINANCE FOR GROWTH

According to the UVCA, investors in the Ukrainian IT sector differs by the investment stage (e.g., pre-seed, seed, round A, round B, or growth), average ticket and investment criteria.[352] The key groups of investors are:

- **Incubators and accelerators** usually work with pre-seed and/or seed startups. Key investment criteria are growth potential, international expansion, sector innovation, commercial potential, team capability, and capital raised to date. There are 5 incubators and accelerators operating on the Ukrainian market including 1991 Open Data Incubator, Borsch Ventures, EY Start-up Accelerator, Growth Up, StartUp MARANI;

[349] For example, CEP Interviews, Vitaly Brevus, Director, Scallhive, Ternopil, January 18, 2019
[350] For example, CEP Interviews, Elitsa Zaimova, Head of Methodology, Preply, Kyiv, January 18, 2019
[351] Sychikova, Yuliya "*IT Ukraine From A to Z: key trends and figures of the Ukrainian IT service and software R&D market*" Ukraine Digital News and AVentures, April 2016
[352] "Ukrainian Venture Capital and Private Equity Overview 2017" UVCA, 2017

- **Venture funds** are mostly interested in financing the seed and early stages (round A and B). Venture capital funds consider strong management team, large market opportunity and sustainable competitive advantage as the most important investment criteria. There are 19 venture capital funds in Ukraine, such as: Almaz Capital, AVentures Capital, Chernovetskyi Investment Group, Concorde Capital, Detonate Ventures, Digital Future, Empire State Capital Partners, Fisan, Imperious Group VC, Integrum Ventures, Intel Capital, Noosphere Venture Partners, SMRK VC Fund, SYWORKS, TA Ventures, TMT Investments, USP Capital Ltd., WannaBiz;

- **Corporate funds** work exclusively with early stage (round A and B), and only consider companies with A-class teams, over US$1 million revenue, and global footprint. There is only one corporate fund in Ukraine (HP Tech Ventures);

- **Private equity funds** mainly finance growth stage of mature but undervalued businesses with predictable cashflows. There are around 8 private equity funds in Ukraine. Key players are Aval-Brok LTD, Dragon Capital, Horizon Capital, ICU, iTech Capital, Ramsis Capital, Siguler Gulf Capital, 4i Capital Partners;

- **International organizations** participate in financing the growth stage of mature but highly scalable companies. The largest international investor in Ukraine is the EBRD that has already committed more than US$14 billion through 377 projects since 1993;

- **Other groups** include investment boutiques (e.g., A7 Capital), investment advisers (e.g., InVenture Investment Group), and investment platforms (e.g., Startup.Network) that mainly invest in companies on the growth stage.[353]

According to the interviewed companies, **the majority of aforementioned sources of finance is unavailable to the IT companies** since they cannot fulfill the requirements of obligatory financial audit, minimum required own capital, and/or quality of team composition. As a result, firms tend to use self-financing. [354] Overall, interviewed companies say that current financial options on the domestic market are insufficient. In particular, they mention a slow development of incubators and accelerators that provide "smart money" (funding coupled with training and networking opportunities).[355]

7.7 OTHER FACTORS

SYNERGIES WITH OTHER PROJECTS AND INITIATIVES

[353] "*Investors Book*" UVCA, 2017
[354] For example, CEP Interviews, Sergii Kutuzov, Director, ELEKS, Ternopil, January 18, 2019 and CEP Interviews, Oleksandr Solovey, Cofounder, Finmap, Kyiv, January 22, 2019
[355] For example, CEP Interviews, Vitaly Brevus, Director, Scallhive, Ternopil, January 18, 2019

In Ukraine, there are no donor projects or programs that are tailored for IT companies. None of the executives interviewed by CEP recalled receiving any donor assistance for the past years.[356]

ALIGNMENT WITH GOVERNMENT PRIORITIES

The Ukrainian government has initiated several state level and city level projects and institutions to support innovation objectives:

- **State agencies and bodies** were created as separate executive bodies in charge of implementation of the innovation and digital agenda. The main state level institutions include UkraineInvest, the State Finance Institution for Innovations, the State Agency for E-Governance of Ukraine, Hi-Tech Office, Ukrainian National Startup Fund, The National Commission for the State Regulation of Communications and Informatization;

- **State level projects** are aimed at bringing innovations into the public administration. The primary example is the Prozorro tender procurement system for state and public companies, which was created by volunteers and transferred to the state in 2015;

- **Municipal projects** were established by some City Councils and are engaged in the implementation of "smart city" projects, e.g., Kyiv Smart City, Smart City Lviv, Dnipro Development Agency, and Smart City Kharkiv. [357]

Additionally, the IT Sector is one of the key priorities of the National Export Strategy (NES) adopted by GoU in 2017. The initial stage of NES implementation includes preparation of detailed strategies/action plans for each of the priority sectors with specific Strategic Objectives and responsibilities assigned to respective entities. The Newly created Export Promotion Office (EPO) is supposed to play a significant role in assisting IT companies in expansion to markets abroad.[358]

POTENTIAL FOR FEMALE INCLUSION

Industry executives' perceptions on the representation of women in IT ranged from 20 to 40 percent.[359] They uniformly noted, though, that female participation in the sector is concentrated in activities such as customer support, operations, logistics, and sales. However, women are not entirely absent in leadership and program development positions. According to NGOs working on women's economic empowerment in Ukraine, one of the primary challenges facing women's participation in IT, especially outside of urban hubs, is prevailing negative stereotypes about women's abilities in tech—a challenge that is by no means unique to Ukraine's landscape.

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[356] For example, CEP Interviews, Oleksandr Davidenko, Chief Operating Officer, Petcube, Kyiv, December 26, 2018 and CEP Interviews, Dmitry Shemet, CEO, RnD64, Kyiv, January 09, 2018
[357] "*Tech Ecosystem Guide to Ukraine*" UNIT.City, WNISEFF, 2019
[358] For example, CEP Interviews, Valeriy Yakovenko, CEO, co-founder, Drone UA, Kyiv, January 11, 2019
[359] CEP Interviews, Oleksandr Davidenko, Chief Operating Officer, Petcube, Kyiv, December 26, 2018

Although women's participation is lower than in other sectors, the potential for change is great. As a globalized industry, the IT sector can benefit from global programs focused on increasing the representation of women in ICT. The Lviv branch of Google's Women Techmakers program, for example, focuses on providing resources to women interested in coding. They hold networking events and workshops, and partner with the Lviv IT cluster as a platform for outreach. Moreover, in other countries with IT landscapes comparable to Ukraine (such as Moldova), the needle on women's participation in IT has moved when educational institutions have made concerted efforts at including women in STEM fields. Given budding partnerships between the IT sector and educational institutions and the steadily growing demand for an IT-skilled workforce, the sector has the necessary preconditions for gender-inclusive growth.

POTENTIAL TO INTEGRATE YOUTH

Of the sectors selected for further study, the potential for youth integration is highest in IT services, primarily due to the fact that youth are already predominately participating in the sector. Business representatives noted that most of their employees are under the age of 30.[360] High salaries, clear career trajectories, and the vibrant entrepreneurship and start-up environment all lead to high levels of youth interest.[361]

While it is not necessary to work on sparking youth participation, there are opportunities for improving *how* youth engage in IT. As noted above, there is a need to take a gender-sensitive approach to ensure that young men and women can both equally take advantage of opportunities in this growing industry. Moreover, closing the sector's workforce gaps – such as the need for workers with "next-level" IT skills and better business skills – is fundamentally a question of youth workforce development and capacity building which can be addressed by working with firms' in-house programs or through IT curricula in educational institutions.

7.8 SWOT AND DIAMOND ANALYSES

SWOT ANALYSIS

[360] Ibid

[361] For example, CEP Interviews, Valeriy Yakovenko, CEO, co-founder, Drone UA, Kyiv, January 11, 2019

Figure 111: SWOT Analysis of IT: Digital products and services Sector in Ukraine

Strengths: Ukraine offers a high-quality workforce with the lowest operating cost in Europe, as well as a rapidly developing innovation ecosystem. Also, the Ukrainian IT industry can attract foreign specialists (senior software engineers) with its easy permit regime and absence of other legal restrictions for IT labor. The industry is also attractive for workers as salaries compare favorably to other industries and most individual contractors pay only 5% tax.[362] Ukraine's IT industry has a sound international reputation.

Weaknesses: High level of corruption across most government bodies, cumbersome legal entity registration, and closure laws impede the development of new IT businesses in Ukraine. The country also has legal loopholes in commercial, financial and technological fields, especially in IP protection which is crucial for IT. Except for VAT exemption for software development companies, IT companies and startups do not enjoy any tax breaks working in strict conditions of Ukrainian fiscal system, harshened by regular Cases of arbitrarily-led tax police inspections in IT companies. A growing gap between the level of skills provided by Information Technology education and industry needs slows down the development of the industry. The country also lacks world-class ecosystems and ecosystem actors, such as business incubators and accelerators. The domestic market is currently small.[363]

[362] For example, CEP Interviews, IT Services, multiple locations, December 13, 2018 – January 15, 2019
[363] Ibid

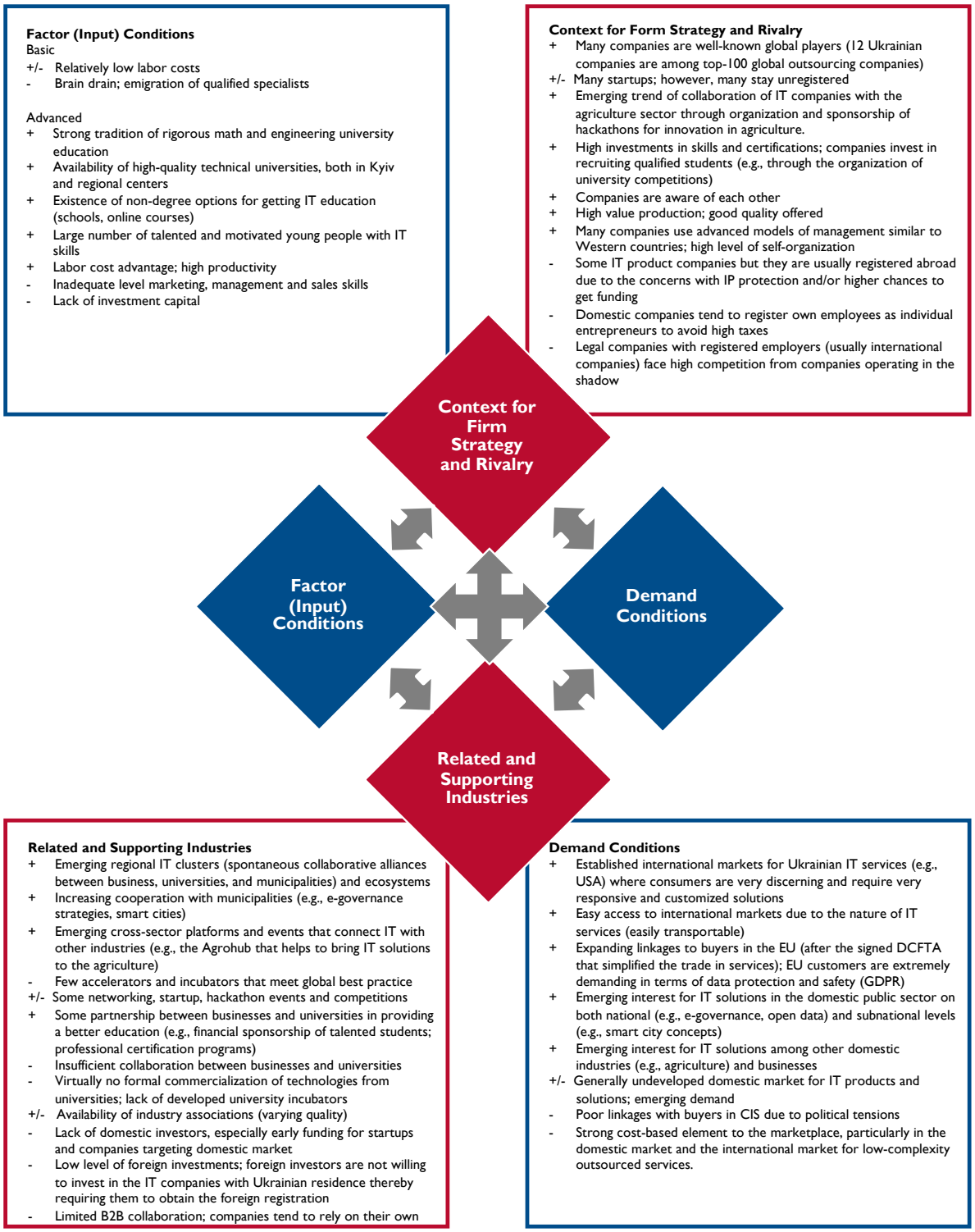
Opportunities: The industry can continue capitalizing on external demand for IT services which should continue to grow in the mid to high single digits. Creation of the Intellectual Property High Court to improve the enforcement of intellectual property rights and the new cybersecurity regulations may lead to improve the security and stability of the digital infrastructure. Also, further cooperation of IT-business and educational institutions may provide a more skilled workforce to meet market demand.[364]

Threats: Political and economic instability in the Eastern part of Ukraine may inhibit investment. Additionally, there is fierce competition for skilled IT professionals — both locally and internationally, which results in emigration and brain-drain. Another threat includes actions of law enforcement authorities that involve intrusion into regular business activities and hardware seizures. The dual tax system is unfavorable for private entrepreneurs and lends itself to abuse. Enormous dependence on distant foreign markets forces Ukrainian companies to locate important functions (i.e. sales) close to customers. There are also cases when venture capital investors push IT start-ups to relocate their headquarters outside Ukraine. [365]

[364] Ibid
[365] Ibid

DIAMOND ANALYSIS

Figure 112: Diamond Analysis of IT: Digital Products and Services Sector in Ukraine



Strategy, Structure, and Rivalry: In the domestic market there is strong competition. Companies create products and services that are widely consumed on the global market. Some

companies are among top-100 global outsourcing companies and are well-known for their superior price/quality ratio. The market is growing at a fast pace: many startups occur, but most of them are not legally registered. The best side of the sector turns up in the emerging trend of cross-industry collaborations and good networking. For instance, IT companies work in close rapport with the agriculture sector through organization and sponsorship of hackathons for innovation in agriculture. As the human resource is the most crucial for the industry, companies invest in developing skills and getting certifications for the employees, as well as paying great attention to investments to recruit qualified students, through the organization of university competitions and other events. Many industry representatives use advanced models of management similar to Western countries and are characterized by a high level of self-organization. There are also some IT product companies present on the market, however, due to the legislation issues such as weak IP protection and higher potential for funding, they prefer to register abroad. Another great concern for the whole sector is that companies tend to register their employees as individual entrepreneurs to avoid high taxes. For this reason, legal companies with registered employees (usually they are international) face high competition from companies operating in the shadow.

Demand Conditions: Ukrainian IT services companies face strong demand from the established international markets (e.g., USA) and meet the requirements of discerning consumers looking for very responsive and customized solutions. After the signature of the DCFTA that simplified trade in services, companies are starting to do business with EU buyers, who are extremely demanding in terms of data protection and safety (GDPR). However, operations with buyers in the CIS region became difficult because of political tensions.

The domestic market is generally undeveloped. Interest for IT solutions is emerging in the domestic public sector (e.g., e-governance, open data) and other spheres (e.g., agriculture).

Related and Supporting Industries: Ukrainian IT companies benefit from the emergence of regional IT clusters, which exist in a form of spontaneous collaborative alliances between business, universities, and municipalities. Increasing cooperation with municipalities (for example, in Vinnitsa and Lviv) leads to the development and implementation of e-governance strategies and concepts of smart cities like the "Kyiv Smart City" solution. Cross-sector platforms and events, that connect IT with other industries (for example, Agrohub that helps to bring IT solutions to the agriculture), are emerging and also encourage the sector to be more competitive.

Furthermore, businesses have started to cooperate with universities to provide a more suitable education. These partnerships might appear in a form of financial sponsorship of talented students or professional certification programs. Ukrainian IT companies also consolidate into industry associations and hold networking, startup and hackathon events. However, there are still few accelerators and incubators present on the market.

Factor Conditions: Ukrainian engineers are highly skilled professionals, who are able to solve complex technical problems in which deep expertise and innovative approaches may be required. There is a large number of talented and motivated young people with IT skills. University education is known for its strong tradition of rigorous math and engineering training. High-level technical universities exist not only in Kyiv but in the regional centers, too. There are also many

non-degree options for getting IT education such as schools or online courses. At the same time, the weak side of human resources supply is the lack of specialists with an adequate level of marketing, management, and sales skills. However, labor costs and high productivity show to be a good advantage for the whole sector. On the other hand, there are also many disadvantages that prevent the industry from growing. One of them is a lack of financial resources, especially in the form of early funding for startups and companies focusing on the domestic market. On that basis, companies often need to register in foreign countries (mostly USA) to get funding.

Government: The sector's regulation is weak: there is no ministry or other state department responsible for the IT sector, nor the development of a comprehensive strategy. Additionally, there are several regulatory problems for IT companies, such as poor protection of IP rights, leading many businesses to register in other countries. Another issue is pressure from tax inspections. Perceived high taxes on salaries push much of the sector to operate in the informal economy. The industry benefits from a special tax regime (5% tax on income). Demand for IT products and services from the public sectors is emerging but still below its potential; there few examples of implemented e-governance systems (e.g., e-documentation).

8. SECTOR ASSESSMENTS – WOOD PRODUCTS AND FURNITURE MANUFACTURE

8.1 SECTOR OVERVIEW

Ukraine is well endowed with forests (9.6 million hectares, or 17% of land area, of which half is planted: 42% softwood, 43% hardwood, 15% softwood-broadleaves and shrub). Wood processing and furniture manufacturing are traditional sectors in Ukraine; both existed during the Soviet period and produced for the FSU market. The post-Soviet liberalization of markets in Ukraine saw the privatization of enterprises in the wood sectors as well as the emergence of thousands of new businesses.

Logged wood can be processed through sawmilling and wood planning, pulp production and paper production, production of construction materials and associated products (plywood, veneer, slabs, parquet, etc.), wooden containers and wooden furniture. Wood processing and furniture manufacturing sectors are therefore distinct but linked sectors. The specific focus of this section is on furniture manufacturing. The data available for wood processors is not disaggregated into industrial inputs for furniture manufacturing and other industries.

The supply of timber commences with tree logging. The majority (99%) of forests are State owned and managed by the State Forestry Committee. Almost 83% of all volumes of merchantable wood logging in Ukraine is carried out by State Forestry Agency enterprises. In Ukraine there are 379 logging enterprises in total, and 314 of them are enterprises of the State Forestry Agency, which use 73% of the land of the forestry fund. The remaining enterprises are owned by other state institutions. These enterprises are important in the context of furniture production but are strictly part of the forestry sector and not included in the population of wood processing sector enterprises.

Enterprises participating in the furniture manufacturing value chain include wood processors and furniture manufacturers. The wood processing and furniture sector is highly fragmented, mirroring the fragmentation of the sector in the EU. According to official statistics (see **Table 20**), Ukraine's wood processing and furniture manufacturing sector currently consists of a few large enterprises, hundreds of medium-sized enterprises, and thousands of small and micro enterprises. The population of small and micro enterprises includes businesses registered as legal entities as well as entrepreneurs.

Table 20: Wood Processing and Furniture Manufacturing Firms by Size in 2017

SECTOR	LARGE	MEDIUM	SMALL	INC. MICRO
Wood processing	4	162	15702	15,064
Furniture manufacturing	1	116	8949	8,633

Source: State Statistics Service of Ukraine

The official data from 2010 to 2017 (see **Tables 21, 22**) shows the trend of enterprise numbers. It shows some variation in the number of enterprises in these sectors over this period, that there are considerably more enterprises in wood processing, and the domination of the sectors by small and micro enterprises.

Table 21: Wood Processing Firms by Size (Trend, 2010-2017)

YEAR	LARGE	MEDIUM	SMALL	INC. MICRO
2010	3	146	19,571	18,896
2011	4	142	13,766	13,024
2012	4	127	13,161	12,435
2013	4	126	13,309	12,661
2014	5	121	16,809	16,269
2015	3	137	18,128	17,627
2016	0	65	2,044	1,913
2017	4	162	15,702	15,064

Source: State Statistics Service of Ukraine

Table 22: Furniture Manufacturing Firms by Size (Trend, 2010-2017)

YEAR	LARGE	MEDIUM	SMALL	INC. MICRO
2010	1	137	11,090	10,624
2011	1	135	8,263	7,787
2012	2	138	8,984	8,527
2013	2	128	9,332	8,897
2014	2	120	10,412	10,033
2015	1	113	10,501	10,226
2016	3	89	487	425
2017	1	116	8,949	8,633

Source: State Statistics Service of Ukraine

An examination of product HS codes in trade flow data shows the range of products used as inputs for furniture manufacturing produced by the wood processing industry. These include particle board, plywood, fiber board, veneering sheets, flooring panels, sawn wood, etc. Furniture manufacturers produce a wide range of furniture, covering all types usually sought in furniture

markets. Many manufacturers are willing to make a wide range of furniture, but there is some degree of specialization within the industry in different product segments. Products from the Ukrainian furniture sector include:

- **Soft furniture:** mainly produced by both specialized small factories and several large manufacturers. Upholstered furniture consists of 21% sector production by value;

- **Kitchen cabinets:** made by companies specializing in kitchen furniture. Kitchen furniture consists of about 10% of sector production by value;

- **Office furniture:** production constitutes about 13% of sector production by value.[366]

So-called "**custom-made projects**" belong to the general category that covers all production units and manufacturers producing for private homes or non-residential properties (restaurants, cafes, etc.).[367] The rest of production and other furniture parts constitutes about 56% of sector production by value.

To grow and become sustainably competitive, Ukraine's wood processing and furniture manufacturing sector will need to understand and meet the requirements of high-value manufacturers and markets in internationally, positively differentiate itself in both export and domestic markets, and upgrade production methods, client service and logistics. It will need to distance itself from the illegalities and non-respect of FSC certifications that is present in parts of the sector, that will limit responsible investment, margins and sales growth. New business models will need to be progressively adopted and become established as the backbone of the sector. Business models that adhere to traceability and certification requirements will offer price premiums to Ukrainian manufacturers.

Starting with the supply of raw material, selling to more discerning markets and more advanced technologies and production methods both require and facilitate the verification of the origin of wood. In advanced economies, modern information systems and digital maps are used during wood harvesting, enabling the whole wood transportation chain to be traced from the stump to the mill. The sector needs to take steps to move from less sophisticated manufacturing methods towards the manufacturing of the future. If the wood products sectors do not do this, Ukraine may be mainly reduced to a supplier of raw wood to other more advanced economies where the transition has been made.

There are also ways in which furniture manufacturers can engage with and leverage Ukrainian design and engineering talent, and at the same time begin to harness digital technologies available in the country. The application of CAD and fabrication labs to prototype innovative designs provides furniture producers with the opportunity to design to market needs and test market products in exhibitions in target markets. An even more exciting opportunity could be designing and manufacturing of high-value customized furniture.

[366] "*Roadmap for the development of the Ukrainian furniture sector*" CSIL Milano for the EBRD, 2018
[367] Ibid

CEP will work with the sector by identifying production companies that now have the potential and desire to achieve higher value for their operations and skills by serving demanding segments of export (particularly EU) markets, by establishing strong business collaborations with downstream buyers, manufacturers and market channels in the EU; and by providing higher value products for the Ukrainian market. In doing so, key partners will include the Ukrainian Furniture Manufacturers Association, the Ukrainian Industrial Automation Association, the IT sector and actors in entrepreneurship and innovation support ecosystems.

CEP will identify and work primarily with the following types of small and medium-sized companies from the wood processing and furniture production value-chain:

- Wood processors manufacturing parts and components including timber components certified to EU and FSC standards;
- Exporters of furniture and producers of quality furniture including hardwood working with FSC certified timber and complying with EU and international certification, or with high potential of achievement compliance;
- Established wholesalers and retailers specialized in wood products and furnishing;
- Furniture manufacturers that incorporate design elements;
- Furniture designers using digital methods
- Buyers and manufactures who want to establish relationships with manufactures

Value chain overview, market channels, and value creation

This section describes the value chain for furniture production, incorporating both wood processing and furniture production. Wood processing involves value-addition to raw wood obtained from the state suppliers of timber. The value chain is simplified by being broken down into four key stages: supply of timber, production of components, production and assembly of finished pieces of furniture, and distribution and sales.

The first stage includes the processing of logged trees. Logs are sourced from the State Agency by wood processors and some furniture companies with sawing facilities. Most of the forestry production is used domestically. Raw materials, namely untreated logs, are sold at auctions. Announcements of auctions are published quarterly, and participants submit applications for participation. Bidders must be economic entities. The sale system is intended to be fair and transparent, but there are some doubts as to whether all bidders are afforded the same opportunities. Despite doubts about fair access to raw materials, interviewed manufacturers did not report difficulties in obtaining supplies.

The untreated wood is transported to saw mills. The EBRD report states that Ukraine produces 20 million cubic meters of logs per annum and that domestic suppliers are able to meet local furniture manufacturer demand (other than for types of wood that have to be imported, such as tropical species). In the Ukrainian market, many suppliers of processed raw wood operate and sell processed wood in the shadow market. However, raw timber constitutes only a small part

of the raw material needed by furniture producers and is used primarily in solid wood furniture production.

Ukrainian timber is considered to be of high quality. However, the EBRD report notes an insufficient level of installed capacity for kiln drying. Kiln drying is required for hardwood (oak) and can be a costly process in the Ukrainian climate. An alternative to kiln drying is air drying, which takes a long time. Insufficiently dried wood impairs the quality of the final product.

The second stage is the manufacture of panels, components and semi-finished goods for furniture production. The sector includes some Soviet-era large enterprises producing semi-finished goods. The industry also includes some large domestically owned players, such as KMM and Odek (a Ukrainian-Dutch joint venture), as well as foreign owned major players, including Swiss Krono, Kronospan, and Swisspan (Sorbes Group). The quality of the materials produced by domestic producers is considered to be comparable with those of Western producers, with few irregularities. Items produced for domestic markets are cheaper than for export markets, since the latter usually require costly certification (e.g., FSC – international Forest Stewardship Certification, which shows consumers that the supplies are produced in an environmentally, economically and socially responsible way). The EBRD report indicates that domestic products tend to be cheaper than imported ones to compete with keenly priced panels from Polish competitors.

Component and semi-finished sourcing is common in Ukraine since small furniture producers have limited machining capabilities and cannot afford the investment needed to machine panels to requirements (e.g. cutting down panels to size, cutting grooves, forming decorative surfaces, etc.). Wood processors equipped with CNC panel sawing equipment and double-edge trimmers supply needed components to small businesses. According to the EBRD report, the wood processing industry has sufficient capacity to significantly expand output. Domestically produced semi-finished wooden products and components used in furniture manufacture include:

- Wood Based Panels (WBP), which are by far the main component used for furniture production and consist of particle board (PB), medium density fiberboard, and plywood. All three types are produced in Ukraine, although some materials are still imported;

- Textiles and leather for upholstered furniture are produced domestically for low and medium quality furniture but supplies for high quality furniture are imported from Italy and Spain. Textiles are imported, since Ukraine does not produce textiles for upholstery. (Note: the suppliers of these industrial inputs belong to the leather processing sector);

- Foam for upholstery and mattresses is reported to be produced by no more than 5 domestic companies, which supply 50% of domestic needs. Note: the suppliers of these industrial inputs belong to the plastics manufacturing sub-sector;

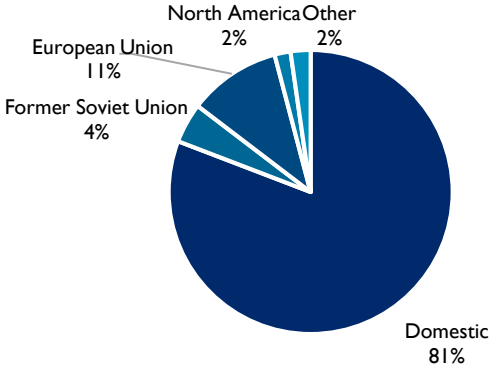
- Hardware fittings and other metal parts are provided by a number of companies in Ukraine equipped with specialized machinery required for this purpose, which most

SMEs in furniture do not have. Note: suppliers of these inputs include enterprises in the metal processing sector despite operating in the furniture industry;

- Glass is supplied both by domestic producers in the glass production sector as well as through imports.

It is reported that raw materials and industrial inputs are largely produced and available domestically although these supplies are supplemented by imports (see **Figure 114**). Foreign sources of supplies of imported components include Turkey, China, Southeast Asia and colored fabrics from Poland, Turkey, and South Korea. Glass used in furniture production is both produced domestically and imported.

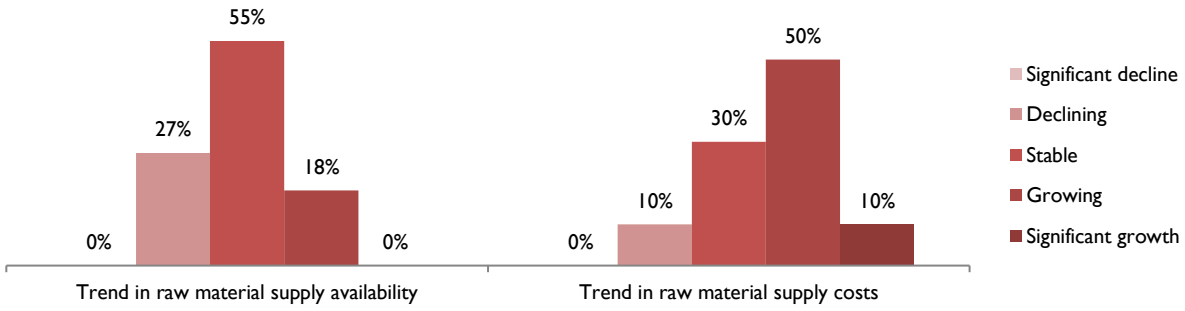
Figure 113: Estimated Sources of Raw Materials and Input Supplies



Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

Key informants in the furniture manufacturing industry were surveyed about their estimates on availability and costs of raw materials. This mini-survey found that there was overall optimism about the availability of materials, although over half of the respondents believe that costs would grow or stabilize, with only 10% expecting a decline.

Figure 114: Estimated Availability and Costs of Raw Materials



Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

The third stage involves operations, including design, machining of semi-finished products, and assembly of parts into finished goods. The range of operations varies, depending on the size of

the enterprise, equipment and skills of the workforce. In terms of productivity, the sector has moderate value added per employee - around US$6,500 for the furniture industry and US$9,600 for wood processing. These indicators are much lower than the productivity of the leaner EU-28 workforce in these sectors (EU-27 Eurostat 2010 data shows average figures of EUR28,800 and EUR29,700 for furniture and wood processing respectively). The opportunities for improving productivity and introducing higher quality products creates good potential for significant improvements of the value added of these sectors. The EBRD report describes firm activities as follows:

- **Micro-enterprises** include firms employing up to 5 employees operating from small premises that mainly buy and assemble components using hand-tools. Their production has little design features, is reckoned to be low quality and is sold directly to customers or in street markets. Firms up to 10 employees produce crafted furniture to requirements rather than just assembling parts, but they too have limited machinery. The furniture they produce is higher quality than the output of the smallest businesses and can involve collaboration with freelance designers. Furniture is sold directly to customers. Many of these firms are said to be operating at the margin of the shadow economy. It is estimated that up to 40% of furniture is produced for the shadow economy. The price indicated by the report for their projects is in the region of US$15 per sq.m;

- **Small enterprises** (up to 50 employees) have a higher degree of formalization although some of these are also said to be operating at the margin of the shadow economy. Their main market is the domestic one, served directly or through design studios. Furniture is priced in the US$15-30 per sq. meter range. Some of these firms operate in niche areas and produce luxury furniture. Design is more sophisticated, and some firms rely on in-house design. A few enterprises succeed in achieving a spot presence in export markets through small contract jobs;

- **Large and Medium sized firms** are involved in industrial scale manufacture, including serial production and branded production. Although old machinery predominates, some firms have invested in CNC machinery. Cooperation with designers is more structured, including the production of annual collections. The largest of these firms focus on private label production, including cheap furniture for the mass market. Production focuses on chipboard furniture. The main market is domestic, though some larger companies have penetrated into export markets.

There are some examples of producers involving foreign investment or joint ventures, such as Morgan Furniture (Estonia), Novy Styl (Poland), BRW (Poland) and Ambiente Furniture (Denmark).

It has been reported that there is not much cooperation in the furniture industry. Firms tend to do everything on their own to fulfil orders to exercise control over all production stages. However, there are signs of collaboration, particularly with a view to entering new markets, as

in the case of a group of companies that are combining efforts to market to the Canadian market under a common brand name.

The fourth stage is distribution and sales of furniture. Manufacturers place and sell their products on the market through a variety of channels, from direct sales by the smallest players, to the large firms' use of retail channels, including internet sales and stores. It is estimated that 45-50% of sales are conducted through direct selling points and street markets, 20-25% of sales are made by independent dealers, including large distributors and stand-alone multi-brand shops, 7-8% of sales are from online stores, 5% of sales goes through domestic and international distributional networks in domestic markets, such as JYSK, which sells everything for the home, and 5% and 10% of sales are made via building industry stores and mono-brand stores of luxury imported furniture respectively.[368] Online sales and store sales include sales of imported furniture; IKEA is a good example: orders can be placed on line with deliveries made from abroad. The percentage of sales done via online stores is projected to increase due to the trend of digitalization and development of online promotion by industry representatives.[369]

Distribution logistics are said to be a major challenge and significant cost for the sector (20% of the selling price of a sofa, for example), and inefficiencies increase costs for a combination of reasons, such as damaged goods and late delivery.

The sale of furniture in export markets requires demonstration of compliance with technical requirements and standards, for example for EU markets. Thus, processors and producers selling to EU markets have to comply with some stringent requirements (see **Table 23**).

Table 23: Examples of Manufacturers and Their Distribution Channels

EXAMPLE OF SOME OF THE LARGER KNOWN MANUFACTURER	DISTRIBUTION CHANNELS	NOTES ON COMPANY
Svit Mebli	Own store in Kyiv, internet shop	Wide range of furniture
Lismaster	Independent stores around country	Producer of wooden kitchen cabinets, dining tables and chairs. Experience of supplying to IKEA.
Sokme	Independent stores and dealers in Ukraine, CIS, W. Balkans, Germany, Austria	Wide range of furniture
Enran	Ukraine (own store in Kyiv and dealers), Distributors in Belarus, Moldova and Germany	Wide range, Collections, Special projects
Novy Styl	Distributors, representatives, and showrooms worldwide.	Very.large Polish investment. Specialized in branded office furniture.
Ambiente Furniture	Own showroom in Kyiv, internet sales in Ukraine	French investment. Wide range of furniture.

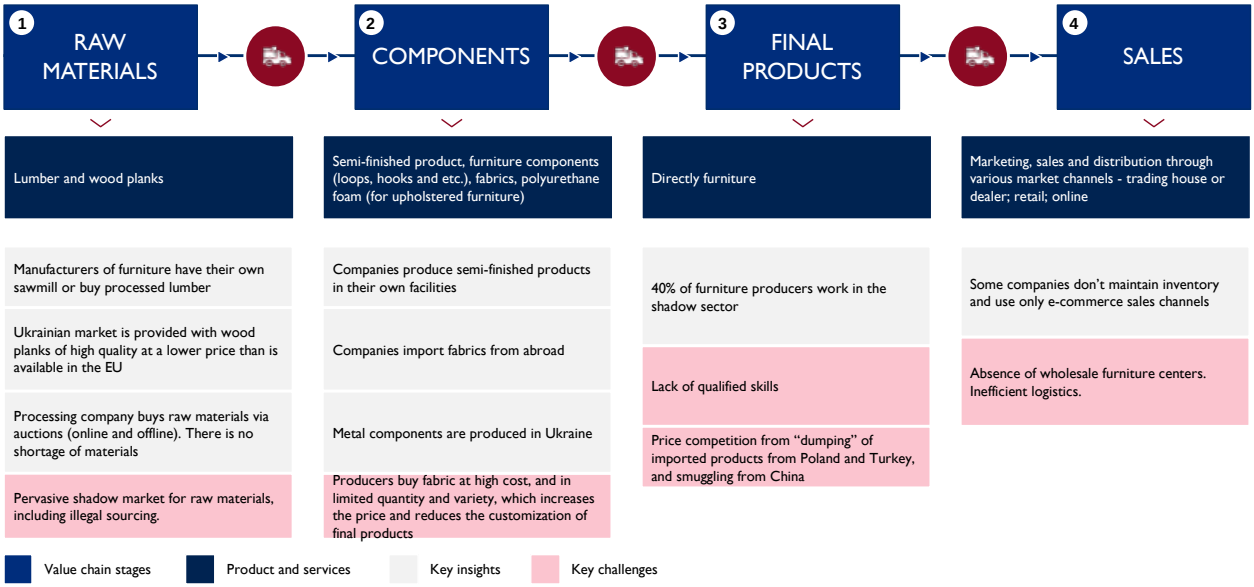
Source: "*Roadmap for the development of the Ukrainian furniture sector*" CSIL Milano for the EBRD, 2018

[368] "*Roadmap for the development of the Ukrainian furniture sector*" CSIL Milano for the EBRD, 2018

[369] CEP Interviews, Yaroslav Kamyenyev, Founder, Blanche, Kyiv, December 18, 2018

Generally, it is observed that the system of retail furniture sales is not sufficiently developed in comparison with the EU because a significant part of market demand is satisfied by SMEs selling their products directly to consumers through formal and informal channels. Although there are some stores, there is a lack of specialized sales through furniture networks in the country. Specialized furniture stores with large commercial areas exist, but only in major cities. There are few mono-branded stores, which mainly sell imported furniture such as JYSK Colombini Casa, Calligaris.[370]

Figure 115: Wood and Furniture Value Chain Overview



Source: CEP Interviews, Wood and Furniture, industry representatives, January 13-20, 2019

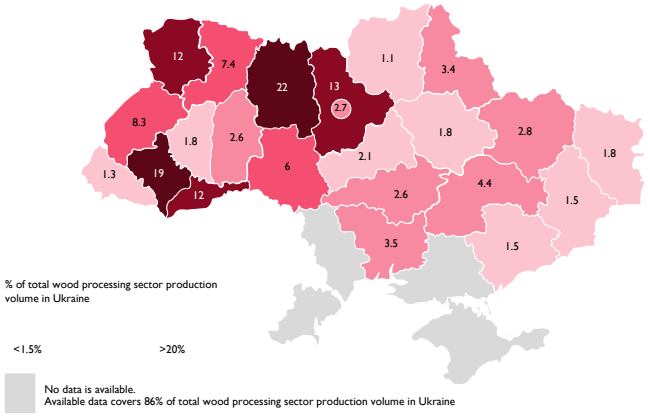
According to the official statistics and information received from key informants in the furniture manufacturing industry, wood processing and furniture manufacturing companies are spread throughout the country. However, there is a concentration of the processing and manufacturing industry in the areas well-endowed with sources of raw materials in the western part of Ukraine.

Wood processing is mostly located in the Carpathian areas of the Ivano-Frankivsk region (19%) or Polessian forests of the Kyiv and Zhytomyr regions (together 36%). Most cartons and boxes are produced in the Center-West of the country (Kyiv, Khmelnytsky and Vinnytsya regions - 41%), with minor concentration in the South-Center (Dnipro and Mykolaiv regions – 8.8%) and in the Lviv region (5.8%). 56% of the production of coniferous wood sawn and 57% of pine wood sawn is concentrated in the Western Polessia forests (Zhytomyr, Lviv, Volyn and Rivne regions). At the same time, spruce and fir wood sawn is mostly produced in the Eastern Carpathians, where the Ivano-Frankivsk and Chernivtsi regions comprise 71% of total country production. Other sawn wood production is located along the Western border (Volyn, Lviv and Zakarpattia

[370] "*Roadmap for the development of the Ukrainian furniture sector*" CSIL Milano for the EBRD, 2018

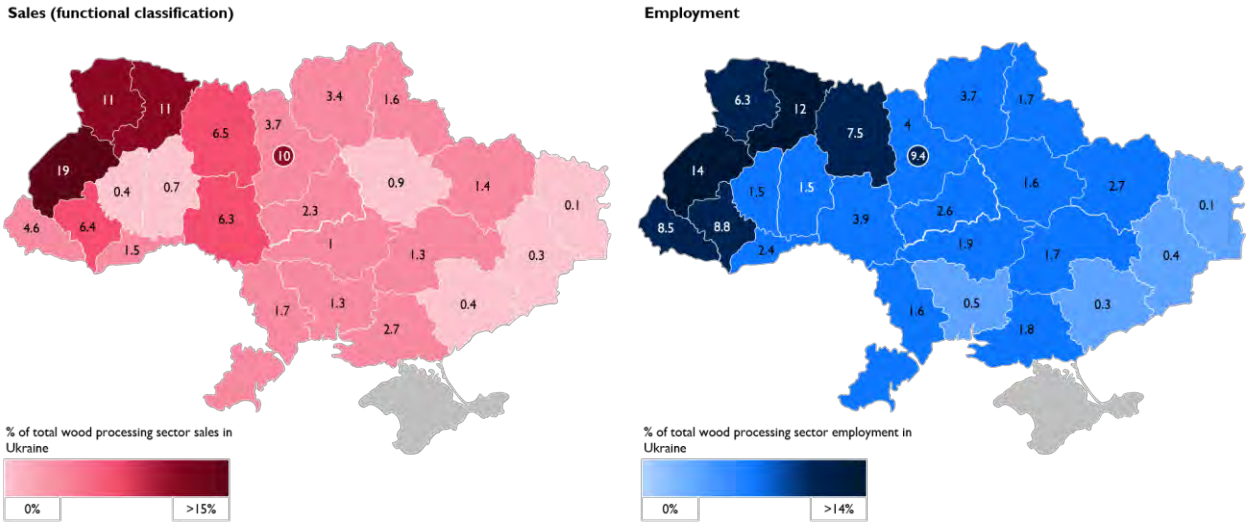
regions – 35%), near EU markets, or in the Vinnytsya region (14%) close to the major furniture producers of the capital area (see **Figure 117, 118**).

Figure 116: Wood Processing Sector Production in 2016



Source: State Statistics Service of Ukraine

Figure 117: Wood Processing Sector Sales and Employment in 2016



Source: State Statistics Service of Ukraine

The location of furniture manufacturing depends on the availability of wood resources and their suppliers (producers of wood semi-processed materials), history (some enterprises were founded in the FSU at their current locations), investment attractiveness of the specific region, and locations of the biggest distribution and sale points.[371]

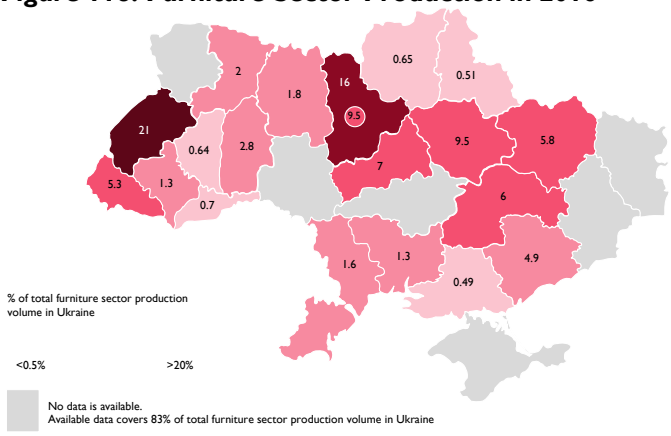
There are several strong regional clusters within the furniture and processed wood industry, such as in the Carpathian (Zakarpattia, Lviv and Ivano-Frankivsk regions) and Polessia (Rivne and Zhytomyr regions, city of Kyiv) regions. Furniture production is generally concentrated either

[371] "*Ukrainian Furniture Industry Roadmap for Competitive Development*" CSIL Milano for the EBRD, 2018

close to the high demand of the capital area (City of Kyiv, Kyiv and Poltava regions together give 35% of production) or in the Lviv region (21%) where proximity to raw materials is combined with high domestic (city of Lviv) and foreign market demand (border with EU).

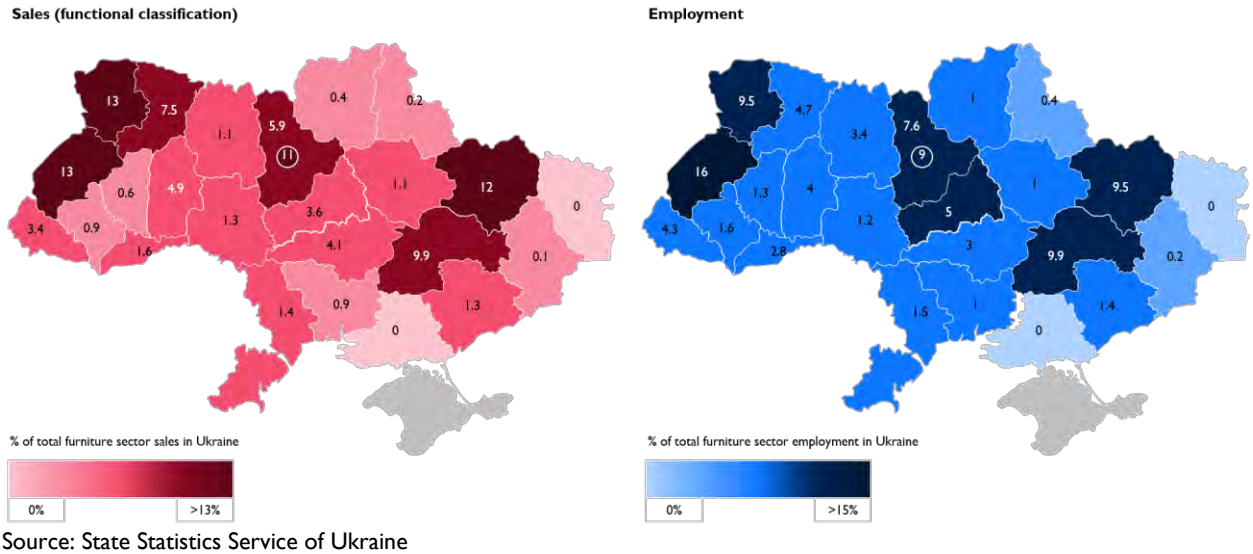
Kitchen furniture production tends to be dependent on demand from urban areas and is thus mostly concentrated in the capital area (59% of production). Upholstered seats with wooden frames are mostly produced in two big industrial clusters in the Lviv (45%) and Zaporizhzhia (13%) regions. Wooden furniture for the dining-room and living-room tends to concentrate around agglomerations with relatively high well-being levels in the Kyiv (29%) and Lviv (26%) regions. Wooden furniture for offices production tends to concentrate around big business centers, thus Kyiv and the surrounding region, together with the Kharkiv and Dnipro regions provide more than 50% of its production (see **Figure 119, 120**).

Figure 118: Furniture Sector Production in 2016



Source: State Statistics Service of Ukraine

Figure 119: Furniture Sector Sales and Employment in 2016

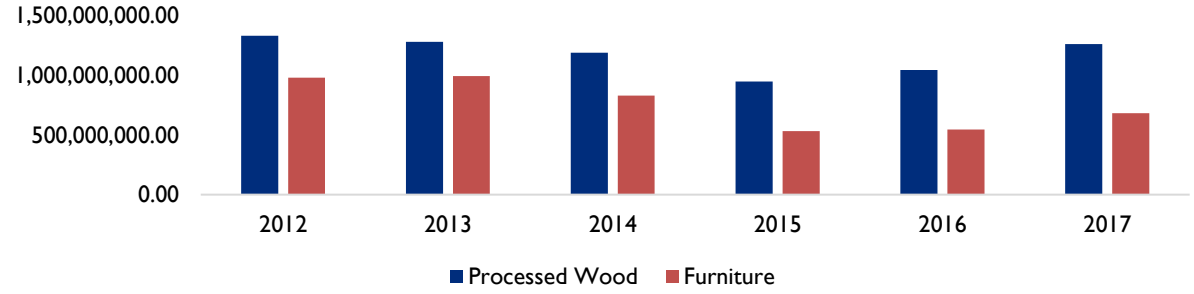


Source: State Statistics Service of Ukraine

Furniture production and market trends

Data from the SSSU shows the production trend for wood and furniture over the period of 2012-2017 in value terms. The chart below shows that production of processed wood and furniture dipped significantly after 2014, which is largely attributed to the shock to the economy following the annexation of Crimea and the subsequent loss of markets in Russia and CIS countries. However, after reaching a low in 2015, production has been on an upward trajectory. The data shows that wood processing has recovered better than furniture production, which is still down by around 30% compared to 5 years previously. It is important to note that wood processing production does not necessarily mirror furniture manufacturing, because the processors produce products for other sectors, including construction and packaging.

Figure 120: Wood and Furniture Sector Production (US$ billion)



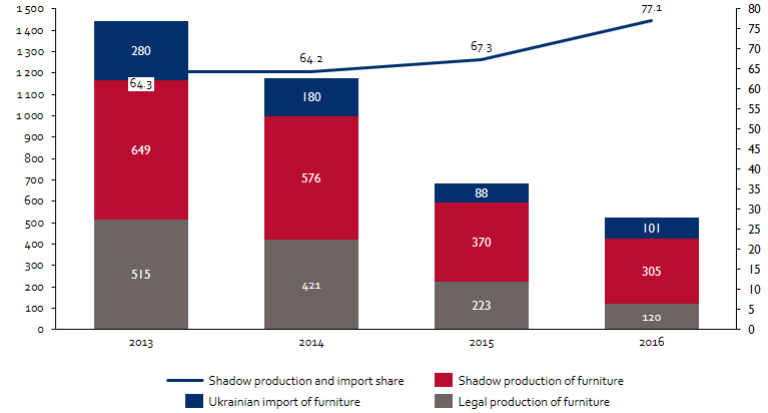
Source: State Statistics Service of Ukraine

The domestic market for furniture is served by three sources of production: official sales of furniture, unofficial sales of products on the shadow market, and imports.

According to a study that produced the chart below (see **Figure 122**), the domestic furniture market in Ukraine in 2013 was valued at US$1.45 billion with the shadow market included but fell to a low of US$0.53 billion in 2016. The chart shows a contraction in value terms in the three components supplied by the domestic market.[372]

[372] "*Strategic Export Plan for Furniture Enterprises*" (in Ukrainian), UEX, ITFC, 2017

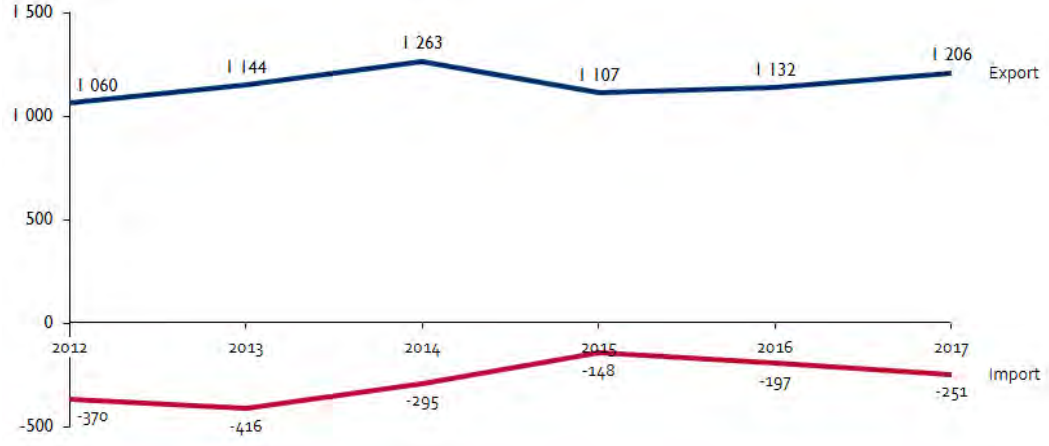
Figure 121: Furniture Production Structure (US$ million)



Source: State Statistics Service of Ukraine, SOE "Ukrpromzovnishekspertyza"

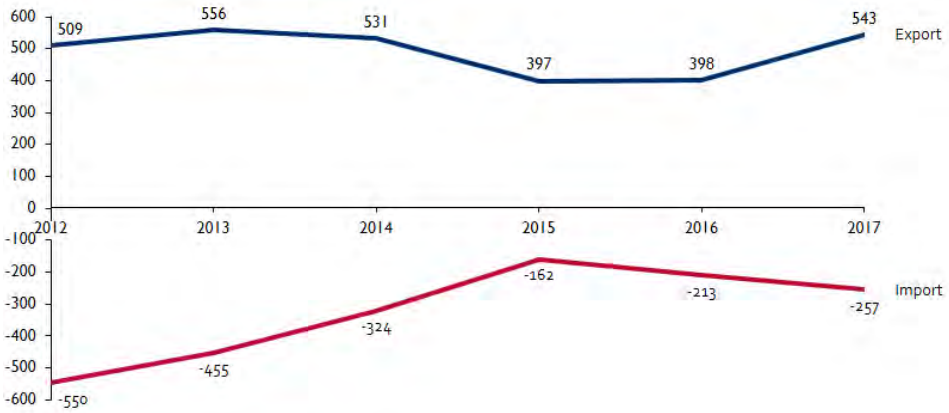
The chart below shows foreign trade trends from 2012-2017 in wood processing and furniture production. Until 2012, Ukraine was a net importer, but the trend began to reverse, partly due to the hryvnia weakening, leading to a reduction in imports and an increase in exports. Imports and exports both suffered a dip in the years following the annexation of Crimea, but exports have begun to recover, as indicated by the 2017 data.

Figure 122: Export and Import of Processed Wood



Source: ITC

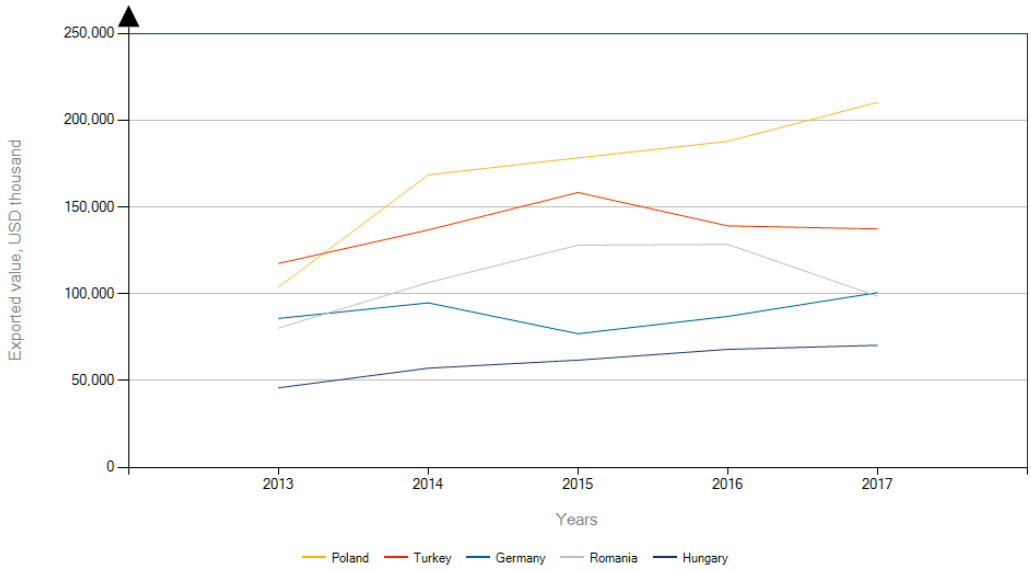
Figure 123: Export and Import of Furniture



Source: ITC

According to the ITC, the main markets for processed wood exports from Ukraine are shown in the charts below.[373] Key export markets, in order of magnitude, are Poland, Turkey, Germany, Romania and Hungary. Key imports, in order of magnitude, are from Belarus, Turkey, Russia, Romania, and Germany. Wood and wood products are benefiting from the Deep and Comprehensive Free Trade Agreement (DCFTA) with the EU, which imposes 0% duty on such goods. An analysis of the types of wood processed products exported and imported shows that trade includes materials used for furniture production such as sawn wood and fiber board.

Figure 124: Importing Markets for Processed Wood Products Exported by Ukraine[374]

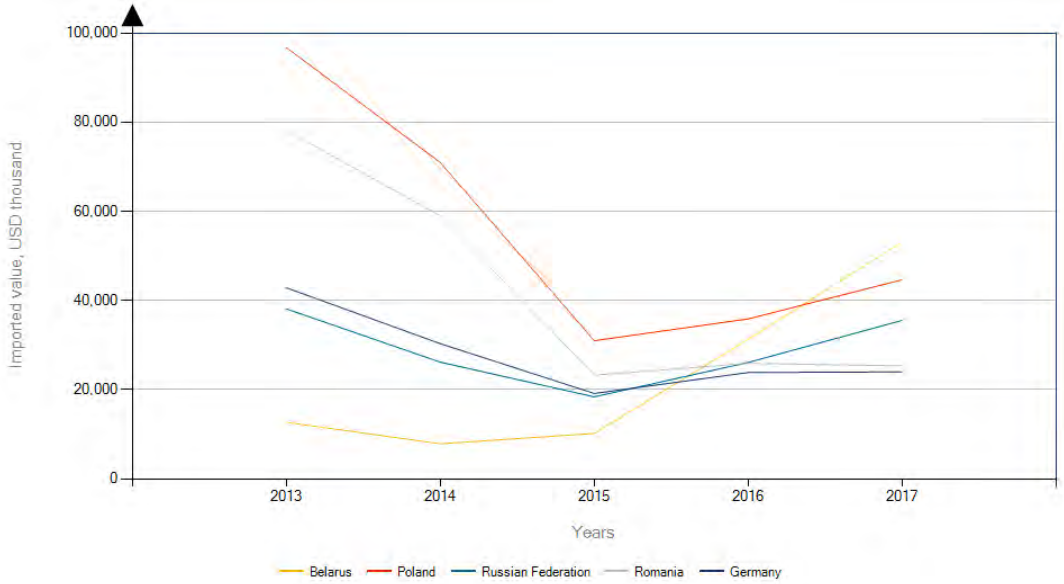


Source: ITC

[373] Note, the data for imports includes goods that are inputs for furniture production as well as wood processed goods used in other sectors such as construction and packaging.

[374] Product: 44 Wood and articles of wood; wood charcoal

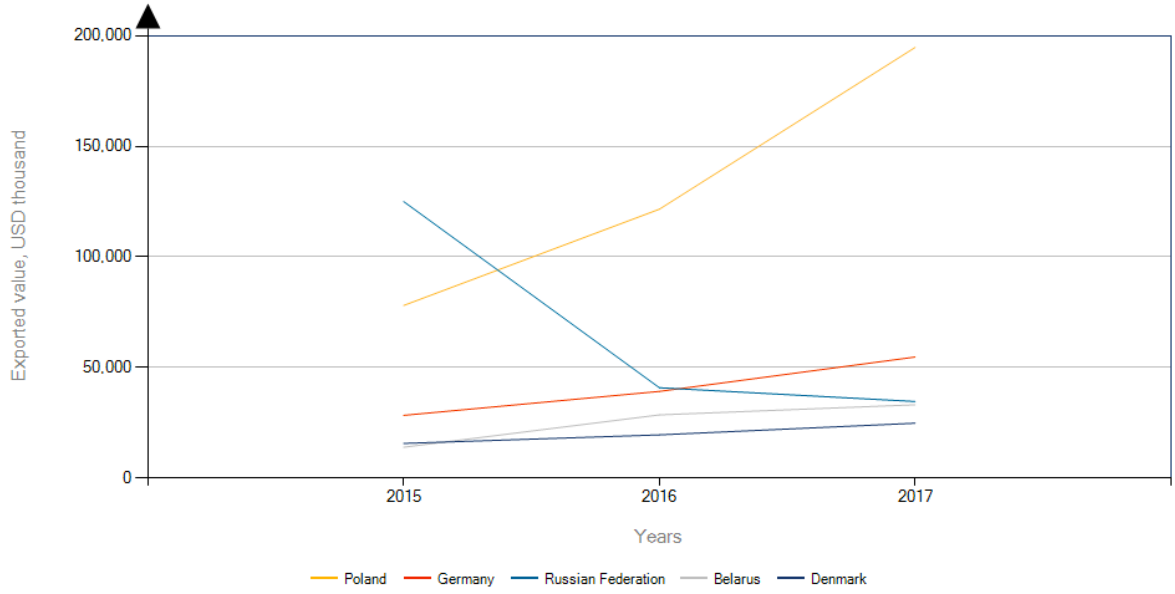
Figure 125: Supplying Markets for Processed Wood Products Imported by Ukraine[375]



Source: ITC

Key markets for exported furniture products are shown below, with Poland a major trading partner. The second graph shows imported products, with China by far the main partner.

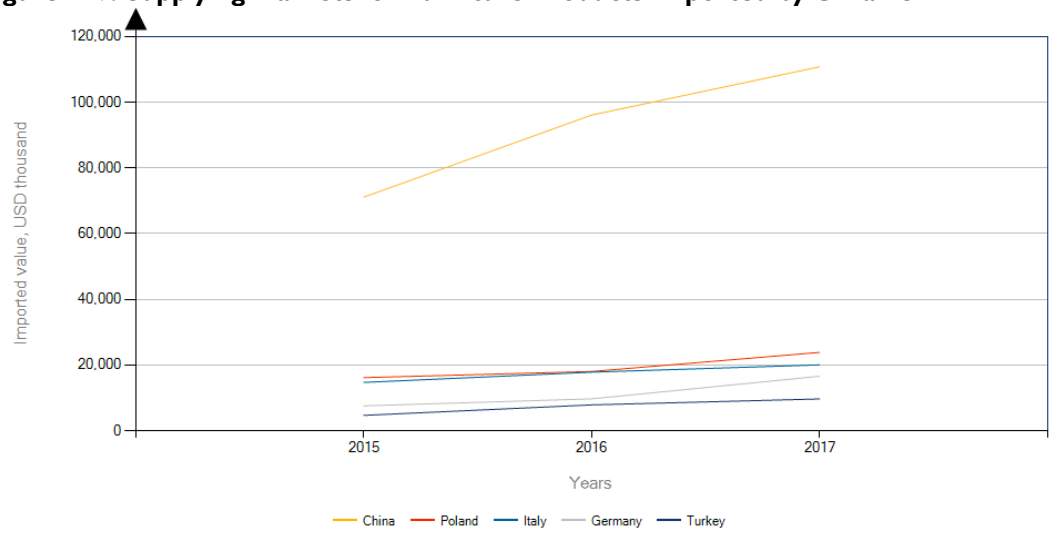
Figure 126: Importing Markets for Furniture Products Exported by Ukraine[376]



Source: ITC

[375] Product: 44 Wood and articles of wood; wood charcoal
[376] Product: 94 Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishing; lamps and lighting fittings, not elsewhere specified or included; illuminated signs illuminated nameplates and the like; prefabricated buildings

Figure 127: Supplying Markets for Furniture Products Imported by Ukraine[377]



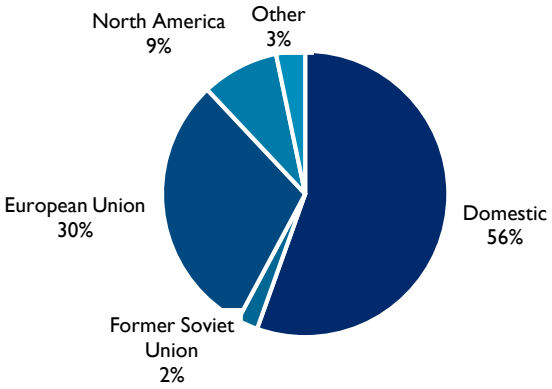
Source: ITC

An analysis of the type of furniture products exported to Poland in 2017 shows that Ukraine primarily exported furniture, seats and parts, mattress supports and bedding. The relatively much smaller proportion of furniture exported to Germany (EU's largest producer of furniture in value terms) consists of a similar mix.

Furniture producers were surveyed on their perceptions of the importance of markets and responded as shown in the chart below. Of current markets, the domestic market is considered the most important (56%), with the EU market second (30%). The North American market was indicated as important too (9%). Some Ukrainian furniture manufacturers, led by a design studio, are tapping into their connections with the Canadian market (note, there is a large Ukrainian diaspora in this market). In 2018, with support from the Canada-Ukraine Trade and Investment project ten Ukrainian companies are promoting specially designed furniture catering to the tastes of this market under the joint Meblica brand. All furniture is made from Ukrainian materials. Official trade data for 2017 shows very small values achieved previously in the Canadian market.[378]

[377] Product: 94 Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishing; lamps and lighting fittings, not elsewhere specified or included; illuminated signs illuminated nameplates and the like; prefabricated buildings
[378] CUTIS

Figure 128: Perceived Importance of Current Markets



Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

Workforce and employment trends

According to official statistics for 2017, 80,400 people were officially employed in the wood processing and furniture manufacturing sectors: 45,100 in the processed wood sector (0.76% of total country employment in 2017) and 35,300 in the furniture sector (0.6% of total country employment in 2017). The workforce trend for 2012-17 (see **Figure 130**) shows that wood processing has always employed a larger number. The gap between employees in the two sectors has recently increased. In the furniture sector, the number of jobs contracted by 2.2% p.a. in 2013-2017. In the processed wood sector, the number of jobs increased by 3.6% p.a. within the same period.

Figure 129: Workforce by Sector in 2010-2017

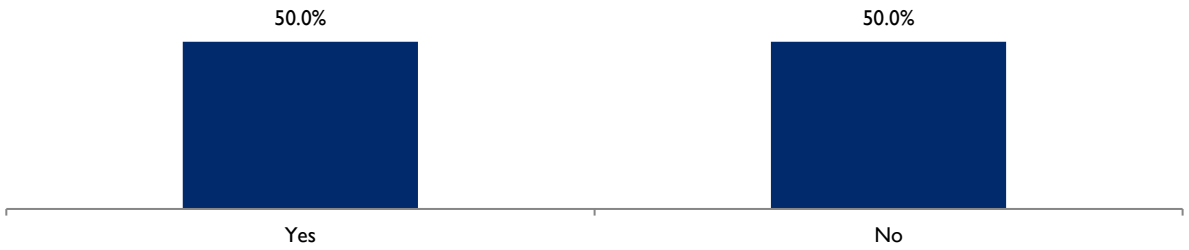
Source: State Statistics Service of Ukraine

The furniture industry is highly labor-intensive, and the cost of labor is a significant variable in product price. The cost of labor in the Ukraine is significantly lower than in the EU. Eurostat data for 2010 shows that for EU-27, the average personnel annual costs per head were EUR23 and EUR24 for wood processing (NACE Division 16) and furniture manufacturing (NACE Division 31) respectively. Wages in Ukraine depend on location and skills. The higher salaries in nearby EU countries triggered migration, thus Ukrainian firms face problems in retaining and recruiting

workers. In 2017, the average monthly income in the furniture sector was almost the same as the national average income (US$264, i.e. 99% of country average income), while salaries in the processed wood sector were slightly less (US$243, i.e. 91% of country average income). In terms of gender income disaggregation, gender equality is not respected in either sector. In the furniture sector, women earn on average 25% less than men, while in the processed wood sector, the difference is slightly better - only 15% less than men.

A survey of interviewed enterprises showed that the views on sufficiency in employment number terms was were divided equally (see **Figure 131**). Whilst there is a high availability of non-skilled workers. given the high level of unemployment in the country, there are insufficient numbers of skilled workers for businesses seeking to apply modern production methods. In particular, the use of automated machinery requires a higher level of education. However, according to the survey, employers in the furniture industry are pessimistic about the availability of qualified workers, with over 70% believing the workforce will become smaller. Most of the surveyed employers believe that the level of qualification of available workers is adequate or better. This is not unusual since most firms used workers with comparably lower skill levels than firms applying modern methods.

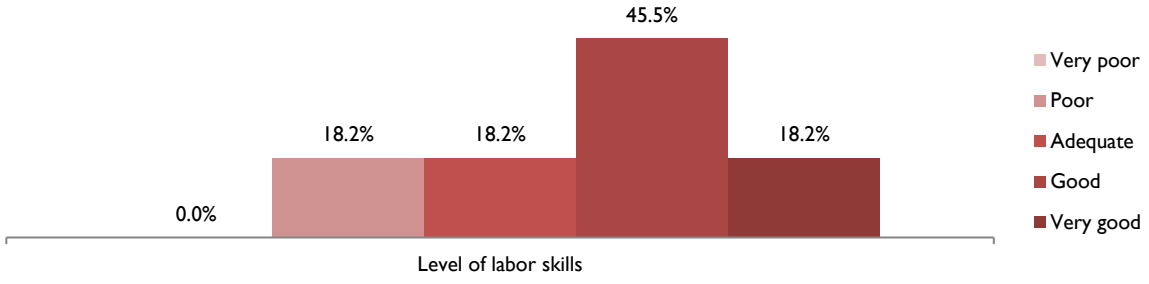
Figure 130: Perceived Sufficiency of Labor Force



Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

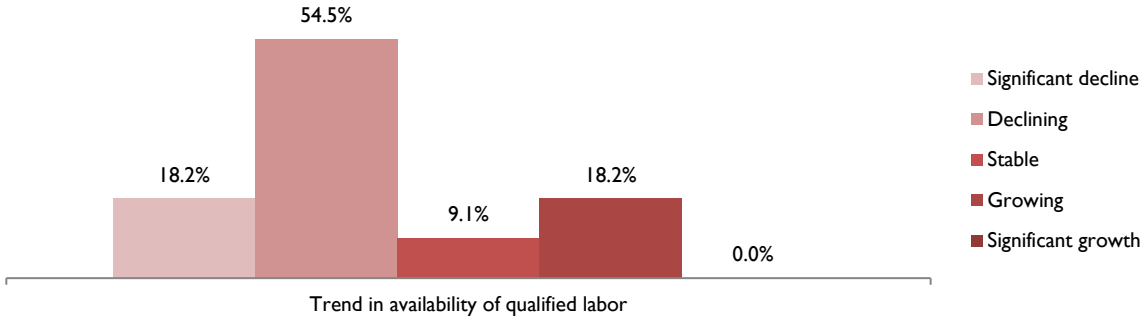
Another factor affecting workforce sufficiency is that many young people are less interested in working in this traditional sector.

Figure 131: Estimated Level of Qualification of Labor Force



Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

Figure 132: Estimated Trend in Availability of Qualified Labor Force



Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

8.2 SECTOR GROWTH POTENTIAL

SECTOR ACHIEVABLE EXPORT GROWTH

Access to export markets is enabled through Ukraine's Free Trade Agreements. Ukraine has concluded free trade agreements with:

- Deep and Comprehensive FTA with the European Union;
- The European Free Trade Association (Switzerland, Norway, Iceland and Liechtenstein);
- Azerbaijan;
- Uzbekistan;
- Tajikistan;
- Turkmenistan;
- Georgia;
- Montenegro;
- Macedonia.

Negotiation processes on bilateral FTAs between Ukraine and Canada, Turkey and Israel are still under way.

EBRD's recent report includes analysis and findings on growth in global markets. The report looks at a wide range of markets but excludes former Soviet Union countries due to the uncertainty of future relations with Russia and the trading bloc lead by it. However, the data shows that although the Russian and CIS market has contracted, there are still sales being made to this geographic area.

According to the EBRD report, the largest furniture market in terms of trade value is Asia/Pacific, a market with a low propensity to import, followed by Europe, which is quite open to imports and has one of the highest consumption rates in the world. North America is a highly integrated region with trade carried out between countries in the region. Of the smaller markets, which

include South America, Africa and the Middle East, the Middle East is a prosperous market with large investment in construction and consumption. Notably, half of its consumption comes from imported products. The report compares growth rates in the different regions. Findings from the report are summarized in the table below. Overall, the report states that furniture market perspectives are generally positive, and growth is expected in all geographical areas.

Table 24: Potential Export Markets

REGION	SHARE IN GLOBAL MARKET CONSUMPTION, 2017	REGIONAL FURNITURE CONSUMPTION 2017/11	REGIONS OPENNESS TO IMPORT, 2017	COMMENTS
Asia and Pacific	44%	+33%	2%	Low propensity to import. China largest share, followed by India.
EU 28	25%	-17%	17%	Highly integrated region for trade. High per capita rate of consumption of furniture. Expected to grow.
North America	23%	+30%	34%	Highly integrated region with trade between NAFTA members. Forecasts of moderate growth.
South America	3%	-31%	13%	Region affected by political and economic crises.
Middle East	3%	27%	54%	Imports low price furniture from Asia, and Italy, Germany and USA for upper end. Volatile region.
Africa	2%	+7%	60%	Market still underdeveloped with interesting prospects.

Source: "*Roadmap for the development of the Ukrainian furniture sector*" CSIL Milano for the EBRD, 2018

As evident from the analysis of Ukrainian exports, the mix of exported products to the major markets, mainly Poland and Germany, includes seats and parts thereof, furniture, and mattress support and bedding. Some of Ukraine's producers are already integrated into the Western production system and are clearly supplying parts of furniture, such as seats, as well as complete products. Numerous Ukrainian producers are owned by EU investors and sell their products in EU markets.

According to the ITC's methodology for estimated untapped potential of exports, the total untapped potential for both the wood processing and furniture sectors is estimated to be US$366 million. In the case of the furniture sector, potential growth corresponds to over 50% of current exports.

A group of key informants in the furniture sector were surveyed by CEP on their expectations of growth in export markets. There results showed mixed expectations. 27.3% believed that markets will grow in value terms and the same proportion believed they would stabilize. A significant proportion, if not the majority, believe they will decline. Expectations are a little better in relation to volume growth, with 18.2% expecting growth and 36.4% stability in demand for

exports. 45.5% reckon export volume will decline. Thus, the Ukrainian producers that took part in the survey, have modest growth expectations.

SECTOR SCALABILITY

Wood processing and furniture manufacturing face related, though somewhat different, challenges in adapting to market demands in the domestic and export markets. The following scenarios merit consideration:

- Reduction in demand for processed wood products and furniture. This is not expected and should be considered least likely. It could happen if there were a major crisis and significant deterioration of the economy. In such a situation, producers would need to downscale, likely resulting in less resilient firms going out of business;

- No change in demand. This is likely closer to what many players are expecting, particularly with respect to the domestic market, though there is some optimism in relation to expansion of volume of furniture exports, possibly from continued trade in the mix of products currently exported to EU markets. In such a situation, the production system could be expected to function much as it does now, except that the lack of growth might impinge negatively upon companies that had recently made capital investments and need cash flows to pay for them;

- Growth in demand. As indicated, there is some optimism in increased export market demand. Some of the growth would continue as a result of the integration of domestic production systems with those of EU partners. The ability to respond to sophisticated customers in EU markets will require design and innovation, improved manufacturing to achieve required volumes, competitive prices, and the application of marketing and promotion methods with which Ukrainian producers are currently unfamiliar. Domestic market demand for higher quality Ukrainian products will grow if the economy develops and, as discussed in an earlier section, this will also increase the number of sophisticated buyers, which in turn will also require new skills and capabilities, such as innovation, effective promotion and distribution;

- Disruption in the market resulting from the entry of IKEA. As discussed earlier, the entry of IKEA into the market would likely change the fortunes of many producers. Some producers would benefit from opportunities to become suppliers to IKEA, but many would lose out from the restructuring of the market as new competitively priced, relatively good quality and widely available products begin to compete with the products from small manufacturers. This would not only displace many domestic producers but also decrease independent retailers' and online suppliers' market share.

The following table is based on an assessment of the sectors' growth and scalability in proportion to changes in demand: Poor describes situations for which the data indicates that the sector is ill-

prepared to adapt to growth and could fail; Satisfactory indicates that there are sufficient resources, capacity and know-how to meet the challenges, although upgrades may be necessary; Good indicates that the sector would adapt well.

The assessment of scalability is simplified by considering:

- Factors of production, mainly materials that are industrial inputs. Note, access to finance and investment is not included, since this is generally poor for SMEs across all sectors;
- Workforce;
- Production capacity, plant and equipment;
- Distribution channels, with a focus on distribution of finished goods;
- Related services providing inputs to the wood sectors.

Scalability is assessed for wood processing and furniture. An additional column shows opportunity for improving scalability through the application of technical assistance and improving access to investment and financing.

Table 25: Sector Scalability

	CURRENT PROSPECTS FOR SCABILITY IN WOOD PROCESSING	CURRENT PROSPECT FOR SCALABILITY IN FURNITURE MANUFACTURE	OPPORTUNITY FOR IMPROVEMENT THROUGH SME TECHNICAL AND FINANCIAL SUPPORT
Supplies of raw materials/industrial inputs	**Good.** There are ample supplies of raw wood, which should continue unabated, particularly if good practices are applied in forestry management and the alleged illegal logging is brought under control. If not, this would tarnish the wood sector's image and affect export readiness. There are many enterprises in wood-processing, the larger of which are particularly well equipped with modern equipment.	**Satisfactory:** There are ample supplies of raw wood for the larger manufacturers with own processing facilities. The wood-processing industry is reckoned to have potential to increase production of outsourced parts and components in response to growing domestic demand (as described in the column on the left). Alternative sources have been established and Ukraine is also able to source industrial supplies from trading partners in the EU (Poland), CIS (Belarus). Turkey etc.	Improvement of supply of raw materials through reform of the operations of the state institutions monopolizing raw material supply. Improvement of supply chain management and logistics in wood processing and furniture manufacturing. Development of supply chain financing.
Workforce	**Satisfactory:** Wood processing has a larger workforce. However, production of quality semi-finished products requires use of modern plant and equipment and this would require continued availability of labor. Ukrainian processors employ more	**Satisfactory:** Furniture manufacturers are concerned about availability of workforce and skills, but this is based on current productivity and work practices. Ukrainian manufactures employ considerably more workforce on average than EU companies, thus there is potential for improving productivity through	Improvement of vocational training, workforce training. Potential for alignment of training in vocational education and training schools and academia with industry needs. Improvement in workforce organization to increase productivity per worker in both sectors.

	on average than modern facilities in the EU and there is scope for rationalizing workforce and using fewer but with the needed skill levels.	better use of existing workforce. Automation enables production at a faster rate without a proportional increase in workforce size. However, producers without modern equipment and greater dependence on labor would either have to upgrade production facilities or to attract new workforce, which could be a challenge and could increase costs for them in having to pay higher wage bills. The attraction of well qualified cadres required when new technologies are introduced is hampered by the unattractiveness of the sector to students. Thus, adjusting skills implies investment in workforce to improve skills, including training of production personnel, as well as improvement of in-house capacity in management and specialized functions such as design.	
Production capacity, plant and equipment	**Adequate:** The production and machining of panels requires the use of special machinery. Higher volumes of production would provide economies of scale. Processors without modern automated equipment would need to upgrade to respond to greater demand.	**Poor:** For the majority of players in the sector scalability is poor since these are very small enterprises with unsophisticated equipment and methods. The more advanced manufacturers with automated machinery and spare capacity may be able to cope with increased demand relating to volume and quality requirements of new buyers. IKEA, should they appear would necessitate shifts in approach to production. For the majority, manufacturers without modern equipment, there would be a need to upgrade, to improve productivity and remain in business against the competition. This implies investment in technology, skills and management systems, and implies access to funding (which is known to be a challenge). Weak inter-firm collaboration militates against improving capacity through collaborative production.	Manufacturing advisory services and improving access to finance and investment in production technologies**.** Improvement of collaboration between firms through clustering, including facilities and services sharing for small firms.
Distribution of processed/finished goods	**Poor:** Greater demand will impose new demands on logistics on suppliers of processed wood industrial inputs in domestic markets. Logistics is reckoned to be major weakness. Distributors of product to export markets tend to be larger foreign owned	**Satisfactory in Domestic; Poor in Export**: Few producers are prepared for the challenges of increasing demand in export markets and distribution into them with the exception of some that are already integrated into these markets. With regards to domestic markets domestic distribution (wholesale and retail) system is relatively	Improvement of logistics as part of supplier development. Development of new models for high value specialized distribution and sales of furniture in domestic and foreign markets, including adoption of modern enabling technologies such as use of IT and social media research

	firms that have tackled distribution problems.	unsophisticated and would likely function as is faced with increased domestic demand but would face major disruption if IKEA enter the market. Exporters have weak linkages to foreign markets and rely on intermediaries.	for identifying customer preferences and markets.
Related services		**Poor to Satisfactory depending on size of enterprise.** Some key related services include: workforce, design, quality conformity assessment, marketing and promotion. The use of modern equipment requires access to knowledge intensive services including market information services, innovation support, IT and industrial engineering. Although available in Ukraine these are used only by the more advanced firms. Entry to export markets will require enterprises to demonstrate compliance with technical requirements, which could be a major challenge for smaller enterprises.	Improvement of collaboration between specialized services and firms e.g. design. Support to innovative firms providing services to the sectors. Improvement of collaboration between firms through clustering (or export consortia) including facilities and services sharing for small firms. Support to EPO to promote Ukrainian processors and furniture producers in targeted foreign markets. Financial incentives could be provided to SMEs to use specialist services e.g. design, quality management and product certification etc.

SECTOR INVESTMENT POTENTIAL (FOREIGN AND DOMESTIC)

There has been relatively little domestic investment in the wood processing and furniture industry and there are relatively few companies using modern technologies and systems. Foreign investors have invested in past years in wood processing and furniture production. Data shows a slight negative FDI trend (-0.3% p.a. in 2013-2017), but there has been growth in domestic investments (10% p.a. in 2013-2017). Local producers of wood and furniture claim that it is difficult to get funding.[379]

There are already several examples of foreign investment in the wood and furniture manufacturing sectors (for example, from Poland, Denmark, Luxembourg) and furniture producers in Ukraine. The outcome is that Ukraine products are already integrated into production systems in the EU through such companies. If it is accepted that there are opportunities for growth in export markets, as well as in the domestic market from economic growth and the entry of IKEA, then the investment gap means that there are opportunities to attract new investment and producers will look to opportunities in Ukraine particularly as operating costs for Central European producers such as Poland increase.

DOMESTIC MARKET

[379] CEP Interviews, Vasyl Hrytsak, Oleksandr Dudyak, Director, Deputy Director, Tercom, Kyiv, December 17, 2018

As shown in section 8.1, there has been considerable contraction of the domestic market for furniture and to a lesser extent in wood processing. The general factors affecting demand in furniture markets include:

- Growth in purchasing power;
- Residential construction activity;
- Rate of household formation;
- Furniture substitution rate.

When applied to the Ukrainian domestic market, the following must be noted. Ukraine's demography is a diminishing population, decreasing to approximately 44 million from over 52 million in the mid-1990s. Ukraine has a negative population growth rate of -0.4%, which is very low and impacts household formation. Ukraine's urban population had been growing over the past decade but has stabilized since (around 69% of the population living in cities compared with the European average of 73%). Half of the population lives in small cities, and the other half in large. There are few medium sized cities.

The purchasing power of consumers has been undermined by high inflation and real disposable income has been reducing. An analysis of furniture consumption over 2010-17 in the EBRD report shows that there has been a significant decline in consumption in real terms, although 2017 appeared to show a reversal in the trend.

The last big construction boom occurred in 2011 when the country was preparing to host the Euro 2012 football championship. Subsequently, the pace of construction began to decline. Kyiv accounts for about one third of new residential space. It is reported that there is currently an oversupply of property on the market. As suggested in the EBRD report, purchases were held back during the economic crisis and will only resume if confidence is restored in economic growth prospects and salaries increase. Current projections for GDP were recently revised down in forecasts by the IMF.

The aforementioned conditions hamper growth, and production and trade data show that there has been a significant contraction in the size of the domestic market in value terms.

In terms of purchasing priorities, the EBRD report refers to the following in descending order for purchases of furniture on domestic markets: modern styles, price, materials. Thus, an increasing preference for modern style has been observed, even though classical style is present. Traditionally solid wood was preferred in Ukraine, but nowadays there is interest in WBP (chipboard), since furniture made from this product provides opportunity for greater color and shape diversity. Moreover, WBP is cheaper. Consumers of luxury furniture prefer foreign brands.

In general, the following observations are made in the EBRD report about market segmentation and future sales:

- The high end of the market (about 15%) will include imported furniture from high-value producers (such as Germany and Italy)
- Medium market (estimated to be around 50% of total) will be served by local producers selling through direct sales and independent stores
- Low end of the market (about 35%) will be served by lower quality producers as well as imports from Asia.

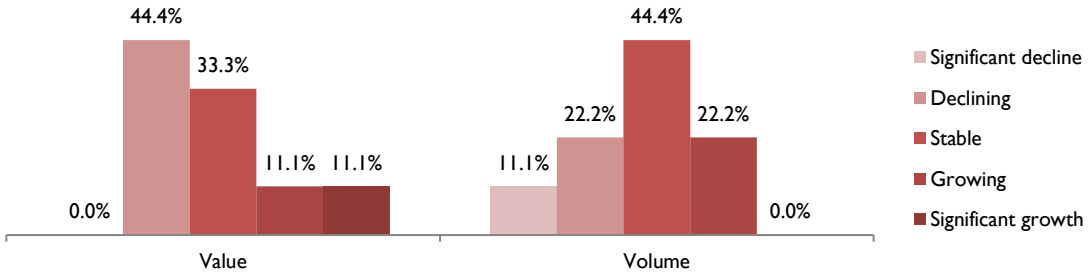
Figure 133: Perceived Main Competitors in the Domestic Market

Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

A notable development that should be considered moving forward is the possibility of IKEA entering the Ukraine furniture distribution market. This will be a disruptive factor, as has been evident in other geographical markets that IKEA entered, and the implications must be assessed.

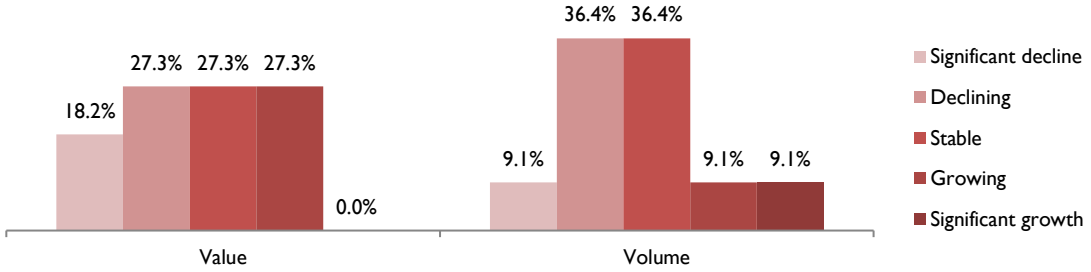
A group of key informants in the furniture sector were surveyed by CEP on their expectations of growth in domestic markets. The results are shown in the charts below. They show that 78% of key informants expect that domestic markets will decline in value terms, although a majority (67%) believe that exports will either be stable or grow in volume terms.

Figure 134: Expected Trend of Domestic Sales



Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

Figure 135: Expected Trend of Foreign Sales



Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

Although, the domestic market contracted, but the potential still exists for market growth driven by furnishing new residential and commercial premises. Key informants are generally pessimistic about market growth, but economic growth would encourage spending on new residential properties, many of which are currently standing unoccupied. This could be fueled by the return of immigrants if conditions of employment and wages improve. The growth in the spending power in the middle segment would encourage the purchase of domestically manufactured high-quality furniture. Some real estate market reports project a growing market in upgrading old properties because of the "gentrification" of young professionals. Product quality and design improvements could potentially encourage consumers to purchase domestic purchases instead of high-quality furniture from West European countries. Improvements in productivity and leaner manufacturing could help achieve competitive prices and improve profitability for high-quality domestic products. Prospects for domestic market growth in the near term are reckoned to be moderate despite pessimism amongst stakeholders.

Technical Standards and Product Quality

As observed in this report, EU markets are of growing importance to Ukraine, particularly because of proximity and the opportunities offered by the DCFTA (Deep and Comprehensive Free Trade Agreement with the EU). However, timber products can only be sold on the European market if they comply with several European regulations, such as the European Union Timber Regulation (EUTR), and several product safety requirements. Aside from legal requirements, buyers often ask for sustainable forest management certification (Forest Stewardship Council, FSC) and for some premium or niche market requirements like ISO or Eco Label.

Currently, European buyers consider sustainability certification important, and EUTR is obligatory. In the future, consumers will ask for even more sustainable products. Regardless of the delays in implementation in many countries, most large and professional buyers comply with EUTR requirements and ask their suppliers to prove legal origin of timber. Compliance is especially common in Northern and Western European Union countries where there is a strong commitment towards legality and sustainability. Following the FSC emergence, several certification programs were developed and are applied in North American markets as well as

other parts of the World. **Figure 137** below shows some of the main technical requirements for trading timber products in the EU and international markets.

Figure 136: EU Market Requirements, Obligatory to Niche Compliance Requirement

Source: CBI Ministry of Foreign Affairs

- The European Union General Product Safety Directive applies to all consumer products.

- ETR: The European Timber Regulation came into force in 2013 and aims to ensure that no illegal timber is placed on the EU market from either domestic European or imported sources. This is obligatory for all timber sold in the EU, and distributors are required to check compliance with this;

- REACH: The regulation "Registration, Evaluation, Authorization and Restriction of Chemicals" prohibits the use of preservatives for certain types of wood products, with some exceptions. Note, European regulation does not allow the use of these preservatives, with some exceptions;

- CE marking: The marking is a certification mark that indicates conformity with health, safety, and environmental protection standards for products sold within the European Economic Area (EEA). The marking is the manufacturer's declaration that the product meets the requirements of the applicable EC directives. Timber or timber products that are permanently incorporated into construction works must be CE-marked. Ukrainian exporters exporting directly to EU markets must comply with this requirement;

- The Forest Stewardship Council (FSC) promotes environmentally appropriate, socially beneficial, and economically viable management of the world's forests. FSC chain of custody tracks FSC-certified material through the production process, from the forest to the consumer, including all successive stages of processing, transformation, manufacturing and distribution. As a market mechanism for making forestry more sustainable, FSC has been accepted widely in Europe and North America as a mechanism for guaranteeing sustainable timber sources. Note, it is alleged that in Ukraine the

mechanism works only nominally and does not play its role. The reasons for this include low-quality work of several audit firms and the passive role of civil society;

- ISO 4001 considers multiple aspects of a business, including procurement, storage, distribution, product development, and manufacturing, from the standpoint of reducing its impact on the environment. ISO management systems certification may be attained by Ukrainian firms willing to make this investment;

- Eco-labels not only focus on sustainable sourcing, but also on other aspects of the products: processing (for instance, energy consumption, waste management), packaging and the use of chemicals. There are several eco-labels, but the most widely recognized is the European "Eco-Label", which is available for floor coverings and furniture. The number of certified products has grown in recent years. It is not clear to what extent this is applied in Ukraine.

Ukrainian enterprises in the wood and furniture sectors operating in the Eurasian Economic Union (EEU) should comply with the regional technical standards. Currently, the EEU includes: Russia, Armenia, Belarus, Kazakhstan, and Kyrgyzstan, and Tajikistan is currently undergoing the process of joining. One of the important steps in the process of integration within the EEU is the harmonization of technical regulations. The national regulations, such as GOST-R, STB, TR- or Kazakh GOST-K standards are replaced by the binding technical rules applicable to all members of the EEU. The aim is also to reconcile the EAEU's technical regulation with European standards. It is yet to be seen whether the new standards will be used to create technical barriers to trade for partners wanting to trade with the EEU.

The SFRA (State Forest Resources Agency of Ukraine) states that 3.92 million ha of forests are now certified in Ukraine (note, total forest area of about 9.5 million ha). According to the FSC risk assessment for Ukraine, illegal logging is a considerable problem (Regional Environmental Center, 2010). It is observed that Ukraine is a complex environment for introducing FSC because of the imperfection of the current legislation and the existence of conflicts between laws (FSC, 2018). The low efficacy of some legislation is not caused by the activity or inactivity of permanent forest users, but by multiple interpretations of the same laws (FSC, 2018). Internationally accredited bodies providing testing, inspection, and certification services, such as TUV, Bureau Veritas, SGS, are all represented in Ukraine and assist producers in demonstrating compliance. These bodies are also developing familiarity and expertise with the requirements of the Eurasian Economic Union.

All producers exporting products to EU markets should demonstrate compliance with the General Product Safety Directive and the EUTR. A wide range of exported processed wood products produced in Ukraine need to be CE marked and accompanied by producers' declarations of compliance with the technical requirements. Services of the quality assurance firms, such as those referred to above, are relatively expensive and only affordable to the relatively large companies. As shown in the table listing examples of some known producers, these companies have used these services to demonstrate compliance. New entrants into the export markets would need to do the same. Traditionally SMEs operating since the 1990s would have been familiar with the GOST-R.

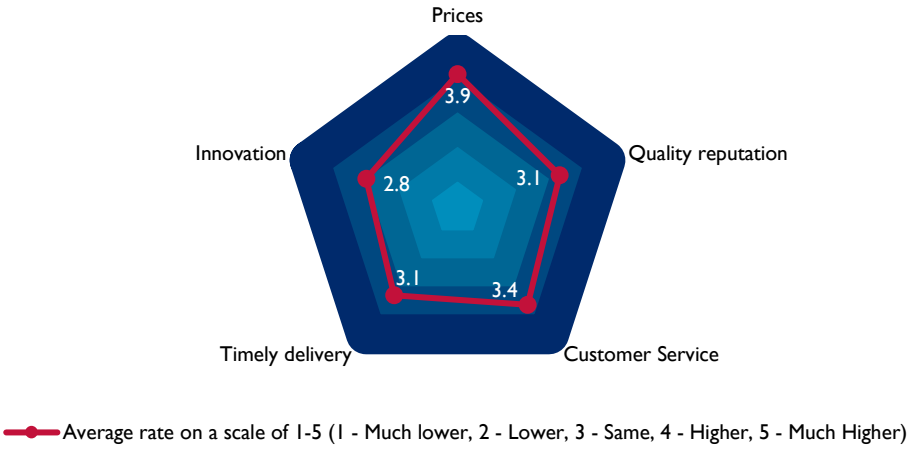
A few years ago, Ukrainian enterprises, especially those that worked with products used in the construction industry, such as plywood and lumber, adopted severe standards established in Soviet times. However, recently these standards have been gradually replaced by EU standards. Ukrainian wood and furniture companies have their own laboratories, which examine materials for hardness, glue strength and formaldehyde content. There are also certain general requirements for quality, including environmental certification. Ukrainian furniture producers typically have few compliance problems and even successfully execute orders for major international trading networks. However, it should be noted that many exporters are foreign owned.

The quality of Ukrainian furniture is comparable with the quality of furniture manufactured in other Eastern European countries (competitors). In general, furniture prices directly correspond to their quality. Furniture manufactured by the smallest companies has defects typical for such production, such as lack of varnish coating, poor adhesion, and cheap fittings. According to a representative of one of the companies, Ukrainian furniture manufacturers should "*teach consumers to be attentive to quality*".[380]

Prices

The analysis of the wood and furniture sector in Ukraine showed that selling prices for furniture in Ukraine are generally competitive. In the domestic market, Ukrainian furniture prices are becoming more competitive with Chinese goods. The following chart shows surveyed companies' perceptions of imported products compared with domestically produced products. Companies point to the perception of keener prices offered by domestic producers.

Figure 137: Perceived Competitiveness of Domestic Products Compared to Imports



Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

[380] "*Roadmap for the development of the Ukrainian furniture sector*" CSIL Milano for the EBRD, 2018

8.3 SECTOR POTENTIAL FOR EXPORT MARKET PENETRATION

EXPORT COMPETITIVENESS FACTORS

Published information and a key informant interviews provide the following observations about trends in global furniture markets, including competition for high-quality hardwood (oak) products, innovative and multifunctional designs, compliance with ecological requirements and smart technologies built into furniture (e.g. tables that will charge smartphones, furniture with USB connections, furniture with built-in surround sound systems, coffee tables with touchscreen computer surfaces, etc.). These requirements are prevalent in markets with high spending on furniture, such as the EU, and have been drivers of innovation. Timber products on the European market must comply with several European regulations, such as the European Union Timber Regulation (EUTR), as well as several product safety requirements. Beyond legal requirements, buyers often ask for sustainable forest management certification (Forest Stewardship Council, FSC) and sometimes premium or niche market requirements like ISO.[381]

According to informants in the industry, the EU is a key market due to its proximity, size, the free trade agreement, and the trend towards integrated production systems in the West and East. As noted in the EBRD report, non-EU suppliers are losing price competitiveness in the face of competition from EU suppliers, partly due to the certification requirements for the EU single market. The following markets are indicated as having good growth potential:

- Eastern Europe (Poland, Lithuania): high growth rates of imports, well integrated into the value chain of the EU, geographical proximity, growing demand for completed and semi-finished products, prices in general favorable for Ukrainian producers;
- Germany, Great Britain, France, Spain: large furniture markets that tend to outsource some stages of production; a few market segments are price sensitive and are potentially open for imports.[382]

With regards to other markets, the report referred to Saudi Arabia and the United Arab Emirates, prosperous markets with higher growth rates than the EU making large investments in construction and increasingly demanding customized furniture items.

VALUE ADDED OF THE PRODUCT/SERVICE TO THE UKRANIAN ECONOMY

Wood processing and furniture provide a small contribution to the overall value added in the Ukraine economy. In the context of the Ukrainian economy, wood processing and furniture production (US$1.9 billion in 2017) occupy a relatively small share of the country's overall value-added generation, together comprising 0.84% of the total (US$660 million).

[381] CBI Ministry of Foreign Affairs

[382] "*Strategic export plan for furniture companies in Ukraine*" ITFC Ukraine USAID UKRAINE

As indicated earlier in the report, there is a significant gap between value added being achieved in Ukraine and in the EU. For example, in Poland, the value added for furniture manufacture is EUR12,573 per employee (EU-27 EUROSTAT, 2010) which is more than double that in Ukraine. Given the opportunity for improving productivity through modernization and improved work-practices, there is potential for achieving significantly higher value-added in the wood processing and furniture sectors.

During past years, since the introduction of the timber export ban, some processors have taken to semi-processing of wood to sell logs as processed products, thereby overriding restrictions on export of unprocessed wood. The opportunities for conversion of wood into higher value-added products such with elaborate features rather than sawn logs provides for higher value addition, as does expansion in the production of high value furniture such as that made from hardwood.

SECTOR COMPARATIVE STRENGTHS AND WEAKNESSES

According to the EBRD report, there are several characteristics that determine the competitiveness of Ukrainian products in target export markets. They are 1) furniture design, 2) understanding of target audience preferences, 3) price and 4) quality.[383]

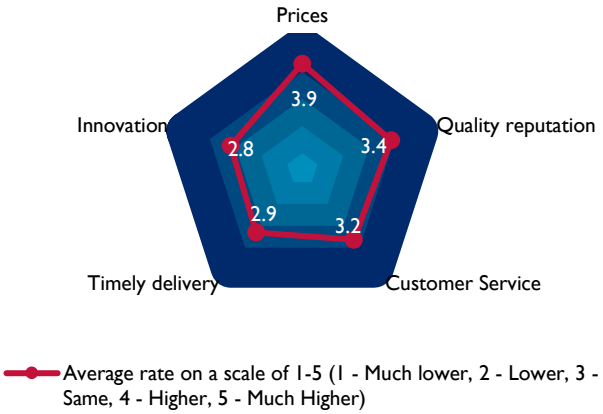
Competition within the EU is increasing. This is due to several factors, including 1) consumer purchasing approaches trending towards more fragmented purchases, as well as individualization and search for affordable designs, 2) concentration of the production system, 3) concentration and internationalization in retail sales of furniture and 4) rapid growth of production in Eastern Europe (Poland, Romania) and increased price competitiveness in Western European markets.[384]

The following table summarizes findings affecting competitiveness. Surveyed firms were asked to score themselves on the importance of competitiveness factors and their perceived current competitiveness in export markets. Firms were also asked what they aimed to achieve in 5-10 years, their perception of the importance of factors over the next 5-10 years and to rank the biggest challenges (see **Figure 139, 140**).

[383] For example, CEP Interviews, Liubov, CEO, Hommie Interior, Kyiv, December 20, 2018, Oleksandr Soloviov, Co-founder, Drommel Furniture, Kyiv, December 22, 2018, and Oleksandr Soloviov, Co-founder, Drommel Furniture, Kyiv, December 22, 2018

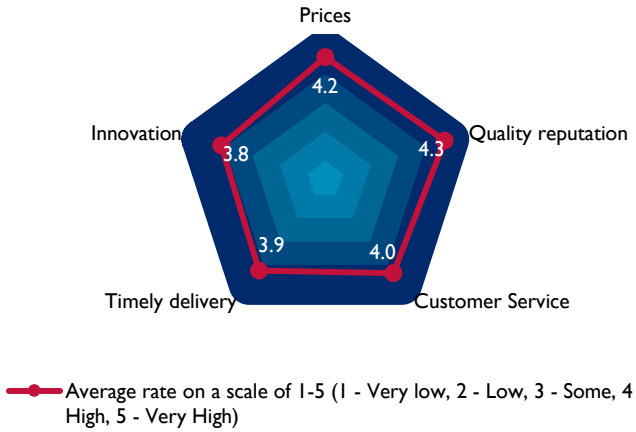
[384] "*Ukrainian Furniture Industry Roadmap for Competitive Development*" CSIL Milano for the EBRD, 2018

Figure 138: Perceived Competitiveness of Ukrainian Products Abroad



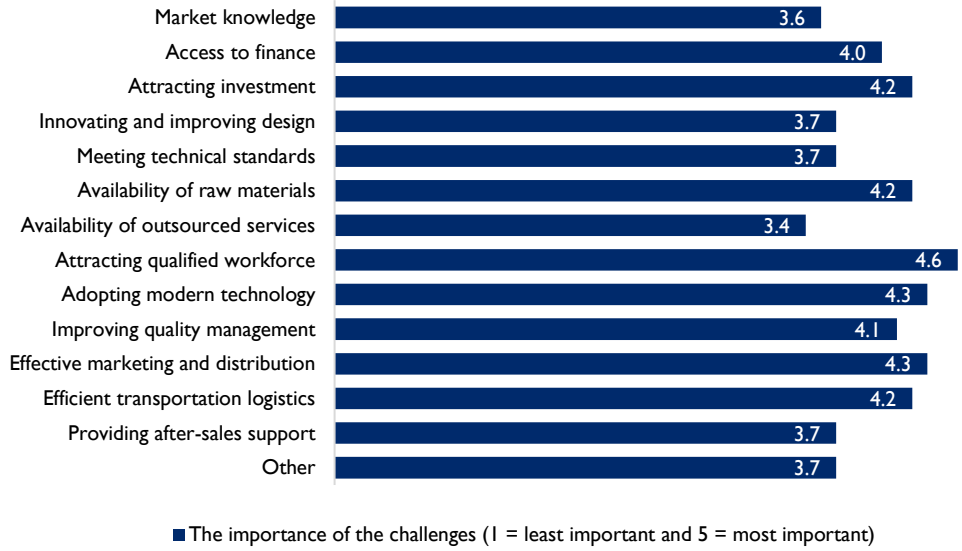
Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

Figure 139: Estimated Importance of Competitive Factors in 5-10 years



Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

Figure 140: Perceived Challenges in Improving Competitiveness



Source: CEP Online Survey, Wood and Furniture industry survey respondents, January 13-20, 2019

The following table of competitiveness factors and corresponding observations are relevant to both domestic and export markets. The first time a firm encounters foreign competition is most often in its domestic market. Thus, improving competitiveness domestically can be a good approach to improving readiness to export. The table includes a column indicating the importance that firms attached to dealing with specific challenges in the future.

Table 26: Sector Competitiveness Factors

	STRENGTHS	WEAKNESSES	RELATIVE IMPORTANCE OF CHALLENGE TO SMES/PERCEIVED NEED TO IMPROVE COMPETITVE POSITION IN MARKETS
	1 -Much lower, 2 – Lower, 3-Same, 4-Higher, 5- Much Higher (for surveyed companies)		1 -least important, 5 – most important (for surveyed companies)
Market information, market linkages and marketing.	Strong market linkages in Poland.	Market knowledge is poor. *Weak market linkages overall in EU and other target markets.* Weak in customer relationship management.	Access to market knowledge (3.6) and marketing is considered important (4.3)
Design and Innovation		Poor organization design services in Ukraine resulting in less creativity. Perception is that Ukrainian firms' innovation is lower compared with Imported products and products in export markets.	Improving design and innovation is considered important (3.7).
Raw materials and industrial inputs	Availability of high-quality wood for which there is high demand in markets seeking high quality natural wood furniture, as well as supply of other parts and components from		Raw materials access is considered to be of importance (4.2)

	domestic sources and imports.		
Workforce		Reducing availability of skilled labor.	Attraction of skilled workforce of high importance (4.6)
Production technology and organization of production		Only the larger firms have invested in modern technologies. Average productivity in Ukrainian firms is low and intense use of labor.	Adopting new technologies is important (4.1). Investment important (4.2)
Prices	Price advantage compared with imports and in export markets. Ukrainian prices are on average 10-15% lower than Polish furniture as a benchmark for comparison.	Image may result in customer's reluctance to pay high prices. Imported Chinese products more competitively price.	Firms believe that price is currently important but expect it to be a less important in 5-10 years' time.
Quality and Technical standards		Quality is lower compared to imports and products in export markets.	Achieving technical standards (3.7) Improving quality management is important (4.1)
Logistics, Distribution, Sales		Cost of delivery high compared with EU competitors. Low performance on timeliness of delivery. Customer service is lower compared with importers and competitors in export markets.	Important to improve logistics (4.2), and sales support (3.7)
Access to Finance and Investment		SMEs in general are challenged in accessing funds and the smaller they are, the greater the problem.	Access to finance (4.0) and investment (4.2) important.

8.4 SECTOR JOB CREATION POTENTIAL

In total, 80,400 people are officially employed in the furniture and processed wood industry: 35,300 in the furniture sector (0.6% of total country employment in 2017) and 45,100 in the processed wood sector (0.76%). Employment trends are diverging among the two sectors. In the furniture sector, the number of jobs contracted by 2.2% p.a. from 2013 to 2017. In the processed wood sector, the number of jobs increased by 3.6% p.a. over the same time period.

Productivity in the Ukrainian wood processing and furniture sectors is estimated to be about 3 and 4 times lower, respectively, than in the EU. The average Ukrainian wood processor employs approximately 15 workers compared to 6 per processor in the EU (2010 data). The average size of a Ukrainian furniture company is 28 employees compared to 8 for EU-27 SMEs (2010 data). This rough calculation (which has not been adjusted for structural differences, though the EU sectors are also SME dominated) indicates that EU SMEs are not only more productive but much leaner.

The need to improve productivity and adopt improved technologies is likely to prevent the growth of an unskilled or semi-skilled workforce but could create opportunities for skilled workers and well educated, highly skilled commercial and technical specialists, were they to be

attracted to the industry. Thus, the net result of modernization of the industry would be a leaner workforce with more highly skilled workers and specialists.

8.5 SECTOR POTENTIAL FOR ENTREPRENEURSHIP AND INNOVATION

EVIDENCE OF SECTOR CHAMPIONS FOR INNOVATION

Several key informants suggested that there are no market leaders; many companies have shifted to the lower pricing segment after the crisis.[385] Others point to the existence of innovative design firms and effective marketing innovators as evidence of market leaders.[386] Some companies with foreign investors and some of the larger firms that have succeeded in breaking into export markets, such as the designer-led consortium of firms targeting the Canadian market, are cases in point. Although there are no noticeable leaders supporting industry development and innovation, nor organized furniture clusters, this situation could change with the entry of IKEA into the market.

ACCESS TO FINANCE FOR GROWTH

All of the interviewed companies believe that access to finance is a critical issue. Loans have low availability, and interest rates on commercial bank loans start at approximately 17% but can be higher, depending on the company's risk profile. Ukraine ranks 31st in the world in the cost of commercial banks' loans ranking.[387]

The surveyed companies reported that they are offered loans with interest rates of about 25%. Considering the devaluation of local currency in relation to the euro, the real cost of financing investments is extremely high. Some foreign suppliers (for example, equipment) provide loans for the purchase of their goods. Nevertheless, these loans are denominated in foreign currency and are not financially attractive, given administrative costs and the cost of the guarantee.[388]

Currently, local producers of wood and furniture prefer self-financing as well as grants from the EBRD, WB, EU funds and bank loans.[389]

All of the interviewed local producers agreed that additional outside financing will be crucial for the sector to upgrade. Moreover, manufacturers stated that it is difficult and unaffordable to get funding from banks and that the sector needs more grants from international institutions.[390]

The EBRD, EIB and IFC provide direct or indirect financing loans through Ukrainian intermediary financial institutions to Ukrainian SMEs. They use a wide array of financial instruments, including

[385] CEP Interviews, Yaroslav Kamyenyev, Founder, Blanche, Kyiv, December 12, 2018
[386] CEP Interviews, Liubov, CEO, Hommie Interior, Kyiv, December 20, 2018
[387] *"Roadmap for the development of the Ukrainian furniture sector"* CSIL Milano for the EBRD, 2018
[388] Ibid
[389] CEP Interviews, Oleksandr Soloviov, Co-founder, Drommel Furniture, Kyiv, December 22, 2018 and Yaroslav Kamyenyev, Founder, Blanche, Kyiv, December 12, 2018
[390] Ibid

loans, guarantees, direct investments and export credits. Direct target funding is provided only for certain minimum investment amounts and can be tied to a specific sector. SMEs can receive loans through intermediary financial institutions. Development agencies provide loans to local banks, which then lend money to local businesses. Intermediary financial institutions participating in such programs are meant to offer the same concessional terms for end-borrowers that they receive from development agencies (for example, lower interest rates, longer maturities, lower security requirements).

In this regard, there are currently several initiatives in Ukraine. The EU-funded EU4Business program provides a 70% guarantee for each loan issued by participating banks - Ukrgasbank (EUR8.75 million), Oschadbank (EUR8.75 million), Raiffeisenbank Aval (EUR12 million) and ProCredit Bank (EUR11 million). There is also the SME Program, jointly implemented by the EBRD, KfW and the EIB for the period of 2016-2030. This program has recently been extended to ProCredit Bank (US$68 million). There are no targeted funding initiatives for the furniture sector.[391]

POTENTIAL FOR ENTREPRENEURSHIP AND INNOVATION

There is no evidence of the existence of a well-functioning entrepreneurship ecosystem to support innovation and development within the wood sectors, and companies believe the wood sector lacks innovation. Were an ecosystem to exist, it would involve collaboration amongst firms, research institutes, academia, vocational schools and training establishments, specialist services, including design and engineering, incubation and acceleration services, investment and finance institutions and government organizations to tackle the industry's common challenges. While an overall ecosystem does not exist, certain components of such a system do.

There are several universities (2 in Kyiv and 1 in Kharkiv) which offer teaching in furniture design, but there is no evidence of collaboration with the sector. There are independent design offices, but no platform for connecting designers to furniture producers. The universities and research institutes are not effectively (deeply) engaged in the ecosystem and in the sector, while the sector's companies do not have time nor resources to work (do programs) with universities. [392] Sometimes the company representatives collaborate with vocational schools.[393]

The Ukrainian Association of Furniture Manufacturers includes over 160 members and provides services, including networking, lobbying and market research, and organizes competitions for furniture awards.

The Ukrainian Association of Industrial Automation was established to improve the application of modern production systems in industry.

The Export Promotion Office is tasked with providing support to exporters, but to-date has not developed any significant expertise in providing support directly to the wood product sector.

[391] "*Roadmap for the development of the Ukrainian furniture sector*" CSIL Milano for the EBRD, 2018
[392] CEP Interviews, Yaroslav Kamyenyev, Founder, Blanche, Kyiv, December 12, 2018 and CEP Interviews, Oleksandr Soloviov, Co-founder, Drommel Furniture, Kyiv, December 22, 2018
[393] CEP Interviews, Oleksandr Soloviov, Co-founder, Drommel Furniture, Kyiv, December 22, 2018

Thus, there are components of an ecosystem that could be organized to support collaboration, entrepreneurship and innovation; however, they have yet to be brought together. The sector has room for innovation, e.g. in such domains as CRM system or ERP system implementation.[394] Companies are already pursuing greater automation (order accounting, financial accounting, warehouse accounting, logistics, etc.). Moreover, there are companies that already provide ready-made solutions, yet for many companies these solutions are expensive and difficult.[395]

AVAILABLE SKILLS

Although literacy and primary education levels in Ukraine are good, there is a dearth of workers with specific technical education. There are many unskilled workers in all regions of the labor market, but workers with special technical education are needed to operate modern high-tech factories.

All interviewed companies reported that they need more staff with specialized training. Such specialized knowledge is essential in various fields, including technical (woodworking professionals) and managerial (marketing, business planning, business expansion to the international level) specialists. Industry representatives noted shortages in production workers (mechanics and welders), who tend to move to Poland for work.[396]

Language is a significant barrier for companies that are planning to export their products, because very few managers speak Western European languages. Respondents also reported that employment in the furniture industry is not as popular as it was in the past. Young people are not interested in working in the sector, because they consider it obsolete with little added value. For example, the National University of Bioresources and Natural Resources of Ukraine managed to attract only 28 students per 60-80 places for woodworking courses. Several large companies (such as Blum, Kronospan, Hafele, EscadaM, Odek, UAFM, AMF and ViYar, as well as the main vendors of equipment) conducted trainings for their employees or clients.

All of the interviewed companies agreed that there is a strong relationship between potential sector improvement and skilled workforce availability.[397] The need for employee skill and competency development and improvement is one of the main limiting factors for the Ukrainian wood and furniture industry. One of local producers also noted the importance of developing such qualities as flexibility, creativity and accessibility.

Many constructors come from the Igor Sikorsky Kyiv Polytechnic Institute or Kyiv National University of Civil Engineering and Architecture. Specialists, such as mechanics and welders learn more from life experience than from vocational schools.[398] Industry representatives maintain that

[394] Ibid
[395] Ibid
[396] Ibid
[397] CEP Interviews, Liubov, CEO, Hommie Interior, Kyiv, December 20, 2018, Yaroslav Kamyenyev, Founder, Blanche, Kyiv, December 12, 2018, and Oleksandr Soloviov, Co-founder, Drommel Furniture, Kyiv, December 22, 2018
[398] Ibid

there are few universities or educational centers that can provide the necessary education. Consequently, companies provide employees with opportunities to further their education abroad or through company learning activities.[399] At this time there is no certification program for skills related to the wood product sector.

8.6 BUSINESS ENABLING ENVIRONMENT AND REGULATORY FRAMEWORK

LEGAL AND REGULATORY CONSTRAINTS

The future of the wood processing sector has been in the focus of public discussion in recent years. One of the main issues is the 10-year moratorium on finished timber exports, in action since 2015. This policy was supposed to stimulate wood processing inside the country. However, instead of creating goods with high value-added, enterprises began to produce sawing round wood logs and exporting them to the EU. Furthermore, according to the Worldwide Fund for Nature, a considerable number of those enterprises are small unregistered sawmills.

Recently, Ukraine has been criticized by international organizations and the EU for illegal logging. This poses a potential threat to its credibility as a supplier of FSC certified timber.

Connected to this issue is the continued state monopoly of the timber supply. Proposals have been tabled to introduce a system of concessions to private contractors for forest management, but this has been criticized by the wood processing sector, which fears private companies may abuse this responsibility.

One of the respondents mentioned a high level of social tax as another legal constraint. This key informant was sure that a "Decrease in social tax [would enable them] to employ more official employees".[400]

The continuing challenges of improving the overall business enabling environment will continue to be a disincentive to investors.

8.7 OTHER FACTORS

SYNERGIES WITH OTHER PROJECTS AND INITIATIVES

Most companies report that there are no initiatives or programs that can provide useful synergies.[401] There might be some value stemming from the Export Promotion Office, but communication is limited.[402] The Export Promotion Office may be useful in terms of information sharing and export trainings.[403] The Canadian donor program CUTIS has been working with

[399] CEP Interviews, Yaroslav Kamyenyev, Founder, Blanche, Kyiv, December 12, 2018
[400] CEP Interviews, Maxym Mezhinsky, Owner, Stojka, Kharkiv, January 10, 2019
[401] CEP Interviews, Yaroslav Kamyenyev, Founder, Blanche, Kyiv, December 12, 2018 and Liubov, CEO, Hommie Interior, Kyiv, December 20, 2018
[402] CEP Interviews, Oleksandr Soloviov, Co-founder, Drommel Furniture, Kyiv, December 22, 2018
[403] Ibid

furniture designers and manufacturers to penetrate the Canadian market. EBRD has carried out an assessment of the Ukrainian furniture sector and recently published a report on improvement needs. The EBRD's Small Business Advisory Services are able to provide technical assistance to manufacturers by providing experts on a cost-sharing basis.

ALIGNMENT WITH GOVERNMENT PRIORITIES

The furniture and wood processing sector is not mentioned in the Export Strategy of Ukraine 2017-2021. However, the sector is one of the priorities of the EBRD and EU4Business, which created a roadmap for the sector's development. In the furniture production sector, local producers mentioned bureaucracy ("packs of documents, customs brokers") as one of the factors holding them back from exporting.

POTENTIAL FOR FEMALE INCLUSION

Women and men are not represented equally in the industry. Business representatives state that 70-80% of jobs are occupied by men because they perform the main production.[404] The same proportion applies to different levels of wood processing and furniture making businesses (Leadership, Technical and Expert, Clerical and Laborer).[405] Women are usually involved in less physically intensive processes (sewing, painting, etc.) or business activities (marketing).[406] In terms of gender income disaggregation, women earn on average 11% less than men.[407] Reaching women in wood processing and furniture would require encouraging higher value added/decorative production. Shifting the representation of women in all aspects of the sector would require prolonged and significant resources, more so than in other sectors analyzed.

POTENTIAL TO INTEGRATE YOUTH

According to sector representatives, more than 50% of employees in wood processing and furniture are under 30.[408] This applies to both manufacturing jobs and design jobs.[409] However, the perception is that youth display only low to medium interest in the industry.[410] Nevertheless, companies are ready to hire unskilled young people and train them in-house.[411] This willingness could be particularly transformative for young people in non-urban centers with less access to skill-building resources and institutions.

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[404] Ibid
[405] CEP Interviews, Yaroslav Kamyenyev, Founder, Blanche, Kyiv, December 12, 2018
[406] CEP Interviews, Hrytsak Vasyl, Dudyak Oleksandr, Director, Deputy Director, Tercom, Ternopil, December 17, 2018, Oleksandr Soloviov, Co-founder, Drommel Furniture, Kyiv, December 22, 2018, and Yaroslav Kamyenyev, Founder, Blanche, Kyiv, December 12, 2018
[407] State Statistics Service of Ukraine
[408] CEP Interviews, Yaroslav Kamyenyev, Founder, Blanche, Kyiv, December 12, 2018 and Liubov, CEO, Hommie Interior, Kyiv, December 20, 2018
[409] Ibid
[410] CEP Interviews, Yaroslav Kamyenyev, Founder, Blanche, Kyiv, December 12, 2018, Hrytsak Vasyl, Dudyak Oleksandr, Director, Deputy Director, Tercom, Ternopil, December 17, 2018, and Liubov, CEO, Hommie Interior, Kyiv, December 20, 2018
[411] CEP Interviews, Hrytsak Vasyl, Dudyak Oleksandr, Director, Deputy Director, Tercom, Ternopil, December 17, 2018

8.8 SWOT AND DIAMOND ANALYSES

SWOT ANALYSIS

Figure 141: SWOT Analysis of Wood and Furniture Sectors in Ukraine

Strengths: Ukraine has ample resources of timber**.** The proximity of wood processors and furniture manufacturers to EU markets is a strength. Wood processing is characterized by a large number of SMEs but there are some relatively large players including foreign investors with quite

modern facilities. Processors produce a wide range of parts and components, produced from timber which is sourced locally, and there are ample, competitively priced supplies. Thus, micro and small manufacturers have access to machined parts that can be subjected to further processing and assembled into finished pieces of furniture and produce goods for the low-end of the market. In addition to these, there are small and medium sized manufacturers that are able to produce quality products for the middle segment of the market. Some of the manufacturers, particularly those linked to foreign investors/owners, have begun exporting to the EU, which is considered to be the most promising and nearest market.

Weaknesses: Micro and small sized enterprises, constituting the majority, in both sectors are not equipped with modern plants and productivity is low compared with EU producers. There is relatively little specialization amongst the small companies and little cooperation that could help meet higher volume orders. There is also little cooperation with designers. The industry has high logistics costs, an absence of specialized logistics facilities and lack of a skilled workforce exacerbated by migration of skilled workers to the EU. [412] Moreover, as in most other sectors, there is a lack of funding and high cost of borrowing from financial institutions.[413] The majority of SMEs are inexperienced in exporting and lack foreign market knowledge and linkages. Compliance with EU technical requirements is difficult for small producers. Manufacturers access domestic markets through a variety of distribution channels which are generally undeveloped compared with more sophisticated markets.

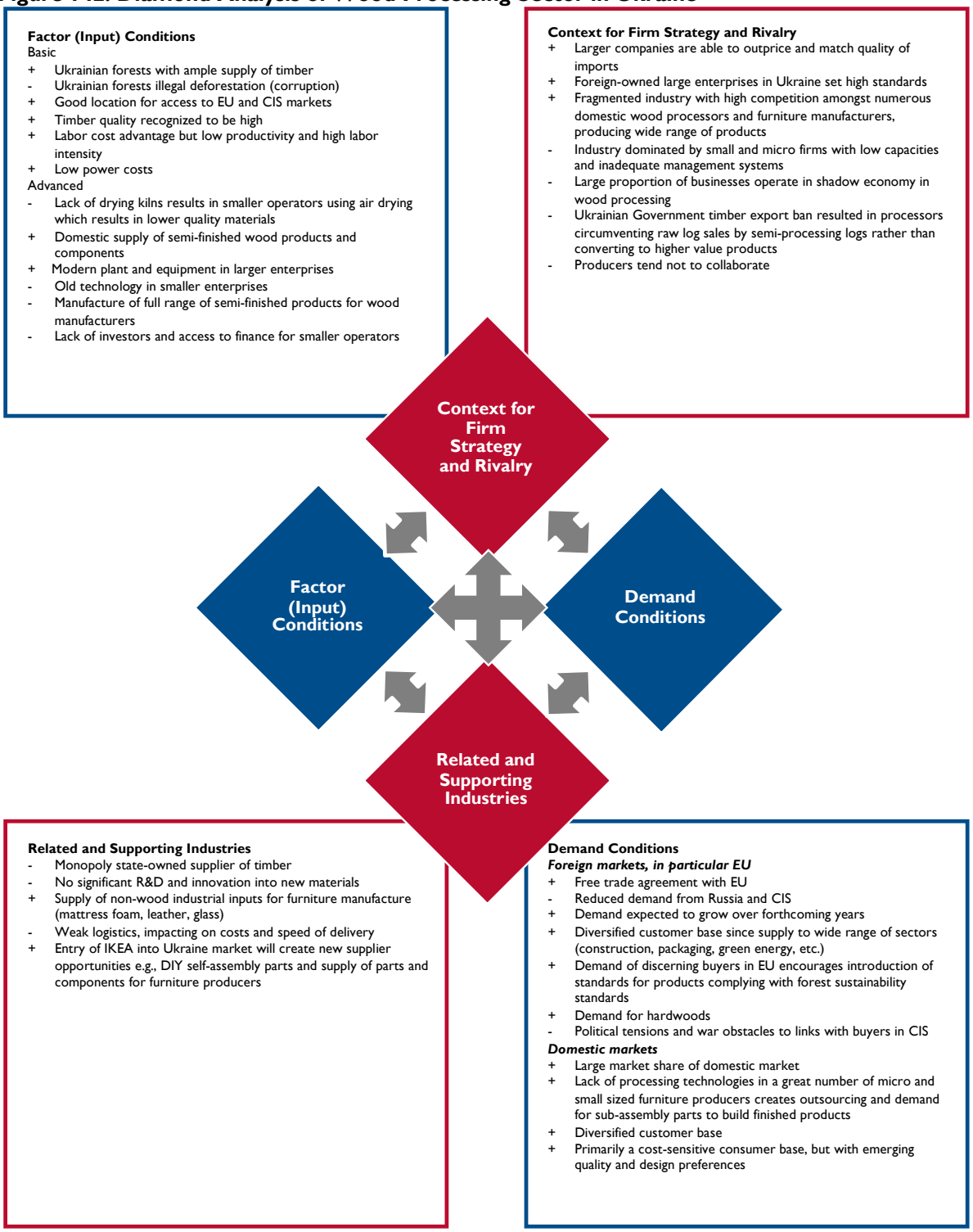
Opportunities: Agreement on a free trade area between Ukraine and the EU should facilitate the development of international trade in wood and furniture.[414] FTAs with other markets will also provide opportunities. Growth is expected in the EU market as well as opportunities in new markets such as Middle East. Although there has been a slowing down of the growth of the construction sector, the reversal of this trend and purchases of furniture for new dwellings as well as replacement that would occur with economic growth, will provide growth opportunities. [415] The anticipated entry of IKEA into the Ukrainian market would provide supplier development opportunities. There are a number of SME financing facilities provided by IFIs that could be utilized for financing modernization.

Threats: Conflict in the eastern part of Ukraine poses a threat to stability. Competition from Asia continues to be a threat to producers for the time. Entry of new players in the domestic market (for example, IKEA) would cause major disruption in the furniture manufacturing sector. Domestic market development will be limited by low purchasing power of a significant part of the population. Thus, migration of the workforce will continue to be a threat to workforce availability. Allegations of illegal sales of timber and abuse of FSC certification has cast a shadow on the wood processing sector and could impair potential for exporting.

[412] CEP Interviews, Yaroslav Kamyenyev, Founder, Blanche, Kyiv, December 12, 2018 and Oleksandr Muratov, Owner, Design Loft, Kharkiv, January 10, 2019
[413] CEP Interviews, Liubov, CEO, Hommie Interior, Kyiv, December 20, 2018
[414] "Roadmap for the development of the Ukrainian furniture sector" CSIL Milano for the EBRD, 2018
[415] State Statistics Service of Ukraine

DIAMOND ANALYSIS

Figure 142: Diamond Analysis of Wood Processing Sector in Ukraine



Wood Processing

Demand Conditions: DCFTA between Ukraine and EU opened new opportunities for Ukrainian producers. In the last few years the role of Russia and other CIS countries diminished while other markets, particularly Poland and Germany, have been growing rapidly. Political tensions and war obstacles to links with buyers in CIS. The foreign demand is expected to grow over forthcoming years which is generated by diversified customer base from construction, packaging, renewable energy and other sectors. Discerning buyers in EU encourages introduction of standards for products complying with forest sustainability standards. There is a high value hardwood segment of market abroad which Ukraine can satisfy.

Domestic market for wood processing products is large and growing. The consumer base in Ukraine also is quite diversified. Domestic consumers are primarily cost-sensitive, but with emerging quality and design preferences. Lack of processing technologies in a great number of micro and small sized furniture producers creates outsourcing and demand for sub-assembly parts to build finished products

Factor Conditions: Ukrainian forests produce ample supply of timber which quality is recognized to be high. At the same time the country suffers from illegal deforestation due to corruption. Ukraine poses a good location for access to EU and CIS markets. Ukrainian producers have labor cost advantage but low productivity and high labor intensity. Power, a major component of the costs, remains relatively low.

Product range of semi-finished wood products and components produced domestically is not enough for internal needs. Lack of modern drying kilns results in smaller operators using air drying which results in lower quality materials. Larger enterprises are mainly equipped with modern equipment while smaller plants rely on old technology. The sector suffers from the lack of investment. Large investors are not in a hurry to enter the Ukrainian market, while the existing SMEs do not have access to loan financing.

Related and Supporting Industries: State-owned forestry is a monopoly supplier of timber in Ukraine. There is sufficient supply of non-wood industrial inputs for furniture manufacture (mattress foam, leather, glass). Meanwhile there is no significant R&D and innovation into new materials for the sector. Weak logistics increases costs and reduces speed of delivery. Expected entry of IKEA into the Ukraine market will create new supplier opportunities, in particular, for DIY self-assembly parts, as well as for parts and components for furniture producers.

Strategy, Structure, and Rivalry: The industry remains fragmented. There is high competition amongst numerous domestic wood processors and furniture manufacturers, producing wide range of products. The industry is dominated by small and micro firms with low capacities and inadequate management systems. A large proportion of businesses operate in the shadow economy. Producers tend not to collaborate with each other. Larger companies can outprice and match quality of imports. Foreign-owned large enterprises set high standards for products and business processes in the sector. The Ukrainian Government has imposed a ban on timber export that resulted in processors circumventing raw log sales by semi-processing logs rather than converting them to higher value products.

Figure 143: Diamond Analysis of Furniture Manufacturing in Ukraine

Factor (Inputs) Conditions

Basic

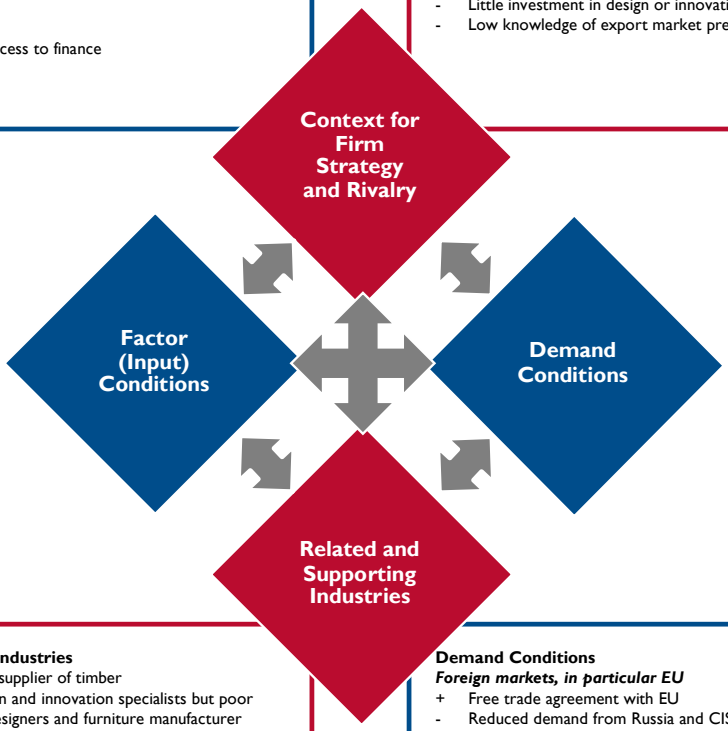
+ Ukrainian forests with ample supply of timber
- Illegal cutting and deforestation (aided by corruption)
+ Domestic supply of semi-finished wood products and components
+ Good location for access to EU markets
+ Labor cost advantages
- Low productivity and high labor intensity compared with EU producers
- Workforce trained in-company since lack of vocational training facilities
- Workforce emigration to Poland
- Students not attracted to manufacturing, but to other studies with better earning prospects such as IT
- Low power costs

Advanced

- Underinvestment in production assets except for the largest enterprises
- Lack of skilled workers
- Lack of investors and access to finance

Context for Firm Strategy and Rivalry

- Strong competition at low-end from importers of Asian producers
- Strong competition at high-end from importers of Italian and German producers
+ Group of small and medium sized enterprises producing good quality products for the middle market
+ Group of foreign-owned Ukrainian manufacturers (strong presence of Polish owners) setting higher standards of quality compatible with EU standards
- Strong competition from international online suppliers e.g., IKEA, JYSK
+ High level of competition between large number of small furniture manufacturers jockeying for position, non-collaborating, and non-specializing
- Industry dominated by small and micro firms with low capacities and inadequate management systems
- Large proportion of businesses operate in the shadow economy in furniture manufacturing
- Little investment in design or innovation by domestic firms
- Low knowledge of export market preferences and trends



Related and Supporting Industries

- Monopoly state owned supplier of timber
+/- Emerging furniture design and innovation specialists but poor cooperation between designers and furniture manufacturer
- Lack of specialized retailers
- Weak logistics impacting on costs and speed of delivery
+ Active Furniture Manufacturers Association; EBA Furniture and Woodworking Committee
+/- National Forestry and Woodworking Technology University; Kharkov State Academy of Design and Arts; Kyiv National University of Technologies and Design
- Lack of vocational schools
+/- Export Promotion Office (little support provided thus far to the sector)
+ Entry of IKEA into Ukraine market will create new supplier opportunities

Demand Conditions

Foreign markets, in particular EU

+ Free trade agreement with EU
- Reduced demand from Russia and CIS, though slowly increasing after an initial substantial dip
+ Increased demand in EU (esp. Poland, France, Germany)
+ Demand expected to grow over forthcoming years
+ Discerning customers in high furniture consumption markets requiring luxury, hardwood furniture; innovative multi-functional designs; ecologically friendly materials, certifications
- Poor linkages to buyers in foreign markets (except Poland)
+ Integration into buyer markets in Poland
- Political tensions and war obstacles to links with buyers in CIS

Domestic markets

- Non-discerning low-end market consumers buying Asian products and products assembled by domestic micro enterprises
+ More demanding middle-market buying from small and medium producers
- High end demand for Italian and German furniture
- Adverse impact of trends in demand drivers (e.g. construction, incomes) in domestic markets have reduced value of market
- Significant portion of domestic buyers attracted to enterprises in shadow economy (40%)
- High-end buyers sourcing from Italian and German producers

Furniture Manufacturing

Demand Conditions: The DCFTA between Ukraine and EU opened new opportunities for Ukrainian furniture manufacturers. The existence of FTAs with a number of other countries and growing demand in markets such as the Middle East could provide opportunities for some manufacturers. In the last few years the role of Russia and other CIS countries diminished while other markets, particularly Poland and Germany, have been growing rapidly. Political tensions and war create obstacles to links with buyers in CIS. The demand in the EU market is expected to grow over forthcoming years which is generated by a diverse and sophisticated customer base with a requirement for high quality products. Discerning buyers in the EU encourages the introduction of standards for products complying with forest sustainability standards. There is a high value hardwood segment of market abroad which Ukraine can satisfy. However, with the exceptions of some enterprises, especially those that have EU owners, Ukrainian furniture manufacturers have weak understanding of export markets and weak linkages. Those that are exporting to the EU have established links with the production systems in this market. Domestic market for wood processing products has been growing after suffering a dip following the annexation of Crimea. The consumer base in Ukraine also is quite diversified. Domestic consumers are primarily price sensitive and these tend to buy low priced products assembled by microbusinesses or imported from Asia, but more advanced producers are catering for the emerging quality and design preferences in the middle market segment. The upper segment of the market is served by distributors of high-quality Italian and German furniture. The future developments in the domestic market will depend on demand drivers such as construction and disposable income. Slow-down in construction and low purchasing power would limit market demand. A significant part of the market, estimated to be as much as 40%, is served by the shadow economy.

Factor Conditions: Ukrainian forests produce ample supply of timber, and the locations of raw materials and many of the producers provide them with good access to the EU market. At the same time the country suffers from illegal deforestation due to corruption. However, these supplies could be threatened in the future by illegal cutting of timber and sales of such to export markets, which will undermine Ukraine as a producer of furniture meeting EU requirements on sustainable management of forests. Ukrainian furniture manufacturing workforce has a cost advantage in comparison with Western export markets. However, production methods are highly labor intensive (note, typically 3 times more employees per company than the average in the EU) and productivity is lower (up to 4 times) due to the lack of modern production methods in the majority of enterprises, although there are some enterprises, including those that are foreign owned, that have invested in modern plant and equipment. Manufacturers applying low level production methods are able to work with less skilled workers whereas those with modern machinery require higher level skills, which are difficult to access since many workers have migrated to the EU, especially Poland. It is difficult to attract knowledge workers to the industry, to work as designers and technicians serving automated machines, since manufacturing is a relatively unattractive profession for young professionals. Manufacturers difficulties in accessing finance are an obstacle to investment in plant and upgrading of work methods.

Context for Firm Strategy and Rivalry: Furniture manufacturing is highly fragmented with competition with a large number of micro and small businesses market segments at the low end, which either work as assemblers, often with hand tools, or use out-of-date production methods. These small-scale producers do not collaborate. A large proportion of them operate in the shadow economy, putting the legal operators at a cost disadvantage. Apart from competing between themselves, the smaller enterprises, which compete for customers purchasing lower priced furniture, face competition from importers of Asian products. The high end of the market is served by importers of high-quality furniture, for example of Italian and German origin, and they face some competition from some small and medium sized producers of quality furniture, some of which work with designers. Included in the group of manufacturers of higher quality furniture are foreign owned manufacturers. An important player in the market are international players such as IKEA (online sales) and JYSK, which imports furniture sold through their stores. Many Ukrainian manufacturers with products that have potential to sell to foreign markets are hampered by poor export market knowledge.

Related and Supporting Industries: Timber supply is monopolized by the State Forestry Agency, which is alleged to disadvantage part of the sector, especially since those producers that have their own wood processing equipment and produce hard quality furniture need access to hardwood. The furniture manufacturing sector is served by designer services in cases of quality furniture manufacturing but generally there is a need for better collaboration between the designer community and manufacturers. At least three universities offer design courses related to furniture manufacture and design but allegedly these are not in line with modern practices and trends. There is a lack of vocational schools providing training for this industry. Supply- logistics are considered a weakness and there is a lack of specialized retailers with some exceptions. The entry of IKEA into the market is likely to cause major disruption to supply and distribution.

9. CONCLUSIONS AND RECOMMENDATIONS

This section summarizes research findings related to the five shortlisted sectors around the criteria and sub-criteria set out for sector selection. As described in the description of methodology above, the selection criteria and their scoring weights are:

1. Potential for sector growth (25%);
2. Potential for the sector to penetrate new export markets (25%);
3. Potential for the sector to generate new skilled employment opportunities (20%);
4. Potential for entrepreneurship and innovation within the sector (20%); and
5. Business enabling environment and regulatory framework (10%).

In addition, the assessment incorporates 'other factors', which includes two sub-criteria: 1) potential for female participation and empowerment, and 2) potential to engage youth. For reference, these sub-criteria were scored, but not included in the overall total scoring used for comparative purposes.

As described above, sub-criteria scoring employs a forced ranking scale based on the strength of anticipated development performance related to CEP resources, with five potential options according to the following key: Very low = 10%; Low = 30%; Medium = 50%; High = 70%; and Very high = 90% (see **Section 2: Methodology**). In many cases, the sectors assessed tended toward the mid-range of scores under most criteria. Scores in the mid-range encompass some innovators and champions. The scoring system is effective in identifying positive or negative scores, indicating criteria that would enhance or inhibit sector and project performance.

Subsequently, this section presents recommendations related to CEP sector focus, based on these conclusions.

9.1 CONCLUSIONS

Based on the criteria above, the assessed sectors rank as follows (in order of anticipated performance):

1) IT: Digital products and services;
2) Wood products and furniture manufacturing;
3) Fruit and vegetable processing;
4) Dairy processing; and
5) Apparel and footwear.

A full description of the scoring outcomes follows below.

Table 27: Comparative Sector Selection Scoring by Criteria

CRITERIA	Weight (%)	Dairy Processing	Fruit/Veg Processing	IT Products and Services	Wood and Furniture	Apparel and Footwear
Sector Growth Potential	0.25	0.12	0.15	0.19	0.16	0.12
Sector Potential for Export Market Penetration	0.25	0.14	0.14	0.20	0.14	0.09
Sector Job Creation Potential	0.20	0.10	0.14	0.14	0.10	0.10
Sector Potential for Entrepreneurship and Innovation	0.20	0.10	0.10	0.14	0.11	0.09
Business Enabling Environment and Regulatory Framework	0.10	0.07	0.07	0.08	0.04	0.04
Total Weighted Score	1.00	0.53	0.59	0.75	0.54	0.43

APPAREL AND FOOTWEAR

Despite the country's close proximity to EU markets, the Ukrainian apparel and footwear sector has limited medium-term growth potential due to adverse structural factors that impede the country's competitiveness vis-à-vis with current international leaders in mass production (CMT or full package), and performance in the fashion market. The domestic market for low cost goods is highly competitive, and includes "second-hand" clothes and imports, thereby limiting opportunities for domestic producers. Cost competitive CMT labor supply is constrained by rising domestic salaries as well as out-migration of unskilled workers. The mass production subsector will continue to face intense competition from Bangladesh, China and other low-cost global production hubs, and will also have difficulty in harnessing its comparative advantage of proximity to EU markets. Limitations related to sourcing of inputs, logistics and infrastructure, political uncertainty, and customs operations all present challenges. An important hurdle is the sector's reliance on imported raw materials and components, which makes producers susceptible to logistics delays and currency fluctuations. Although a design and fashion component is emerging in Ukraine, this sub-sector remains limited in scope and is unlikely to generate significant employment or investment in the near future.

Table 28: Apparel and Footwear Scoring Matrix

		SCORE					
CRITERIA	WEIGHT	Very Low	Low	Med.	High	Very High	VALUE
1. Sector Growth Potential (25%)							
Achievable exports growth for the product/service	45%	10.0%	30.0%	50.0%	70.0%	90.0%	0.225
Scalability of supply of product/service in response to market opportunity (cost, infrastructure)	20%	10.0%	30.0%	50.0%	70.0%	90.0%	0.060
Potential to encourage investment (domestic and foreign)	20%	10.0%	30.0%	50.0%	70.0%	90.0%	0.100

Size of the domestic market that can be served	15%	10.0%	30.0%	50.0%	70.0%	90.0%	0.075
Criteria 1 Score							**0.115**
2. Sector Potential for Export Market Penetration (25%)							
Market characteristics that encourage competitiveness (cost, demand, profitability)	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Value added of the product/service in Ukraine	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.075
Comparative strengths or weaknesses of the sector	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.075
Ability of the upgraded sector to respond reliably and competitively to market requirements	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.075
Criteria 2 Score							**0.088**
3. Sector Job Creation Potential (20%)							
Potential to create jobs (base and forecast)	100%	10.0%	30.0%	50.0%	70.0%	90.0%	0.500
Criteria 3 Score							**0.100**
4. Sector Potential for Entrepreneurship and Innovation (20%)							
Evidence of champions for change	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Ability to access finance for growth	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.075
Potential for entrepreneurship and innovation	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Available skills	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Criteria 4 Score							**0.090**
5. Business Enabling Environment and Regulatory Framework (10%)							
Legal and regulatory constraints	60%	10.0%	30.0%	50.0%	70.0%	90.0%	0.180
Alignment with government priorities	40%	10.0%	30.0%	50.0%	70.0%	90.0%	0.200
Criteria 5 Score							**0.038**
6. Other Factors (n/a)							
Potential for female participation and empowerment		10.0%	30.0%	50.0%	70.0%	90.0%	
Potential to engage youth		10.0%	30.0%	50.0%	70.0%	90.0%	
Sector Score							**0.431**

The assessment found that **sector growth potential** for the apparel and footwear sector in relation to achievable exports growth for the product/service is 'medium', based on the capacity of existing enterprises to respond to domestic and export demand opportunity. However, the sector scores 'low' in terms of scalability of supply of product/service in response to market opportunity due to limited competitiveness with regard to factor inputs (labor, raw materials, etc.) and logistics. The sector scores 'medium' as well with regard to potential to encourage investment, as foreign investors are able to circumvent the poor finance environment and provide capital directly but are more likely to be interested in geographies with better long-term competitiveness prospects. Finally, the size of the domestic market that can be served is 'medium', as manufacturers compete on a price basis with imports from other global production centers.

With regard to **sector potential for export market penetration**, the assessment scored the sector 'medium' in terms of market characteristics that encourage competitiveness, such as

cost, demand, profitability, and logistics advantages. However, the team scored the sector as 'low' in terms of value added in Ukraine given its dependence on low-labor cost-based assembly operations to remain competitive in the medium term, and the assembly-based nature of CMT production. The team also scored the sector 'low' in terms of comparative strengths or weaknesses of the sector and ability of the upgraded sector to respond reliably and competitively to market requirements based on the country's dependence on imported components and materials, and adverse dynamics in the labor market.

For **job creation potential**, the team scored apparel and footwear as 'medium'. Many jobs could be created if the "mass" subsector were to expand, due to the relatively low level of automation and dependence on manual labor. This would be offset, however, by the nature of jobs created, which is generally low-paid and minimally skilled.

The **potential for entrepreneurship and innovation** is generally 'medium'. Research revealed a limited number of companies in the CMT subsector that are entrepreneurial and that could perhaps serve as champions for change. The design/fashion subsector presents potential for entrepreneurship and innovation but is limited in growth potential. The sector is subject to the same domestic limitations on access to finance as are other working capital-intensive sectors, hence the ability to access finance for growth is 'low'. Available skills are 'medium', as the mainstay of the sector is only semi-skilled.

With regard to the **business enabling environment and regulatory framework**, the team assessed legal and regulatory constraints as 'low' given the poor harmonization of expert regimes to the key EU market. Import, export, power and legal constraints all affect the "mass" industry. Alignment with government priorities is 'medium' in the absence of specific government initiatives to promote the sector.

Other factors: Potential for female participation and empowerment as well as potential to engage youth are both 'medium' as these groups are attracted to the creative aspects of the sector, though the mainstay of opportunities is in the large semi-skilled labor component. Traditionally this component is a significant employer of women and young people, however.

DAIRY PROCESSING

The past five years have been a challenging period for the Ukrainian dairy sector. The closure of the Russian market in 2014 has resulted in oversupply of milk in domestic markets and subsequent lower prices, which, coupled with rising input costs, has undermined the profitability of milk production. As a result, large processors have reduced investments into quality development for small-scale and household farm production, where 77% of milk is sourced, and quality and phyto-sanitary issues remain a challenge.

However, dairy processing remains a vital and pervasive component of Ukraine's economy, and rising domestic demand for higher quality products, as well as exports to the EU opened under the DCFTA, present value-added opportunities for the sector. Furthermore, in recent years, emerging Ukrainian cheese makers are turning out an exciting range of new products, ranging

from traditional varieties to non-Ukrainian types. Likewise, the country is home to a vibrant emerging craft sub-sector, which may generate interest from specialty importers the EU and USA. Emerging products also include an extensive list of specialty fermented milk products, including kefirs and traditional yoghurts, which supply growing 'niche' markets for healthy, and 'heritage' foods. Ukrainian companies can readily produce these products due to co-located production of yogurt fermentation bacteria, alginates (carrageenan), gelatins, gums (locust bean, guar), pectin, starch and many other dairy product components.

Table 29: Dairy Processing Scoring Matrix

		SCORE					
CRITERIA	**WEIGHT**	**Very Low**	**Low**	**Med.**	**High**	**Very High**	**VALUE**
1. Sector Growth Potential (25%)							
Achievable exports growth for the product/service	45%	10.0%	30.0%	50.0%	70.0%	90.0%	0.225
Scalability of supply of product/service in response to market opportunity (cost, infrastructure)	20%	10.0%	30.0%	50.0%	70.0%	90.0%	0.100
Potential to encourage investment (domestic and foreign)	20%	10.0%	30.0%	50.0%	70.0%	90.0%	0.060
Size of the domestic market that can be served	15%	10.0%	30.0%	50.0%	70.0%	90.0%	0.105
Criteria 1 Score							**0.123**
2. Sector Potential for Export Market Penetration (25%)							
Market characteristics that encourage competitiveness (cost, demand, profitability)	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Value added of the product/service in Ukraine	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.175
Comparative strengths or weaknesses of the sector	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Ability of the upgraded sector to respond reliably and competitively to market requirements	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Criteria 2 Score							**0.138**
3. Sector Job Creation Potential (20%)							
Potential to create jobs (base and forecast)	100%	10.0%	30.0%	50.0%	70.0%	90.0%	0.500
Criteria 3 Score							**0.100**
4. Sector Potential for Entrepreneurship and Innovation (20%)							
Evidence of champions for change	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Ability to access finance for growth	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Potential for entrepreneurship and innovation	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Available skills	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Criteria 4 Score							**0.100**
5. Business Enabling Environment and Regulatory Framework (10%)							
Legal and regulatory constraints	60%	10.0%	30.0%	50.0%	70.0%	90.0%	0.300
Alignment with government priorities	40%	10.0%	30.0%	50.0%	70.0%	90.0%	0.360
Criteria 5 Score							**0.066**
6. Other Factors (n/a)							

Potential for female participation and empowerment		0.0%	12.5%	50.0%	70.0%	90.0%	
Potential to engage youth		0.0%	12.5%	50.0%	70.0%	90.0%	
Sector Score							**0.526**

In terms of **sector growth potential**, this assessment found 'medium' potential for export growth. While large-scale processors are already successfully competing in export growth, the SME sector, where real innovation is taking place, is still limited, and will require considerable skills development related to operating in new markets. Likewise, the sector is characterized by 'medium' scalability of supply in response to market opportunities, as processors face constraints in accessing finance for asset upgrades as well as for liquidity to expand raw material sourcing. This assessment found 'low' potential to encourage investment, as larger enterprises are not set up to handle equity capital inflows, while opportunities in the SME sector are limited. On the other hand, the size of the domestic market that can be served is 'high', as interest in local and (de facto) organic products grows, and consumer preferences grow in sophistication.

With regard to **sector potential for export market penetration**, this assessment found a 'medium' level of market characteristics that encourage innovation based on the limited scale of SMEs and the persistence a high concentration of the sector amongst large-scale processors. Likewise, value-added in the Ukraine is 'medium' based on the prevailing limited output of higher value products and prevalence of 'mass-produced' varieties. Finally, both the comparative strengths or weaknesses of the sector and the ability of the upgraded sector to respond reliably and competitively to market requirements are also 'medium' as processors are prevented from leveraging emerging market opportunities and high price and quality competitiveness due to access to finance challenges.

In terms of **sector job creation potential**, this assessment found 'medium' potential to create jobs, as opportunities for skills development are limited and emerging enterprises in the sector remain small in scale.

The **sector potential for entrepreneurship and innovation** is also generally 'medium', as champions for change and potential for entrepreneurship and innovation. Innovation and entrepreneurship, while certainly well represented in the emerging craft sector, remains very limited in scale. Likewise, sector stakeholders' ability to access finance for growth is constrained by the prevailing high cost of bank finance and limited development of domestic equity markets.

In terms of the **business enabling environment and regulatory framework**, this assessment found no specific legal and regulatory constraints to development of the sector. However, the prevailing lack of harmonization with EU standards undermines the ability of sector stakeholders to fully leverage new opportunities under the DCFTA. On the other hand, the sector is 'very highly' aligned with GOU priorities, as expressed in the 2016 export development strategy.

Other Factors: Finally, this assessment found that dairy processing has 'medium' potential for female participation and empowerment as well as for youth engagement due its character as a

predominantly rural and agrarian sector. However, this potential may improve as higher quality products emerge and the sector develops a more sophisticated reputation.

FRUIT AND VEGETABLE PROCESSING

The fruit and vegetables processing sector offers significant opportunities for achieving trade success and competitiveness with differentiated, higher value added products. However, the synergies and business model similarities with other processed food subsectors suggest that high value-added fruit and vegetable processing can be approached by CEP as part of a more comprehensive and opportunistic food processing sector. Favorable agro-ecological conditions ensure the availability of a wide assortment of domestic fruits and vegetables that provide raw materials to a diversified processing sector. A domestic market that is both growing in size and sophistication, as well as new export opportunities opened under the DCFTA, have generated a sense of optimism amongst stakeholders.

Nonetheless, in common with other components of the vast Ukrainian food-processing sector, the closure of the Russian market has forced fruit and vegetable processors to look for new options or to upgrade in order to access more demanding markets. However, this process is inhibited by the challenging financial landscape, and export opportunities to the vast and segmented EU markets are currently constrained due to poor harmonization of product certification and standards regimes, and value chain operations that do not meet EU requirements. Realizing the full potential of the entire sector will require upgrading obsolescent infrastructure and logistics, instilling enhanced management and marketing skills, and demonstrating the viability of innovative new business models.

Table 30: Fruit and Vegetable Processing Scoring Matrix

		SCORE					
CRITERIA	**WEIGHT**	**Very Low**	**Low**	**Med.**	**High**	**Very High**	**VALUE**
1. Sector Growth Potential (25%)							
Achievable exports growth for the product/service	45%	10.0%	30.0%	50.0%	70.0%	90.0%	0.315
Scalability of supply of product/service in response to market opportunity (cost, infrastructure)	20%	10.0%	30.0%	50.0%	70.0%	90.0%	0.100
Potential to encourage investment (domestic and foreign)	20%	10.0%	30.0%	50.0%	70.0%	90.0%	0.100
Size of the domestic market that can be served	15%	10.0%	30.0%	50.0%	70.0%	90.0%	0.075
Criteria 1 Score							**0.148**
2. Sector Potential for Export Market Penetration (25%)							
Market characteristics that encourage competitiveness (cost, demand, profitability)	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.175
Value added of the product/service in Ukraine	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Comparative strengths or weaknesses of the sector	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125

Ability of the upgraded sector to respond reliably and competitively to market requirements	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Criteria 2 Score							**0.138**
3. Sector Job Creation Potential (20%)							
Potential to create jobs (base and forecast)	100%	10.0%	30.0%	50.0%	70.0%	90.0%	0.700
Criteria 3 Score							**0.140**
4. Sector Potential for Entrepreneurship and Innovation (20%)							
Evidence of champions for change	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Ability to access finance for growth	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.075
Potential for entrepreneurship and innovation	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.175
Available skills	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Criteria 4 Score							**0.100**
5. Business Enabling Environment and Regulatory Framework (10%)							
Legal and regulatory constraints	60%	10.0%	30.0%	50.0%	70.0%	90.0%	0.300
Alignment with government priorities	40%	10.0%	30.0%	50.0%	70.0%	90.0%	0.360
Criteria 5 Score							**0.066**
6. Other Factors (n/a)							
Potential for female participation and empowerment		10.0%	30.0%	50.0%	70.0%	90.0%	
Potential to engage youth		10.0%	30.0%	50.0%	70.0%	90.0%	
Sector Score							**0.591**

This assessment found that **sector growth potential** for the fruit and vegetable-processing sector in relation to achievable exports growth is 'high'. The assessment found that a number of companies in the sector have existing installed capacity that can be upgraded to enhance product quality in line with the demands of more sophisticated market segments. Likewise, the sector already encompasses a broad range of processing techniques. Scalability of supply of the product/service in response to market opportunity is 'medium', limited principally by the capital-intensive nature of production and the constraining financial landscape; addressing the financing constraint would facilitate up-take of new business models. Likewise, the potential to encourage investment is 'medium' given the constraints on equity investment. Finally, the size of the domestic market that can be served is likewise 'medium'; although with consumer tastes gradually becoming more sophisticated, there will be increased demand for quality processed products, and there are opportunities for import substitution by enterprises that can upgrade products.

With regard to **sector potential for export market penetration**, market characteristics that encourage competitiveness is 'high', with access to cost competitive and good quality varieties of raw materials, and a nascent reputation for traditional production methods and de facto organic products. Value added in Ukraine is 'medium' with limited application to date of more technology intensive processes. Likewise, the comparative strengths or weaknesses of the sector and the ability of the upgraded sector to respond reliably and competitively to market requirements is 'medium', as competitive costs are slightly offset by limited management and marketing skills.

In terms of the **job creation potential**, the sector is 'high', as traditional and mainstay processed products enjoy ample opportunities for expansion and upgrades that would engage subsidiary support services and sub-sectors.

With regard to **potential of the for entrepreneurship and innovation**, there is 'medium' evidence of champions for change, with some larger-scale enterprises expressing interest in new business models, but the bulk of innovation concentrated in the small-scale craft and artisanal sub-sectors. In common with other capital-intensive sectors, the ability to access finance for growth is 'low', given the prevailing challenges in the finance landscape. On the other hand, there is 'high' potential for entrepreneurship and innovation as consumer preferences continue to grow in sophistication, including interest in 'traditional' and 'craft' products. Available skills are 'medium' with limited training opportunities and low to average management and marketing skills prevailing in the sector.

With regard to the **business enabling environment and regulatory framework**, the legal and regulatory constraints are 'medium', primarily constrained by poor harmonization of grading and standards required for export to the EU. Nonetheless, there is very high alignment with government priorities, as evidenced by identification of the sector as a priority for promotion in the 2016 export strategy.

Other factors: Potential for female participation and empowerment and potential to engage youth are 'medium', in line with typical challenges in attracting these populations to agrarian livelihoods, though this may improve as increasingly sophisticated products attract greater numbers of entrepreneurs.

IT: DIGITAL PRODUCTS AND SERVICES

The availability of a qualified and cost competitive labor force has facilitated the emergence of Ukraine as a key provider of IT-related services, and the sector is growing fast in terms of employment, complexity and value-added, as well as in development of new applications and products, and digitally enabled technology. Besides formal universities that provide STEM education, there are a number of emerging non-degree opportunities for the aspiring IT workforce. On the other hand, the sector is currently dominated by outsourcing and heavily dependent on the U.S. market IT product development is currently limited in scope; cost companies base head offices abroad, partly due to the unfavorable prevailing regulatory and legal environment, especially with regard to concerns with intellectual property rights protection. The domestic market for IT services and uptake of IT-enabled operations is undeveloped. There is potential to apply IT-based solutions to many sectors of the economy. Finally, the sector struggles with the availability of skilled managers and adoption of innovative business models.

Table 31: IT: Digital Products and Services Scoring Matrix

		SCORE					
CRITERIA	WEIGHT	Very Low	Low	Med.	High	Very High	VALUE
1. Sector Growth Potential (25%)							

Achievable exports growth for the product/service	45%	10.0%	30.0%	50.0%	70.0%	90.0%	0.405
Scalability of supply of product/service in response to market opportunity (cost, infrastructure)	20%	10.0%	30.0%	50.0%	70.0%	90.0%	0.140
Potential to encourage investment (domestic and foreign)	20%	10.0%	30.0%	50.0%	70.0%	90.0%	0.140
Size of the domestic market that can be served	15%	10.0%	30.0%	50.0%	70.0%	90.0%	0.075
Criteria 1 Score							**0.190**
2. Sector Potential for Export Market Penetration (25%)							
Market characteristics that encourage competitiveness (cost, demand, profitability)	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.225
Value added of the product/service in Ukraine	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.225
Comparative strengths or weaknesses of the sector	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.175
Ability of the upgraded sector to respond reliably and competitively to market requirements	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.175
Criteria 2 Score							**0.200**
3. Sector Job Creation Potential (20%)							
Potential to create jobs (base and forecast)	100%	10.0%	30.0%	50.0%	70.0%	90.0%	0.700
Criteria 3 Score							**0.140**
4. Sector Potential for Entrepreneurship and Innovation (20%)							
Evidence of champions for change	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.175
Ability to access finance for growth	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Potential for entrepreneurship and innovation	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.225
Available skills	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.175
Criteria 4 Score							**0.140**
5. Business Enabling Environment and Regulatory Framework (10%)							
Legal and regulatory constraints	60%	10.0%	30.0%	50.0%	70.0%	90.0%	0.420
Alignment with government priorities	40%	10.0%	30.0%	50.0%	70.0%	90.0%	0.360
Criteria 5 Score							**0.078**
6. Other Factors (n/a)							
Potential for female participation and empowerment		10.0%	30.0%	50.0%	70.0%	90.0%	
Potential to engage youth		10.0%	30.0%	50.0%	70.0%	90.0%	
Sector Score							**0.748**

This assessment found that **sector growth potential** for the IT sector in relation to achievable exports growth for the product/service is 'very high'. Over a period of five years since 2013, Ukrainian IT sector exports grew at double the growth in global demand, and this trajectory of rapid growth is projected to continue even as global markets continue their trend of growth above GDP growth. Therefore, achievable market growth in exports is 'very high'. The scalability of supply of services and products in response to market opportunity is high, though there is room for improvement in access to financing, adaptation of IT specialist education to sector needs

including the development of business skills, and in the use of marketing and distribution channels. Although the sector has adjusted well to the growing demands, it still falls short in these aspects and, thus, scalability is 'high' rather than 'very high'. The sector has attracted relatively high foreign investor interest in past years and is characterized by a positive trend. However, domestic investment has been moderate, and there continues to be a scarcity of funding. Nevertheless, there is high potential for attracting investment. Thus, investment potential is 'high'. Whilst Ukrainian IT companies are interested in working in the domestic market and its growth is anticipated and even inevitable, take-up of IT services in domestic markets is unlikely to grow at rates comparable to export markets in the near term. Because of this, the domestic market size is 'medium'.

Sector potential for export market penetration is 'very high'. Market characteristics that encourage IT sector competitiveness are 'very high'. There is a large number of IT companies and a large number of IT specialists, who have attracted the demand of discerning foreign customers. Ukrainian IT engineers are adept in solving complex technical problems, and companies have demonstrated their ability to be innovative and commercialize own products. The sector's competitiveness is driven by comparably low costs, reputation for good quality and good customer services. Nevertheless, there are challenges including "brain drain", operators in the shadow economy, limited collaboration between small companies, and lack of demand in the domestic markets. In terms of comparative strengths and weaknesses, the sector scores 'high'. The sector provides high-value added knowledge-based services and its contribution to value-added in Ukraine is very 'high'. Challenges, such as the aforementioned, provide obstacles in responding to export demands but overall scalability for export growth is 'high'.

In terms of the **job creation potential**, the sector faces the challenge of developing a workforce with a range of skills matching the technical and business development needs of IT companies and their clients. The sector continues to attract high interest from young people, and the potential of growing jobs in view of both supply and demand conditions, is considered to be 'high'.

Overall, the **potential for entrepreneurship and innovation** is 'high'. The sector boasts some mature international companies but generates numerous start-ups and innovative small companies - which means that evidence for champions of change is 'high'. However, access to finance, particularly for small companies, is a challenge and this is scored as 'medium'. New ventures have been at the forefront of innovation, including impactful start-ups producing new services and products combining software and hardware solutions, for example in security systems, unmanned technologies, business process management systems. These companies showcase their achievements though participation in conferences and workshops. The IT sector ecosystem has been strengthening in past years and includes IT business associations and clusters, a large number of universities providing IT education and alternative education initiatives, and innovation centers. Entrepreneurship and innovation are energized by a large number of passionate youth and talented IT specialists. All these factors considered lead to the conclusion that potential for entrepreneurship and innovation is 'very high'. Academic institutions generate large numbers of graduates who are available to the sector, and their output is supplemented by young people (primarily) who obtain other training and online credentials. There is some criticism that the quality of skills development is insufficient, indicating the need to improve skills delivery. Availability of skills is scored 'high'.

With regard to the **business enabling environment and regulatory framework**, overall this is 'high' but still in need of improvement, though considered to be a 'very high' priority in terms of government priorities. The improvements include the need to develop a comprehensive IT sector development strategy that will address a wide range of issues including financing, inspections, and IP protection, the latter being a primary consideration by international partners and producers.

Other factors: There is potential for increasing the participation of women in the IT sector. Female participation in the sector, including wages earned, are relatively 'low' in terms of equity, even though there are examples of women participation in leadership. Youth are the mainstay of the sector, attracted by the prospects of clear career trajectories, high salaries and the start-up environments. Thus, the potential for engaging and empowering women and attracting youth into the sector is 'very high'.

WOOD PRODUCTS AND FURNITURE MANUFACTURING

The wood products and furniture manufacturing sector is characterized by low domestic market concentration and is comprised predominantly of SMEs. Although there is an abundance of domestic raw materials, including high-demand hardwoods, there is a state monopoly on forest trees that complicates access to raw material resources. The domestic market is currently filled with cheap and low-quality products, often imported from China. At the same time, there is growing opportunity on the domestic market associated with the construction boom in residential apartments and improvement of economic stability that may unlock deferred demand. Export opportunities for Ukrainian furniture are currently limited due to inadequate logistics, poor managerial skills, and lack of promotion. Nonetheless, several foreign firms operate in the country, indicating the opportunity and potential profitability of export orientation. The sector is struggling with a shortage of labor force, though a significant 'shadow' force operates in the country.

Table 32: Wood products and Furniture Scoring Matrix

		SCORE					
CRITERIA	**WEIGHT**	**Very Low**	**Low**	**Med.**	**High**	**Very High**	**VALUE**
1. Sector Growth Potential (25%)							
Achievable exports growth for the product/service	45%	10.0%	30.0%	50.0%	70.0%	90.0%	0.315
Scalability of supply of product/service in response to market opportunity (cost, infrastructure)	20%	10.0%	30.0%	50.0%	70.0%	90.0%	0.100
Potential to encourage investment (domestic and foreign)	20%	10.0%	30.0%	50.0%	70.0%	90.0%	0.140
Size of the domestic market that can be served	15%	10.0%	30.0%	50.0%	70.0%	90.0%	0.075
Criteria 1 Score							**0.158**
2. Sector Potential for Export Market Penetration (25%)							

Market characteristics that encourage competitiveness (cost, demand, profitability)	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.175
Value added of the product/service in Ukraine	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Comparative strengths or weaknesses of the sector	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Ability of the upgraded sector to respond reliably and competitively to market requirements	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Criteria 2 Score							**0.138**
3. Sector Job Creation Potential (20%)							
Potential to create jobs (base and forecast)	100%	10.0%	30.0%	50.0%	70.0%	90.0%	0.500
Criteria 3 Score							**0.100**
4. Sector Potential for Entrepreneurship and Innovation (20%)							
Evidence of champions for change	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Ability to access finance for growth	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Potential for entrepreneurship and innovation	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.175
Available skills	25%	10.0%	30.0%	50.0%	70.0%	90.0%	0.125
Criteria 4 Score							**0.110**
5. Business Enabling Environment and Regulatory Framework (10%)							
Legal and regulatory constraints	60%	10.0%	30.0%	50.0%	70.0%	90.0%	0.180
Alignment with government priorities	40%	10.0%	30.0%	50.0%	70.0%	90.0%	0.200
Criteria 5 Score							**0.038**
6. Other Factors (n/a)							
Potential for female participation and empowerment		10.0%	30.0%	50.0%	70.0%	90.0%	
Potential to engage youth		10.0%	30.0%	50.0%	70.0%	90.0%	
Sector Score							**0.543**

This assessment found the overall **sector growth potential** for the wood processing and furniture sectors to be 'high'. Export markets are projected to grow in the EU and other markets that will provide wood processors and furniture manufactures with new opportunities to replace those CIS markets which have been lost due to the conflict with Russia. Some furniture manufacturers, particularly those that have attracted foreign investment and ownership, are already integrated into the production system of the EU and are already participating in serving a market that is highly discerning, demands high quality and is characterized by a very high consumption of furniture. As input and operating costs increase in those new EU member states that include leaders in the sector, such as Poland, so new opportunities will grow for Ukrainian enterprises that are able to scale up to meet these demands, which in turn will require investment in modern plant and equipment, new production methods, workforce development and product innovation. The prospects of domestic market growth are less rosy than for export markets because of factors determining scale of demand in the home market, including furnishing of new dwellings and commercial premises, replacement of old furniture, adoption of innovative products – i.e. growth of the economy and growth of disposable income. Currently, the domestic market includes a lower segment served by less sophisticated labor-intensive enterprises, a middle market that also involves participation of more advanced domestic manufacturers applying more

modern methods and equipment as well as importers, and an upper market served largely by imported high quality furniture. Shaping the domestic market to provide greater growth opportunities is demanding as well as outside the control of producers. Hence, all factors considered, export growth potential is 'high', scalability 'medium', and domestic market size 'medium'. Potential to encourage investment is 'high' because of the needs to modernize operations, particularly in view of good export prospects.

With regard to **Sector potential for export market penetration**, characteristics determining competitiveness are 'high'. The Ukrainian sectors for both wood processors, which are at the upstream of the furniture sector, and furniture manufacturers have the distinct advantage of plentiful domestic resources of raw materials, and there is a ready supply of parts and components at competitive prices, which in particular serves furniture producers without own capacity for wide ranging machining. The wood processing sector includes some relatively large companies employing modern technologies, and furniture producers include companies that have invested in modern equipment although overall investment in modernization in the sector is low. Labor costs are low but so is productivity, and the Ukrainian wood sector is highly labor-intensive compared with the EU. Quality of higher-value products, particularly those made from hardwood, is good. Thus, there are both advantages and disadvantages within the sector, which tend to balance one another out and leading to a score of 'medium' for comparative strengths and weaknesses. The value-added of products made by the wood processors and furniture manufacturers is reckoned to be 'medium' since high-value added is mainly attributable to higher quality products such as those manufactured by more advanced enterprises. Value-addition by the smaller scale industries, such as those involving micro, would be relatively smaller since they are largely assembling pre-machined parts. There is a need and potential for considerable improvement in value-added for companies wanting to enter the export markets.

The potential to penetrate discerning export markets and to meet the demands for volume and quality will involve collaborative efforts on innovation, operations, marketing and distribution, as well as specialization, which has been generally lacking as companies competed for whichever market appeared. The opportunities apply in particular to modern-thinking small and medium sized enterprises. Already there are some examples of collaboration between designers and manufacturers, but these will have to serve as examples to encourage individual scaling up of operations as well as inter-company collaboration. Thus, with such challenges, the ability to upgrade the sector in respond to export needs is 'medium'.

The potential **for job creation** in the sector is 'medium'. Whereas less advanced producers are able to use less-skilled workers, those applying more advanced methods seek a workforce possessing higher skills. Thus, the demand for skills between enterprises vary but generally the perception is that skilled workforce is scarce, especially since migration attracted large numbers to the EU, in particular to Poland, which is a leading producer in the EU and pays higher wages than the relatively low wages typical for the wood sectors in Ukraine. On the positive side Polish companies look to cooperation with Ukrainian companies. Looking to the future, to meet volume and quality demands, there will be a need for upgrading skills and introduction of knowledge workers, such as designers and technicians for automated machinery, at the expense of less skilled jobs, which may be displaced.

Whilst there are good examples of **entrepreneurship and innovation** in the sector, on balance this criterion is 'medium'. There are some leaders such a producers of quality products for export markets, but it is not yet clear as to whether they are championing change. Evidence of leadership is 'medium'. The sector has not been a major attractor of investment but there are examples, particularly of companies that have been successful and there are opportunities to access SME finance facilities provided by international financing institutions. Given the export opportunities, companies that demonstrate ability to win orders should have a chance of accessing them. Their ability to do so is 'medium'. There is potential for improving innovation through better collaboration between researchers, designers, engineering services, educators and producers, stimulated by sophisticated markets such as those in the EU, where innovative and versatile furniture and the embedding of technology into furniture is attracting growing interest. There is an active industry association that recognizes the challenges and appears willing to respond to them. Thus, potential for innovation and entrepreneurship is 'high'. As mentioned earlier, availability of skills depends on the production processes employed and modernized enterprises will need to rely on higher skill levels. Skills availability is 'medium'.

With regard to the **business enabling environment and regulatory framework,** the current situation is 'low'. The sector faces some major challenges, including the ban on exporting timber. Illegally cut timber is a violation of DCFTA and WTO agreements by the EC, and there have been allegations of exports of illegal cutting and export logged timber to the EU. The credibility of domestically issued certificates attesting to sourcing from sustainably managed forests is crucial not only for export market penetration but also for the reputation of the industry. Linked to this is the issue of state managed forests and its monopoly position in supplying the wood sectors, which is open to potential abuse.

Other factors: Women and men are not equally represented in this sector; rather, men fill the vast majority of positions. However, this is an industry that involves physically intensive labor. Nevertheless, skills shortages, particularly in relation to skilled workforce and knowledge workers, could provide opportunities. However, manufacturing is not a popular career and does not attract young people. Overall, the potential for women participation is 'low' and 'medium' for youth that finish vocational schools with relevant skills.

9.2 RECOMMENDATIONS

Based on these conclusions, the following are recommended:

1. **Focus on IT: Digital products and services:** Given the high potential for growth and export market penetration, as well as entrepreneurship and innovation, CEP should include sector focus on the IT services sector. CEP's work in this sector would emphasize helping the sector to establish the conditions to enable it to grow and to increase its complexity and value added – in areas such as higher-value outsources services, digitally enabled technology, industry applications, and IT-based business services. In order to leverage these growth opportunities, activities related to the IT sector should focus on improving management and marketing skills and introducing new business models, facilitating startups (including access to finance for start-ups), seeking synergies with other sectors in Ukraine, and promoting uptake of IT solutions by domestic enterprises.

2. **Focus on Food processing:** CEP should address the food processing sector broadly focusing on higher value added products (esp. secondary and specialty products), which can be marketed to an increasingly discerning domestic market, as well as into demanding EU and other export markets. While fruit and vegetables are a core of this sector, there are strong opportunities and champions in dairy as well, and, and possibly meat products and others. The combined sector offers high potential for growth, export market penetration, and entrepreneurship and innovation. The prevalence of this sectors across the county can facilitate significant economic impact for a broad cross section of the population. The assessment found many crosscutting opportunities and constraints to be dealt with across all segments of the food processing sector, including financing constraints on capital asset acquisitions required for expansion and improvement, opportunities for business model innovations, including supply chain partnership between larger existing processors and emerging high quality foods manufacturers, and management and marketing skills upgrades. CEP's focus on food processing should be closely coordinated with ARDS, to ensure complementarity and synergy.

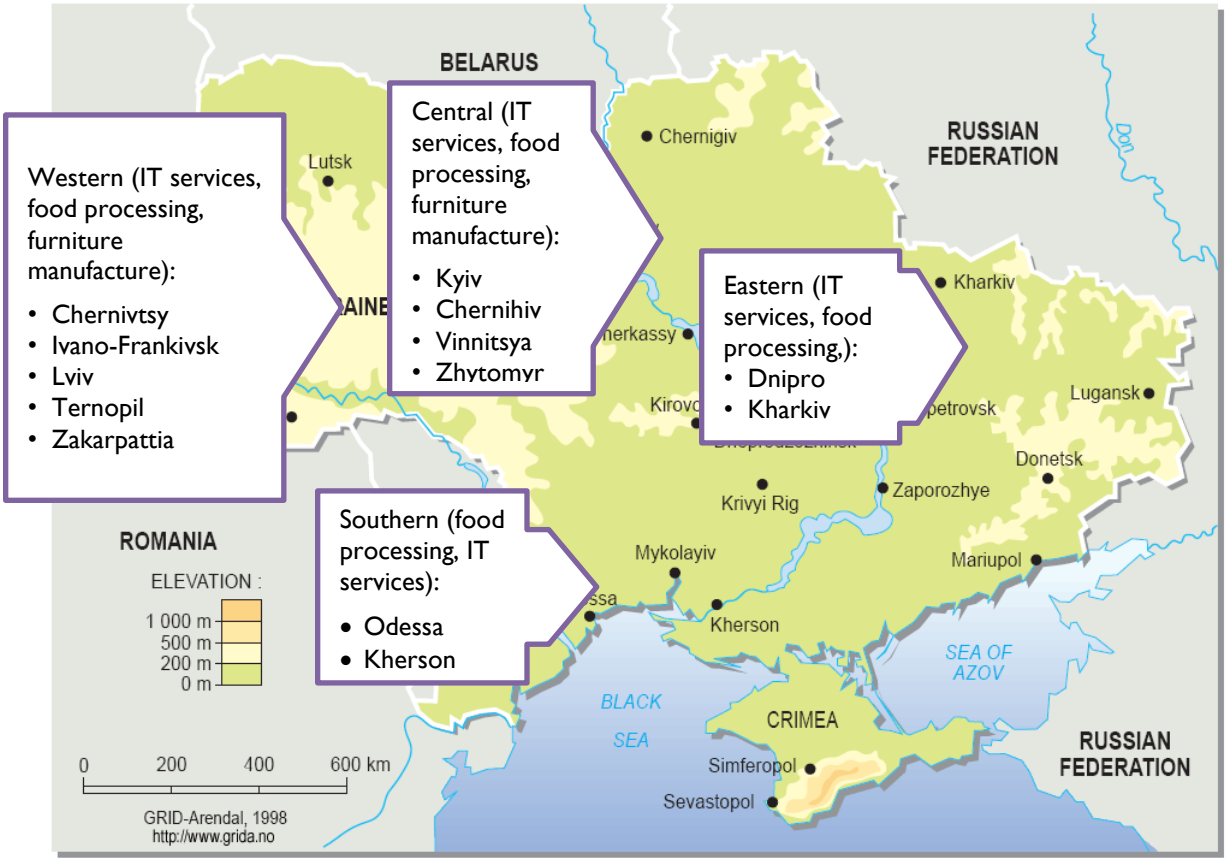
3. **Focus on Wood products and furniture manufacture:** CEP focus on the wood processing and furniture manufacturing sector will also respond to strong potential for growth, export market penetration, domestic investment and FDI, and entrepreneurship and design innovation. The sector is burdened by the reputation and fact of illegal logging and non-respect of FSC standards. CEP has opportunity to work with responsible businesses to develop design-led product lines, and to promote these products domestically and through export market channels. There are many opportunities for horizontal B2B collaborations. The industry can also build on the interest of EU brands to extend their supply base and access a lower-cost manufacturing base. These responsible entry points can then be extended to build greater respect for certifications and legal behavior.

4. **Prioritize operational efficiency in geographic targeting:** IT clusters are centered on a number of major cities, while food processing is ubiquitous across the entire country. Furniture manufacture is concentrated in Western Ukraine and around Kyiv. A national approach to working with the sectors is unrealistic given the size of the country. Operational efficiency and synergies can be achieved by selecting sites in several poles where multiple selected sectors are represented. These might include, for example:

    - Central – Kyiv with potential outreach to enterprises in proximate sites such as Chernihiv, Vinnytsya, and Zhytomyr
    - Eastern – Dnipro or Kharkiv
    - Southern – Odessa with potential outreach to enterprises in Kherson
    - Western – Potential sites include: Chernivtsy, Ivano-Frankivsk, Lviv, Ternopil, Zakarpattia

    Kyiv is crucial as the metropole for addressing public policy issues, as well as for access to the largest domestic consumer market in the country. Western Ukraine contains geographic diversity (the Carpathian range) that will lend diversity to types of food processing enterprises included and that is the center of the wood processing and furniture industry. In final selection of sites, CEP should also consider leveraging regional promotion strategies and investment where possible, i.e. city promotion in Dnipro, export council promotion activities in Ternopil, etc.

Figure 144: Potential Geographic Focus



5. **Local Opportunities in other Sectors:** An advantage of the regional focus will be that CEP will be able to engage intimately with businesses and planners and promoters in individual regions; to recognize opportunities in other sectors. With presence in the location, CEP can support these opportunities. CEP could for example, consider opportunities to promote tourism in Western Ukraine or Odessa, including sector-related tourism like agro-tourism related to Carpathian regional specializations, and Odessa, where 'Bessarabian' specializations are prominent.

6. **Building Ecosystems:** During field research, respondents frequently expressed interest in start-up ecosystems development. Ecosystems development is best known in IT and digitally-enabled Technology, but also offers potential other sectors. Strong ecosystems result from the presence of effective incubators and accelerators, academic institutions that provide relevant graduates and learning opportunities as well as technology commercialization, supportive local administration, and linkages to early stage finance. While this approach currently exists in Ukraine, none of the existing eco-systems are "world class" and is often undermined by poor linkages between skills providers and universities and businesses. As a strong local actor, CEP can help to develop Ukrainian ecosystems.

7. **Creative Industries:** In conducting the Assessment, the team looked carefully at the possibility of CEP working with creative industries as a focus sector. Creative industries are a diverse and fragmented group of economic activities, but with commonalities of innovation and imagination, even of artistic nature. Creative industries as a sector, or individual subsectors, were not of a size or nature to stand on their own as a focus sector for CEP. But it is evident that the competitiveness solutions for each sector will require the services of creative businesses (e.g.: digital media, advertising and promotion, branding), and elements of the recommended focus sectors (e.g.: graphics and other digital-enabled media, craft and traditional foods) are themselves creatives.

8. **Emerging Industries:** Another point of attention for the assessment was to identify and consider opportunities to work with emerging industries. Other than IT and digitally-enabled businesses, no apparent emerging industry has reached a scale in Ukraine that enable CEP to consider it to be a focus sector. Yet many novel startups are being created and many are growing, and many synergies between IT and technologies are emerging. There are many strong emerging segments in the recommended focus sectors of food processing and wood products and furniture. The team considered aviation as a possible opportunistic sector, but there are few apparent entry points for CEP, and the project is unlikely to generate substantial results in this sector within the 5 years of CEP. There is good basis for considering engineering services and possibly precision manufacturing as a growth opportunity, but again, the entry points are unclear, and scale is insufficient for CEP as a primary emphasis.

   There is clearly opportunity for Ukraine in the smaller, more fragmented businesses and business models, however – particularly in engineering-based technology and manufacturing sectors. These will often have linkages with digital technologies. We recommend that CEP consider project strategies for working with such businesses or collections of businesses, possibly in defined locations but also possibly across several industry sectors. Such approaches could perhaps harness enterprise development methodologies, target shared constraints and needs, promote productivity improvements and improved business models. CEP could investigate these opportunities in depth over the next several months, particularly as the project commences operations in specific geographies.

9. **Recommended Next Steps:** We recommend NOT treating Phase 3 as another analytical phase. Rather, we suggest that it constitute the major first part of engagement and implementation with the sector businesses. Upon USAID approval of sectors, the recommended next steps are the following:

   1. Between Phases 2 and 3, **identify and vet convening organizations** for each sector and location
   2. Individual preparatory meetings and **2-3 workshops** with business and others sector actors:
      a. **Validate the findings and conclusions** of the Phase 2 sector assessments

b. Help stakeholders to **target specific strategic objectives**
c. Stakeholders and CEP **identify and commit to actions to achieve quick wins**
d. Begin to create **working groups**
e. **Identify data and information** needed to help define and implement strategies and action plans.

3. **Prepare strategic workplans inclusively with the sector actors**. Strategic objectives, main elements of strategy, what stakeholders commit to do, how CEP will help.

ANNEX 1: SCOPE OF WORK

Sector Selection (J.E. Austin Associates)

A. BACKGROUND:

The purpose of the Competitive Economy Program (CEP) is to encourage startup businesses and small and medium sized enterprises (SMEs), increase domestic market competition, and support the competitiveness of Ukrainian firms in international markets. To achieve this purpose, CEP is comprised of five component activity areas that fall into two distinct categories – those that promote the competitiveness of Ukraine's economy and its firms, and those that facilitate trade. As part of its Year 1 objectives, CEP is required to conduct a sector assessment informing the selection of two industries for initial project support, followed by a third in sector/industry in Year 2.

B. PURPOSE AND OBJECTIVE:

The JAA team will assist the project in making the best selection possible of two sectors or industries. During December 2018 and January 2019, CEP will be fielding an expert team from J.E. Austin Associates, Inc. (JAA), to conduct a short-term technical assignment to assist the project in making this sub-sector selection based on data analysis and interviews with industry stakeholders and Government of Ukraine officials. The selected sectors will reflect new or emerging industries in Ukraine that have the potential to grow rapidly, succeed in export markets, generate a significant amount of investment and a number of new skilled jobs. The JAA team brings decades of experience in international development, implementing and evaluating projects funded by USAID and other donors and multinational agencies. JAA has implemented similar selection assignments in more than 20 countries.

C. SCOPE OF WORK:

The sector selection process will be carried out in three phases:

1) **The first phase (estimated November 22 - December 7, 2018)** is the market analysis. JAA will choose initial sectors from the long list of potential sectors, in collaboration with the local research firm. The focus will be on shortlisting sectors that have growing and dynamic markets, with channels that are looking for new suppliers and investors. JAA will examine trends that correspond both with the demand in the target markets (EU, Turkey, China, Middle East) and with Ukraine's competitive strengths. The team will collect information including size/scale of production, Ukraine and global exports and imports, RCAs, job trends, and policy barriers by using databases, such as:
    - State Statistics Service of Ukraine
    - International Trade Centre (ITC) - Trade Maps
    - FAOSTAT food and ag data from FAO
    - UN Comtrade database- for export and trade data
    - WB WDI - for macro indicators
    - Eurostat (general and regional stats for EU
    - UN WTO- tourism stats
    - OECDSTAT- data for OECD countries
    - WEF- for Global competitiveness reports
    - WB Doing business – benchmark rankings
    - Other relevant databases

The output of this phase will be a shortlist of up to five potential industries.

2) **During the second phase (estimated December 9-20, 2018).** During this phase, JAA will carry out deeper analysis and assessment of the shortlisted industries from the phase 1. JAA will field a team of four international experts who will coordinate data collection in Phase II with a local research/consulting firm, which will assist in data collection, setting up meetings, and providing a logistical support and translation as needed. In Ukraine the four consultants will decide which regions to focus on and will split up to visit the selected locations to interview company decision-makers, associations, and other knowledgeable experts to develop deep understanding of the emerging industries and industries with potential in these regions. They will then finalize the ranking of the five industries and industry subsectors, based on what regions to focus on and criteria such as:
   - Potential for employment generation
   - Potential for future exports
   - Potential for GDP contribution
   - Potential for future additional investment mobilization or attraction
   - Ability of the project to contribute something useful to the industry that would make a difference in company/industry performance (e.g. convening power, technical assistance, grants, study tours, assistance at trade shows, facilitating public-private dialogue)
   - Potential for contributing to the competitiveness of other industries (if relevant)

The team will then benchmark the two selected industries and apply additional tools to identify binding constraints and promising areas of action, using gap analysis, the Porter Diamond and other competitiveness tools. The team will also conduct selected calls with firms based not only in Ukraine but also in target markets where relevant to "ground truth" the findings regarding the competitiveness of the top two industries identified. The team will then suggest specific initiatives and recommendations as to sequencing based on initial interaction with the industries and their knowledge of the global industry and what buyers want. If relevant, the team may include 1-2 days of interviews in locations such as Frankfurt, Munich on the inbound or outbound flights. Moreover, the team will pre-select the 3rd industry for consideration to work starting in the Year 2. This selection will be validated towards the end of the year 1.

3) **The third phase (estimated January 7- February 2019)** is the validation phase. JAA will confirm the data collected, and with leadership in the two priority industry subsectors/value chains, develop work plans and ensure commitment from a core group of companies to the work plans. These work plans are due within 45 days after the final approval of the selected subsectors/value chains by USAID. To implement this process, the team will engage value chain actors, support firms, academia, and business associations.

The assessment will engage business sector representatives, including industry associations, lead firms, BSOs, and donor organizations engaged in economic growth programs, such as the World Bank, EBRD and GIZ, and government officials.

During implementing this selection, the team will work collaboratively with industry leadership. We will thus begin to develop the communications and relationships that will lead smoothly to implementation of the project objectives based on the workplan developed with industry/private sector and other stakeholders' inputs.

DELIVERABLES

The deliverables will include:

1) Inception report on sector shortlisting findings, upon visit to Ukraine by Mr. Webber, Mr. Isahakyan and Mr. Arocha;
2) Comparative analysis of 5 industries, including ICT and agricultural processing, based on the criteria discussed above; and recommendations for initial strategic initiatives for two of these industries towards the end of the phase 2;
3) Final Report with recommendations for 2 subsectors/value chains and a possible industry for the year 2
4) Presentation of findings and recommendations to USAID, as required.

LEVEL OF EFFORT

JAA will field Martin Webber - Team Leader and Value Chain Selection Advisor, Marcos Arocha- Competitiveness and Industry Analysis Advisor, Karen Isahakyan- Sector Selection Expert, David Rinck,- Sector Selection and Policy Analysis Expert.

After the selection, JAA will provide Sector Experts for selected industries who will assist in drafting strategies and roadmaps for development of these industries.

Estimated LOE for the assignment is included below:

Activity	**Lead Expert**	**Estimated JAA Level of Effort** (Local CEP personnel will also participate in the work)					**Total LOE**
		Martin Webber	Marcos Arocha	Karen Isahakyan	David Rinck	Sector STTAs (TBD)	
Prepare draft and final concept notes or templates for each activity	Martin Webber	2	2	2			6
Perform initial background research needed for each activity	Martin Webber	2	7	7	1		17
Meetings with stakeholders in Kyiv and outside of Kyiv (phase 2)	Martin Webber	10	10	12	12		44
Meetings and Workshops with sector stakeholders (Phase 3)	Martin Webber	12	12	12	12	40	76
Report writing/Presentation	Martin Webber	12	5	5	5	4	38
Travel	all	4	4	4	2	4	18
Subtotals		42	40	42	35	48	207

PLACE OF PERFORMANCE

The team will perform their duties in from their home base and in Ukraine (Kyiv and selected other locations). They may also meet with companies or experts in locations such as Munich or Frankfurt during inbound or outbound travel.

REPORTING INSTRUCTIONS

The consultant will report to the Project Chief of Party, or her designee, who will be responsible for supervising the consultants' performance and interact with other expert(s) fielded for this assignment

COP APPROVAL:

I hereby approve this Scope of Work, the proposed employee and all international travel required to undertake this assignment.

_____ _____

William Seas, COP: Date:

ANNEX 2: SECTOR SELECTION SCORING MATRIX

Table 33: Sector Selection Scoring Matrix

		SCORE					
CRITERIA	**WEIGHT**	**Very Low**	**Low**	**Med.**	**High**	**Very High**	**VALUE**
1. Sector Growth Potential (25%)							
Achievable exports growth for the product/service	45%	10.0%	30.0%	50.0%	70.0%	90.0%	
Scalability of supply of product/service in response to market opportunity (cost, infrastructure)	20%	10.0%	30.0%	50.0%	70.0%	90.0%	
Potential to encourage investment (domestic and foreign)	20%	10.0%	30.0%	50.0%	70.0%	90.0%	
Size of the domestic market that can be served	15%	10.0%	30.0%	50.0%	70.0%	90.0%	
Criteria 1 Score							**0.000**
2. Sector Potential for Export Market Penetration (25%)							
Market characteristics that encourage competitiveness (cost, demand, profitability)	25%	10.0%	30.0%	50.0%	70.0%	90.0%	
Value added of the product/service in Ukraine	25%	10.0%	30.0%	50.0%	70.0%	90.0%	
Comparative strengths or weaknesses of the sector	25%	10.0%	30.0%	50.0%	70.0%	90.0%	
Ability of the upgraded sector to respond reliably and competitively to market requirements	25%	10.0%	30.0%	50.0%	70.0%	90.0%	
Criteria 2 Score							**0.000**
3. Sector Job Creation Potential (20%)							
Potential to create jobs (base and forecast)	100%	10.0%	30.0%	50.0%	70.0%	90.0%	
Criteria 3 Score							**0.000**
4. Sector Potential for Entrepreneurship and Innovation (20%)							
Evidence of champions for change	25%	10.0%	30.0%	50.0%	70.0%	90.0%	
Ability to access finance for growth	25%	10.0%	30.0%	50.0%	70.0%	90.0%	
Potential for entrepreneurship and innovation	25%	10.0%	30.0%	50.0%	70.0%	90.0%	
Available skills	25%	10.0%	30.0%	50.0%	70.0%	90.0%	
Criteria 4 Score							**0.000**
5. Business Enabling Environment and Regulatory Framework (10%)							
Legal and regulatory constrains	60%	10.0%	30.0%	50.0%	70.0%	90.0%	
Alignment with government priorities	40%	10.0%	30.0%	50.0%	70.0%	90.0%	
Criteria 5 Score							**0.000**
6. Other Factors (n/a)							
Potential for female participation and empowerment	n/a	0.0%	12.5%	50.0%	70.0%	90.0%	
Potential to engage youth	n/a	0.0%	12.5%	50.0%	70.0%	90.0%	
Sector Score							**0.000**

ANNEX 3: SELECTED BIBLIOGRAPHY AND REFERENCES

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ANNEX 4: KEY INFORMANT INTERVIEW CONTACTS

Table 34: Key Informant Interview Contacts

NAME	TITLE	AGENCY / ASSOCIATION
Baran Taras	Commercial Director	Agroprodservice
Bigay Kirill	CEO	Preply
Bigdai Vitaliy	Director of Export Promotion at WNISEF	WNISEF
Brevus Vitalii	Director, Founder	Scallhive
Charles K. Whitehead	Professor of Law Director, Law, Technology & Entrepreneurship Program Myron C. Taylor Alumni Professor of Business Law	Cornell Tech, Cornell Law School
Davidenko Alexandr	COO	Petcube
Dovganych Oleksi	Manager	Fashion Cluster in Lviv
Dudiak Oleksandr	Head of Business Development	Tercom
Dudka Valentyn	Co-owner	Galychanka trademark
Dyakiv Oleh	Director	Vinisan (artificial leather)
Dziubaniuk Nazar	Director	Elitphito
Efremyov Konstantin	Director	World Data Center
Fairlamb Deborah	Consultant and Adviser to Oksana Markarova	Minister of Finance of Ukraine Ukrainian National Startup Fund
Glazkova Kateryna	Executive Director	SUP, a union of Ukrainian entrepreneurs
Gniters Olena	Owner	Pikoly, kids clothing and embroidered shirts
Golikov Maksym	CEO	Zelena Hryadka (Green Patch)
Goshovskiy Vasyl	City Centre of innovations Director	City Administration: Department of Economics and Investment + City Centre of innovations
Guseva Olena	Owner	Guseva kids, Tailoring school
Harlan Eugeniy	Owner and CBDO	IBerry
Hraban Valentyna	Executive Director	Ukrainian Association of Furniture Manufacturers
Hrytsak Vasyl	Director	Tercom
Hrytsenko Mykola	Markets Development Director	USAID Agriculture and Rural Development Support Project

Janice Charter	Antimonopoly Advisor	US Federal Trade Commission
Kalinin Ivan	CEO	Atllas
Katerina	Director	AgroCluster
Kazmirchuk Oleg	Deputy Head of Economic Department	Ternopil Regional Administration
Khaburskiy Rostyslav	Co-Owner	Khita furniture
Khodak Lyubomyr	Chairman	Ivano-Frankivsk IT Cluster
Khudo Andriy	Founder, General Manager	Festrepublic
Kobalsky Hennadiy	Project Manager	Techinservice
Kobzarev Oleksandr	Director	Lviv City Institute
Kolos Andrey	Director SME department	Kharkiv State Administration + Associations
Konovalova Iryna	Kharkiv Office Team Leader	EBA Kharkiv
Korman Nazar	Owner	Kortex, a sewing company
Korzh Ruslan	CEO	Upromex
Kryvonos Maksym	General Director	LEDLIFE
Kushnir Viktor	Director of Export Promotion	Molokiya
Kutuzov Sergii	Director	Eleks
Lawrence Held	Chief of Party	USAID SACCI (Support to Anti-Corruption Champion Institutions) Program
Liubov	Director	Hommie
Logosha Galyna	Head of the Marketing Department	Artika
Lukashuk Irina	Sales Director	Liqberry
Lysyi Volodymyr	Finance Manager/Accountant	Sumitomo Electric Bordnetze, car parts
Lyubinets Yaroslav	Chairman	SoftServe
Mazur Kiril		Imperious Group VC, US$25 million. VC fund
Meghan Iorianni	Advisor	US Federal Trade Commission
Merilo Jaanika	Deputy Mayor	Dnipro City Council
Mezhynskiy Maxym	Director	Stojka
Mudrik Roman	CEO	Green Sofa
Muratov Oleksandr	Owner	Design Loft
Naida Nataliia	Owner	Framiore
Nosko Antonina	Manufacturing Director	Craft chocolate manufacturer "Spell Chocolate"
Novikova Svetlana	Director	IT Enterprise
Ohonovskyi Yurii	Event Director at Lviv IT Cluster	Lviv IT Cluster
Olga Gavrilova	Director	Shantil
Opatska Sophia	Founder, Dean	Lviv Business school

Ozorovych Maryana	CEO	Ivano-Frankivsk IT Cluster
Panchenko Artem	Head of Academic Affairs	CAPS (Civil and Political School)
Panda Charan	Chairman of the Board of Directors and co-owner of "Delta Wilmar CIS"	Delta Wilmar
Paskevich Konstantin	CEO	Eco-meat LTD
Patrick Rader	Chief of Party	USAID Agriculture and Rural Development Support Project
Pavlos Olga	Deputy Director	Molokiya
Petrenko Ivane	Manager	Lviv Business School - Entrepreneurship Center
Pogosyan Vitaliy	Director of the Department of Economics and Investment	City Administration: Department of Economics and Investment + City Centre of innovations
Popadyuk Ihor	Head of Investment Department	IF City Council
Poroshenko Yulia	Founder	Agrohub, an organization for implementation of innovations into Ukrainian agribusiness
Porseva Iryna	Director of Center for Entrepreneurship	Ternopil Regional Administration
Pukshyn Nataliya	Director	Company "Blue Berry", Global GAP certification
Rabay Maryana	Owner	Sambay
Rozov Andrey	Financial Director	Kwambio
Ruschyshyn Yaroslav	Director	Trotolla
Ryabokon Michael	Chairman	Noosphere
Samborskiy Ivan	CFO	Agroprodservice
Samets Yuriy	Founder	Sambay
Schmelev Mikhail	National Technical Director	Microsoft Ukraine
Shapoval Olga	Executive Director	IT Cluster Kharkiv + other IT companies
Shemet Dmitry	CEO	RnD64
Shemyakin Denis	Team Leader	RST team the Ministry of Economic Development and Trade of Ukraine
Shmid Yaromyr	Project Coordinator of Foreign Economic Relations and Investment Office	Lviv City Council
Shymkiv Liubomyr	Branch Director	Ukrainian Academy of Leadership
Sidor Andriy	Head	Lviv Touristic Alliance

Slavskiy Olexandr	Program Director	Impact Hub
Solodkaya Yulia	Director	Family cheese factory
Solovey Olexandr	Founder	Finmap
Solovey Olexandr	Founder	Drommel Furniture
Sophina Dmitry	Founder	Vinnytsya IT association + Winstars Technology IT company
Sudarkina Natalia	CEO	Agro-patriot, https://chesnok.in.ua/about-us/
Sydorkina Kseniya	PMP, Deputy Director	USAID Agriculture and Rural Development Support Project
Syvak Olha	Representative in Western Ukraine	UkraineInvest
Tikhomirova Iryna	President	International Institute of Management MIM-Kyiv
Tokmylenko Oleksandr	Co-Founder / COO	Promprylad - Rennovation / Teple Misto
Tom O'Callaghan	Partner & CEO	Black Earth Innovation at Black Earth Innovation
Veremeeva Natalya	CEO	Kyiv IT Cluster
Vervega Taras	Co-Founder	SoftServe
Veselovskyi Stepan	CEO	Lviv IT Cluster
Vestbjerg Lars	General Manager, Head	Sika Footwear + Danish Business Association
Victoria		Ukr-Progresstech LLC, plane parts
Viktorovich Yaroslav	CEO	Blanche
Viter Iryna	Director for development of economic sector	Ternopil Regional Administration
Volyanyk Halyna	Director of Economic Department	Ternopil Regional Administration
Vorobey Volodymyr	Managing Director	PPV Knowledge Network
Yakovenko Valeriy	Co-founder	Drone.ua
Yakover Maksim	Founder	UNIT City, the first Ukrainian innovation Park
Yurchak Alexandr	General Director	Association of Industrial Automation of Ukraine
Yuriy Fylyuk	CEO	Teple Misto
Zavorotnitskiy Olexandr	Founder	Local Foodie, https://chorizo.com.ua/
		DX Systems
	Director	Textile and apparel association "Fashion Globus Ukraine"
		TM "Gracia"

Agrana fruit Ukraine
Vinnytsya Food & Gustatory Factory

ANNEX 5: INTERVIEW GUIDE – AGENCIES AND ASSOCIATIONS

Sector (NACE Code) and *meetings need*

1. Vegetable Oils (C10.4.1) – *Limited meetings with SMEs, specialty oils*
2. Outsourcing/IT services (J62 and J63) – *Broad range of meetings over all regions*
3. Wood processing (C16) and furniture (C31) – *Meetings as needed*
4. Apparel (C14) and Foot Wear – *Meetings as needed*
5. Tourism – *Limited meetings as needed*
6. Dairy (C10.5) – *Limited meetings as needed*
7. Beekeeping (A1.4.9) – *Limited meetings as needed*
8. Light manufacturing (C27) – *One or two meetings*
9. Meat (C10.1.3) – *Limited meetings as needed*
10. Processed Foods – *Broad range of meetings over all regions, focus on fruits and vegetables*
11. Sugars (C10.8.1)/Confectionery (C10.8.2) – *One or two meetings*

Region

1. Central (Kyiv)
2. Eastern (Kharkiv, Dnipro)
3. Western (Lviv, Ivano-Frankivsk, Ternopil)
4. Southern (Odessa)

Pre-meeting background

1. Name and sector
2. Mission, goal and objectives
3. Regional / international presence and focus
4. Importance of organization within its sector
5. Brief history
6. Key individuals and titles
7. Member structure (companies, sectors) with specific reference to companies operating in sectors of interest or related sectors
8. Description of member services and projects

General meeting agenda

1. Introduction to CEP project
2. Purpose of meeting (eliciting views and information on high growth potential industries)
3. Introduction to organization being interviewed (if necessary)
4. Questions about sector
5. Interest in collaboration with CEP?
6. Request for copies of relevant reports produced by the association
7. Request for introductions to companies and other stakeholders identified during meeting
8. Next steps

1. Interview Data

Interviewer Name	
Interview Date (MM/DD/YYYY)	
Interview Site (City)	
Sector (*see Sector Key*)	
Region (*see Region Key*)	
Company Name	
Interviewee Name	
Interviewee Job Title	
Interviewee Gender	MALE / FEMALE

2. Multi-sectoral chambers / associations

1. What is your organization's perspective on current trends in the sectors you work with? Which sectors/industries are performing best/worst and what are their prospects for future development in terms of:
    a. Domestic and export sales
    b. Growth in GVA and productivity
    c. Innovation
    d. Workforce development
    e. Marketing and packaging
    f. Raw material sourcing
2. What competitive advantages do Ukrainian companies have in these sectors vis-à-vis regional export markets, in terms of:
    a. Cost
    b. Quality
    c. Productivity
    d. Other factors
3. Comparing these sectors, how would you rank their prospects for increasing domestic sales and exports, scaling up, attracting investment in the medium – long term?
4. Are there any specific companies that you consider engines for growth (creating opportunities for supply chain development in the industries under discussion)?
5. What are the constraints that affect the performance of these sectors, differentiating between industry specific and general constraints?
    a. Strategy and competition
    b. Technology and innovation
    c. Skills and knowledge
    d. Quality management, internationalization etc.; material resources; access to finance; industrial policy & regulatory, national infrastructure etc.)?
6. What services does your organization provide to help members/constituents tackle these problems, and what challenges do you face in providing these services? Which external institutions and organizations have you collaborated with providing these services?
7. How do you think your members/constituents could benefit by collaborating with CEP?
8. Can you share quantitative data and reports on the sectors of interests to CEP?

2. Industry (sector-specific) associations

1. What is your organization's perspective on current trends in the sector you work with in terms of:
    a. Domestic and export sales
    b. Growth in GVA and productivity
    c. Innovation
    d. Workforce development
    e. Marketing and packaging
    f. Raw material sourcing
2. What competitive advantages do Ukrainian companies have in your sector vis-à-vis regional export markets, in terms of:
    a. Cost
    b. Quality
    c. Productivity
    d. Other factors
3. Comparing these sectors, how would you rank their prospects for increasing domestic sales and exports, scaling up, attracting investment in the medium – long term?
4. Are there any specific companies in your sector that you consider engines for growth (creating opportunities for supply chain development in the industries under discussion)?
5. What are the constraints that affect the performance of your sector, differentiating between sector-specific and general constraints?
    a. Strategy and competition
    b. Technology and innovation
    c. Skills and knowledge
    d. Quality management, internationalization etc.; material resources; access to finance; industrial policy & regulatory, national infrastructure etc.)?
6. What services does your organization provide to help members/constituents tackle these problems, and what challenges do you face in providing these services? Which external institutions and organizations have you collaborated with providing these services?
7. How do you think your members/constituents could benefit by collaborating with CEP?
8. Can you share quantitative data and reports on the sectors of interests to CEP?

3. Inclusivity (all interviews)

1. What is the gender breakdown of your members or users?
2. Between your male and female members/participants/users, do you see differences in:
    a. Usage of financial services
    b. Usage of technology
    c. Usage of sector-specific education/training opportunities
    d. Usage of good-quality inputs (if applicable)
3. Where do you see a high presence of women in this sector(s)?
    a. Which value chains (if multiple)?
    b. What kind of presence in the value chain (inputs, production, processing, sales, etc.)?
    c. Any presence in supporting services (marketing, finance, consulting etc.)
4. Where do you see a high presence of youth in this sector(s)?
    a. Which value chains (if multiple)?
    b. What kind of presence on the value chain (inputs, production, processing, sales, etc.)?
    c. Any presence in supporting services (marketing, finance, consulting etc.)
5. How would you rank the level of youth interest in this sector (low, medium, high)?
6. How can more youth/women be attracted to this sector(s)?

ANNEX 6: INTERVIEW GUIDE – COMPANIES

Sector (NACE Code) and *meetings need*

12. Vegetable Oils (C10.4.1) – *Limited meetings with SMEs, specialty oils*
13. Outsourcing/IT services (J62 and J63) – *Broad range of meetings over all regions*
14. Wood processing (C16) and furniture (C31) – *Meetings as needed*
15. Apparel (C14) and Foot Wear – *Meetings as needed*
16. Tourism – *Limited meetings as needed*
17. Dairy (C10.5) – *Limited meetings as needed*
18. Beekeeping (A1.4.9) – *Limited meetings as needed*
19. Light manufacturing (C27) – *One or two meetings*
20. Meat (C10.1.3) – *Limited meetings as needed*
21. Processed Foods – *Broad range of meetings over all regions, focus on fruits and vegetables*
22. Sugars (C10.8.1)/Confectionery (C10.8.2) – *One or two meetings*

Region

5. Central (Kyiv)
6. Eastern (Kharkiv, Dnipro)
7. Western (Lviv, Ivano-Frankivsk)
8. Southern (Odessa)

Growth

1. Significant decline
2. Declining
3. Stable
4. Growing
5. Significant growth

Importance

1. Not important
2. Somewhat important
3. Important
4. Very important

Likelihood

1. Very unlikely
2. Unlikely
3. Likely
4. Very likely

Prices

1. Much lower
2. Lower
3. Same
4. Higher
5. Much higher

Comparative Quality

1. Much poorer
2. Poorer
3. The Same
4. Better
5. Much better

Knowledge Level

1. Very Poor
2. Poor
3. Good
4. Very good

Innovation

1. Very low
2. Low
3. High
4. Very High

BDS Cost

1. Very low
2. Low
3. High
4. Very High

BDS Quality

1. Very low
2. Low
3. High
4. Very High

Youth Interest

1. Low
2. Medium
3. High

Interview Data

Interviewer Name	
Interview Date (MM/DD/YYYY)	
Interview Site (City)	
Sector (*see Sector Key*)	
Region (*see Region Key*)	
Company Name	
Interviewee Name	
Interviewee Job Title	
Interviewee Gender	MALE / FEMALE

1. Sector Overview

What are your products/services? LIST	
What are your raw materials and where do you source them *(note which are produced in Ukraine)*? LIST NOTES	
Which other sectors and industries are related to your operations and how *(note which are produced in Ukraine)*? LIST NOTES	
What locations (cities, regions) are related to the sector i.e. suppliers, markets, concentration of sector (how are they related and why)? LIST NOTES	
Please describe current production trends (*see Growth Key*) RATE	Overall growth (1-5):
Current production trends NOTES	*Notes*
Please describe current trade volume and trade value trends *(see Growth Key)* RATE	Overall trade volume (1-5): Overall trade value (1-5):
How much trade is international versus domestic? PERCENT	Percent domestic: *XX%*
What is the importance of your current markets (*see Importance Key*)? RATE	Ukraine (1-4): Former USSR (1-4): EU (1-4): North America (1-4): Other (list below) (1-4):
List of "other" export markets LIST	
Please describe current trade trends in your sector NOTES	*Notes*
Please list important marketing channels (sales channels) LIST	
Describe important marketing channels NOTES	*Notes*
How much is employment growing in your sector *(see Growth Key)*	Growth (1-4):

Current employment trends in your sector NOTES	*Notes*
Please describe current B2B and outsourcing trends NOTES	*Notes*
Additional comments NOTES	*Notes*

2. Sector Growth Potential

2.1 Achievable Sector Export Growth

What are your future target export markets (*see Importance Key*)? RANK	Former USSR (1-4): EU (1-4): North America (1-4): Other (list below) (1-4):
What are other future target markets? LIST	
What is the likelihood of successfully entering or competing in these target markets *(see Likelihood Key)*? RANK	Former USSR (1-4): EU (1-4): North America (1-4): Other (list below) (1-4):
What are your (Ukraine's) market entry challenges to the CIS? NOTES	*Notes*
What are Ukraine's comparative advantages in the CIS? NOTES	*Notes*
What are your (Ukraine's) market entry challenges to the EU? NOTES	*Notes*
What are Ukraine's comparative advantages in the EU? NOTES	*Notes*
What are your (Ukraine's) market entry challenges to North America? NOTES	*Notes*
What are Ukraine's comparative advantages in North America? NOTES	*Notes*
What are your (Ukraine's) market entry challenges to *Other Markets* listed above? NOTES	*Notes*
What are Ukraine's comparative advantages in the *Other Markets* listed above? NOTES	*Notes*
What trade pacts are important to your sector (for example, FTAs)? LIST	
Why are these trade pacts important to your sector? NOTES	*Notes*
What barriers have you encountered in leveraging these trade agreements? NOTES	*Notes*

2.2 Sector Growth Potential

Do you use any types of ICT services to produce or market your products? If yes, please describe. YES/NO NOTES	Yes/No *Notes*

What new types of support services does your sector require for growth and upgrades? Are these services available in Ukraine/internationally? YES/NO NOTES	Yes/No *Notes*
Do you source support services from other small businesses? If yes, please describe YES/NO NOTES	Yes/No *Notes*

2.3 Sector Investment Potential

What are the barriers to investment in your sector? LIST and NOTES	
Are any financial available to promote growth in your sector? YES/NO NOTES	Yes/No *Notes*
Are there other official incentives to growth in your sector? How effective are they? NOTES	*Notes*
Are there special economic zones/industrial parks available for your sector? How effective are they? NOTES	YES/NO *Notes*

2.4 Domestic Market

How important is the domestic market for your sector *(see Importance Key)*? RANK	Importance (1-4):
What is the growth trend for your sector in the domestic market *(see Growth Key)*?	Growth (1-5):
What is the reason for this trend? NOTES	*Notes*
How do domestic prices compare to the prices of imports *(see Price Key)*? RANK	Domestic prices compared to prices of imports (1-5):
How much does competition from imported goods impact your sector (see Importance Key)? RANK and NOTES	How much impact (1-4): *Notes*

3. Potential for Sector Success in Target Market Penetration

3.1 Export Competitiveness Factors

Please list characteristics that determine competitiveness of Ukrainian products in target export markets. LIST	
How do Ukrainian produce compete with regard to these *characteristics (see Comparative Quality Key)*? LIST and NOTES	*Characteristic 1 (1-5):* *Characteristic 2 (1-5):* *Characteristic x (1-5):* *Notes*
How different are Ukrainian products currently from what markets require required in terms of Technical Standards, Quality, Employee Productivity, Packaging, Price *(see Comparative Quality Key)*?	Technical Standards (1-5): Quality (1-5): Employee Productivity (1-5): Packaging (1-5): Price (1-5):

Please describe the difference between current quality and market requirements NOTES	*Notes*
Please describe the difference between current employee productivity and market requirements NOTES	*Notes*
Please describe the difference between current packaging and market requirements NOTES	*Notes*
Please describe the difference between current price and market requirements NOTES	*Notes*

3.2 Ability of the Upgraded Sector to Respond to Market Requirements

How could the value of the current product be increased? NOTES	*Notes*
What is the level of market knowledge of companies in your sector *(see Knowledge Key)*? RANK	Level of knowledge (1-4):
What resources do you use to obtain market information? LIST	
What market linkages already exist in target markets? NOTES	*Notes*

4. Evidence of Viable Investor Interest in Sector

4.1 Evidence of Champions for Change

Please describe lead firms or early innovators and the roles they play as thought/practice/strategy leaders in the sector NOTES	*Notes*
Are these lead firms willing to serve or engage the needs of the sector market system? YES/NO NOTES	Yes/No *Notes*
Please describe other leaders – private or public sector – who can support lead firm investment and upgrading NOTES	*Notes*

4.2 Potential for Entrepreneurship and Innovation

Are there substantial numbers of new startups or new entrants? YES/NO NOTES	Yes/No *Notes*
What factors encourage or inhibit startups, new entrants? NOTES	*Notes*
Is there a supportive entrepreneurship ecosystem within the sector and in the pertinent locations? Where? NOTES	*Notes* *Notes (locations)*

What universities and research institutes support the sector?	*Notes*
Please describe any support you have received from universities or research institutes NOTES	*Notes*
What is the level of innovation in your sector *(see Innovation Key)* RANK	Level of Innovation (1-4):
Please describe examples of recent innovation in your sector NOTES	*Notes*
Please describe examples of your own recent innovation NOTES	*Notes*

5. Business Enabling Environment and Regulatory Framework

5.1 Business Development Services

Are business development services easily available? YES/NO NOTES Which services? NOTES	Yes/No *Notes* *Notes*
How reasonable is the cost of external business development services *(see BDS Cost Key)*? RANK	Cost of Services (1-4):
How is the quality of business development services *(see BDS Quality Key)*? RANK	Quality of Services (1-4):
Would companies in your sector hire or outsource services if they were available? YES/NO NOTES	Yes/No *Notes*

5.2 Legal and Regulatory Framework

How consistent are regulatory, legal or procedural norms? Are inconsistencies problematic for the operation of your business? NOTES	*Notes*
What policy, regulatory, legal or procedural constraints must overcome to expand competitiveness in your sector? NOTES	*Notes*
What options are available to address these constraints? NOTES	*Notes*

5.3 Available Skills

Is there sufficient supply of qualified workers for the sector? NOTES	*Notes*
Will the upgraded sector require an improved workforce or workforce with different skills? NOTES	*Notes*

Are there particular skills that are missing or insufficient? What types of upgraded skills will be required? NOTES	*Notes*
Which schools and other institutions are available to train needed personnel appropriately? NOTES	*Notes*
How do employees upgrade and learn new skills through their careers? NOTES	*Notes*
Are skills certifications available? Are additional ones needed? NOTES	*Notes*

5.4 Access to Finance for Growth

What sources of financing are available to your sector? LIST	
What is the importance of various source of finance to your sector *(see Importance Key)*? RANK	Dev. Finance Banks (EBRD, WB, etc.) (1-4): Commercial Banks (1-4): VC Funds (1-4): Other funds (list below) (1-4):
What are the current sources of financing in the sector for investment and working capital? NOTES	*Notes*
Will upgrades to the sector require additional outside financing? NOTES	*Notes*
Are current institutions able to provide financing? Which? NOTES	*Notes*

6. Other Factors

6.1 Synergies with Previous Donor Assistance

What project and programs have you worked with previously (Inc. donor name)?	
How important were these projects and programs (see Importance Key)?	*Importance of project or program (1-4):*
Please describe what was useful and what was not useful about these projects and programs NOTES	*Notes*

6.2 Government Priority

What level of priority does the government place on your sector *(see Importance Key)*?	Level of Priority (1-4):
What has the government done to prioritize tour sector? NOTES	*Notes*

6.3 Inclusion

What percentage of employees in your sector is under age 30?	Under age 30 (%):

How would you rank the level of youth interest in this sector (see Youth Interest Key)?	Level of youth interest (1-3):
What factors determine youth interest in your sector? NOTES	*Notes*
Where is youth presence concentrated in your sector, which types of activities? In which value chains? In which supporting services? NOTES	*Notes*
How can youth interest in your sector be increased? NOTES	*Notes*
What is the gender ratio in your sector at the leadership / technical expert / clerical or laborer?	Leadership - Female to total (%): Technical or Expert - Female to total (%): Clerical or Laborer - Female to total (%):
Where is female presence concentrated in your sector, which types of activities? In which value chains? In which supporting services? NOTES	*Notes*
How can equal female and male participation in your sector be achieved? NOTES	*Notes*

Remember to ask – *who else should we speak to!*

Please report potential additional interviewees that emerge over the course of the interview back to the research team.

ANNEX 7: SURVEY GUIDE

INTRODUCTION

Thank you in advance for the time you take to provide the information requested below. This information will be used by the USAID Competitive Economy Program (CEP) to improve the effectiveness of our support to businesses like yours. The information you provide will be treated as confidential and your responses will not be publicized in a way that identifies you or your company.

SECTOR

1. Please indicate the sector(s) in which you operate *(check all that apply)*:

☐ Apparel and/or footwear
☐ Wood processing and/or furniture
☐ Dairy processing
☐ Meat processing
☐ Fruit and vegetable processing
☐ IT and digitally-enabled technology
☐ Engineering services
☐ Tourism
Other (please indicate): _____

REGION

2. Please indicate the region(s) your facilities are located in *(check all that apply)*:

☐ Central (Kyiv, etc.)
☐ Eastern (Kharkiv, Dnipro, etc.)
☐ Western (Lviv, Ivano-Frankivsk, Ternopol, etc.)
☐ Southern (Odessa, etc.)

COMPANY SIZE

3. Please indicate the average size of your workforce during the year *(check one)*:

☐ Up to 10
☐ 10 – 50
☐ 51-249
☐ >249

RAW MATERIALS

4. Please indicate the main source(s) of your key raw materials or input supplies in value terms *(indicate approximate* %):

Domestic __%
Former Soviet Union __%
European Union __%
North America __%

Other __%

5. Please indicate the trend in the availability and costs of your key raw material supplies on a scale of 1-5 *(where 1 = Significant decline, 2 = Declining, 3 = Stable, 4 = Growing, 5 = Significant growth)*:

Trend in raw material supply availability (1-5): __
Trend in raw material supply costs (1-5): __

LABOR

6. Do you have sufficient labor workforce for your operational needs?

☐ Yes
☐ No

7. Please indicate the trend in the availability of qualified labor employed in your operations on a scale of 1-5 *(where 1 = Significant decline, 2 = Declining, 3 = Stable, 4 = Growing, 5 = Significant growth)*:

Trend in availability of qualified labor (1-5): __

8. Please indicate the level of skills for labor employed in your operations on a scale of 1-5 *(where 1 = Very poor, 2 = Poor, 3 = Adequate, 4 = Good, 5 = Very good)*:

Level of labor skills (1-5): __

MARKETS

9. Please indicate the importance of the following markets in which you sell your products in value terms *(indicating approximate* %):

Domestic __%
Former Soviet Union __%
European Union __%
North America __%
Other __%

10. Please indicate the overall sales growth trends in your markets (by value) by selecting the corresponding trend on a scale of 1-5 *(where 1 = Significant decline, 2 = Declining, 3 = Stable, 4 = Growing, 5 = Significant growth)*:

Domestic (1-5): __
Export (1-5): __

11. Please indicate the overall sales growth trends in your market (by volume) by selecting the corresponding trend on a scale of 1-5 *(where 1 = Significant decline, 2 = Declining, 3 = Stable, 4 = Growing, 5 = Significant growth)*:

Domestic (1-5): __

Export (1-5): __

COMPETITIVENESS

12. Who are your main competitors on domestic markets *(please indicate only one answer)*?

☐ Domestic producers (including foreign owned companies)
☐ Distributors of imported products
☐ Both equally

13. Please rate the competitiveness of your products or services against those of other Ukrainian companies based on the following qualities on a scale of 1-5 *(where 1 = Much lower, 2 = Lower, 3 = Same, 4 = Higher, 5 = Much Higher)*:

Prices: (1-5): __
Quality reputation: (1-5): __
Customer Service: (1-5): __
Timely delivery: (1-5): __
Innovation: (1-5): __

14. Please rate the competitiveness of your products or services against those of imports based on the following qualities on a scale of 1-5 *(where 1 = Much lower, 2 = Lower, 3 = Same, 4 = Higher, 5 = Much Higher)*:

Prices: (1-5): __
Quality reputation: (1-5): __
Customer Service: (1-5): __
Timely delivery: (1-5): __
Innovation: (1-5): __

15. Please rate the competitiveness of Ukrainian products or services of your industry in export markets based on the following qualities on a scale of 1-5 *(where 1 = Much lower, 2 = Lower, 3 = Same, 4 = Higher, 5 = Much Higher)*:

Prices: (1-5): __
Quality reputation: (1-5): __
Customer Service: (1-5): __
Timely delivery: (1-5): __
Innovation: (1-5): __

16. What level of impact will the following factors have on the competitiveness of the products / services of your sector over the next 5-10 years on a scale of 1-5 *(where 1 = Very low, 2 = Low, 3 = Some, 4 = High, 5 = Very High)*:

Prices: (1-5): __
Quality reputation: (1-5): __
Customer Service: (1-5): __
Timely delivery: (1-5): __

Innovation: (1-5): __

17. Please indicate the importance of the following challenges that companies in your sector face in improving competitiveness *(please indicate 1- 5, with 1 = least important and 5 = most important)*:

Market knowledge (1-5): __
Access to finance (1-5): __
Attracting investment (1-5): __
Innovating and improving design (1-5): __
Meeting technical standards (1-5): __
Availability of raw materials (1-5): __
Availability of outsourced services (1-5): __
Attracting qualified workforce (1-5): __
Adopting modern technology (1-5): __
Improving quality management (1-5): __
Effective marketing and distribution (1-5): __
Efficient transportation logistics (1-5): __
Providing after-sales support (1-5): __
Other (please indicate): _____

BUSINESS ENVIRONMENT

18. Please indicate the importance of the following challenges your industry faces to conduct business and trade *(please indicate 1- 5, with 1 = least important and 5 = most important. Please leave blank questions that do not apply or that you cannot answer)*:

Lack of information about official regulations (1-5): __

Authorities do not consistently enforce regulations (1-5): __

Competitors do not follow established regulations (1-5): __
Lack of information about official standards (1-5): __
Authorities do not consistently enforce standards (1-5): __

Competitors do not follow established standards (1-5): __
Lack of information about export requirements (1-5): __

Authorities do not consistently enforce export requirements (1-5): __

Competitors do not follow established export requirements (1-5): __
Other (please indicate): _____

19. Please indicate your level of awareness of the following business environment issues *(please indicate 1- 5, with 1 = no awareness and 5 = very aware)*:

How would you estimate your level of awareness of market access opportunities under trade agreements concluded by Ukraine? (1-5): __

How do you estimate your level of knowledge of trade barriers in markets besides Ukraine? (1-5): __

ANNEX 8: PHASE 1 SECTOR ASSESSMENTS

The following sector assessments were prepared internally for team use in considering the "long list" candidate sectors and developing the shortlist of focus sectors for Phase 2.

1. ANIMAL OR VEGETABLE FATS AND OILS

Table 35: Key Indicators for Animal or Vegetable Fats and Oils Sector

SECTOR	ANIMAL OR VEGETABLE FATS AND OILS (2017)
Production value	US$5.8 billion (3.6% of total Ukrainian production)
Production value CAGR 2012-2017	1.4%
Production value CAGR 2013-2017	-1.9%
Production value growth 2016-2017	-1.6%
RCA	19
Value added as a % of production	28%
Export value	US$4.6 billion (8.02% of total Ukrainian export)
Export value CAGR 2007-2017	10%
Export value CAGR 2013-2017	7.1%
Export value growth 2016-2017	16%
Share in world exports	4.6%
Untapped trade potential	US$3.9 billion
FDI stock	US$2.5 billion*
FDI stock growth 2013-2017	-4.5%*
Number of jobs (official)	27,800
Average income per month	US$227
Share of SMEs in total number of companies	99.05%*

*Notes: All data is presented for 2017. Share of SMEs is calculated for manufacture of food products. FDI stock is presented for all Food, beverages and tobacco products industry.

Key info. Animal and vegetable fats and oils, primarily vegetable oils, are the top export group in Ukraine – the oils generated US$4.6 billion of export in 2017 and exports grew at 6% annually in a global market that declined 1% per annum over the five years to 2017. Although the total production in value terms decreased by 1.9% per annum during the period 2013-2017, its share in Ukraine's total production remains more than 3%. The sector is characterized by large domestic market that has US$475 million in wholesale turnover, 98% of which is secured by Ukrainian producers. Consumer habits towards certain kinds of fats and oils (sunflower oil) are among the key drivers of domestic market. Also, the sector shows strong competitiveness on the international market with RCA of 19. The later may be explained by appropriate natural conditions for sunflower oil production.

Market structure. There are 590 enterprises were operating in the animal and vegetable fats and oils sector in 2017; 3.9% growth per annum over the five years to 2017. These are mostly SMEs (99%). Key segments include sunflower, rape and soybean oils[416]. Sunflower oil production and export is dominated by medium and large companies. HHI is 0.1. The top 3 companies account for one-fifth of the total sunflower oil production; the top 10 produce almost half. The key sunflower oil producers in terms of market share are Kernel (18%), Bunge (17%) and Delta Wilmar (15%). The same situation occurs in the market of rape and soybean oils, with HHIs of 0.25 and 0.13 respectively. Key companies in the rape oil market are Oliyar (33%), ADM (33%) and ViOil (19%). The soybean market is dominated by Astarta (24%), MHP (23%) and Pologivskii OEP (12%).84% of all agricultural land for sunflower oil is disposed by "agroholdings" (big companies), the rest belongs to farmers. The animal and vegetable oils and fats sector is mostly concentrated in the East of the country (Poltava, Kharkiv, Zaporizhzhia, Donetsk and Luhansk regions)[417].

Market performance. In terms of total value, production of the fats and oils sector amounted to US$5.8 billion in 2017. In the context of the economy of Ukraine, animal or vegetable fats and oils sector occupy a significant share of the value added generated in the country, comprising 2% (US$1.6 billion) of the total. However, the sector has moderate value-added potential. It demonstrates value added of at the level of 28% of production value and very high productivity with value added per employee tending to US$58,000.

International trade potential. In 2017, exports of animal and vegetable fats and oils amounted to US$4.6 billion (8% of total Ukrainian export), with the sector`s exports growing by 7% p.a. during 2013-2017. The growth is partly driven by increasing global demand for animal or vegetable fats and oils. Ukraine accounted for 4.6% share in world exports in 2017 (6th ranking in world exports). Ukraine is the largest exporter globally of sunflower oil (nearly 40% of world's exports). However, most oil exports are characterized as "crude" (US$3.9 billion). It should be also noted that most oil exports are done by large enterprises[418]. In addition, Ukraine's vegetable oils exports are well-diversified geographically; the geography concentration index of importing countries[419] is 0.15. However, despite already existing leading positions in this sector, there is large untapped trade potential[420] (US$3.9 billion). Particularly, gains may

[416] Private Companies / Aequo, Credit Agricole, Baker Tilly: https://agribusinessinukraine.com/get_file/id/the-infographics-report-ukrainian-agribusiness-2018.pdf
[417] Institution of higher education / Sumy National Agrarian University: http://agro-business.com.ua/agro/ekonomichnyi-hektar/item/8977-potochnyi-stan-ta-perspektyvy-rynku-soniashnyku.html
[418] Agrarian information agency / Agravery.com: http://agravery.com/uk/posts/show/top-25-eksporteriv-olii-z-ukraini
[419] The concentration is based on the Herfindahl index. It is calculated by squaring the share of each country in the selected market and by summing the resulting numbers, 0 stands for the high diversification whereas 1 means that the country has only one importer of the particular product (International Trade Center)
[420] The estimated untapped potential trade is the difference between the actual trade and the expected potential trade in five years' time (International Trade Center). Find more details in Annex 2

be achieved by exporting larger volumes to EU markets. Under the DCFTA between Ukraine and the EU, duties on soya beans, seeds, and seed oil (HS 1507, 1512) have been reduced from 9.6% to 0%. Imports to Ukraine are quite limited - US$0.3 billion, only 0.42% of the total Ukrainian imports.

Employment trends. 27,800 people are formally employed within the animal or vegetable fats and oils sector (0.5% of total country employment in 2017). The job creation trend is also positive - the number of jobs increased by 2.6% p.a. during 2013-2017. The average income in the sector (US$227) was below the country average in 2017; only 85% of the average income country-wide. In terms of gender income disaggregation, female employees earn on average 18% less than males (income disaggregation is taken for manufacture of food products, beverages and tobacco products).

Trends in investment. Although there is no official information on FDI in animal or vegetable fats and oils, the sector made over US$100 million of domestic investment in 2017.

Policy trends. Regarding the vegetable oil sector, the Ukrainian government temporarily restricted VAT refunds for exports of soybeans from September 1, 2018 and of rapeseed from January 1, 2020. This may encourage producers to reduce sowing area. Overall, agriculture and food are traditionally considered as Ukraine's most important sector, and therefore it is included to the Export Strategy of Ukraine 2017-2021 and is positioned by the National Investment Council as one of the most important sectors.

Table 36: Reasons to Shortlist Animal or Vegetable Fats and Oils Sector

REASONS TO SHORTLIST THE SECTOR	REASONS TO SKIP THE SECTOR
One of the largest contributors to the total value added in Ukraine (2%) One of the largest contributors to the total Ukrainian production (3.6%) Moderate resistance against crisis (CAGR of production value decreased by only 1.9% p.a. in 2013-2017) Positive CAGR of production value in 2012-2017 (1.4%) The largest contributor to the Ukrainian total exports (8%) and world exports (4.6%) Export growth by 7.1% p.a in 2013-2017 The highest value added per employee (US$57,748) Growing number of jobs by 2.6% p.a. in 2013-2017 0% quotas under DCFTA in place	Low share in total country employment (0.5%) Despite the low market concentration of local producers, exports of this sector`s products are mainly done by large enterprises High productivity per employee is likely linked to the commodity nature of the product and automation. Product is sold as a commodity, with little or no differentiation.

2. IT

Table 37: Key Indicators for IT Sector

SECTOR	IT (2017)
Production value	US$2.2 billion (1.4% of total Ukrainian production)
Production value CAGR 2012-2017	4.4%
Production value CAGR 2013-2017	-1.1%
Production value growth 2016-2017	20%
RCA	2
Value added as a % of production	52%
Export value	US$2.8 billion (4.8% of total Ukrainian export)
Export value CAGR 2007-2017	22%
Export value CAGR 2013-2017	12%
Export value growth 2016-2017	19%
Share in world exports	0.53%
Untapped trade potential	N/A
FDI stock	US$2 billion
FDI stock growth 2013-2017	3.1%
Number of jobs (official)	53,800
Average income per month	US$452
Share of SMEs in total number of companies	100%

Notes: All data is presented for 2017.

Key info. IT sector is a driving force of Ukrainian economy, generating US$2.8 billion of export in 2017 and growing at 12% annually in the global market that grew 6.5% per annum over the five years to 2017. Officially, the sector demonstrated slight decrease in output in the recent years (-1.1% p.a. in the period of 2013-2017). However, most of the companies in the market work unofficially or with a foreign registration. Ukrainian domestic market for IT services is quite small, resulting in most IT companies

working for foreign orders. One of the main barriers for IT development in the country is that Ukraine has severe problems with IPR legal regime and protection[421]. Despite some legal issues in the operations of Ukrainian IT sector, it is still competitive on the international market with an RCA equal to 2.

Market structure. In 2017 there were 6,963 enterprises in IT growing by 0.83% p.a. in 2013-2017. The sector is represented exclusively by SMEs both by the number of enterprises and employees. According to the International Data Corporation, the value of Ukrainian domestic market amounted to US$1.8 billion in 2016 (0.1% of the global IT market) with the 83% share of hardware, 73% of software, and 10% of IT services[422]. In 2016, the financial and public sectors accounted for the biggest share of domestic consumption of IT services (35% and 16% respectively). Furthermore, transport services and public services showed the highest growth, increasing by 101% and 49% respectively in 2016 compared to the previous year. Besides the domestic market, Ukraine holds strong positions in the IT outsourcing. According to the conservative estimates, Ukrainian exports of software outsourcing amounted to US$2.5 billion in 2015. There are more than 100 companies in Ukraine with 80 employees or more, that mostly headquartered in big cities and provide various IT services from data management and telecommunications to e-commerce and travel[423]. Key destinations for Ukrainian outsourcing are USA, the UK, Canada, Australia, Germany, France, Switzerland, Belgium, Austria, Denmark, Israel, UAE, and Sweden. Also, according to the Mapped in Ukraine that regularly collects the information on IT industry players, Ukraine has a powerful IT-community that consists of 750 startups, 494 IT companies, 95 service companies, 84 R&D centers, 26 community places (e.g. creative spaces), 23 coworking spaces, 17 investors, and 14 accelerators[424]. Additionally, there are some private initiatives that offer courses to teach IT specialists. Some examples include LITS (Lviv), Ukrainian IT School (Kharkiv), SkillsUp (Dnipro), GoIT (Kyiv), etc. Overall, the IT industry is concentrated in the big cities of the country (Lviv, Kharkiv, Kyiv, Odessa).

Market performance. In terms of total value, IT output amounted to US$2.3 billion in 2017. In the context of the economy of Ukraine, the IT sector occupies a significant share of the value added generated in the country, comprising 1.5% (US$1.2 billion). At the same time, the sector has very strong value added potential, at 51% of production value and high productivity with value added per employee over US$21,500. Furthermore, the real share of industry in national value added may potentially be much higher as many companies work in the shadow or with foreign registration, and a many IT services are provided by local freelance experts without being registered in national statistics.

International trade potential. In 2017, exports of ICT (information and communication technology) services amounted to US$2.8 billion (4.8% of total Ukrainian exports), with the industry's exports growing by 11.6% p.a. over 2013-2017. Despite the fast industry growth rates, Ukraine ranks 31st in exporting such services, accounting for 0.53% share of global exports. However, most exports from Ukraine are likely to be "shadow" ones and thus are not recorded by the official statistics agencies. Import of ICT services accounts for US$0.5 billion (0.79% of the total Ukrainian imports).

Employment trends. The Ukrainian national statistics reports that the IT sector officially employs 53,800 people in Ukraine and that the number of jobs was decreasing by 7.6% p.a. in 2013-2017. However,

[421] International institution / European Commission: http://trade.ec.europa.eu/doclib/docs/2018/march/tradoc_156634.pdf
[422] Private companies / AEQUO, Baker Tilly, IDC, SiBiS: https://businessviews.com.ua/ru/get_file/id/the-infographics-report-it-industry-of-ukraine-2017.pdf
[423] Private companies/ Ukraine Digital News, AVentures: http://www.uadn.net/files/ua_hightech.pdf
[424] Research project / Mapped in Ukraine: http://mappedinua.com

it should be noted that the latter number cannot be interpreted as a sign of industry contraction, and that it is more likely driven by IT companies moving from the formal to shadow economy. At the same time, the average monthly income in IT was US$452 in 2017, almost 1.7 times higher than the country average. The average workforce cost for IT specialists serves as an advantage for this industry, as such costs in Ukraine are well below those in the EU and the USA. However, with the existing salaries, IT offers better benefits than other industries making it a popular career choice. Moreover, Ukraine has strong pool of high-level technical universities preparing specialists for IT sector. In terms of gender income disaggregation, females earn on average 20% less than males in the sector. Furthermore, only 15% of industry employees are females[425].

Trends in investment. IT has large potential for both foreign and domestic investments. For example, total domestic private investment into the mentioned sector in 2017 reached US$640 million. The sector comprises 6% of total FDI stock in Ukraine (US$2.1 billion). Thus, its share in FDI is 2.7 times higher than its share in value added (6% against 2.2%). FDI in the IT sector experienced strong growth (3% p.a.) between 2013-2017. This shows an interest by foreign IT companies in developing their business in Ukraine.

Policy trends. Several challenges exist in the IT sector policy environment, including uncertainty regarding the legal status of market players and insufficient personal data protection. However, after the signing the DCFTA with EU, Ukraine is aligning its legislation on intellectual property rights protection with EU Directives that will help to establish an effective policy framework. Regarding the government priorities, IT was included as one of the targeted sectors in the Export Strategy of Ukraine 2017-2020. Also, the investment promotion agency, UkraineInvest, is currently promoting opportunities in IT outsourcing, IT startups, and R&D Centers.

Table 38: Reasons to Shortlist IT

REASONS TO SHORTLIST THE SECTOR	REASONS TO SKIP THE SECTOR
Top-3 by the share of total value added (1.5% of total generated value added in Ukraine) The highest share of value added in production (52%) The highest growth of production (CAGR 4.4% p.a. in 2012-2017) One of the highest shares of total Ukrainian export (4.8%) High RCA value (2) High value added per employee (US$21,614) Significant potential for entrepreneurship and innovation and strong regional clusters Offers good jobs for young people.	Insufficient intellectual property rights protection

3. WOOD PROCESSING AND FURNITURE

[425] Private companies/ Ukraine Digital News, AVentures: http://www.uadn.net/files/ua_hightech.pdf

Table 39: Key Indicators for Wood Processing and Furniture Sectors

SECTOR	WOOD PROCESSING (2017)	FURNITURE (2017)
Production value	US$1.2 billion (0.8% of total Ukrainian production)	US$681 million (0.43% of total Ukrainian production)
Production value CAGR 2012-2017	-1.1%	-7.0%
Production value CAGR 2013-2017	-0.38%	-9.0%
Production value growth 2016-2017	21%	25%
RCA	3.5	0.9
Value added as a % of production	34%	34%
Export value	US$1.2 billion (2.1% of total Ukrainian export)	US$542 million (0.94% of total Ukrainian export)
Export value CAGR 2007-2017	3.8%	6.6%
Export value CAGR 2013-2017	1.3%	-0.60%
Export value growth 2016-2017	6.7%	36%
Share in world exports	2.6%	0.2%
Untapped trade potential	US$154 million	US$213 million
FDI stock	N/A	US$276 million
FDI stock growth 2013-2017	N/A	-0.3%
Number of jobs (official)	45,100	35,300
Average income per month	US$244	US$264
Share of SMEs in total number of companies	99.87%	100%

Notes: All data is presented for 2017.

Key info. Furniture and processed wood industry showed negative trends in recent years. While processed wood sector demonstrated slight decline in the recent years (-0.4% p.a. in the period of 2013-2017), the furniture production came into significant recession (-9.0% p.a. in the period of 2013-2017). Ukrainian market for wood and furniture is relatively large, comprising in total of over US$270 million in wholesale turnover. Ukrainian wood covers the majority of the domestic market (60%), while Ukrainian furniture occupies only a bit more than a third of the domestic market (37%). In terms of competitiveness

and export potential, the wood processing sector is superior to the furniture sector. First, its RCA is significantly higher than 1 (3.5 for processed wood compared to 0.9 for furniture), due to strong government support of the sector via raw materials protective measures. Second, untapped trade potential can benefit from lifting tariffs on wood by the EU side.

Market structure. More than 4,000 enterprises operate in the industry. However, more than 50% of the market is informal. The industry is very fragmented and mostly represented by SMEs (99.9%). However, export is predominantly conducted by medium and large enterprises - some of the key enterprises are Enran, MERX, Gerbor, AMF, Furniture Service, World of Furniture and Sokme. Other companies include Sterkh and LIVS. There are also a number of companies backed by foreign investments, for instance, Morgan Furniture (Home Group, Estonia) and New Style (Nowy Styl, Poland). Large furniture factories produce mass-produced furniture, whereas SMEs work on individual orders. Also, large manufacturers have better equipment and therefore provide large production volumes. At the same time, large manufacturers have less production flexibility, unlike SMEs that can quickly satisfy individual needs. Overall, furniture and processed wood industry is concentrated in the several regional clusters such as Carpathians (Zakarpattia, Lviv and Ivano-Frankivsk regions) and Polessia (Rivne and Zhytomyr regions, city of Kyiv) regions.

Market performance. Production of the industry amounted to US$2 billion in 2017. In the context of the economy of Ukraine wood processing and furniture occupy a relatively small share of the value added generated in the country, together comprising 0.84% (US$660 million) of the total. In terms of productivity, the industry has moderate value added per employee - around US$6,500 for furniture industry and US$9,600 for wood processing. However, the industry has high value-added potential of 34% of production value.

International trade potential. In 2017, exports of processed wood amounted to approximately US$1.2 billion (0.94% of total Ukrainian exports, with growth of 1.3% p.a. over 2013-2017), while exports of furniture were US$0.5 billion (2.1% of total Ukrainian export, with decline of -3% p.a. over 2013-2017). The share of Ukrainian processed wood in world exports is also larger than that of furniture - 2.6% (ranked 28th in globally) against 0.2% (ranked 40th globally). However, both exports of furniture and processed wood are diversified, with the geography concentration index being equal to 0.16 and 0.07, respectively. The total untapped potential for both sectors is estimated to be US$366 million. There is potential in both the furniture sector (US$213 million) and the processed wood sector (US$153 million). Wood and wood products are also benefiting from lifting tariffs under the DCFTA with the EU. Furniture sector imports equal US$257 million (0.41% of Ukrainian total imports), which may be considered for potential import substitution. Wood sector import amount to US$251 million (0.4% of Ukrainian total imports).

Employment trends. In total, 80,400 people are officially employed in furniture and processed wood industry, namely 35,300 in the furniture sector (0.6% of total country employment in 2017) and 45,100 in the processed wood sector (0.76%). However, the trends in job creation diverge among two sectors. In the furniture sector, the number of jobs contracted by 2.2% p.a. over 2013-2017. In contrast, the number of jobs in the processed wood sector increased by 3.6% p.a. within the same period. In 2017, the average monthly income in the furniture sector was almost the same as the average income at the national level (US$264 - 99% of the country average income), while salaries in the processed wood sector were slightly less (US$243.5 - 91% of the country average income). In terms of gender income disaggregation, gender

pay equality is not observed in both sectors. In the furniture sector, women earn on average 25% less than men, while in the processed wood sector, the difference is smaller - only 15% less than men.

Trends in investment. Furniture and wood processing industry has large potential for both foreign and domestic investments. Total domestic private investment into these sectors in 2017 reached US$185 million. The furniture industry alone comprises 1% of total FDI stock in Ukraine (US$275 million). Thus, it's share in FDI is 3.4 times higher than its share in value added (1% against 0.29%). The FDI trend in the furniture sector is slightly negative (-0.3% p.a. over 2013-2017), while this negative effect is met by strong growth in domestic investments into the industry (10.1% p.a. over 2013-2017).

Policy trends. The future of wood processing sector has been a focus of public discussion in recent years. One of the main public policy issues is the 10-year moratorium on round timber export, which has been in place since 2015. This policy was supposed to stimulate wood processing inside the country. However, instead of creating goods with high value added, enterprises began to produce simple, sawn round wood logs and exporting them to the EU. Furthermore, according to the World-Wide Fund For Nature, a considerable number of those enterprises are small unregistered sawmills. The furniture and wood processing sector is not mentioned in the Export Strategy of Ukraine 2017-2021. However, the furniture sector is one of the priorities of the EBRD and EU4Business that created a roadmap for the sector's development.

Table 40: Reasons to Shortlist the Wood and Furniture Sector

REASONS TO SHORTLIST THE SECTOR	REASONS TO SKIP THE SECTOR
The highest jobs growth in wood processing (3.6% p.a. for 2013-2017) High RCA value in wood processing (3.5) One of the highest shares in world exports for wood processing (2.6%) High number of jobs (80,000) One of the highest shares in country employment (1.4%) 0% quotas under DCFTA in place Good wood resource base. Large domestic market opportunity. Many SMEs, but also significant FDI.	Low share in world exports of furniture (0.2%) Low RCA value in furniture (0.9) Issues of illegal logging, non-respect of EU certification requirements.

4. APPAREL AND FOOTWEAR

Table 41: Key Indicators for Apparel and Footwear Sector

SECTOR	APPAREL AND FOOTWEAR (2017)
Production value	US$618 million (0.39% of total Ukrainian production)
Production value CAGR 2012-2017	-4.9%
Production value CAGR 2013-2017	-4.6%
Production value growth 2016-2017	20%
RCA	0.5
Value added as a % of production	49%
Export value	US$672 million (1.2% of total Ukrainian export)
Export value CAGR 2007-2017	-2.2%
Export value CAGR 2013-2017	-2.9%
Export value growth 2016-2017	8.9%
Share in world exports	0.11%
Untapped trade potential	US$364 million
FDI stock	US$113 million*
FDI stock growth 2013-2017	-5.6%*
Number of jobs (official)	72,000
Average income per month	US$204
Share of SMEs in total number of companies	100%

Notes: All data is presented for 2017. FDI data is presented for Textiles, apparel, and leather industry.

Key info. Apparel and footwear industry tended to be auxiliary segments of the Ukrainian economy in recent decades. It demonstrated recession in the recent years (-4.6% p.a. in the period of 2013-2017). The Ukrainian market for apparel and footwear is relatively large, comprising in total of over US$250 million in wholesale turnover. Ukrainian companies cover only a bit more than a third of the domestic

market (37%), even though the recognition of local brands has grown in the market in recent years. In terms of competitiveness and export potential, both apparel and footwear sectors are uncompetitive with foreign producers (RCA equals to 0.5 and 0.4 respectively). Ukraine also has severe problems with IPR legal regime and protection, which is critical for designer clothes industry[426].

Market structure. There are 2,008 enterprises operate in this industry, these are almost exclusively SMEs. The domestic market of apparel and footwear consist of imported goods (58%), shadow sector/smuggling (21%), domestic production (15%), and second-hand goods (6%)[427]. In the domestic market, an increased interest towards "Made in Ukraine" brands of clothes can be observed. Some companies include Dolcedonna, Love Couture by Lourdes, Folk Moda, Be Loved, Medini, Marikich, Lilo, Olis-style, Modus Vivendi, Marani, DRESSCODE, Rito, Tago, ALVE, GHAZEL, Bicotone, Evercode, Origa, Fabrika "Lesya Ukrainka", Malininy, and Marta. Besides apparel, there are also emerging Ukrainian brands of footwear that actively participate in international exhibitions. Key companies are Belsta (one of the biggest producer of home footwear in Ukraine, Caman, InBlu (Italian-Ukrainian joint enterprise), KaDar, Kredo, Krok, Litma, and Olteya[428]. Currently, a significant part of Ukrainian companies sews orders for foreign brands using their raw materials. At the same time, the number of companies with private labels is growing[429]. Apparel and footwear sectors are concentrated in big regional cities of the country. Based on the share of total production, the leader is Lviv (14%), Zhytomyr (8.7%), Kharkiv (8.5%), Dnipro (7%) and Kyiv (6.9%) regions.

Market performance. In terms of total value, production of apparel and footwear sectors amounted to almost US$620 million in 2017. In the context of the economy of Ukraine the industry a relatively small share of the total value added generated in the country, together comprising 0.4% of it (US$300 million). In terms of productivity the sector has moderate value added per employee - around US$4,200. However, the industry has high value-added potential of 49% of production value.

International trade potential. In 2017, exports of the apparel and footwear industry amounted to US$0.7 billion (1.2% of total Ukrainian exports), with the apparel sector exports were valued at US$501 million while the footwear sector exports were valued at US$171 million. The annual growth in export value between 2013-2017 was negative for the industry, contracting by 3% p.a. in 2013-2017. The share of apparel and footwear in world exports is also relatively small – 0.11% (ranking 44th globally). Imports of both apparel and footwear are diversified, with geography concentration index being equal to 0.18. In terms of untapped trade potential, apparel has a greater one (US$284 million compared to US$80 million of footwear). Ukraine can benefit from the DCFTA with the EU; duties on some textiles and clothing (HS 5601, 6303, 6307) have been reduced from 12% to 0%. At the same time, import occupies only a small share of the total Ukrainian imports – 1% (US$621 million).

Employment trends. In total, 72,000 people are formally employed in the apparel and footwear industry (1.21% of total national employment in 2017). However, the number of jobs decreased by 2.4% p.a. over 2013-2017. In 2017, the average monthly income in the industry was relatively low (US$204 – 76% of the

[426] International institution / European Commission: http://trade.ec.europa.eu/doclib/docs/2018/march/tradoc_156634.pdf
[427] Business association / Ukrlegprom: https://economics.unian.ua/industry/2206979-ukrajina-zbilshila-virobnitstvo-tovariv-legkoji-promislovosti.html
[428] International project / The Canada-Ukraine Trade and Investment Support: https://cutisproject.org/news/українські-виробники-взуття-відкрив/
[429] Government institution / Ministry of Economic Development and Trade: https://expres.online/archive/news/2017/07/24/253754-ukrayinske-vzuttya-maye-shans-zavoyuvaty-rynok-yes

national average). Low labor costs, combined with the advantage of close proximity of Ukraine to the EU, can serve as an opportunity for the industry in question. In terms of gender income disaggregation, gender pay equality is not observed in the industry – women earn on average 11% less than men.

Trends in investment. Total domestic private investment into the sectors in 2017 reached US$21 million. The sectors in total comprise 0.31% of total FDI stock in Ukraine (US$110 million). Thus, share in FDI is 1.25 times lower than share in value added (0.31% against 0.39%). The FDI trends in the apparel and footwear sectors are negative (-5.6% p.a. over 2013-2017). On the other hand, proximity to EU market and relatively low labor costs may stimulate foreign companies from these sectors to invest in Ukrainian enterprises.

Policy trends. Regarding development of apparel and footwear sectors, one of the key legal issue is related to the quality standards that are not aligned with the EU Directives. According to Export Strategy of Ukraine 2017-2020, creative industries (which include apparel and footwear) are among the Government's priorities. Also, fashion is considered as one of the most attractive industries for foreign investors by UkraineInvest.

Table 42: Reasons to Shortlist Apparel and Footwear Sector

REASONS TO SHORTLIST THE SECTOR	REASONS TO SKIP THE SECTOR
Substantial CMT production; advantages of proximity to EU markets. Emerging design / fashion producers 0% EU duties under DCFTA in place	Small share in world exports (0.11%) Low RCA value (0.11) The lowest value added per employee (US$4,194) Exports falling in 2007-2017 (by 2.2% p.a.) and in 2013-2017 (by 2.9% p.a.)

5. DAIRY

Table 43: Key Indicators for Dairy Sector

SECTOR	DAIRY (2017)
Production value	US$2.2 billion (1.4% of total Ukrainian production)
Production value CAGR 2012-2017	-10%
Production value CAGR 2013-2017	-14%
Production value growth 2016-2017	33%
RCA	3
Value added as a % of production	17%
Export value	US$211 million (0.37% of total Ukrainian export)
Export value CAGR 2007-2017	-3.5%
Export value CAGR 2013-2017	21%
Export value growth 2016-2017	89%
Share in world exports	0.73%
Untapped trade potential	US$188 million
FDI stock	US$2.5 billion*
FDI stock growth 2013-2017	-4.5%*
Number of jobs (official)	50,700
Average income per month	US$254
Share of SMEs in total number of companies	99%*

Notes: All data is presented for 2017. Share of SMEs is calculated for manufacture of food products. FDI stock is presented for all Food, beverages and tobacco products industry.

Key info. Dairy production is traditionally considered to be the key animal husbandry sector in Ukraine. The sector currently is going through the crisis with -14.2% p.a. growth rate over the period of 2013-2017. The trend is mostly related to the loss of the key markets in Russia and the CIS, and gradual decrease

of cattle in Ukraine (in 2017, the number of cows decreased by 2.1% - to 2 million cows). The latter has led to the reduction in raw materials for the sector. The Ukrainian market for dairy products is relatively large, comprising in total of over US$645 million in wholesale turnover. Ukrainian dairy occupies a limited share of the domestic market (27%), giving up the rest of the share to products from Belarus and EU countries. Nevertheless, the industry shows strong competitiveness on the international market with RCA equal to 3, due to strong development of cheese and butter production segments left as a legacy of the Soviet era and preserved in recent decades.

Market structure. There are 380 enterprises operate in this sector, most of which are SMEs. Milk production is mostly conducted by farmers (78% of all produced milk in 2014). However, quality lags far behind the milk produced by enterprises. Only 0.1% of milk provided by farmers is high quality whereas this exceeds 40% for milk produced by enterprises[430]. More than 40% of all produced milk is supplied to the processing enterprises, which are predominantly medium enterprises. Generally, milk processing market has a low market concentration (HHI is equal to 0.03). The top 5 companies account for 37% of the market. Key milk processing companies by the market share are Roshen (9.7%), Terra Food (9.2%), Molochniy Alliance (7.7%), Lyustdorf (5.2%), and Danone (4.9%). The dairy sector is concentrated in the Center of the country (Cherkasy, Poltava, Kharkiv, Chernihiv and Kyiv regions).

Market performance. Dairy sector production amounted to US$2.3 billion in 2017. In the context of the economy of Ukraine, the dairy sector occupies a small share of total value added generated (US$390 million – 0.5%). There is low value-added potential of the sector, 17% of production value, and relatively low productivity with value added per employee around US$7,700.

International trade potential. In 2017, exports of dairy products amounted to US$0.2 billion (0.37% of total Ukrainian exports), with sector exports growing by 21% p.a. over 2013-2017. The growth is driven by the rising demand for dairy products at global level. Despite fast growth rates, Ukraine accounted for only 0.73% of world exports in 2017 (ranked 13th globally). Ukraine's dairy exports are diversified; the geography concentration index of importing countries is only 0.08. The untapped trade potential of the industry equals US$188 million. Particularly, this potential can be achieved via two ways. First, foreign (namely EU) requirements on dairy product quality constrain the ability of Ukrainian producers to cover external demand for such products. Most of the milk allocated to the local market is milk that was ineligible for exporting based on quality checks. If quality is improved, a larger volume of dairy products will be suitable for exporting. Second, there is an opportunity to utilize the growing demand in Asia and Africa. The middle-income population is growing in these markets, thus boosting demand for westernized modes of food consumption (including higher popularity of dairy products). Moreover, under the DCFTA with the EU, exports of milk and cream (HS 0402) and butter (HSD 0405) can benefit. For milk and cream, the 0% duty is applied for the first 1,500 tons (to be increased up to 5,000 tons in the 5-year period). For butter, the same duty is applied for the first 1,500 tons (to be increased up to 3,000 tons in the 5-year period). On the other hand, dairy imports in Ukraine are very small (US$8 million - 0.01% of Ukrainian total imports) which is partly explained by the fact that domestic production fully meets domestic demand.

Employment trends. In total, 50,700 people are formally employed in the dairy sector (0.9% of total national employment in 2017). However, the number of jobs contracted by 5.1% p.a. between 2013 and

[430] Research institution / Kirovohrad state agricultural research institute: http://agro-business.com.ua/agro/ekonomichnyi-hektar/item/7896-molochnyi-sektor-realii-i-perspektyvy.html

2017. The average monthly income in the sector, US$254, was 96% of national income in 2017. In terms of gender income disaggregation, gender pay equality is not observed in the sector (income disaggregation is taken for manufacture of food products, beverages and tobacco products). Women earn on average 18% less than men in the industry.

Trends in investment. There is no official information on FDI in dairy. However, there is anecdotal information of domestic investments, mostly allocated to cheese production, considered to be the most attractive segment in the sector.

Policy trends. According to Action Plan of Implementation of Association Agreement between the European Union and Ukraine, a number of changes in legislation are expected in order to converge with European legislation and standards, primarily regarding technical standards of dairy products. Additionally, all agriculture and food (and dairy in particular) is traditionally considered as the most important industry and therefore is included to the Export Strategy of Ukraine 2017-2021 and is positioned by the National Investment Council as one of the highest potential.

Table 44: Reasons to Shortlist Dairy Sector

REASONS TO SHORTLIST THE SECTOR	REASONS TO SKIP THE SECTOR
One of the highest annual growth in export (21.1% p.a. In 2013-2017)	Strong decline in industry by production value (-14.2% p.a. in 2013-2017)
Ukrainian dairy sector outpaces the global one by the export growth (21.1% p.a. of Ukrainian dairy export growth contrary to 3% p.a decline in the sector globally in 2013-2017)	Decline in number of jobs (-5.1% p.a. in 2013-2017).
Relatively large contributor to the total Ukrainian production (1.4%)	
Strong competitive advantage (RCA value is 3)	
0% quotas under DCFTA in place	
Low domestic market concentration.	
Underserved domestic market	
Growing markets for specialty cheese and other milk products	

6. BEEKEEPING AND HONEY

Table 45: Key Indicators for Beekeeping and Honey Sector

SECTOR	BEEKEEPING AND HONEY (2017)
Production value	US$177 million (0.11% of total Ukrainian production)
Production value CAGR 2012-2017	N/A
Production value CAGR 2013-2017	N/A
Production value growth 2016-2017	N/A
RCA	23
Value added as a % of production	N/A
Export value	US$134 million (0.23% of total Ukrainian export)
Export value CAGR 2007-2017	37%
Export value CAGR 2013-2017	26%
Export value growth 2016-2017	38%
Share in world exports	5.6%
Untapped trade potential	US$72 million
FDI stock	N/A
FDI stock growth 2013-2017	N/A
Number of jobs (official)	N/A
Average income per month	US$227
Share of SMEs in total number of companies	N/A

Notes: All data is presented for 2017. FDI stock is presented for all Food, beverages and tobacco products industry.

Key info. The beekeeping and honey sector is an important export group in Ukraine that generated US$130 billion of exports in 2017 and grew significantly in a global market that declined 1.0% per annum over the five years to 2017, making Ukraine among the top honey exporters in recent years. The sector shows a strong competitiveness on the international market with RCA equal to 23, mostly due to high quality of product and excessive production covering far above domestic demand.

Market structure. The honey sector is predominantly represented by farmers, private landowners, and small beekeeping enterprises. In 2017 there were around 400,000 beekeepers in Ukraine. At the same time, export of honey is mainly represented by 12 companies, 7 of which are family businesses (e.g. Askania pack, Spivdruzhnist, Ukrainian Bee and Bartnik, Ukrainian honey, Dionysus Honey, Lumel, Medoviy Krai, Gesa, San Bi Ukraine, Med-Ok). Unlike the aforementioned companies which predominantly export non-branded honey in bulk, there are several domestic companies that produce branded finished goods (e.g. Medic Vedmedik, Pan Eko, Gogolmed, Pasika Yaroshevich Family, and Med-smed). Regarding the regional structure, around 60% of total honey production is provided by 8 Ukrainian regions - Vinnitsa, Dnipro, Zaporizhzhia, Zhytomyr, Mykolaiv, Poltava, and Kirovograd. At the same time, western regions (Volynska, Ternopil, and Khmelnytsky) almost doubled the honey production due to the proximity to the EU (which accounts for 75% of total honey exports).

Market performance. In terms of total value, the beekeeping and honey sector amounted to almost US$180 million in 2017.

International trade potential. In 2017, exports of honey from Ukraine amounted to US$134 million (0.23% of total Ukrainian exports), with sector exports growing by 26% in 2013-2017. Ukraine accounted for a 5.6% share in world exports in 2017 (ranked 5th globally). One of the reasons for quick market expansion is that the weak domestic market forces Ukrainian honey producers to focus on exports. In addition, Ukraine`s diary exports are well-diversified; the geography concentration index of importing countries is only 0.15. The untapped trade potential of the sector equals US$72 million. Particularly, there are several advantages that can be employed to realize this potential. First, relatively low cost of bees purchases and goods for maintaining bee farms make Ukrainian honey among the cheapest in the world market. Second, beekeeping is among the industry's most dependent on ecology. As ecological situation in Ukraine tends to get better, the quality of national product grows. Third, Ukrainian honey is being exported now rather as a raw material than a finished product. Selling of Ukrainian honey under the brand umbrella can improve awareness of target audience about the Ukrainian product and increase revenue. On the other hand, honey imports in Ukraine are rather small (US$160,000) which is partly explained by the facts that domestic production covers the domestic demand and that domestic product outcompetes its foreign substitutes.

Employment trends. As this market is represented largely by private beekeepers, there is no national statistics on the number of jobs existing in this industry. Generally, there are around 400,000 beekeepers in Ukraine while there is a lack of industrial strawberries, which impedes the efficiency of the whole sector. Numbers on average income and gender income disaggregation are unavailable.

Trends in investments. The national statistics do not provide us with data on FDI and domestic investments in the industry.

Policy trends. The major obstacle for honey production in Ukraine is inconsistency of Ukrainian legislation with the EU Directives. In order to solve this problem Minister of Agrarian Policy and Food is expected to adopt an order to harmonize Ukrainian requirements for honey quality with the European ones. Overall, agriculture and food is traditionally considered as the most important industry and therefore is included to the Export Strategy of Ukraine 2017-2021 and is positioned by the National Investment Council as one of the most perspective.

Table 46: Reasons to Shortlist Beekeeping and Honey Sector

REASONS TO SHORTLIST THE SECTOR	REASONS TO SKIP THE SECTOR
Largest exports growth in 5-year period (by 21 p.a. in 2013-2017) and in 10-year period (by 37.2 p.a. in 2007-2017) Largest share in world exports (5.6%) Highest RCA value (22.6) 0% quotas under DCFTA in place	The smallest share in the total Ukrainian production (0.11%) The smallest share in total Ukrainian exports (0.23%)

7. LIGHT MANUFACTURING

Table 47: Key Indicators for Light Manufacturing Sector

SECTOR	LIGHT MANUFACTURING (2017)
Production value	US$1.4 billion (0.89% of total Ukrainian production)
Production value CAGR 2012-2017	-16%
Production value CAGR 2013-2017	-18%
Production value growth 2016-2017	18%
RCA	0.4
Value added as a % of production	30%
Export value	US$2.5 billion (4.4% of total Ukrainian export)
Export value CAGR 2007-2017	1.3%
Export value CAGR 2013-2017	-5.0%
Export value growth 2016-2017	23%
Share in world exports	0.10%
Untapped trade potential	US$1.1 billion
FDI stock	US$771 million
FDI stock growth 2013-2017	-4.5%
Number of jobs (official)	51,600
Average income per month	US$257
Share of SMEs in total number of companies	99.49%

Notes: All data is presented for 2017.

Key info. Light manufacturing is considered as an important industry in Ukraine that generated US$2.5 billion of exports in 2017, while declining at 5% annually in the global market that grew 2.4% per annum over the five years to 2017. The total production in terms of value was decreasing by 18% per annum in the period of 2013-2017, while its share in total production remains to be around 0.89%. Domestic market

mostly consists of heavy machinery B2B orders and government purchases of electric parts for military production. The industry shows weak competitiveness on the international market with RCA equal to 0.4. The later may be explained by strong competition from East Asian countries and gradual aging of qualified workforce in the industry.

Market structure. There are 987 enterprises operate in the light manufacturing that produce electrical machinery and parts. The total number of enterprises fell by -0.87% per annum over the five years to 2017. The sector is mostly represented by SMEs (99.5% of total number of enterprises and 79.6% of total employment). Overall, deindustrialization in the country in the previous decades led to the decline of the light manufacturing, including home appliances, semiconductors production and others. However, there are several medium and large companies that regularly present their products on international exhibitions including Saturn (electronic home appliances, Kyiv), Promelectron (industrial pipes and electric motors, Kharkiv), and Mayak (electric heating equipment, Vinnitsa)[431]. There are also manufacturers of electric cables that produce both for the domestic and international markets. Key companies are General Electric, Forschner Ukraine, LEONI, Electrocontact, E. Next Ukraine, DKC Group, NEXANS, Fujikura, Sumitomo, Kromberg & Schubert. The Ukrainian Association of Electrical Goods Manufacturers advocates for the interests of manufacturers and organizes regular exhibitions[432]. Overall, the sector is mostly clustered in the Western part of the country.

Market performance. In terms of total value, production of electrical machinery and parts amounted to US$1.4 billion in 2017. Light manufacturing industry occupies a moderate share of the value added generated in the country, comprising 0.4% of it (US$420 million). The industry has moderate value-added potential, of 30% of production value, and moderate productivity, with value added per employee a bit higher than US$8,100.

International trade potential. In 2017, exports of light manufacturing products from Ukraine amounted to US$2.5 billion (4.4% of total Ukrainian exports), with industry exports declining by 5% p.a. over 2013-2017. Ukraine accounted for 0.1% of global exports in 2017 (ranked 47th globally). The exports are diversified, with geography concentration index of importing countries being 0.13. The untapped trade potential of light manufacturing industry is estimated to be US$1.1 billion. Particularly, the lifting of EU duty on electrical appliances under DCFTA, which was previously 14%, can provide an incentive for the development of this potential. However, there are other barriers that impede its growth. First, deindustrialization in the country in the previous decades led to the collapse of several machinery sectors, including home appliances, semiconductors production, and others. Second, the average age of electric engineer in the country is high due to low popularity of engineering professions among young people and the current number of EM students trained by universities cannot compensate for the aging of the workforce. Third, the market is being overtaken by countries having either large experience in electronic machinery production or having direct access to raw materials (raw metals) critical for industry, leaving Ukrainian EM industry with low competitive potential. The underdevelopment of light manufacturing in Ukraine leads to high imports – US$4.1 billion in 2017 (6.6% of total Ukrainian imports).

[431] International institution, Business association / WNISEF, Ukrainian Association of Electrical Goods Manufacturers: http://wnisef.org/wp-content/uploads/2018/04/Press-Release_Trade-Show_China_Apr-2018_UKR_FINAL.pdf

[432] Business association / Ukrainian Association of Electrical Goods Manufacturers: https://uam-ua.com/en/producers-support-eng/

Employment trends. In total, 51,600 people are formally employed in the light manufacturing industry (0.9% of total country employment in 2017). However, the number of jobs decreased by 8.7% p.a. over 2013-2017. The average income in the industry (US$257) was 96% of the national average in 2017. In terms of gender income disaggregation, gender pay equality is not observed in the industry. Women's salaries averaged only 85% of men's salaries.

Trends in investment. Machinery manufacturing sectors together has moderate potential for investments. Total domestic private investment into the mentioned sectors in 2017 reached only US$60 million. The sectors in total comprise 2% of total FDI stock in Ukraine (US$770 million). At the same time, the FDI trends in machinery production are significantly negative (-4.6% p.a. over 2013-2017).

Policy trends. Regarding development of light manufacturing, one of the key legal issues is related to the inconsistency of Ukrainian and EU technical regulations. According to Action Plan of Implementation of Association Agreement between the European Union and Ukraine, several reforms in legislation are expected in order to harmonize with the EU. Additionally, light manufacturing is included in the Export Strategy of Ukraine 2017-2021 as well as in the Hi-tech Industries Development Strategy.

Table 48: Reasons to Shortlist Light Manufacturing Sector

REASONS TO SHORTLIST THE SECTOR	REASONS TO SKIP THE SECTOR
Top-3 by the share of total Ukrainian exports (4.4%) High share of total Ukrainian production (0.89%) 0% EU duty under DCFTA in place	One of the biggest drops in production value (-18% p.a over 2013-2017 and -16% over 2012-2017) The lowest share of world export (0.1% of total world export) Low RCA value (0.4) The biggest drop in number of jobs (-8.7% p.a in 2013-2017)

8. MEAT

Table 49: Key Indicators for Meat Sector

SECTOR	MEAT (2017)
Production value	US$3.2 billion (2% of total Ukrainian production)
Production value CAGR 2012-2017	-3.5%
Production value CAGR 2013-2017	-5.3%
Production value growth 2016-2017	91%
RCA	1.7
Value added as a % of production	26%
Export value	US$532 million (0.92% of total Ukrainian export)
Export value CAGR 2007-2017	18%
Export value CAGR 2013-2017	11%
Export value growth 2016-2017	37%
Share in world exports	0.40%
Untapped trade potential	US$465 million
FDI stock	US$2.5 billion*
FDI stock growth 2013-2017	-4.5%*
Number of jobs (official)	57,800
Average income per month	US$254
Share of SMEs in total number of companies	99%*

Notes: All data is presented for 2017. Share of SMEs is calculated for manufacture of food products. FDI stock is presented for all Food, beverages and tobacco products industry.

Key info. The sector currently is going through recession with -5.3% p.a. growth rate in the period of 2013-2017. The trend is mostly related to the fall of meat consumption in light of the economic crisis, and gradual decrease of cattle in Ukraine (in 2017 the number of cows decreased by 2.1% - to 2 million cows).

The latter leads to the reduction in raw materials for the sector. Currently the key segment in the meat production sector is poultry, with pork production playing an auxiliary role. The Ukrainian market for meat products is relatively large, comprising in total of over US$710 million in wholesale turnover. Ukrainian meat dominates on domestic market (92% of consumption), mostly due to decreased consumption of expensive imported beef and a shift to domestic pork and poultry. The sector also shows competitiveness on international market with RCA equal to 1.7. The meat sector is concentrated in the Center of the country (Cherkasy, Kyiv, Vinnytsya regions - poultry, Chernihiv and Poltava regions - pork production) and in suburban areas of big cities (Lviv, Dnipro, Odessa - mostly poultry).

Market structure. There are 751 enterprises operating in the meat sector, a number which fell by -3.9% per annum over the five years to 2017 and is mostly represented by SMEs (99%). Ukraine has a large domestic market that amounts to 2.6 million tons per year with the share of import of only 12%. However, in 2015-2018, the consumption of meat and meat products declined to 51 kg per person as a result of lower purchasing power. Key segments include poultry, pork and beef. Poultry and pork meat are mostly produced by farmers (73% and 58% of total production respectively in 2017) whereas beef is predominantly produced by enterprises (79% of total production in 2017)[433]. Meat processing is conducted by medium and large companies. The poultry market is highly concentrated (HHI equals to 0.22). The top 3 companies account for 59% of the total poultry production. Key producers by the market share are Myronivsky Hliboproduct (46%), Agromars (9%), and APK Invest (5%). The pork market is less concentrated (HHI equals to 0.08). Key companies on the beef market are APK Invest (18%), NVP Globynskyi (10%), and Danosha (10%). Poultry is mostly developed in the Center of the country and suburban areas of big cities (Cherkasy, Kyiv, Vinnytsya) whereas pork is well presented in Chernihiv and Poltava regions.

Market performance. In terms of total value, production of meat sector amounted to US$3.2 billion in 2017. In the context of the economy of Ukraine the sector occupies significant share of the value added generated in the country, comprising 1% of it (US$820 million). In terms productivity meat industry shows relatively high value added per employee at the level of US$14,000. However, value added potential of the sector is moderate, at 26% of production value.

International trade potential. In 2017, exports of meat from Ukraine amounted to US$0.5 billion (0.92% of total Ukrainian exports), growth of 11% over 2013-2017. The growth is driven by increasing geographic diversification of the Ukrainian meat products. In 2017, Ukraine accounted for 0.4% share of world exports (ranking 29th globally). In addition, Ukraine's meat exports are well-diversified; the geography concentration index of importing countries is only 0.08. The untapped potential of the meat industry is estimated to be US$0.5 billion. There are large opportunities for export to EU countries resulting from the DCFTA between Ukraine and the EU. Under the DCFTA, 0% duty is applied for the first 12,000 tons of meat of bovine animals (HS 0201, 0202), 20,000 tons of meat of swine (HS 0203), 1,500 tons (to be increased up to 6,000 in the 5-year period) of meat of sheep or goats (HSD 0204). Modernization of production processes, introduction of new technologies and approaches in meat production can lead to high-quality competitive products which will be more competitive on the international markets. Meat imports are quite small – US$0.1 billion, only 0.18% of the total Ukrainian imports.

[433] Business association / Union of Poultry Farmers of Ukraine: https://kurkul.com/media/infographics/original/00/00/52/18-02-07_infographic-trends-meat-market-1000x-kurkul-2-23936.png

Employment trends. In total, 57,800 people are formally employed in the meat sector (1% of total country employment in 2017). The job creation trend is negative, the number of jobs decreased by 1.9% p.a. over 2013-2017. In terms of gender income disaggregation, gender pay equality is not observed in the sector. Women earn on average 18% less than men in the sector.

Trends in investment. Although there is no official information on FDI in animal or vegetable fats and oils, the sector allocated (together with other food processing industries) US$47.5 million of domestic investments, mostly allocated in poultry production, considered to be the most investment attractive segment in the sector.

Policy trends. The major problem related to meat production in Ukraine is that Ukrainian requirements for the quality and safety of meat products are not aligned with the European ones. According to Action Plan of Implementation of Association Agreement between the European Union and Ukraine, reforms are expected to harmonize legislation and regulations with the EU Directives. Overall, agriculture and food is traditionally considered as the most important industry and therefore is included to the Export Strategy of Ukraine 2017-2021 and is positioned by the National Investment Council as one of the most perspective.

Table 50: Reasons to Shortlist Meat Sector

REASONS TO SHORTLIST THE SECTOR	REASONS TO SKIP THE SECTOR
Significant share in the total Ukrainian production (2%) Exports grew by 11% p.a. in 2013-2017 Moderate value added per employee (US$14,253) 0% quotas under DCFTA in place	Small share in Ukraine exports (0.92%) Moderate decrease in production value in 2013-2017 (by 5.3% p.a.) Processing is highly concentrated with large companies No obvious CEP role

9. SUGARS/CONFECTIONERY

Table 51: Key Indicators for Sugars and Confectionary Sector

SECTOR	SUGARS AND CONFECTIONARY (2017)
Production value	N/A
Production value CAGR 2012-2017	N/A
Production value CAGR 2013-2017	N/A
Production value growth 2016-2017	N/A
RCA	3.2
Value added as a % of production	N/A
Export value	US$422 million (0.73% of total Ukrainian export)
Export value CAGR 2007-2017	10%
Export value CAGR 2013-2017	13%
Export value growth 2016-2017	19%
Share in world exports	0.90%
Untapped trade potential	US$318 million
FDI stock	N/A
FDI stock growth 2013-2017	N/A
Number of jobs (official)	N/A
Average income per month	US$254
Share of SMEs in total number of companies	99.96%*

Notes: All data is presented for 2017. Share of SMEs is calculated for manufacture of food products.

Key info. Sugar and confectionary are considered an important element of the food processing industry in Ukraine that generated US$420 million of exports in 2017, while growing at 12% annually in the global market that declined 0.87% per annum over the five years to 2017. The sector is characterized by large domestic market that has US$790 million in wholesale turnover, 70% of which is secured by Ukrainian

producers. Also, the sector shows strong competitiveness on the international market with RCA equal to 3.2, due to strong raw materials base and preserved production facilities.

Market structure. The sugar and confectionary sector is dominated by SMEs (99.96% of total companies). The domestic market experienced the reduction of sugar consumption by 8% to 1.3 million tons in 2017. The sugar market is moderately concentrated (HHI equals to 0.11). The top 3 companies account for 55% of the total sugar production and export. The same situation is observed within the confectionary market (HHI equals to 0.09). However, the sector can still be favorable for SMEs. In particular, small and medium producers of confectionaries are in the focus of CUTIS - Canadian-Ukrainian Trade and Investment Support project. Within the project several Ukrainian SMEs participated in SIAL 2018 Montreal exhibition, such as Chocoboom, LOL&POP, Favorito and others. The exhibition was aimed at the support of confectionary export to Canada.[434] Sugar and confectionery segments are mostly presented in the Center and East of the country.

Market performance. In terms of total volume, production of sugar amounted to 2.1 million tons in 2017. In comparison with last year this number has increased by 6.5%.

International trade potential. In 2017, exports of sugars/confectionary products from Ukraine amounted to US$0.4 billion (0.73% of total Ukrainian export), with sector exports growing by 12.7% in 2013-2017. The share of Ukraine in world exports was 0.9% in 2017 (ranked 17th globally). The geographic concentration index is 0.03. The untapped trade potential of sugars sector is estimated to be US$0.3 billion. As the DCFTA with the EU provides for 0% duty for the first 2,000 tons of sugar (to be increased up to 3,000 tons in the 5-year period), the sugar sector can seize some of the above potential. However, there are at least two barriers that impede Ukraine from reaching this potential. First, sugar producers do not have enough rail cars to meet their transportation needs. This leads to delays in the production season and hinders the execution of contracts. Second, the global sugar price is expected to decrease in the following years. This creates additional pressure on Ukrainian sugar producers. Finally, Ukraine imports only US$48 million of sugars products (0.08% of total Ukrainian imports), as most of domestic demand is covered by domestic supply. Moreover, in 2017/2018 marketing year, there was the reduction of sugar consumption in Ukraine by 8% (to 1.3 million tons).

Employment trends. There are no exact national statistics on the number of jobs in this sector**.** The average income in the for the manufacture of food products, beverages and tobacco products sector was 96% of the national average in 2017. In terms of gender income disaggregation, gender pay equality is not respected in this sector. In the sugars/confectionery sector, women earn on average 18% less than men.

Trends in investment. The national statistics collect no data on FDI and domestic investments separately for Sugars/Confectionary.

Policy trends. In 2017 The Ministry of Agrarian Policy and Food implemented the provisions of EU Directive on some kinds of sugar intended for consumption as a part of the implementation of Association Agreement between the European Union and the European Atomic Energy Community and their member states, of the one part, and Ukraine, of the other part. Further changes of legislation aimed at harmonization of Ukrainian requirements with Europeans ones are expected as well. In 2018, the

[434] International project / The Canada-Ukraine Trade and Investment Support: https://cutisproject.org/blog/confectionary-sial-2018/

Ukrainian parliament lifted the price regulations that existed on the market before. Agriculture and food is traditionally considered as the most important industry and therefore is included to the Export Strategy of Ukraine 2017-2021 and is positioned by the National Investment Council as one of the most high potential.

Table 52: Reasons to Shortlist Sugar and Confectionary Sector

REASONS TO SHORTLIST THE SECTOR	REASONS TO SKIP THE SECTOR
Highest growth in export value (13% p.a. in 2013-2017) 0% quotas under DCFTA in place	Low share in total Ukrainian exports (0.73%) Exports are largely undifferentiated commodities

10. TOURISM

Table 53: Key Indicators for Tourism Sector

SECTOR	TOURISM (2017)
Production value	US$827 million (0.52% of total Ukrainian production)
Production value CAGR 2012-2017	-13%
Production value CAGR 2013-2017	-15%
Production value growth 2016-2017	31%
RCA	0.4
Value added as a % of production	48%
Export value	US$1.3 billion (2.2% of total Ukrainian export)
Export value CAGR 2007-2017	-12%
Export value CAGR 2013-2017	-29%
Export value growth 2016-2017	17%
Share in world exports	0.10%
Untapped trade potential	N/A
FDI stock	US$330 million*
FDI stock growth 2013-2017	-5.4%*
Number of jobs (official)	92,900
Average income per month	US$188
Share of SMEs in total number of companies	100%

Notes: All data is presented for 2017. FDI is presented for Accommodation and food services.

Key info. According to United Nations World Tourism Organization Ukraine is in 14th place in Europe by number of International Tourist Arrivals with 14.23 million tourists in 2017[435]. Officially tourism demonstrated a heavy reduction in the recent years (-15% p.a. in the period of 2013-2017). However, a

[435] International institution / World Tourism Organization: https://www.slovenia.info/uploads/dokumenti/unwto_tourism_highlights_2018.pdf

large share of touristic services in the country is provided unofficially or is statistically included into other sectors of economy. The Ukrainian market for touristic services is diverse and can provide different types of leisure, while development of infrastructure increases accessibility of main touristic destinations. At the same time, the industry still tries to overcome such issues as collapse of tourist flow from Russia and CIS, lost touristic capacities of Crimea (which comprised large share of touristic services before 2014) and mutual air blockade with Russian Federation.

Market structure. There are different types of tourism presented in Ukraine including mounting, seaside, historical and green tourism. At the same time prices for touristic services and attractions in the country is among the lowest in Europe, making it popular destination for mass tourism from EU countries. There are a number of large infrastructure projects initiated by government (including stimulating low-cost operators to enter the market, development of international fast train routes, restoration of airport infrastructure) lead to increased accessibility of the country. Among main tourist destinations in Ukraine are the following:

- Kyiv - the historical capital of the Kyiv Rus and present Ukraine standing on the Dnieper River. It is known for its old cathedrals and monasteries, wide boulevards, scenic views, and a variety of cultural institutions;
- Lviv - a medieval "old town" with unique architecture combining Polish and German elements; the historical center of Lviv is included in the UNESCO World Heritage List. In addition, Lviv is a gastronomic capital of Ukraine, with a large array of eateries;
- The port city of Odessa, located on the Black Sea, is the most visited destination by Ukrainians in the summer. It offers equipped beaches (Langeron and Arcadia), as well as many leisure day-and-night clubs (Bono Beach Club or Ibiza Beach Club) with swimming pool activities and wild parties round-the-clock. Odessa is also popular for its cultural life, namely, festivals;
- Carpathian Mountains - picturesque mountain landscapes with extensive opportunities for mountain skiing and hiking, healing springs. Thus, during the wintertime, people can stay in the country and visit the local ski resorts: Bukovel, Dragobrat, Slavske, Pylypets and others.

Market performance. In terms of total value, touristic services output amounted to US$830 million in 2017. According to SSSU tourism industry occupy moderate share of the value added generated in the country, comprising 0.52% of it (US$400 million), demonstrating high value added potential of 48% of production value and with low productivity - value added per employee amounts to US$4,300. However, the real share of the industry in national value added may potentially be much higher as many companies work in shadow, and a lot of touristic services are provided by individuals without being registered in national statistics.

International trade potential. In 2017, tourism exports from Ukraine accounted for US$1.3 billion (2.2% of total Ukrainian exports). This number represents the decline that the Ukrainian tourism market has witnessed after the revolution in 2014-2017. In that period, CAGR constituted the dramatic decrease at the level of -29%. Now Ukrainian tourism exports occupy only a small share of global tourism exports (0.1% - 86th ranking globally). However, low prices, proximity to Europe, and natural and historical richness can be used as selling points for potential European tourists. Moreover, a number of large infrastructure projects initiated by the government (including stimulating low-cost operators to enter the market, development of international fast train routes, restoration of airport infrastructure) have led to increased accessibility of the country. Tourism imports accounted for more than US$7.1 billion (11.4% of

total Ukrainian import). This means that Ukraine domestic tourist industry can benefit from national visitors, provided that appropriate infrastructure and service are ensured.

Employment trends. The tourism industry in Ukraine formally employed 92,900 people in 2017 (1.56% of national employment). The jobs creation trend has followed the general development of the industry - the number of jobs declined by 8.5% p.a. over 2013-2017. In terms of gender income disaggregation, gender pay equality is not observed in the industry. Women earn on average 14% less than men in the industry.

Trends in investment. Tourism industry has large potential for both foreign and domestic investments. For example, total domestic private investment into the mentioned sector in 2017 reached US$60 million. The industry comprises 1% of total FDI stock in Ukraine (US$330 million). Its share in FDI is 25 times higher than its share in value added (1% against 0.04%). The FDI trends in tourism are significantly negative (-5.4% p.a. in 2013-2017), in large part likely due to the perceived cross-border conflicts and insecurity.

Policy trends. In 2018 changes into the Law of Ukraine "On tourism" were implemented in order to improve the legislation in the industry. Tourism is highly supported by the state: in 2017 the Government of Ukraine adopted the Strategy of development of tourism and resorts in Ukraine until 2026. The strategy should define the approach of the state tourism policy in terms of safety, regulatory and legal support, infrastructure development etc. The document also predicts that the number of foreign tourists in Ukraine will increase 2.5 times over this period. The number of domestic tourists is expected to increase 5 times, while the same increase is expected in the number of jobs in the tourism industry. Furthermore, tourism is one of the several industries that were mentioned as a priority in the Export Strategy of Ukraine 2017-2021. In particular, the focus was made on eco-tourism, adventure tourism, cultural, MICE and educational tourism.

Table 54: Reasons to Shortlist Tourism Sector

REASONS TO SHORTLIST THE SECTOR	REASONS TO SKIP THE SECTOR
One of the largest shares in employment (1.56%, i.e. 93,000 jobs in the industry) High share of value added in production (48%) Several specific tourist destinations (e.g. Kyiv, Lviv, Odessa, and Carpathians Mountains) that continue to draw tourists	Strongest decline in export value (29% p.a. in 2013-2017) Strong recession trend in production value (-15% p.a. in 2013-2017) Lowest share in the world exports (0.1%) One of the strongest decrease in number of jobs (-8.5% p.a. in 2013-2017) Lowest productivity level (less than US$4,300 of value added per employee) Low competitiveness level (RCA is 0.4) Insecurity parts of Ukraine are a hurdle to attracting significant numbers of tourists

11. PROCESSED FRUITS AND VEGETABLES

Table 55: Key Indicators for Processed Fruits and Vegetables Sector

SECTOR	PROCESSED FRUITS AND VEGETABLES (2017)
Production value	US$837 million (0.53% of total Ukrainian production)
Production value CAGR 2012-2017	-12%
Production value CAGR 2013-2017	-15%
Production value growth 2016-2017	16%
RCA	1.1
Value added as a % of production	22%
Export value	US$177 million (0.3% of total Ukrainian export)
Export value CAGR 2007-2017	-3.4%
Export value CAGR 2013-2017	-19%
Export value growth 2016-2017	26%
Share in world exports	0.30%
Untapped trade potential	US$158 million
FDI stock	US$2.5 billion*
FDI stock growth 2013-2017	-4.5%*
Number of jobs	N/A
Average income per month	US$253.8
Share of SMEs in total number of companies	99.96%*

Notes: All data is presented for 2017. Share of SMEs is calculated for manufacture of food products.

Key info. Fruits and vegetables processing is considered as an auxiliary element to food processing industry in Ukraine that generated US$175 million of export in 2017, while strongly declining at 18.7% annually in the global market that grew 0.84% per annum over the five years to 2017. The total production in terms of value decreased significantly by 15% per annum in the period of 2013-2017, while its share in

total national production remains around 0.53%. The sector is characterized by moderate domestic market that has US$92 million in wholesale turnover, 57% of which is secured by Ukrainian producers. Also, the sector shows moderate competitiveness on the international market with RCA equal to 1.1.

Market structure. The processing fruits and vegetables sector is predominated by SMEs (99.96% of total number of enterprises). Since 2016, the demand on the domestic market started to increase as consumers began switching from imported goods to domestic ones. At the same time, a number of companies started to develop their own ingredients production. The production of fruit and vegetable products is mostly concentrated in areas of fruit-processing plants. Key companies are CJSC Voznesensky Tinny Factory (Mykolaiv region), Boguslavsky Tinned Factory (Kyiv region), Agrana Fruit Ukraine, Vinnifruit, Vinnytsya Canning Plant (Vinnyts'ka oblast) and Ukrgorikhprom. The largest producers of canned fruits are Agrana Fruit Ukraine and Sandora. The largest producers of jam are Mohyliv-Podilskyi Tinned Factory (Vinnytsya region) and Sardonyx (Dnipro region). Overall, the production of processed foods and vegetables is widespread across the country (Kyiv, Dnipro, Kharkiv, Odessa regions).

Market performance. In terms of total value, production of processed foods and vegetables amounted to US$840 million in 2017. In the context of the economy of Ukraine fruits and vegetables processing sector occupy moderate share of the value added generated in the country comprising 0.24% of it (US$185 million). The sector has weak value-added potential at 22% of production value.

International trade potential. In 2017, exports of processed fruits and vegetables from Ukraine were valued at US$177 million (0.31% of total Ukrainian exports), with sector exports declining by 19% p.a. over 2013-2017. Despite low volumes, exports are well-diversified – the concentration index of importing countries for this industry stands at 0.14. Nevertheless, Ukraine's share in world exports was only 0.3% in 2017 (ranked 42nd globally). Yet, Ukraine has large untapped trade potential – US$158 million. This potential can be obtained through larger exports to the EU markets which are becoming more attractive for Ukrainian producers thanks to the lifting of duties. Prior to the DCFTA, the EU duty on fruit juices (HS 2009) was 34%. Now 0% duty is applicable for the first 10,000 tons (to be increased to 20,000 over the next 5 years). However, there are at least two impediments that should be dealt with. First, the capacity of Ukrainian agri-producers is much higher than the quotas set by the EU. Thus, the quotas are exhausted very fast at the beginning of year. Second, Ukrainian producers do not have the explicit understanding of their clients, certifications needed, and other issues which arise when exporting to the EU. Regarding imports, they equaled US$142 million (0.23% of the total Ukrainian imports) in 2017.

Employment trends. The Ukrainian statistics does not provide the exact figures for this sector. Data on manufacture of food products, beverages and tobacco products (to which agri and food processing relates) suggest that the average income amounted to 96% of the average income at the country level and that women earn on average 18% less than men in the industry.

Trends in investment. Although there is no official information on FDI in processed fruits and vegetables, the sector allocated (together with other food processing industries) US$48 million of domestic investments, mostly made by small and medium enterprises covering growing domestic demand for locally produced foods.

Policy trends. The major barriers related to the sector are related to inconsistency of Ukrainian sanitary and phytosanitary requirements with EU Directives. According to the Action Plan of Implementation of

Association Agreement between the European Union and Ukraine, Ukraine is expected to implement a number of changes in legislation in order to converge it with the European one. Overall, agriculture and food are traditionally considered as the most important industry and therefore is included to the Export Strategy of Ukraine 2017-2021 and is positioned by the National Investment Council as one of the most high potential.

Table 56: Reasons to Shortlist Processed Fruits and Vegetables Sector

REASONS TO SHORTLIST THE SECTOR	REASONS TO SKIP THE SECTOR
0% quotas under DCFTA in place Widespread in the Ukraine Emerging markets for high-value, specialty products Per ARDS, large opportunity for value added operations, such as frozen fruit Several entry points for CEP-type project	Lowest share of value added (29.4%) Strong recession trend in production value (-15% p.a. in 2013-2017) Low share in total Ukrainian export (0.31%). One of the strongest export decrease rates (-18.7% p.a. in 2013-2017)

12. MACHINERY AND MECHANICAL APPLIANCES

Table 57: Key Indicators for Machinery and Mechanical Appliances Sector

SECTOR	MACHINERY AND MECHANICAL APPLIANCES (2017)
Production value	US$5.9 billion (3.7% of total Ukrainian production)
Production value CAGR 2012-2017	-20%
Production value CAGR 2013-2017	-20%
Production value growth 2016-2017	19%
RCA	0.3
Value added as a % of production	42%
Export value	US$1.7 billion (2.9 of total Ukrainian export)
Export value CAGR 2007-2017	-4.7%
Export value CAGR 2013-2017	-19%
Export value growth 2016-2017	8.4%
Share in world exports	0.10%
Untapped trade potential	US$1.2 billion
FDI stock	US$771 million*
FDI stock growth 2013-2017	-4.6%*
Number of jobs (official)	307,200
Average income per month	US$260
Share of SMEs in total number of companies	99.7%

Notes: All data is presented for 2017. FDI stock is presented for all Machine building.

Key info. Heavy machinery is considered as an important industry in Ukraine that generated US$1.7 billion of export in 2017, while declining at 19% annually in the global market that grew 0.14% per annum over the five years to 2017. The total production in terms of value was decreasing by 20% per annum in the period of 2013-2017, while its share in total production remains to be around 3.7%. Domestic market

mostly consists of heavy machinery B2B orders and government purchases of machinery for military production and civil purposes. The sector shows very weak competitiveness on the international market, with RCA equal to 0.3. The latter may be explained by strong competition from East Asian countries and gradual aging of qualified workforce in the sector.

Market structure. There are 3,494 enterprises operating in the machinery and mechanical appliances industry; that decreased 3.8% per annum over the five years to 2017 and is mostly represented by SMEs (99.66%). The share of employees working in small enterprises is 8.9% - the lowest number among analyzed industries/sectors.

Ukraine has a large manufacturing base which historically was focused on heavy industry. Ukraine's heavy manufacturing industry is dominated by an extensive network of machine building enterprises. Over 25% of the population is employed by manufacturing companies involved in mining, railway rolling stock, energy, farm equipment, road construction equipment, machine tools. At the present time Ukraine's auto manufacturing output is approximately 200,000 vehicles per year. New foreign investors are investing and expanding operations in cluster areas, particularly in Western Ukraine. This manufacturing is concentrated largely in the assembly of foreign passenger cars for the export market, and domestically produced heavy vehicles for the domestic market. Ukraine's production of aircraft on a large-scale basis has never been realized, in part, because of the fragmentation of the supply chain that occurred following the collapse of the Soviet Union. But Ukraine is becoming known for its niche market in the production of unique ultra-light planes, hang-gliders and paragliders of all designs and models. Ukraine today ranks among the 10 largest shipbuilding countries in Europe. The country's maritime sector is extremely large and diversified and includes design bureaus, research facilities, shipyards and repair facilities. At the present time, there are over 35 major state companies that are engaged in the design and construction of a wide range of vessels. These include powerboats, barges, bulk carriers (dry cargo ship), tankers, including liquefied gas carriers[436]. Each sector of heavy industry has its own key players. Leading machinery companies in Ukraine are Antonov (aerospace), Berdichev machine-building plant (industrial machinery), Motor Sich (industrial machinery), Ukrainian Automobile Corporation (automobiles and parts), ZAZ (automobiles and parts), and Yuzhmash (aerospace). Machinery and mechanical appliances are mostly presented in the East of the country.

Market performance. In terms of total value, production of heavy machinery and parts amounted to US$5.9 billion in 2017. In the context of the economy of Ukraine heavy manufacturing industry occupies significant share of the value added generated in the country - US$2.5 billion (3.2% of the national total). The sector has strong value-added potential, at 42% of production value and relatively moderate productivity, with value added per employee around US$8,100.

International trade potential. In 2017, exports of heavy industry products from Ukraine amounted to US$1.7 billion (2.9% of total Ukrainian exports), with industry exports declining by 19% p.a. over 2013-2017. The major reasons for such a dramatic decline are (1) the loss of key markets and (2) loss of production facilities in Eastern Ukraine. First, most of Ukrainian heavy machinery was oriented at exports to Russian and CIS market. After the start of the military conflict, many business ties were broken requiring major producers to find both new suppliers and sales markets. Second, after the outbreak of the hostile actions, many production facilities have been very close to armed conflict zones and were damaged as a result. Thus, Ukraine accounted for 0.1% share in world exports in 2017 (ranked 47th globally). Now, the

[436] Government institution / UkraineInvest: https://ukraineinvest.com/sectors/manufacturing/

exports are more diversified than before, with concentration index of importing countries being 0.17. The untapped trade potential of heavy industry is estimated to be US$1.2 billion. Particularly, the lifting of EU duty on machinery (HSD 84) under DCFTA, which was 14% before, can provide an incentive for the development of this potential. However, the competitiveness of Ukrainian heavy machinery is undermined by obsolescence of technologies produced by many Ukrainian market players, caused by above-mentioned orientation on post-soviet markets. The underdevelopment of heavy industry in Ukraine leads to high imports - US$5.7 billion in 2017 (9% of total Ukrainian imports).

Employment trends. In total, 307,200 people are formally employed in the heavy industry sector (5.2% of total national employment in 2017). However, the number of jobs contracted by 7.2% p.a. between 2013 and 2017. The average income in the industry (US$260.4) stood at 97% of the national average in 2017. In terms of gender income disaggregation, women's average salaries are significantly lower (24%) than men.

Trends in investment. Machinery manufacturing sectors together has moderate potential for investments. Total domestic private investment into the mentioned sectors in 2017 reached only US$60 million. The sectors in total comprise 2% of total FDI stock in Ukraine (US$770 million). At the same time, the FDI trends in machinery production are significantly negative (-4.6% p.a. over 2013-2017).

Policy trends. The major obstacle in the industry is inconsistency of Ukrainian technical requirements for machinery with EU Directives. According to Action Plan of Implementation of Association Agreement between the European Union and Ukraine, it is expected to implement legislative changes in order to converge with European laws. Also, heavy industry is traditionally in state-focused. In particular, aircraft repair and maintenance, aerospace and aviation parts and components, vehicles, railway and tramway locomotives and parts and components are considered to be high potential in the Export Strategy of Ukraine 2017-2021. Also, sector is mentioned in the Hi-tech Industries development strategy as one of priorities. Aerospace and technology are considered as one of the most attractive industries for foreign investors by UkraineInvest.

Table 58: Reasons to Shortlist Machinery and Mechanical Appliances Sector

REASONS TO SHORTLIST THE SECTOR	REASONS TO SKIP THE SECTOR
The largest contributor to the total value added in Ukraine (3.2%)	The largest drop in production value between 2013-2017 (by 20% p.a.)
The largest share in the total Ukrainian production (3.7%)	Significant decline in export value between 2013-2017 (by 18% p.a.)
The largest number of jobs created by the industry (307,200, i.e. 5.2% of total country employment)	One of the smallest shares in world exports (0.1%)
0% EU duty under DCFTA in place	The lowest RCA value (0.3)
	Typically, no obvious role for a CEP-type project