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# **Assessment of Business Statistics at the National Bureau of Statistics and Assistance Options**

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Assessment of Business Statistics at the National Bureau of Statistics and Assistance Options

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## Acronyms

BIZTAR	USAID Moldova Business Regulatory & Tax Administration Reform Project
CIS	Commonwealth of Independent States
CNAM	Compania Națională de Asigurări în Medicină (National Company of Medical Insurance)
CNAS	Casa Națională de Asigurări Sociale (National House of Social Insurance)
DGTI	General Directorate for Information Technology
MID	Ministry of Information Development
NBS	National Bureau of Statistics
OECD	Organization for Economic Cooperation and Development
RENIM	Inter-administrative national register of Moldova
RENUS	National register of statistical units
STS	State Tax Service of the Republic of Moldova
UNDP	United Nations Development Programme
USAID	United States Agency for International Development

## Executive summary

BIZTAR is a USAID-financed project, formulated in consultation with representatives of the Government of the Republic of Moldova. The objective of BIZTAR is to simplify and streamline the business to government interface, in particular to make it easier for businesses to comply with government requirements and where possible to eliminate requirements that serve little purpose for governance in a climate where government wishes to strongly stimulate economic growth.

Recently, several state agencies have taken important steps toward reducing the reporting burden on private business, especially to exempt small enterprises from excessive reporting. One of these is the National Bureau of Statistics (NBS).

According to the Law on Statistics, NBS leads and coordinates government's statistical data collection and analysis. Comparing NBS' general situation with other statistical agencies in countries in the Commonwealth of Independent States (CIS), NBS has proceeded quite far in the introduction of international standard classifications for economic activities and products. On the other hand, reduction in the number of questionnaires has not proceeded very far; there still exists at NBS a separate IT department (DGTI) that is common in many ex-Soviet countries, and NBS salaries are low.

The objective of this report is to identify areas in which BIZTAR can assist NBS to achieve the goal of reducing the reporting burden on private business. This report begins with the a summary of recent reforms in Moldova and more detailed background of on NBS and recent reforms undertaken or in study there. Then the ways of reducing reporting burden conceptually are presented. The next section summarizes NBS' recent experience with foreign assistance. This is followed by description of NBS' statistical register. An important part of the report is the next section which describes of alternative strategies to support steps toward burden reduction and a closer look at the software options. Finally, the report suggests functional specifications and proposed phases for the development of an improved computerized system to record and analyzes more efficiently the data the government needs from business.

In summary, there are conceptually several ways in which the reporting burden for businesses in Moldova could be reduced:

- By means of more efficient use of the data that is collected, avoid duplication of questions;
- By consolidating questionnaires so that a large enterprise could fill out a single monthly questionnaire covering employment, investment and production in all sectors, instead of filling out separate questionnaires for employment, for investment, and for production in industry, trade, etc.;
- By substituting, where feasible, inter-agency data for reports from business;
- By making more use of sampling, to reduce the number of respondents;
- By e-reporting, which would eliminate the need for hand delivery of statistical reports;
- By directly eliminating some of the questionnaires and questions now collected, after reconsidering the need for the data.

Of these six remedies, all except the last one require significant IT software and process improvements, including sharing data among divisions and the merging of e-reports into existing datasets. Right now (March 2008) no central "warehouse" exists for NBS data. Instead, the micro-

data from the obligatory reports is stored on the computers of various individual staff members, and is therefore not conveniently available for use by other staff members and divisions.

However, NBS has a statistical register that follows some very good practices – it is based on administrative data including tax data and appears to be up to date. The main problem is that the register is not put to as much use as it deserves to be, due to lack of an adequate software and systems to share and assess data.

At the time this assessment was undertaken (March 2008), and through its date of publication (December 2008), NBS was in the process of developing an IT strategy. Because of the complexity of the solutions requiring IT assistance, and the need to finalize the IT strategy as well as the expected costs, magnitude, and time frame for a complete overall and modernization of NBS' IT infrastructure, BIZTAR will probably be unable to assist in that effort. However, BIZTAR recommends that priority be given to improving the collection, collation, and analysis of business data. This report provides important guidance for NBS to create the basic elements of an up-to-date software system for business data at NBS. In particular, the lead consultant (Mr. Kornis) has proposed that the implementation of this system occur in three phases. In Phase 1, the NBS and those organizations assisting it should concentrate on the design of a system which integrates, on the one hand, the current statistical register of enterprises and sole proprietors (RENU) with, on the other hand, the two main periodic reports (the existing annual structural survey and the proposed monthly short form). In Phase 2, NBS should integrate into the system the administrative data from other sources that NBS already uses (tax register, inter-administrative register and financial statements). In the proposed Phase 3, important administrative data from other governmental agencies, in particular VAT data and CNAS data, would be integrated electronically with the NBS system; this will require an agreement with STS and CNAS as well as the necessary IT platforms.

Even if only phase 1 is implemented, this would immediately lead to a major direct reduction in burden, as enterprises with activities in various sectors (e.g., in industry and trade) would complete only a single integrated monthly and annual questionnaire instead of separate ones for industry, trade, employment and investment. Given the proposed system for conveniently sharing data among divisions, the integrated reports would allow NBS to eliminate many questionnaires. Moreover, if the single integrated monthly questionnaire would also be made available for e-reporting, the reduction in response burden would be much very significant for business.

In conclusion, taking into account the need of technical specifications for the integrated IT system at NBS before creation of any software subsystem at NBS and seeking a tradeoff between the significant necessary IT effort at NBS and the goal of achieving the quantifiable burden reduction results in the short period of time, BIZTAR recommends for year 2009 the introduction of single integrated monthly and annual questionnaires, which should be tested to be made available for e-reporting. In addition to the assistance related to e-reporting testing, NBS will need in 2009 an efficient data entry system for the single integrated survey and sharing of that data among divisions whose questionnaires would be replaced by the new one. BIZTAR stands ready to provide assistance to NBS in all this work.

## Introduction

### **BUSINESS REGULATORY & TAX ADMINISTRATION REFORM (BIZTAR) PROJECT**

The 3-year USAID|Moldova *Business Regulatory & Tax Administration Reform (BIZTAR)* Project, implemented by a consortium led by Development Alternatives Inc., began on September 26, 2007.

The BIZTAR Project seeks to improve Moldova's business enabling environment by reducing the administrative burdens on the private sector, streamlining tax administration, curtailing opportunities for corruption, and improving the access for citizens and businesses to government information. The BIZTAR Project is accomplishing these objectives through improvements in the performance of a variety of government partners, including the creative deployment of information and communications technology (ICT) to facilitate transparent data management, streamlined administrative processes, and enhanced private-public sector partnerships. It is also assisting government and the private sector to promote public awareness and support for policy reforms to create a better business environment.

A core expected outcome for the USAID/BIZTAR project is to make it easier for businesses operating in Moldova to obtain licenses, pay taxes and provide reports to governmental agencies, particularly at the national level. Onerous reporting requirements and unfair inspections can prevent Moldovan businesses from creating wealth and jobs for the economy. Informal counts of the reports required from Moldovan businesses number in the hundreds. Moldova's Foreign Investors Association (FIA) estimates that it requires businesses 2,332 hours and roughly \$9,000 per year to meet the reporting requirements of the NBS, STS, and CNAS.

To achieve these objectives, BIZTAR began in 2008 to undertake a series of needs assessments to identify the causes of the problems businesses in Moldova were reporting. NBS is one governmental agency, which recognizes those problems and continues to seek ways, and international support, to address this objective. This report, prepared after consultations with NBS, examines the factors at NBS, which constrain its ability to respond better to the needs of business. The ideas proposed are those of an international consultant with much experience and expertise in national statistical systems as well as Mr. Oleg Grigori, the leader of the BIZTAR team seeking to reduce reporting burden for business. These ideas in this report are presented for discussion with the leadership at NBS.

On behalf of the BIZTAR team, we look forward to discussing these ideas with the leadership at NBS and to determining how best to use the limited resources assigned to BIZTAR to achieve significant reductions in the reporting burdens on business.

Beto Brunn

Chief of Party

USAID|Moldova BIZTAR Project

## I. Moldova's recent efforts at reducing reporting burden

Recently, Moldova has taken important steps toward reducing the reporting burden on private business. For example, beginning in 2008, the following reductions took place.

- A.** The new Law on Accounting mandates that financial reports must be presented annually (or at most semi-annually) instead of quarterly, and need not be presented by enterprises with single-entry bookkeeping, as long as they do not exceed certain size limits. More specifically, as long as they do not exceed two of the following three limits: Average number of employees, 9 persons, annual sales 3 million lei, and balance value of long-term assets 1 million lei.<sup>1</sup> This reform is expected to relieve many small firms of the obligation to present financial reports and thus represents a step forward in burden reduction.
- B.** The State Tax Service (STS) exempted individual entrepreneurs with fewer than 4 workers and who are not registered as VAT payers from submitting multiple reports to STS; instead they were allowed to submit a single annual report covering all kinds of taxes.
- C.** The National Bureau of Statistics (NBS) has exempted small enterprises<sup>2</sup> for submitting the most burden statistical report – quarterly report on „Enterprise's costs and expenditures” nr. 5-C. Also enterprises with fewer than 4 employees are exempted during the year for submitting the quarterly report on "Personnel and work places at the economic entities of up to 20 employees” nr. 1-IM.
- D.** A new law, “The National Strategy for Development for 2008-11”, envisages improving in the statistical research system, in particular by eliminating statistic reports with low information value, thus easing the information burden on economic agents, allowing for a more efficient use of human and budget resources.<sup>3</sup> An Action Plan in support of this strategy envisages a major upgrade in the IT system at NBS.

For the near future, NBS has expressed interest in further cutting the reporting burden in compliance with the development strategy. This report will explore ways that the BIZTAR project can work with NBS to reduce reporting burden.

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<sup>1</sup> The exemptions provision is detailed in article 15 clause 1a of the Law on Accounting. If all firms and proprietors below the stipulated size-limits were to shift from double-entry bookkeeping, it is estimated that this reform would free more than 30,000 of 38,000 businesses from submitting financial reports. Many firms that already use double-entry bookkeeping are not expected, however, to shift to single-entry bookkeeping. For those that do report, public companies and firms with certain accounting systems (article 29) must report semiannually; others may report annually.

<sup>2</sup> Which meet all of the following criteria: a) are not VAT payers; b) have fewer than 4 employees (average) and c) have annual sales of less than 300,000 lei for previous year.

<sup>3</sup> Law number 295-XVI of 21 December, 2007.

## 2. Background – Reforms at NBS

Total state budgetary expenditures for statistics in 2006 were 35 million lei (equivalent to \$2.67 million).<sup>4</sup> Employees of the statistical system include about 108 in the main part of NSB headquarters, another 88 in the IT department, and 720 in the territorial offices. The organization structure for NSB, charted in figure 1<sup>5</sup>, shows there were eight subject matter divisions. We met with the heads of two subject matter divisions - Mr. Iurie Mocanu, head of the Division for Statistical Infrastructure and the Financial Reports, and Mrs. Elena Vatcarau, division chief for Labor Market and Demographic Statistics. We also met with high-level staff, in particular Mr. Oleg Cara, the Vice-Director of NBS, and Mr. Stefan Novac, the director of the DGTI, i.e., the General Directorate for Information Technology.<sup>6</sup>

The following observations can be made about the general situation at NBS as compared with other statistical agencies in CIS countries:

- The introduction of international standard classifications for economic activities and products has proceeded quite far, much faster than in Belarus, Russia and many other CIS countries. Moldova now uses the Classification of Economic Activities in the European Community (NACE), which is based on the United Nation's International Standard Industrial Classification (ISIC), and expects to move up to v. 2 of NACE this year, which is based on the ISIC v. 4. Moldova replaced the old Soviet classification system (designed to support the Soviet method of national accounting, called the Material Product System) with an ISIC-based one starting in the mid-Nineties and phased out the old system by around 1997. Belarus and Russia are still using the old system in parallel with the new system during a prolonged transition to ISIC.<sup>7</sup>
- Reduction in the number of questionnaires has not proceeded very far but there has been some reduction. The data show that the total number of reports declined from 251 to 224 during 2002-07; no data is yet available on the pre-02 decline but there was said to have been a decline.<sup>8</sup>
- Continued existence at NBS of a separate IT department (the DGTI) that handles data entry and production of tables. This is an old-fashioned, inefficient, system that is common in many ex-Soviet countries but was long ago abandoned by Belarus, in the experience of the consultant, who worked at the Belarusian statistics office for a month. Despite the

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<sup>4</sup> Annual Report of NBS, 2006, p. 50.

<sup>5</sup> Ibid, p. 52.

<sup>6</sup> We did not meet with heads of the other six subject matter divisions. These include divisions for Social Statistics, Macroeconomic Statistics, Population Census, Agricultural and Environmental Statistics, Industry, Energy and Construction Statistics, and External Trade Statistics and Services. It was not envisaged by either NBS or the BIZTAR project that this consultant would do an overall evaluation of the agency, so there was no need to interview all of the division chiefs. Indeed, Mr. Oleg Cara, deputy general director of NBS, suggested that it would be more efficient to work mainly through one division, in order to focus on certain issues and minimize disruptions to NBS work.

<sup>7</sup> The old system, abbreviated as OKONX in Russian, was designed to support the Soviet system of national accounts (Material Product System or MPS), and was widely used by CMEA countries and some CMEA allies. It is not consistent with ISIC and cannot easily be converted to ISIC. It is based on Soviet economic concepts, whereby production of electricity, for example, is considered a service and is not grouped with industry as under ISIC. Obviously any transition from OKONX to ISIC involves issues about legacy data, which may explain the existence of parallel reporting systems in some countries. These issues were not examined for Moldova, inasmuch as the transition took place long ago.

<sup>8</sup> The NBS annual report for 2005 (posted on the NBS website) said that 15 questionnaires were dropped as they had "lost their actuality". Another 8 were revised, with reduction in frequency for some of them.

existence of a separate IT department, the structure of files at DGTI is fragmented (for detail, see section 3).

- NBS salaries are low (starting at about 1000 lei per month, increasing to 1500 lei after the probation period), so there is little incentive for university graduates to get or keep jobs. As is common in CIS countries, most employees are women – 87 percent in Moldova – and a large share are over age 45. As a result of low salaries, motivation is said to be low, with many employees reportedly focused on the opportunity to retire with a pension. Turnover among new staff is high.<sup>9</sup>
- In Moldova, the Law on Statistics stipulates that reports of individuals and individual enterprises are confidential. However, enterprises are still held responsible for the accuracy of their statistical reports and the statistical office has the right to examine their books if the data is considered suspect, as in other post-Soviet countries but not in countries that have no history of a Soviet-type system.<sup>10</sup>
- The NBS business register is more advanced than the register in other CIS countries. Its heavy reliance on tax data is very impressive. The reliance on interagency data sharing is in conformity with EU recommendations.<sup>11</sup> Such sharing of administrative data with the statistical office for registry-building is common in OECD countries but lacking in most developing countries.<sup>12</sup>
- Unusually, in comparison with other ex-Soviet statistical agencies with which I have worked, there is a strong reform impulse from NBS leadership, with a clear vision of how to improve the reporting system in such a way as to improve data quality and reduce the burden on business.

A legacy of the Soviet period is the existence at NBS of a separate IT directorate (the DGTI), the former Main Computing Center (*Glavnoe Vychitelnoe Tsentri*). The DGTI is charged with managing the data flow from enterprises to NBS. It does this by reviewing the validity of data submitted by enterprises, merging data files from each territorial office into national files, preparing standard tabulations using customized applications (mostly written in DOS) for each questionnaire, and submitting these tabulations to the relevant division at NBS. The DGTI is staffed by 88 persons, mostly over age 45, with few reportedly possessing programming skills. It is reportedly beyond current DGTI capabilities to prepare new applications. Another roughly 105 staff work in the various subject matter divisions at NBS outside the DGTI. Such a separation between IT and statistical work is quite inefficient and is a holdover from older, main frame

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<sup>9</sup> “Of the total number of 18 specialists hired during 2005-2006, currently, only nine continue to work at NBS.” *Annual Report 2006*, pp. 47-49. This was written during 2007.

<sup>10</sup> The confidentiality provisions in the Law on Statistics also appear in the statistics law in most CIS countries, but leaks reportedly occur in the practice of confidentiality in some CIS countries, with some data for individual enterprises being shared with some government officials. Hopefully, there are no such leaks in Moldova. An ECE survey in the winter of 2000/01 found that access to data for individual enterprises was “allowed to legal, fiscal and other government authorities (including police)” in Kyrgyzstan, Tajikistan, Russian and Ukraine. “Statistical Data Confidentiality in the Transition Countries: 2000/2001 Winter Survey”, prepared by the UNECE Secretariat, working paper 43 submitted to the Joint ECE/Eurostat Work Session on Statistical Data Confidentiality, Skopje March 2001. During a 2004 mission to Tajikistan, the consultant was told that local government authorities could easily obtain about individual enterprises on their territory from the statistical office.

<sup>11</sup> European Communities, “Business Register: Recommendations Manual, 2003 Edition”, Office for Official Publications of the European Communities, Luxembourg.

<sup>12</sup> US practices are described briefly at the beginning of section 4. From previous missions, I am familiar with the lack of such inter-agency cooperation in Indonesia (2007), Sri Lanka (2007), Mozambique (2002), Tajikistan (2004) and Mongolia (2007). It is presumed to be lacking as well in India and China, which lack business registers.

technologies; this practice has been totally abandoned by statistical agencies in more advanced countries and by most agencies in developing countries too. The common practice nowadays is for the staff of subject matter divisions to get increasingly involved in IT issues for their own division, including data-entry programs, validation routines, and tabulations. As a result, IT departments have shrunk to focus on a more narrow set of issues, such as network maintenance, IT standards within the agency, and development of a central database. This transfer of functions in other countries has tended to result in an IT process that is less bureaucratic and more responsive to the statistical needs of the subject matter divisions.

Grade for grade, NBS salaries are on the same level with salaries throughout the public administration component of the budgetary agencies in the government, for which the average monthly salary was 2394 lei in 2007. For all of NBS, the average was only 2078 lei (equivalent to \$185); for headquarters, it was presumably higher, due to higher average grades, but exact data is not available to document this. These amounts are gross of payroll deductions. The NBS average happens to be about 20 percent under the 2005 average for the Belarus statistical system.<sup>13</sup> It is also said to be low in comparison with actual salaries (including off-the-books supplements) for educated and skilled workers outside public administration, especially for IT workers.

A new Law on Statistics was approved on December 9, 2004. Among the “Main Principles of Official Statistics” itemized in Article 5 was mentioned the following two principles:

- “Cost/efficiency ratio – limit, imposed by official statistical bodies, the volume of statistical data collected from respondents to justify the goal of statistical survey while assuring an optimal use of the available human and financial resources”, and
- “National level coordination – ensures a higher efficiency of statistics, diminish the information demands on respondents and statistical units, and ensure data comparability.”

Articles 22-26 of the law deal extensively with the protection of confidentiality of data for individuals and legal persons. Article 23, paragraph 2, mentions that confidential statistical information “cannot be conveyed to other physical or legal persons”, while paragraph 4 mentions that “individual statistical data cannot serve as evidence in a court of law”.<sup>14</sup>

Underreporting of employment, payroll and other economic aggregates is a major problem in Moldova, just as it is in many ex-Soviet states and other countries as well, but standard statistical procedures can cope with these problems to a certain extent. For example:

- A comparison of establishment and household measures of salaried employment shows that employment of salaried workers in enterprises is about 640,000 in the household survey but only 560,000 in enterprise surveys (excluding the 200,000 employees in budgetary units). The difference, 80,000, is said by NBS to consist of 3 groups – a few domestic workers (probably no more than 6,000), plus underreporting of employment by enterprises, plus enterprises that do not report at all, mostly in the informal sector. The difference translates into an under-report of 74,000, or 11.5 percent, for workers in enterprises, one that can be monitored with household data and that is probably stable.<sup>15</sup>

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<sup>13</sup> The available data for Belarus include employer contributions for social insurance. The data, which are for 2005, show that average compensation costs throughout the statistical system were \$289, while for headquarters they were \$389. The comparable figure for the entire statistical system in Moldova in 2006 was \$229 (including employer contributions), which is 79 percent of the 2005 average for Belarus.

<sup>14</sup> “Law of the Republic of Moldova on Official Statistics”, published by NBS in Romanian, Russian and English.

<sup>15</sup> On the basis of tabulations for the two sources provided by Mrs. Elena Vatcarau, chief of the Division for Labor Force Statistics, the percentage difference in 2006 was largest in construction (30 percent of 42 thousand workers according to

- Payrolls are believed to be more sharply understated than employment, due to the widespread use of off-the-books salary supplements. As a result, it is quite likely that turn over is also underreported, as otherwise off-the-books payments would appear as excess profits in enterprise accounts. In fact, profits are said to be understated as well. While these practices are regrettable from a statistical point of view, they are by no means fatal to the validity of enterprise statistics for two reasons. First, national accountants have techniques for adjusting for the so-called “non-observed economy” at the aggregate level (not at the level of individual enterprises) and these techniques are also applied at NBS by the Division for Macroeconomic Statistics.<sup>16</sup> Second, the degrees of understatement may be fairly stable, because the legal and institutional factors motivating enterprises to report or to evade may be fairly stable; this hypothesis could be examined using data for the adjustment in the national accounts. Over the years, the Organization for Economic Cooperation and Development (OECD), Eurostat, and the UNECE have provided guidance and information to national statistical offices about methods for estimating the non-observed economy.<sup>17</sup>

During the mission, we worked most closely with Mr. Mocanu and his staff. Mr. Mocanu, who joined NBS about 10 years ago, impressed us with a clear sense of mission to create a more rational system for collecting and processing enterprise data. His division handles the register and the so-called structural survey, to be discussed further in sections 5 and 6. During 2005-06, he supervised the introduction of the structural survey (the only sample survey of enterprises) and a series of improvements to the register, including the inclusion of local units (establishments) in 2005-06. In discussing the NBS business register, RENU, Mr. Mocanu displayed strong statistical skills and a basic understanding of sampling issues. His efforts to reform the system are supported by Mr. Cara and Mr. Novac, who both have a good understanding of what needs to be done but feel constrained by the lack of suitable software and IT skills.

### 3. Response Burden and Data Processing System

A UNDP report from September 2007 notes that NBS obligatory reports impose a considerable burden on respondents. It mentions “around 200 statistical reports of different periodicity”. Annual reports require up to a week to fill, quarterly reports up to three days, monthly reports up to two days. The process of submitting a completed questionnaire is also burdensome, requiring up to a day to travel to the territorial office, up to half a day to wait in line for a meeting with a review officer and up to half an hour for review and acceptance.<sup>18</sup>

The large number of obligatory questionnaires, and the inefficient way in which the data is processed, has created a major burden for enterprises. Without sharing, each division will continue to need to collect its “own data” on separate questionnaires, and will lack facilities for

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household data) and smallest in agriculture (5 percent of 102 thousand workers). Sectoral measures include employees of both budgetary units and enterprises.

<sup>16</sup> The consultant did not meet with the Division for National Accounts or explore its methods, as the focus of the consultancy was on enterprise reporting, not on national accounts.

<sup>17</sup> Measuring the Non-observed Economy: A Handbook, OECD, 2002. The handbook was prepared by a team including OECD, the IMF, the ILO and the Statistical Committee of the CIS. Another useful document is The Non-observed Economy in National Accounts: Survey of National Practices, UNECE, 2003. One chapter in the latter report deals with Moldova. If the adjustments for Moldova are considered inadequate, the standard remedy would be to work with the national accounts unit to improve the adjustments, using the methods that are common for the non-observed economy.

<sup>18</sup> “Raport despre sistemul informațional și sistemul de rapoarte existent la Biroul Național de Statistică a Republicii Moldova”, p. 19.

efficiently utilizing administration data to substitute for statistical data. During discussions at NBS and with UNDP, we became aware of six ways in which that burden could be relieved:

- A.** By means of more efficient use of the data that is collected, avoid duplication of questions.
- B.** By consolidating questionnaires so that a large enterprise could fill out a single monthly questionnaire covering employment, investment and production in all sectors, instead of filling out separate questionnaires for employment, for investment, and for production in industry, trade, etc.
- C.** By substituting, where feasible, administrative data for statistical reports,
- D.** By making more use of sampling, to reduce the number of respondents,
- E.** By e-reporting, which would eliminate the need for hand delivery of statistical reports? and
- F.** By directly eliminating some of the questionnaires and questions now collected, after reconsidering the need for the data.

Of these six remedies, all except the last one, F, need significant IT improvements in software and interagency connectivity as well as in improved internal processes for data management, including sharing data among divisions and the merging of e-reports to datasets, as will now be explained.

According to the List of reports (surveys) approved by NBS for 2008, data collection for business at NBS involves a system of 129 obligatory reports (questionnaires), 11 monthly, 28 quarterly and 90 annually, of which 43 are for agricultural enterprises. There is no reliance on sampling except for a single annual report - the so-called structural survey. The efficiency of the reporting program appears to differ from sector to sector. For manufacturing industry, there are three reports dealing with production and one with prices; the number does not appear excessive. Where as for agriculture, the 43 reports appear excessive and is probably a legacy of the Soviet planned economy. It will be useful for BIZTAR staff to study the appropriateness of the number of questionnaires and number of questions in more detail, in order to document such duplication and excess detail as exist.

Although much needed, no central “warehouse” exists for NBS data. Instead, the micro-data from the obligatory reports is stored on the computers of various individual staff members in DGTI, and is therefore not conveniently available for use by other staff members and divisions, even though there is no prohibition on such use. Nor is the data backed up systematically. The data for each report is organized in a separate file. For example, a monthly report for industrial production in January is stored in one file, while that for February is in a second file, and so forth. Because of the fragmentary way in which the data is organized, it is effectively unavailable for any kind of analysis except for the production of the intended, standard reports for January, February, etc.<sup>19</sup> In this way, the data collected by NBS is “stovepipe” from the enterprise to the tabulated reports produced by each division, with meager scope for data sharing across divisions.

Statistical offices in other countries have faced similar problems but have overcome them by developing integrated systems for managing data from various surveys, as will now be briefly discussed. For business data, this can be done by linking all the data to a central statistical register of businesses and organizing the data in such a way that the data from surveys can be compared and analyzed together. A graphical illustration of the change from the stovepipe environment to an integrated one is shown in figure 2. The skeleton for such linkage is the so-called metadata, which

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<sup>19</sup> While an analyst at NBS could in principle compile data files from various divisions and analyze them to produce an integrated tabulation other than the one that was original intended, the practical difficulty of undertaking such analysis makes it unlikely to happen.

involves a formal and precise description of the meaning and coverage of all the variables stored in the various linked datasets.<sup>20</sup> Such integrated systems are a recent development, supported by advances in IT technology.<sup>21</sup> The NBS leadership is familiar with similar systems in Latvia and Norway and keen to develop such a system here. As will be discussed in section 5, this is already the subject of planning at NBS and by other donors as well.

Meanwhile, it is difficult to introduce any changes in questionnaires, or any new questionnaires, due to the lack of DGTI staff with sufficient skills to write programs for entering and tabulating new reports. Outsourcing is obviously an option, and the current government budget includes 1.5 million lei for software development at DGTI, mainly by means of outsourcing. But even for outsourcing, it is difficult to design relevant new software on an ad hoc basis until an overall new IT system is first designed.

A related issue is the mechanism for accessing administrative data from other agencies. At present NBS gets register data online from MID by means of a protocol that is not very flexible or convenient but that basically provides the juridical data required for adding new enterprises to the NBS business register. In addition, NBS gets data in DBF files from the tax office, but gets no data yet from the CNAS. There is clearly scope for NBS to try to negotiate for better access to administrative data if it wishes to do so. This would be an attractive approach in the context of an IT upgrade at NBS, which would facilitate the use of such administrative data in conjunction with RENU and other NBS data to create hybrid estimates of the kind now common in OECD countries.

In the US, small firms have long been exempted from coverage in the quinquennial economic census, with Federal income tax data used to represent them instead. Other OECD countries have in recent years increasing used administrative data to fill statistical gaps and reduce the reporting burden on smaller firms.<sup>22</sup> Making good use of administrative data will not, however, become a realistic possibility at NBS until the survey and administrative data can be pooled in a common data ware house.

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<sup>20</sup> See the papers presented at session 57 of the Second International Conference on Establishment Surveys in June 2001 in Buffalo NY. Cathryn S. Dippo, in *The Role of Metadata in Statistics*, mentions a brief definition in general terms: "Statistical metadata describes or documents statistical data, i.e. microdata, macrodata, or other metadata. Statistical metadata facilitates sharing, querying, and understanding of statistical data over the lifetime of the data." Mark E. Wallace and Samuel N. Highsmith, of the US Census Bureau, in the paper "Use of Metadata for the Effective Integration of Data from Multiple Sources, examine alternative approaches to developing metadata for data integration. In "Statistical Metadata: the Real World of Implementation", Michael Colledge of OECD and Ernie Boyko of Statistics Canada mention that the XML language supports the presentation of metadata. They discuss the difficulties of preparing metadata within a statistical agency when many data producers are involved, particularly the difficulty of developing metadata for various surveys that is consistent and adheres to a common standard. Lack of adherence to standards "makes the data and metadata more difficult to use when they are managed as part of a collection of surveys". Extensive documentation on statistical metadata spanning the period from 1998 to the present, including training materials, is available at the UNECE website: Documents Library/Methodology/Metadata <http://www.unece.org/stats/archive/04.e.htm>. Metadata is Statistical area 4.1.

<sup>21</sup> At the Third International Conference on Establishment Surveys in June 2007 in Montreal, the topic of development of central databases and processing system for business data, and the role of metadata in such databases, was the subject of several presentations by statistical offices in the US, Canada, Australia and the UK, among others. See, in particular, sessions 9 (The New Direction of Business Surveys: The Integrated Approach"), 22 ("Uses of Metadata for Establishment Surveys") and 43 ("Generalized Survey Processing Systems: an Update". Session 43 presented experience from the US Census bureau, Statistics Canada and the Australian Bureau of Statistics; presenters indicated that getting the metadata right was the most onerous hurdle to developing generalized survey processing systems.

<sup>22</sup> At the 2<sup>nd</sup> ICES, session 28 dealt with "Combining Survey and Administrative Data", with presentations from Australia, the Netherlands and Sweden, with all three emphasizing the opportunities for reducing response burden. In particular, the paper by Steve Crabb and Paul Sutcliff of the Australian Bureau of Statistics, "Use of Business Income Tax Data to Extend the Information Available from the ABS Economy Wide Economic Activity Survey" is especially relevant to the potential for substituting tax for statistical data at the level of individual enterprises in Moldova. At the 3<sup>rd</sup> ICES, session 29 dealt with "Efficient Use of Administrative Data in Business Surveys". The paper by Robert Clark and Frank Yu, "Using Tax Data for Substitution and Auxiliary Variables in the Australian Economic Survey" is also quite relevant to the potential of substituting tax for statistical data at the level of individual enterprises in Moldova. Session 53 "Utilizing Tax Data in Estimation" presented examples of the use of tax data to reduce respondent burden in Canada and Slovenia.

#### 4. Experience with foreign assistance and expressed needs

NBS has received substantial donor assistance; this is more systematically documented for the period before 2004 than for the more recent period. A complete picture of funding is not yet available, with costs missing for some of the assistance mentioned here but cumulative donor funding for statistics since independence appears to have reached at least US\$4.0 million plus 5.1 million Euros, if not more. Here is the available information for the period since the end of 2003.

- A statistical master plan (SMP) was prepared in 2003 in English with the assistance of a Norwegian consultant, Mr. Jan Byfuglien of Statistics Norway, funded by a World Bank fund that aims to encourage the preparation of such plans in all countries, especially developing and transition ones.<sup>23</sup> A major purpose of such plans is to coordinate the activities of various donor agencies in the statistical area.
- The Moldova plan, which ran to 80 pages, proposed a wide range of actions, including hardware purchases and international consultancies, the total budget for which ran to \$7.8 million.<sup>24</sup> But the World Bank was unable to provide follow-up funding, in contrast to the situation in many countries, where funding has followed SMP preparation.<sup>25</sup> In the area of IT, the SMP limited itself to mentioning the need for a “data warehouse”; there was no discussion of an integrated database for business statistics, perhaps because at that time the topic was not so widely discussed among statistical agencies as it is now.
- The National Institute of Statistics in Romania provided technical assistance.
- The European Community’s TACIS (Technical Assistance for CIS) provided help under its programs “Statistics 7” and “Statistics 9”, in the amounts of 1.0 million and 0.5 million Euros respectively. The latter program included missions by Mr. Simon Allen who provided advice on business statistics. Mr. Allen’s work led to the preparation of a draft integrated monthly questionnaire, to be discussed further in section 7.
- After the SMP was written, Statistics Norway provided some technical assistance. There were also missions by Mr. Lars Rauch in 2003 and by Mr. Bjorn Rauch in 2005 and 2007, focusing on the general framework for metadata implementation. Some of these were funded under Statistics 7 and Statistics 9.
- The Department for International Development (DFID) of the United Kingdom provided help under its project for improving social and agricultural statistics in Moldova. During 2005-06, \$0.3 million was spent to support the integration of the Household Budget Survey and the Labor Force Survey, with another \$1.2 million going to improve data collection, analysis, and “application processes”.<sup>26</sup>
- The World Bank provided assistance on quarterly national accounts, the forecasting of macro-economic indicators, and a health survey.

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<sup>23</sup> The Trust Fund for Statistical Capacity Building (TFSCB).

<sup>24</sup> Statistical Capacity Master Plan, Republic of Moldova, December 2003.

<sup>25</sup> According to Mrs. Babro Hexberg of the Development Data Group at the World Bank, some limited assistance took place in the wake of the SMP: “Some work on Quarterly National Accounts (including training staff on doing seasonal adjustments) was conducted, [and] a pilot Health survey was conducted.” But the entire plan could not be funded as “there was no room in the IDA envelope for supporting implementation of the SMP and no TF [Trust Fund money] that could be used.” Email to the consultant.

<sup>26</sup> External Assistance Attraction and Coordination Unit, Ministry of Economy, Technical Assistance to the Republic of Moldova: Annual Report 2005, p. 84.

- UNDP has begun providing help for DGTI, as will be discussed at the end of this section.
- The European Commission Food Security Program was scheduled to provide assistance for a Census of Population scheduled for April 2004.<sup>27</sup> The amount of assistance actually provided for census is not yet known.
- FAO has provided TA from time to time, particularly in connection with plans for a Census of Agriculture.

The SMP, as is usual for such reports, documented foreign assistance for Moldovan statistics prior to the end of 2003<sup>28</sup>, including:

- About \$1,060,000 in World Bank assistance during 1997-2004 for a living standards survey and various other activities, including the preparation of the SMP.
- About 680,000 British pounds for DFID assistance in various areas during 2002-05.<sup>29</sup>
- About 3.2 million Swedish kroner from SIDA for TA during 1997-2004, equivalent to about \$420,000. The TA was implemented by Statistics Sweden in the areas of national accounts, population census and population register, wholesale trade statistics, road transport statistics and information technology.
- The report mentions prior assistance from TACIS (European Community), including 0.5 million Euros under Statistics 3 and 1.0 million under Statistics 5, but does not provide a cumulative total for all TACIS assistance.

A website for NCU Moldova, the Technical Assistance Directorate of the Ministry of Economy reports that TACIS spent a total of 4.6 million Euros on statistics in Moldova during 1994-2006.<sup>30</sup> This amount does not include the 0.5 million Euros under Statistics 9, mentioned above.

In the near future, NSB will be in discussions about possible assistance with several donors. One of these is Statistics Norway, from which a mission began work at NBS on 18 Feb, with two experts, one for the business register, and one for IT.

In the context of its e-governance program, UNDP has been studying since 2007 how to help NBS. UNDP investigated options for e-reporting by enterprises to replace hard copies submitted to NBS. As UNDP noted in its 2007 report on enterprise reporting practices at NBS, firms waste much time filling out NBS reports and submitting them manually at NBS territorial offices; accordingly, UNDP believed that e-reporting could save enterprises the time needed to submit the forms and wait for an NBS staffer to review and enter them. This vision soon collided, however, with the reliance of DGTI on old technology and its lack of an integrated IT system. With the existing system, DGTI would lack an interface for uploading e-reports to DGTI datasets, and would, instead, be obliged to key such data into Clipper! Accordingly, UNDP shifted its objective towards designing a new IT system for DGTI. It organized a study trip to the Latvian statistical office during 2007 to observe the integrated database for enterprise statistics, plus a visit to Moldova by two experts from the Latvian statistical office.<sup>31</sup> UNDP Project prepared a concept paper for an Integrated IT system at NBS.

In addition, NBS will be in discussion with FAO and other donors concerning assistance for the Census of Agriculture, now scheduled for 2009.

<sup>27</sup> The census actually took place in October 2004, as documented in the NBS plan for 2008-11, "Strategia de dezvoltare a statisticii naționale pentru perioada 2008 – 2011", p. 4.

<sup>28</sup> *Statistical Capacity Master Plan*, pp 9-11.

<sup>29</sup> The possibility of some overlap between this amount and the amounts reported for DFID assistance during 2005-06 cannot be ruled out.

<sup>30</sup> This amount does not include Statistics 9. It includes 13 projects, of which only two appear to lie largely outside the area of official statistics ("Research on Work Flexibility", and "Moldova Economic Trends"). The URL is <http://www.ncu.moldova.md/index.php?a=2&b=2104&l=en>.

<sup>31</sup> This involved Mr. Karlis Zeija, vice-president of the Latvian statistical office, and Mr. Norbert Talers, head of its IT department.

During the meetings a range of basic problems, focusing on IT department were mentioned:

- The lack of a central database and the fact that the data were held in separate files in the computers of various employees.
- The prevalence of older IT approaches, including heavy reliance on DBF files.
- The difficulty of writing software in-house, due to lack of skills and motivation.
- The need to bring 35 territorial offices online, so that certain data entry programs could function in an interactive way – particularly for household surveys.<sup>32</sup> This would also facilitate free phone communication between headquarters and the field via Skype.
- The need to begin to prepare regional statistics.
- The preparations for a Census of Agriculture. NBS needs to pilot test the census in 2008 but does not yet have funds for that.
- The need to provide advice to the government’s Electronic Moldova program, which has funded the development of databases and registers in many government departments. NBS may in future need to access some of these registers; for this reason, it is needed to have technical assistance to propose common standards for all government databases, in order to optimize compatibility.
- The difficulty they have experienced of getting full value out of donor projects, of which they have had many.
- That they are keen to continue using certain consultants with whom they have good working relationships and who have concrete knowledge of the situation at NBS, of whom two were specifically mentioned.<sup>33</sup>

During the meeting NBS said that a project to develop an IT system and a database for business statistics was their “dream”. The statistical register of enterprises would play a core role and the system should interface with external sources of administrative data. With such a system in place, NBS intends to introduce integrated questionnaires for all enterprises with additional modules to accommodate the requirements of various sectors. The aim is to eliminate duplication and reduce the number of respondents, in part by sampling. NBS recognizes that building an IT system in support of these objectives is a big job, one that may take a long time. For this reason, NBS would be interested if the BIZTAR project can propose a way quickly to build some core elements of the intended system and put these into operation soon. NBS also mentioned that they need to develop a system of short-term indicators in line with Eurostat requirements. They expressed hope that such a system of indicators could somehow be linked to the new IT system.<sup>34</sup>

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<sup>32</sup> The itemized costs came to 70 million lei, or about \$7 thousand.

<sup>33</sup> Messrs. Bjorn Rauch and Mr. Simon Allen, mentioned earlier in this section.

<sup>34</sup> On closer examination, however, it is difficult to see how a system of short-term indicators along Eurostat lines could be linked to an IT system for business data, because most of the indicators are not based directly on enterprise data.

## 5. The statistical register at NBS

In advanced countries a business register provides the core element for a system of business surveys. The register defines the universe of enterprises to be surveyed or to be used for drawing a sample; it may also include local units (establishments). The register, normally maintained by the national statistical office, includes identification data, an activity code (indicating what kind of activity the enterprise is engaged in) and basic size indicators such as employment and turnover. The register also tracks which enterprises are still active and which have closed. The various data for the register are often compiled from various sources. Survey data for enterprises and local units is kept in separate files, but can be linked to the register in an integrated data system for business statistics.

It may be instructive to begin by briefly describing US business registers as a basis for comparison with the Moldova register. The United States, with its decentralized statistical system, maintains two business registers for enterprises with employees – at the Bureau of Labor Statistics (BLS) and the Bureau of the Census (BOC). The coverage is similar and savings could be achieved by combining the two, but this has not been done for various reasons that relate to the decentralized statistical system in the US.<sup>35</sup>

The BLS register, called the Business Establishment List, is based principally on data from the State Employment Security agencies, the agencies that administer the unemployment insurance system. The records identify enterprises and establishments. The data are used to benchmark data for employment by industry and employment size from the Current Employment Statistics program, also known as the payroll survey.

The BoC register, called the Business Register (previously, the Standard Statistical Establishment List), is based principally on three data files from the Internal Revenue Service (IRS).

1. The Business Master File (BMF) provides a list of all firms, with their IRS-assigned Employer Identification Number (EIN).
2. The Payroll Tax Return File defines the universe of business employers.
3. The Annual Business Income Tax Return File provides receipts, assets, industry classifications, and other needed data items.

For enterprises with multiple establishments, BoC relies on its own data sources – principally, the quinquennial Economic Census and an annual Company Organization Survey - to identify separate establishments and update their employment, payroll and activity.<sup>36</sup> The Business Register is used to prepare the annual report County Business Patterns, for enterprises and establishments with employees, which numbered about 7.5 million in 2005. A separate BoC data file, based on income tax reports, covers some 20 million non-employer enterprises.

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<sup>35</sup> The following description of the US system is based mainly on a paper prepared for the Federal Economic Advisory Committee in June 2000 – “The Business Establishment List – Standard Statistical Establishment List Comparison Project”, by Robert P. Parker (Bureau of Economic Analysis), James R. Spletzer and Michael Searson (both of BLS). For the BoC, it was updated from the Census Website, in particular from a page entitled “Coverage and Methodology” for the County Business Patterns report.

<sup>36</sup> “Because EIN and establishment are not equivalent for multi-unit firms, there is less dependency on administrative record sources for multi-unit establishment information. The Census Bureau’s Economic Census (conducted every five years ending in ‘2’ and ‘7’) initially identifies multi-unit companies when a company expands to more than one establishment. Establishments for a multi-unit company are identified through the Economic Census and the annual Company Organization Survey (COS). Geographic location, industry classification, payroll and employment come primarily from the Economic Census and the COS. EIN-level administrative payroll and employment data are apportioned to the establishment level in cases of non-response or for smaller firms not selected for the COS.” Quoted from the BoC website, description of “Coverage and Methodology” for the County Business Patterns module.

With the structure of the US system in mind, let us now examine the Moldovan system. To summarize at the outset, NBS has a statistical register that follows some very good practices – it is based on administrative data including tax data and appears to be up to date. The main problem is that the register is not put to as much use as it deserves to be, due to lack of a supporting IT system.

RENUS (National Register of Statistical Units) is the statistical register of enterprises (and establishments) maintained by NBS. At present, it contains about 32,000 enterprises that file financial reports, of which 26,000 have sales and are believed active at this time. It also contains about 8,000 local units of enterprises. A separate RENUS file for sole proprietors contains much more limited information (fewer variables) for sole proprietors, about 18,000 of whom were reported active; the file is based on income tax reports to STS. In sum, there are about 44,000 units that are reported active in RENUS – 26,000 for enterprises and 18,000 for sole proprietors.

The starting point for preparing and updating RENUS is an NBS register called RENIM (Inter-administrative register), which is merely a copy of 2 external registers: The register of legal units (enterprises and budgetary units) at the MID<sup>37</sup> and the register of NGO's, political parties, notaries, lawyers, etc. at the Ministry of Justice. The RENIM data is basically juridical; there are no meaningful economic variables except for an activity code, which is not updated. Figure 3 provides an overview of the derivation of RENIM and RENUS from various sources.<sup>38</sup>

For RENUS, NBS updates and enhances RENIM data for enterprises to include up-to-date activity status (i.e., by identifying enterprises that are inactive), up-to-date economic variables (employment, turnover, fixed capital and an updated activity code), and data on local units (establishments). This is normal practice in advanced countries, to ensure the economic relevance of the statistical register. Updating of RENUS is based on three sources:

- I. The financial reports of enterprises (previously quarterly, now either semi-annual or annual, as explained in footnote 1)<sup>39</sup>. Beginning in 2008, however, due to exemptions in the obligation to file such reports promulgated in the Law on Accounting, the source will miss many smaller enterprises. This is a clear step forward in burden reduction with limited downside for statistical completeness. In the United States, only public companies must publish financial reports and submit them to a government agency, so the exemption of the smallest non-public companies from such reporting can be said to bring the Moldovan system a bit closer to US experience.

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<sup>37</sup> Budgetary units were formerly comprised in a separate register at the Minister of Finance.

<sup>38</sup> A question has been raised as to whether there exists a common MID-STs database (or register) for enterprises. BIZTAR project reports that no such common database exists and the consultant found no indication to the contrary. Nor is there evidence of a two-way exchange of data between MID and STS. STS uses MID data to update its list of firms, but MID apparently does not use STS data to update its list. Instead, MID merely records juridical changes processed by the Registration Chamber, including start-ups, closures, and other changes.

<sup>39</sup> Although NBS is administratively responsible for collecting and inputting the data for financial reports, the financial reports are not, in fact, statistical reports. The instruction to enterprises to submit such reports issues from another agency, reportedly the Ministry of Finance. For this reason, the provision of such individual reports to STS (and the publication of such data as mandated in the Law on Accounting) in no way contravenes the confidentiality provisions of the Law on Statistics. Nor can this be said to be an instance of "the use of NBS data by STS". On the contrary, no NBS data files for individual enterprises are known to be provided to STS – in keeping with the confidentiality provisions of the Law on Statistics discussed at the end of section 2.

2. The structural survey of NBS, managed by the same division that manages RENU. This survey covers about 6,000 large enterprises on a take-all basis (no sampling), and another 3,500 smaller enterprises on a rotating sample basis.<sup>40</sup>
3. The STS fiscal register, updates for which are provided to NBS in DBF files that are not transmitted online. The fiscal register includes separate codes for some local units, although the STS concept of a local unit (affiliate) differs from the NBS concept (establishment).

RENU resides on a single computer at NBS and partly for this reason is only used by two divisions – by the register division in support of the so-called structural survey, the main purpose of which is RENU updating, and by the employment statistics division. Other divisions reportedly prepare their own registers for their own surveys, based in part on registers at territorial offices and in part on the catalog of financial reports. These registers may be inconsistent with each other in regard to activity codes, and may miss new enterprises. This is clearly bad practice, because it leads to inconsistency between the datasets for the various economic branches (industry, trade, etc.). NBS leadership is concerned how to get all divisions and territorial units to work from the same register, RENU, as is common practice in more advanced countries. During 2008, however, the divisions will be motivated to make increasing use of RENU, to cope with the loss of much data from the financial statements. Accordingly NBS is keen to adopt a new software system that would make RENU resident on a server and available to all divisions and territorial offices.<sup>41</sup> The ways and means for accomplishing such a result will be discussed in sections 7-8.

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<sup>40</sup> The take-all segment includes enterprises with at least 20 employees or at least 10 million lei in turnover. An international consultant, Mr. Simon Allen, has proposed to expand the structural survey to cover 15,000 instead of only 9,500 enterprises. The expanded version of the sample (from 3,500 to 9,000) would cover sole proprietors in addition to enterprises, and would enable it to cover all firms in the universe over a rotation cycle of 4-5 years.

<sup>41</sup> At present, relevant records from RENU are made available to each division in the form of Excel files.

## **6. Alternative strategies to support steps toward burden reduction**

The project has several choices in how it can work together with NBS. So far, we can identify several potential ways that the project could help to reduce the burden of statistical reporting on business or otherwise assist NBS.

**A.** Help with e-government in small but significant ways. This could include the following steps:

- Adding a module to the NBS website to provide a service for enterprises. The service would allow an enterprise to inquire online about which reports it must submit and when they are due, based on answers to a few simple questions; presently enterprises must call various divisions at NSB to get this information. Furthermore, the service could provide an enterprise with its MID code – MID assigns the code, but doesn't currently provide it to enterprises, even though enterprises are required to enter that code on the questionnaires they submit. Presently, enterprises often get the code from NBS.<sup>42</sup>
- NBS could further offer, either online or by post, to provide a label with all the identifying information for the enterprise (or local unit) based on its previous submission, so that the enterprise could simply paste the label onto the front page of a questionnaire instead of having to fill it out each time they submit.

Both these improvements would save firms time and show sensitivity to their needs but would not involve any change in the number of forms to be submitted.

**B.** Fund consultancies and other small projects as needed by NBS:

- Fund an upgrade to communications with its territorial offices, so that the offices could be online with headquarters instead of communicating via email and FTP. This would include paying service charges for an initial period.<sup>43</sup>
- Fund an additional consultancy to continue the development of metadata for enterprise data.
- Fund a consultancy to provide advice on standards for government IT systems, to facilitate communication among the systems and to evaluate the statistical potential of the various databases being created by other government agencies.<sup>44</sup>

While all of these activities appear worthy, none would lead directly to a reduction in respondent burden.

**C.** Support the development of e-reporting for businesses. This would not reduce the number of questionnaires but could save the considerable amounts of time businesses spend delivering questionnaires to statistical offices and waiting in queues for a statistical officer to browse the questionnaire and enter it in the presence of an enterprise staffer capable of answering

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<sup>42</sup> The code is obviously not secret information, inasmuch as MID provides it to NBS and is not known to object when NBS provides it to enterprises.

<sup>43</sup> See footnote 39 above.

<sup>44</sup> As regards the statistical potential of the new databases, it should be noted that none of the new databases encompasses tax or social insurance data, which are normally the most productive sources for statistical purposes. I have discussed the issue of standards with Mr. Allan Maclean, an Australian IT expert who has advised many governments on IT development. He is doubtful about the usefulness of such standards; in his experience, it is difficult for governments to either agree on them or to enforce them. An alternative system for inter-agency data exchanges, perhaps more realistic, it is for each agency to set up a web portal for providing data to other agencies, based on bilateral agreements between agencies.

questions. UNDP has already explored this option, however, and concluded it will not be feasible until a new IT system is installed at NBS. Otherwise, DGTI would lack the tools to upload such reports to their datasets, and would, instead, be obliged to key such e-reports into Clipper! However, in order to reduce the IT implication as a solution is selection of 1-3 existing reports of one NBS division which would be developed for e-reporting.

**D.** The option that received the most attention during the mission is to work with NBS to create the basic elements of an up-to-date software system for business data at NBS. This option would involve linking 10 datasets into a coordinated system, in three stages, with details to be sketched in section 7. The system would improve the quality and efficiency of business statistics at NBS. It would support large-scale burden reduction via two approaches: First, via the elimination of duplication in data items collected by NBS, and second, via the partial substitution of administrative data for statistical reporting. The first approach, which already commands solid support from NBS leadership, could be implemented more swiftly than the second, which would require a period of study and experimentation with the administrative data. It should be noted that the basic system proposed here is designed to deliver results quickly and would not cover most of the enterprise reports now collected by NBS. The system would be modular, however, so that additional questionnaires could be brought into the system from time to time.<sup>45</sup>

**E.** A related option is to build a small core for the new IT system, enough to encompass only four data sets: RENU in two files, the structural survey and a new integrated monthly survey. This option would have a high benefit-cost ratio in terms of burden reduction, although it would not go very far towards building the new IT system at NBS. This option is also described in further detail in sections 7-8.

**F.** Another option is to work more directly on eliminating questionnaires of little value. The number of questionnaires is clearly excessive, which suggests that some questionnaires may be of marginal value. We have not attempted to evaluate the usefulness of specific questionnaires. We do not, moreover, believe this to be a very promising place to start, because re-engineering of the questionnaires (with the exception of simple elimination) would need to be supported by new software for data entry and tabulation, and the new software would not be very useful in the long run unless developed in the context of an integrated system such as was mentioned above under option D.

**G.** Consultations with data users are very important for statistical agencies in advanced countries and it is certainly worthwhile to support more consultation in Moldova. Users can often provide insight into data quality issues and critical gaps in the statistical program. Users can also lobby for new data needs, ones that are not presently being served by NBS. "Power users" like economists at the central bank tend to have especially good insight into data quality issues. There is also the issue of whether consultation with users would be a useful step towards eliminating low-value questionnaires. In my experience, that may not be a very productive approach toward burden reduction because there will almost always be a main user of each dataset that will insist that they need the data. Instead, it will require high-level pressure to face down such opposition and eliminate such questionnaires in the context of a burden reduction package.

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<sup>45</sup> Some of the additional questionnaires could be consolidated and others might not, upon review, need to be continued at all. These are matters for NBS to deal with step by step, once a core system has been created, as discussed below in option F.

## **7. A closer look at the software option and its relation to burden reduction**

During 2007, NBS proposed to introduce a new, 1-page, integrated monthly survey that would cover sales, employment, payroll and investment and would take the place of many surveys that are taken by various departments. The proposal was reportedly regarded as “revolutionary” by NBS staff and was largely opposed, mainly on three grounds:

- That it would require the preparation of new software, for which DGTI lacks resources.
- That the new questionnaire had never been tested, and NBS lacks funds for a test.<sup>46</sup>
- There would be breaks in time series.

With BIZTAR help, these objections could be overridden by concrete steps:

- BIZTAR could fund the preparation of new software, preferably not as an ad hoc solution for the new survey alone but as the core elements of a system that would deal comprehensively with several types of enterprise data, as will be described in sections 7 and 8.
- The new questionnaire could be field tested, the earlier the better, with limited funding from BIZTAR.
- Breaks in time series could be alleviated by overlapping the old and new questionnaires for a month (e.g., January 2009).

NBS mentioned three ways in which the proposed new approach (the approach that was rejected last year) would support a fairly rapid reduction in response burden:

- The new system would support data entry for the two main periodic statistical reports in a consolidated reporting system – i.e., the existing annual structural survey, and the proposed monthly short form (on one page, as designed by the consultant Mr. Simon Allen). This would immediately lead to a major direct reduction in burden, as enterprises with activities in various sectors (e.g., in industry and trade) would only fill out a single integrated monthly and annual questionnaire instead of separate ones for industry, trade, employment and investment. Given a system for conveniently sharing data among divisions, the integrated reports would allow NBS to eliminate many questionnaires. Duplication exists because questionnaires are designed to meet the needs of particular divisions and particular reports. Elimination of duplication would also lead to a saving of time in delivering questionnaires to the territorial office.
- Under the present arrangement, reports are due on different days of the month, which causes confusion (and, in some cases, reporting based on incomplete data) for enterprises, in order to satisfy various data users (government agencies) who have demanded the data on various schedules. Some of the deadlines are very tight and difficult for enterprises to comply with. Under the new arrangement, the monthly data would instead all be reported on the same date, another plus for enterprises.

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<sup>46</sup> The question has arisen why NBS would lack funds for a field test of a new questionnaire, when it has sufficient funds for conducting a large number of surveys. The answer is in two parts. First, a field test would require field visits by headquarters staff to talk with respondents, whereas such visits would not be necessary for a routine questionnaire. Second, any funds that would be needed for collecting data with routine questionnaires would be routinely budgeted; no such budget would exist for a questionnaire that is not yet part of the NBS work program.

- The new arrangement would facilitate the increased use of sampling based on RENUIS for smaller enterprises, which would reduce the number of respondents. At present, no enterprise report is conducted with sampling except for the annual structural survey.

In addition, there would be a major improvement in the accuracy of the data, as the employment data would be consistent and could be readily summed. Under the existing arrangement, an enterprise with activity in multiple branches will report its full employment when filling out the industry questionnaire, and again report its full employment when filling out the trade questionnaire, so that employment from the two questionnaires cannot usefully be summed, due to double counting.

The three phases of the proposed software work can be summarized as follows:

- In phase 1, the four datasets flagged “1” in the rightmost column would be brought into the system. This would include RENUIS and the two main periodic reports. This would support the elimination and consolidation of some reports to avoid duplication with the two main ones. After phase 1, NBS can on its own bring in additional data files for statistical reports, making the data available to various divisions, thereby reducing the need for the divisions to collect “their own data” separately. This would create a basis for further consolidation of questionnaires. In sum, while the proposed project does not involve the re-engineering of the entire NBS program for business data collection, it supports re-engineering in stages.
- In phase 2, another four datasets flagged “2” would be brought into the system. These are all administrative data sources that NBS already uses. If available online, the sources would support the updating of RENUIS, so that RENUIS updating could proceed more smoothly.
- In phase 3, two administrative datasets flagged “3” would be brought into the system, if agreement can be reached with STS and CNAS. The data have not hitherto been used by NBS, and its availability would enable NBS to experiment with the substitution of administrative for statistical data. There is considerable scope for such substitution for sales and employment – which are high priority data items for NBS as for statistical agencies elsewhere. STS collects monthly data on sales in support of VAT collection, so that its data could in principle substitute for statistical reporting in regard to many (but not all) enterprises. Similarly, CNAS collects monthly data for employment and payroll, so that the CNAS data could, in principle substitute for statistical reporting for these variables as well, if made available to NBS in a timely way. The first step would be for NBS to request such data from STS and CNAS with the required frequency and timeliness. Several technical questions would have to be resolved, however, to make such substitution happen: On what schedule would the data be made available to NBS, would the data be consistent with data collected on statistical reports, and how can NBS make use of such data while preserving its existing timely reporting schedule? To answer the second question, NBS would need to have the data in hand. Even if provided to NBS after its monthly reporting deadline, administrative data could prove quite useful in the following way. A small sample of enterprises, mostly large ones, could be used to prepare a preliminary estimate, which could be replaced by a more broad-based estimate based on a combination of administrative and statistical data, once the administrative data is received.<sup>47</sup>

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<sup>47</sup> Examples of such hybrid systems for Australia, Canada and Slovenia were mentioned in footnote 28.

## 8. Notes on Functional Specifications

This section provides some notes for guidance in the preparation of functional specifications for a core IT system. For additional components and further details it would be necessary to study closely the existing business processes at NBS as well as NSB requirements for new or upgraded processes.

The ten data sets to be linked in the new system are itemized in table I. Information about the number of records and variables for each of these datasets is still incomplete; partial data is available as follows:

- For RENUS for enterprises (dataset B2), there are about 32,000 records for all enterprises, including records for about 6000 enterprises that submit financial reports but do not have sales.<sup>48</sup> In addition, there are records for about 8,000 establishments of enterprises. Each record has about 35 variables.<sup>49</sup>
- For RENUS for sole proprietors (dataset B3), there are 18,000 records for active proprietors, and another 44,000 or so for proprietors who are no longer active. The number of variables per record is not known but is many fewer than for RENUS.
- For the MID register (item A1), there are about 150,000 records, many of which are for enterprises that have legally closed, leaving roughly 50,000 that appear active in MID records. Many of the latter are no longer active but have not yet legally closed. The number of variables is not known. In any case, NBS does not have access to the full MID register, but can query it online in various standard ways, so that the data that NBS can download from the MID register is probably a subset of the MID data.<sup>50</sup>
- RENIM (item B1) is entirely based on the MID register, which implies that it is either a copy of the latter, or at least of a subset of its variables and records. It contains 150,000 records and about 30 variables per record.
- The two STS data files mentioned in the table (sets A3 and A4) would include a number of records equal to the number of active enterprises and the number of sole proprietors.<sup>51</sup> The exact number is not known but is unlikely to exceed 50,000. The number of variables in the STS data files is not known either; in any case, NBS would probably only need a subset of those variables. At present, for register updating purposes, NBS obtains STS data annually (based on annual declarations). It appears that STS data are not, at this time, used for other statistical purposes. If, however, NBS were in future to make more use of tax data in ways that were discussed in section 7, it would need access to monthly VAT data.
- The annual structural survey covers 9,500 enterprises. The questionnaire runs to several pages.<sup>52</sup> The data is already entered at NBS headquarters in Clipper for DOS.

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<sup>48</sup> The 32,000 includes about 1,000 previously active enterprises that have been closed.

<sup>49</sup> In the context of a new IT system, it may be necessary to add variables in RENUS.

<sup>50</sup> Presumably about 30 variables are obtained from the queries, i.e., the number of variables in RENIM.

<sup>51</sup> It needs to be ascertained whether affiliates of enterprises submit separate tax returns or not.

<sup>52</sup> The number of data items is a difficult to calculate, as the questionnaire structure is a bit complex. We have not yet ascertained the maximum number of data items.

- The proposed monthly integrated survey has not yet been implemented, so the number of enterprises to be covered is not known but is unlikely to exceed 15,000. The proposed questionnaire is quite brief (it fits on one page) but may be revised before being implemented.
- The annual financial reports cover most active enterprises and some sole proprietors. Recently, the financial reports covered about 38,000 business units, but the number is likely to decline sharply in 2008 on account of the exemptions in the Law on Accounting. The data has been entered by the territorial offices of NBS in Clipper for DOS.
- There are 476,337 legal entities that make CNAS contributions NBS has never accessed CNAS data file.

Metadata for the 10 datasets in the system will play a major role in the preparation of functional specifications. Some metadata has already been prepared by Mr. Bjorn Rauch and this could serve as an example of what needs to be written. Typically, the writing of metadata requires the deep participation of statistical staff with detailed knowledge of the data. Some technical assistance may be needed as well for the completion of the metadata. Accordingly, the writing of the metadata may take a long time. It is not clear to me whether the completion of functional specifications requires the completion of metadata or not, and this is something to be clarified as soon as possible. Hopefully, functional specifications could be written before all of the metadata was fully written. One advantage of implementing the work by phases is that during the first phase metadata would only need to be written for four datasets.

The functions of the proposed system can be broadly outlined as follows:

- The system would need to store and access the metadata as well as the various datasets. There is no existing business process for metadata at NBS. If metadata has not been fully written during the writing of the functional specifications, it would need to be written before or during the writing of code.
- Data input screens will be needed for three data sets entered at NBS: Annual structural survey, proposed monthly integrated survey, and financial statements (while the latter are not statistical reports, they are an NBS administrative responsibility), shown in the table as items C1, C2 and C3. Validation procedures for checking the consistency and plausibility of the data at entry (including comparisons with data for the previous month or year), where appropriate. There is an existing business process for entering data for items C1 and C3 in Clipper.
- Standard tabulations (tabular reports) to be prepared routinely for the two statistical surveys carried out by NBS (C1 and C2). Data entry and tabulations for C1 would take place annually, while that for C2 would be monthly. There is an existing business process for tabulating data for C1.<sup>53</sup>
- Interfaces for accessing data from the five external databases that are to be incorporated in the system (group A). At present NBS already obtains digital data for items A1 (online) and A3 (in dbase files), plus hard copy data for A2. Business processes clearly exist for these sets but would need to be upgraded insofar as possible in the new system. Discussions with

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<sup>53</sup> It remains to be ascertained whether or not NBS prepares tabulations of the financial statements or merely provides the raw data to other agencies, including STS.

the relevant agencies would be needed to clarify whether NBS would be granted improved access to their data. Monthly access to items A4 and A5 does not yet exist and would require new agreements. Use of the data would clearly involve new business processes.

- Procedures for linking RENIM to external data sets A1 and A2, and for linking RENU to RENIM. RENIM needs to link to the MID register (A1), to facilitate updating by NBS operators. There is an existing online business process for these linkages. Any upgrading of the procedure would need to be negotiated with MID. Data from the Ministry of Justice (item A2) is obtained in hard copy, so NBS would need a procedure for keying the data into RENIM.
- Procedures for interfacing RENU with data from B1, A3, and C3, and using these sources to update RENU for changes in activity code, activity status, etc., as is done under existing business processes. The updating procedures would be carried out record by record based on operator judgment; accordingly, the visual interface would need to show the relevant data from the various sources.<sup>54</sup>
- Procedures for identifying non-respondents for C1 and C2, particularly repeat non-respondents. These lists would be provided to the territorial offices for checking whether the enterprise is still active or not. There is no existing business process for identifying non-respondents, but staff of the Division for Statistical Infrastructure and the Financial Reports (DSIFR) could provide guidelines for these specifications.
- Procedures for entering field findings in regard to non-respondents (i.e., is the enterprise still active or not?) and thereupon adjusting tabulations for C1 and C2 for active non-respondents, based on historical data or a size indicator. There is no existing business process for adjusting for non-response, but staff of the Division for Statistical Infrastructure and the Financial Reports (DSIFR) could provide guidelines for these specifications, depending on what imputation method they think most suitable.
- The data for all three datasets (C1, C2 and C3) needs to be stored in such a way as to facilitate analysis of the behavior of specific enterprises or groups of enterprises over time (also known as longitudinal analysis). Longitudinal analysis is not undertaken at this time, to our knowledge, so any such analysis would involve a new business process, for which NBS would need to specify its requirements.
- An application for preparing ad hoc queries.
- For datasets C1 and C3, the specs would allow for the import of older data into the system for years where the format of the older data is the same as or very similar to the format of the most recent data, although the work of importing would be left to NBS staff.<sup>55</sup>

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<sup>54</sup> The system also needs to be able to display the historical behavior of employment and response patterns for the enterprises in RENU for a number of months and years. This could be accomplished in various ways; one possibility is to include in the RENU dataset variables for response behavior and employment beginning in a certain year. This data will be useful for assessing whether the enterprise is likely to still be active as well as for focusing efforts to improve response behavior for uncooperative enterprises.

<sup>55</sup> Historical data would not be needed for the various registers (group B) or for the external data sources (group A). Furthermore, there would be no historical data for C2, as the survey would be new.

- The specifications would also need broadly to take account of other datasets that may be joined to the system subsequently, so that the software could be written in an open way that would facilitate bringing in additional modules.

If it is decided to precede only with the phase I work, the preparation of functional specifications would be much simpler. It would be sufficient to prepare metadata for only four data sets (sets B2, B3, C1 and C2, all identified with “I” in table I), plus functional specifications involving only those four data sets.

Outputs of the system would be as follows:

- For phase I: Tabular reports for the integrated monthly survey and the annual structural survey (adjusted for non-response). Also, periodic lists of non-respondents, which can be used to search for firms that have become non-active.
- For phase 2: Updated RENU and RENIM files. Tabulations for the financial reports.
- For phase 3: Hybrid tabulations, involving survey data (items C1 and C2), plus administrative data from A3, A4 and A5. Specifications for the hybrid tabulations could not, however, be written until after NBS had the opportunity to study the administrative data and compare it with survey data.

According to NBS, the new IT system could be designed either in Oracle or SQL. Although the profile of requirements is still very incomplete, it appears that the amount of data to be managed will not be very large nor will the frequency of operations be high, so that there may be no need for a high-performance commercial system like Oracle. Instead, an open-source system like “My SQL” may be quite adequate to the task. However, a final choice of platform should be made after the functional specifications have already been prepared in detail.

## **9. Proposed phases for improving software at NBS**

If it is wished to proceed with the software work, the proposed stages would be as follows.

**1.** Consider the scale of the assistance to be provided and how much of the proposed software work is to be provided. Is it planned to provide assistance for phase I only? A rough outline of the work to be done would be discussed with NBS.

During this phase, we would need a precise list of the existing enterprise reports with an indication of which ones might be replaced by the two integrated surveys under discussion. Furthermore, it would be useful to assemble copies of the table layouts (actual monthly and annual tables with old data for 2006 would be especially useful) for the structural survey, item C1, and for all surveys that might be replaced by surveys C1 and C2.

This would also be a good time to begin an assessment of the appropriateness of the number of questionnaires and questions at NBS. During this period, the project would receive NSB's final IT plan for DGTI. This plan would provide a context for project design.

**2.** The next preparatory steps would be as follows:

- A field test of the new, integrated, monthly questionnaire, together with a consultancy of a statistician to evaluate the findings of the test and help with fine tuning the questionnaire. These steps are needed to finalize the questionnaire, so that software can be written for data entry and tabulations.
- A possible study tour to Latvia to observe the functionalities and technical specifications of their IT system for business statistics in detail, for guidance in preparing specifications for Moldova.
- Write functional specs for the components to be funded, taking account of concept paper being prepared at UNDP.

It is recommended that the writing of functional specifications not be contracted out to an IT firm, because the specs need to be written in a thorough, unhurried way, so that no important issues are swept under the rug. IT experience is not needed for the job of writing the specifications. Instead it would be an appropriate job for a statistician or business analyst with experience in writing functional specifications. If the person chosen to write the functional specs happens to have no statistical background, it would be appropriate to involve a statistician at least

part-time to ensure that statistical practices are well integrated into the specifications. One possibility would be to involve someone from a research institute or university with statistical experience. A team of two persons could finish the job more quickly and be less likely to overlook important needs; the team could include BIZTAR staff. Backup by an international consultant would be very useful during this stage, particularly for the metadata.

The specs would need to be reviewed carefully by various NBS staff, to ensure that all needs had been taken into account. Training needs must be specified as well, so that DGTI staff can maintain the system and add new modules from time to time.

3. On the basis of the functional specs, an IT specialist could prepare technical specifications. At the end of this phase, bidding would be conducted for preparation of software based on the technical specs. The preparation of technical specifications should not begin until the UNDP consultant has finished preparing his technical report on the requirements for the IT system at NBS. The report would provide a framework within which BIZTAR and NBS could review the consistency of the proposed work with the overall planned system.

4. During the first phase of implementation, software would be written based on the functional and technical specifications and would be installed in computers at the NBS. The system would be populated with the most recent data for each of the datasets (except for datasets for which collection had not yet begun). The software would need to be accompanied by careful and thorough documentation of how it had been written, to facilitate maintenance by DGTI staff. Support and training would be provided by the software provider for initial use of the system at NBS, to ensure the system was bug-free.

## 10. Conclusion

The BIZTAR Project seeks to improve Moldova's business enabling environment by reducing the administrative burdens on the private sector, streamlining tax administration, curtailing opportunities for corruption, and improving the access for citizens and businesses to government information. The BIZTAR Project is accomplishing these objectives through improvements in the performance of a variety of government partners, including the creative deployment of information and communications technology (ICT) to facilitate transparent data management, streamlined administrative processes, and enhanced private-public sector partnerships. It is also assisting government and the private sector to promote public awareness and support for policy reforms to create a better business environment.

A core expected outcome for the USAID/BIZTAR project is to make it easier for businesses operating in Moldova to obtain licenses, pay taxes and provide reports to governmental agencies, particularly at the national level. Onerous reporting requirements and unfair inspections can prevent Moldovan businesses from creating wealth and jobs for the economy. Informal counts of the reports required from Moldovan businesses number in the hundreds. Moldova's Foreign Investors Association (FIA) estimates that it requires businesses 2,332 hours and roughly \$9,000 per year to meet the reporting requirements of the NBS, STS, and CNAS.

Given the findings of the lead consultant described above, BIZTAR recommends that priority be given to improving the collection, collation, and analysis of business data. In particular, NBS must create the basic elements of an up-to-date software system for business data at NBS.

This report provides important guidance for NBS to create the basic elements of an up-to-date software system for business data at NBS. In particular, the consultant has proposed that the implementation of this system occur in three phases. In Phase 1 the NBS and those organizations assisting it should concentrate on the design of a system which integrates on the one hand the current statistical register of enterprises and sole proprietors (RENUS) with, on the other hand, the two main periodic reports (the existing annual structural survey and the proposed monthly short form). In Phase 2 NBS should integrate into the system the administrative data from other sources that NBS already uses (tax register, inter-administrative register and financial statements). In the proposed Phase 3 important administrative data from other governmental agencies, in particular VAT data and CNAS data, would be integrated electronically with the NBS system; this will require an agreement with STS and CNAS as well as the necessary IT platforms.

Even if only the phase 1 is implemented, this would immediately lead to a major direct reduction in burden, as enterprises with activities in various sectors (e.g., in industry and trade) would only fill out a single integrated monthly and annual questionnaire instead of separate ones for industry, trade, employment and investment. Given a system for conveniently sharing data among divisions, the integrated reports would allow NBS to eliminate many questionnaires. Moreover, if at least the single integrated monthly questionnaire would be made available for e-reporting, the reduction in response burden would be much bigger.

In conclusion, taking into account the need of technical specifications for the integrated IT system at NBS before creation of any software subsystem at NBS and seeking a tradeoff between the significant necessary IT effort at NBS and the goal of achieving the quantifiable burden reduction results in the short period of time, BIZTAR recommends for year 2009 the introduction of single integrated monthly and annual questionnaires, which should be tested to be made available for e-reporting. In addition to the assistance related to e-reporting testing, NBS will also need in 2009 an efficient data entry system for the single integrated survey and sharing of that data among divisions whose questionnaires would be replaced by the new one. BIZTAR stands ready to provide assistance to NBS in all this work.

**Figure I Organizational structure of the National Bureau of Statistics**

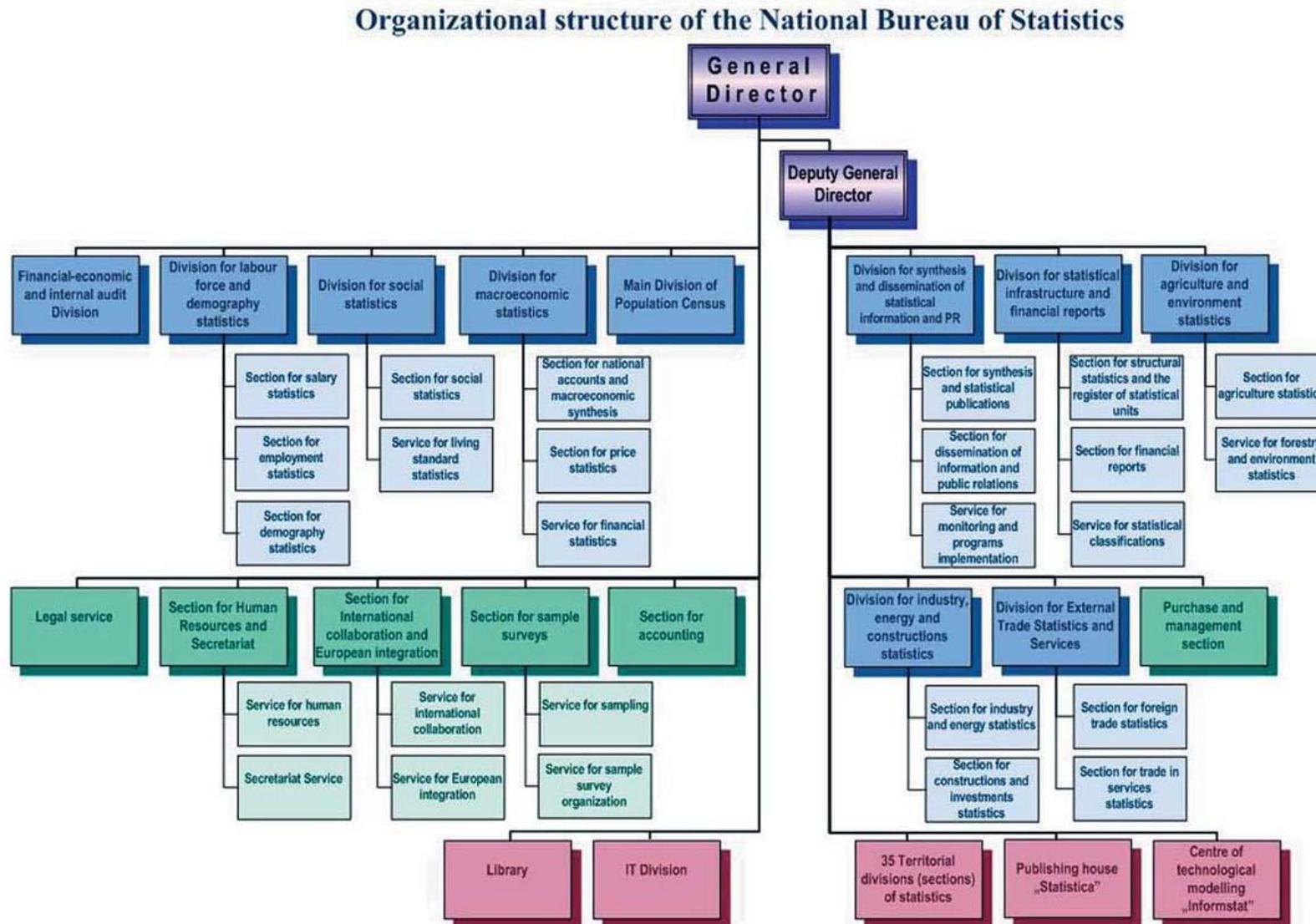
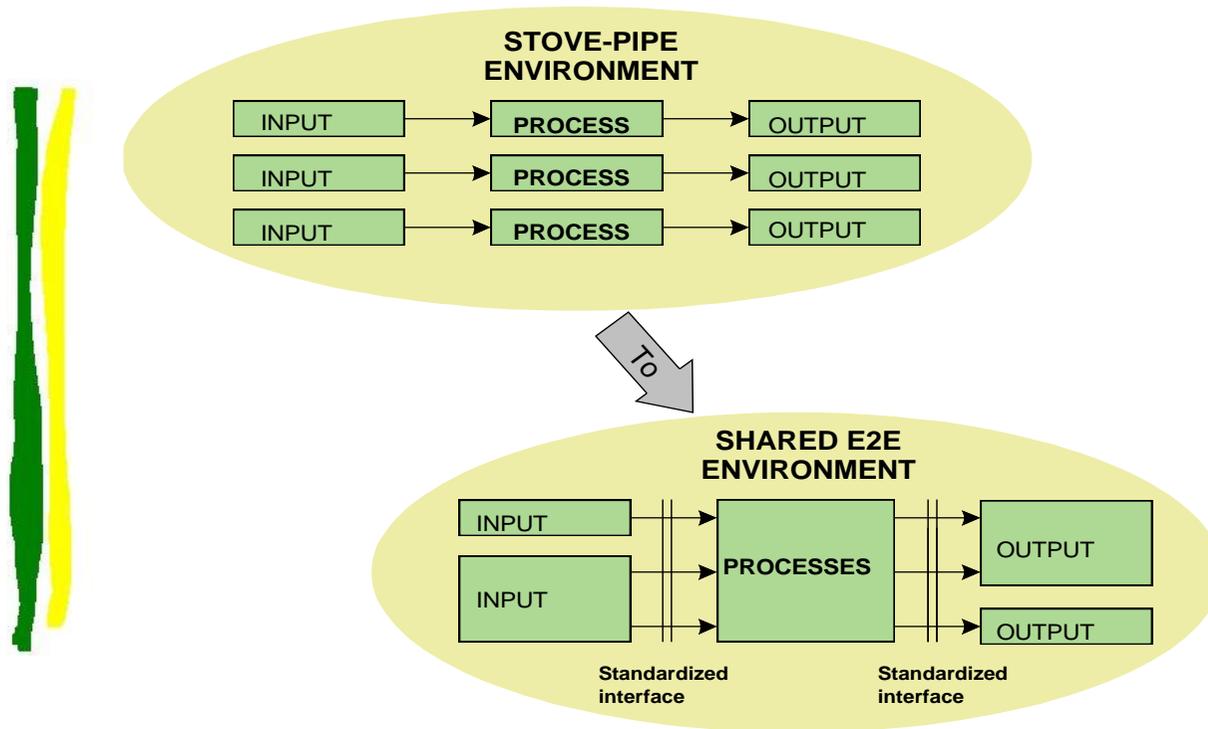


Figure 2. Graphical Illustration of Two Processing Environments

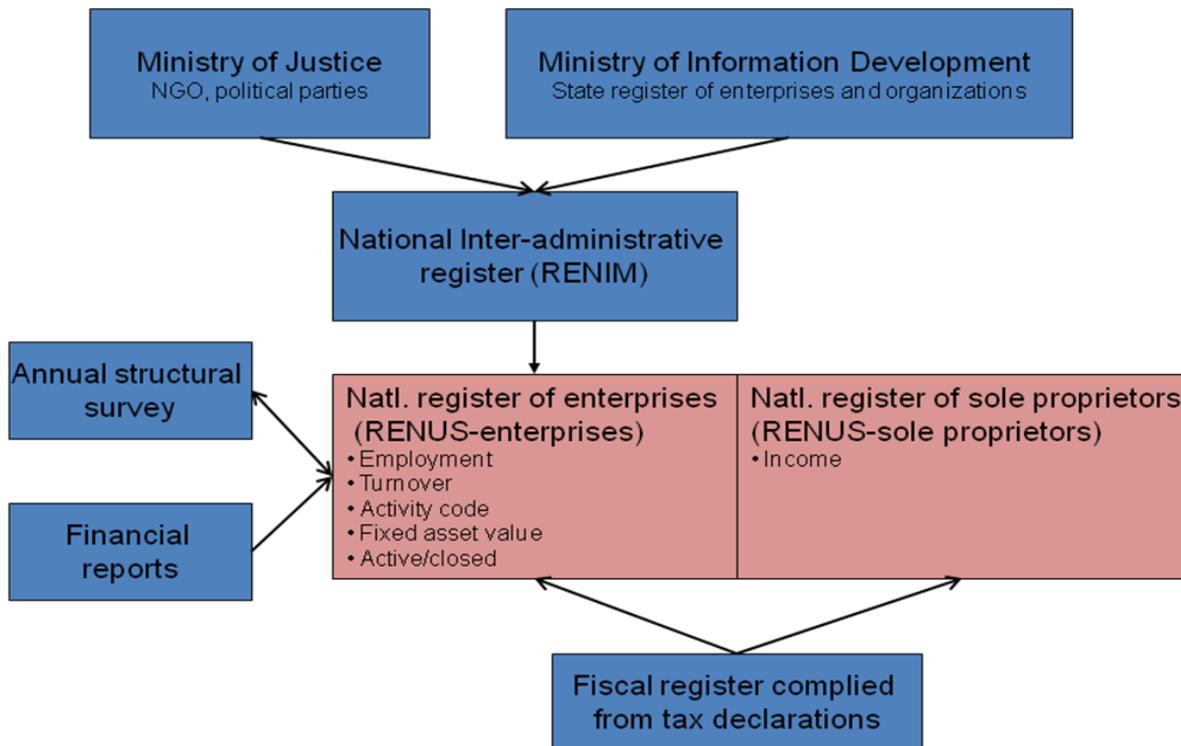


## Key aim of the E2E framework

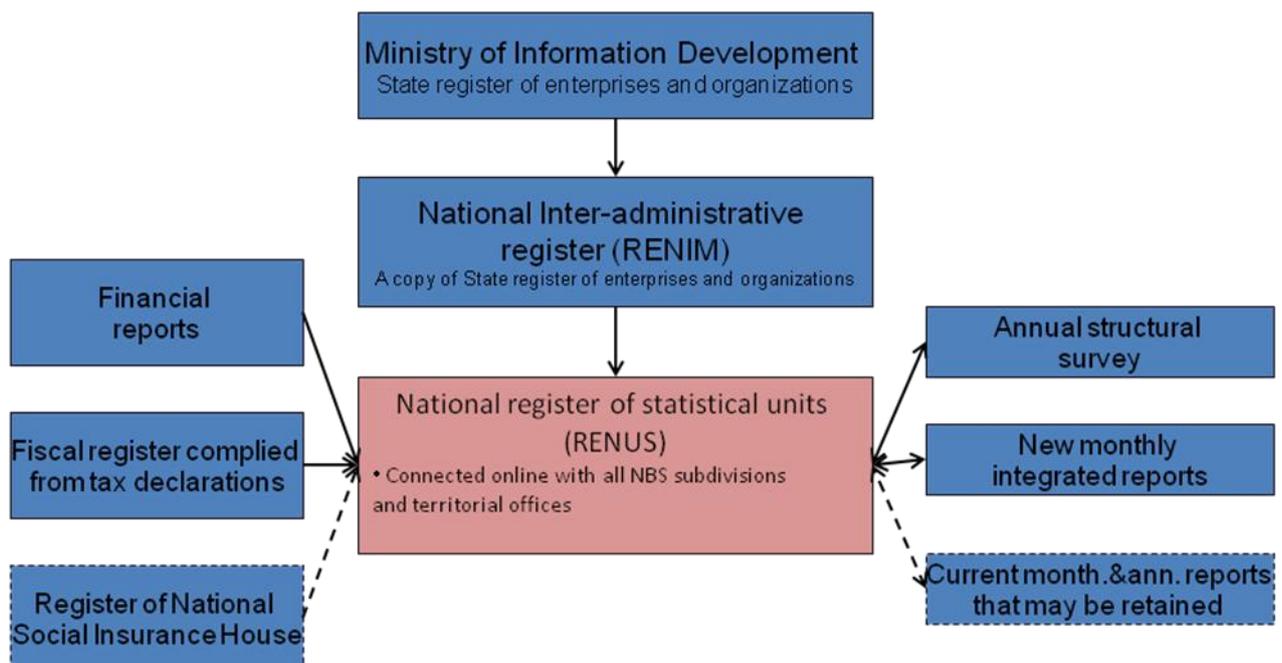


Taken from presentation at ICES 3, Montreal, 2007, by Eden Brinkley, Australian Bureau of Statistics, "Towards More Integrated generalized Processing Systems: the ABS Experience for Economic Surveys", Session 43, "Generalized Survey Processing Systems: an Update".

**Figure 3. Current System for RENUS updating**



**Figure 4. Projected Core Information System at NBS**



**Table I. -- Data sources to be comprised in the system**

<b>A. External sources</b>				
1. MID register of enterprises & budgetary units	Obtained online in HTML from MID, converted to DBF	150,000 records, of which about 32,000 active; 10,000 new records per yr	Main source for identifying new enterprises	2
2. MinJustice register of NGO's, etc	Provided on hard copy annually, will soon be copied to MID register.	3,000 records	Shows new NGO's	N
3. STS: Tax register (compilation of tax declarations).	Obtained in DBF file. Only annual updates used by NBS.	Local units have separate codes. Abt 50,000 units	Used for updating RENUS.	2
4. STS: VAT data on sales by enterprises	Now obtained in DBF file annually, could be obtained monthly	20,000 enterprises subject to VAT. Some exempt.	Shows sales, which could replace sales data in some stat reports	3
5. CNAS: Employer data on employment & payroll	Not yet provided to NBS but already provided to STS. Needed monthly.	476,337 legal entities make CNAS contributions	Shows employment & payroll, wh. could replace some stat reports	3
<b>B. Internal data files: Registers</b>				
1. RENIM, inter-admin. register cludes data from MID, MinJus	DBF file updated daily online. This is a copy of admin data, juridical info.	150,000 records	Basis for updating RENUS	2
2. RENU: Statistical register of enterprises	DBF file Based on RENIM, includes activity status, employment & turnover. Also includes "local units", i.e., establishments.	32,000 active enterprises, 8,000 local units	Basis for NBS surveys.	1
3. RENU: Statistical register of sole proprietors	Based on STS tax register.	62,000 units, of which 18,000 active.	Basis for NBS surveys.	1
<b>C. Internal data sources: Reports</b>				
1. Structural survey	Conducted annually, data submitted by enterprises on hard copy to territorial offices, sent to HQ for entry in Clipper	9,000 units,	Used mainly for updating RENUS	1
2. Planned integrated monthly survey	Data submitted by e'prises on hard copy to territorial offices for data entry in Clipper, DBF files sent to be sent to HQ.	TBD how many units	Questionnaire not yet designed, expected to replace several sectoral reports.	1
3. Financial statements	Income statements & balance sheets Formerly quarterly, annual starting 08 Data keyed in by terr. offices in Clipper.	Formerly all enterprises, now except those with single-entry book-keeping, which do not exceed certain size limits.	Provided to STS, also used by NBS to update RENUS.	2

**Table 2. Functional specs required for minimal and maximal packages**

	Min package	Max package
Data sets to be included	4	10
Data input screens	2	4
Metadata for x datasets	4	10
Validation routines for x surveys	2	2
Tabular reports for x surveys	2	2
Procedures for non-response adjustment for x surveys	2	2
Procedures for linking RENUS to RENIM	N	Y
Procedures for linking RENIM to MID	N	Y
Procedures for updating RENUS based on tax data, fin reports, structural survey	N	Y
Procedures for manual updating of RENUS	Y	Y
Tabular reports for RENUS	Y	Y
Procedures for identifying non-respondents	Y	Y
An application for ad hoc queries	Y	Y
Facility for importing legacy data	N	Y
Open system, additional modules an option	Y	Y