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It corresponds to Output 4a under the above-mentioned agreement.

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List of acronyms

AMIGO	Household Labor Survey
CAPI	Computer-assisted personal interviewing
CAWI	Computer-assisted web interviewing
COMSTAT	Committee of National Statistics System
CONRENA	Consolidation of the National Statistical System Project
CSN	National Committee of Statistic
DEPABD	Directorate for Personnel Records and Database Administration
DGCNSM	General Directorate of National Accounts and Macroeconomic Synthesis
DGDSS	General Directorate of Demography and Social Statistics
DGEGSDS	General Directorate for Operation and Management of Statistical Data Sources
DGSE	General Directorate of Economic Statistics
ESS	European Statistical System
GAMSO	Generic Activity Model for Statistical Organizations
GSBPM	Generic Statistical Business Process Model
GSIM	Generic Statistical Information Model
INS	National Institute of Statistics
IT&C	Information and Communication Technologies
NSO	National Statistical Office
RGA	General Agricultural Census
RPL	Population and Houses Census
SDSSN	National Strategy for the Development of Statistics
SSN	National Statistical System
STD	Statistics Territorial Departments
UN	United Nations
UNECE	The United Nations Economic Commission for Europe
WB	World Bank

Executive Summary

The purpose of this report is to present a ***functional review and report on the reorganization of the INS and STD,*** with a view to provide ***notes and recommendations for institutional improvement.*** This is part of the deliverables under the Reimbursable Advisory Services (RAS) Agreement on *Romania Capacity Building for Statistics (project No. P167217).* The project is implemented by the National Institute of Statistics with support from the World Bank.

This paper provides a status report on the above deliverable as work on a number of its components is ongoing (e.g. the organization of the INS could be affected by the new statistics law that could replace the existing law). This report will be updated based on future relevant work that could affect this deliverable.

This report was prepared following discussions, over the period between October 2019 to March 2020, with many staff from the INS, including the President, and a review of relevant documents from international agencies and the INS. The list of the documents used can be found in footnotes to the text where needed. An annex provides a complete listing.

This is a revised document based on a different outline than that proposed in the original RAS. The original report we prepared received a number of comments from INS that suggested to us that the original outline was not conducive to what we thought needed to be conveyed in the report in a clear and simple manner. The revised outline provides: in the introduction, a theoretical rationale as developed by the UN and the World Bank for a functional review, supplemented with international best practices—that leads us to develop a set of principles; an assessment of INS in that context; a road map for change; challenges and next steps; and, conclusions.

Following are our key recommendations:

- Strengthen INS capacity as a first step by providing it with reasonable levels of resources, both financial and human.
- Optimize functional statistical processes by bringing together all related functions under one roof, make progress on GAMSO/GSBPM, and strengthen the methodology and data quality functions.
- Optimize subject matter set-up by bringing all economic subjects together under one roof, all social subjects under one roof and all remaining corporate functions under one roof. A "bridge" links the work of the two organizational structures, functional and subject matter.
- Improve coordination of work that takes place within INS and across the National Statistics System by: explicitly recognizing the need for five additional personnel at the UPP to take control of all NSS-related subject matter, be they internal, across producers

of administrative or other official data, territorial or international; and the management board (INS College) that is a standing committee that corporately runs the INS under the leadership of the President.

- Work towards establishing the INS as a "brand": the responsibility for achieving this objective should rest in the hands of the above-mentioned management board that would collectively run the organization with the President as its head. As an example, it would be this board that would implement the recommendations in this, and other, World Bank reports over the longer term, since the transformation of a statistical organization is likely to be a multi-year project. A board of this nature would be instrumental in providing regular assessments of where INS is, where it needs to go and what improvements are required to get there.

1. Introduction: Setting Review Context and Establishing Review Principles

This report provides a functional review of INS and, flowing from this review, an analysis of its organizational structure (including the STD). This review and analysis are used as a foundation to make recommendations for change.

This introduction sets the stage for what is attempted in the report by providing a context for the review and in establishing the principles for our analysis. This is followed in Section 2 by an assessment of the current situation at INS. Having established in this section *why* change is needed, Section 3 provides a roadmap for reform around two topics: *what* change; and *how* to accomplish it, consistent with available resources. Section 4 discusses challenges and next steps. Section 5 provides key conclusions. Section 6 brings together the list of recommendations.

To establish the context, we present in the remaining of the introduction a theoretical overview of a statistical agency's functions and how best to optimize its performance.

The key sources for a discussion of an agency's organizational structure are[1]: the classic UN document *Handbook of Statistical Organization: The Operation and Organization of a Statistical Agency* and the World Bank document *Managing Statistical Organizations* (author: Hermann Habermann). This theoretical review is complemented with information on international best practices and internationally accepted standards in this introduction.

[1] There is considerable research available in this area. See, for example, United Nations, *Handbook of Statistical Organization, The Operation and Organization of a Statistical Agency*, New York, 2003; Hermann Habermann, *Managing Statistical Organizations*, The World Bank; Statistics Canada, *Compendium of Management Practices for Statistical Organizations*, 2016.

At the outset, it is reasonable to expect that a national statistical agency must have adequate resources provided to it by the national government to, at the very least, undertake the essential tasks that need to be performed. Beyond that, resources need to be provided to the agency whenever the value of the work performed by the agency to the country is seen to be greater than the fiscal cost. At the same time, it is imperative that whatever resources are available, they must be used in as efficient a manner as possible for the simple reason that it is a challenge for all governments to raise funds from the population through higher taxes.

Both the UN and the World Bank (WB) documents argue that a statistical agency must do its best to simultaneously achieve two objectives: use statistical processes[2] (including data collection) in as efficient a manner as possible; and, ensure it can satisfy user needs the best it can. The first of these objectives is associated with "functions" such as[3] *"sample survey design, data entry and data editing, field operations, analysis and dissemination"*. However, the second, and equally important objective, is associated with "subject matter" as users want data in the subject matter of their need: some want economic data, others social data and still others environmental data. Most of them are not interested in the technical steps that are part of the statistical processes.

On the objective of optimization of statistical processing, the peer-review by Eurostat[4] in 2015 suggested the introduction at INS of GSBPM[5], one of the statistical standards created by UNECE. The recommendations from the peer review are:

> *"9. The National Institute of Statistics should plan for a gradual implementation of the Generic Statistical Business Process Model in order to improve process management, standardisation, documentation and efficiency. (European statistics Code of Practice, Principles 4, 7, 8 and 10.)*
> *10. The National Institute of Statistics should in parallel conduct a review of how the organisational setup and competences may have to be adapted in order to support the implementation of the Generic Statistical Business Process Model and improve the workflow within the organisation. (European statistics Code of Practice, Principles 7, 8 and 10.)"*

Following these recommendations, the implementation of GSBPM was defined as one of the priorities of the CONRENA project. We decided to analyse the situation of GSBPM and GAMSO[6] together, as in INS these models have been used jointly.

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[2] We use the terminology "statistical processes" to refer to all aspects of data collection from conceptualization to the production of final data. The UN uses the terminology "data collection" to describe these processes. The reader should keep that in mind as the quotes from UN documents naturally preserve the terminology the UN has used.

[3] UN, Handbook of statistical Organization, p. 73.

[4] https://ec.europa.eu/eurostat/web/quality/peer-reviews

[5] https://statswiki.unece.org/display/GSBPM/GSBPM+v5.1

[6] https://statswiki.unece.org/display/GAMSO/GAMSO+v1.1

On organizing a statistical agency, both the UN and the WB suggest that there are many ways to organize a statistical agency in light of the objectives it needs to achieve. However, the UN argues[7]:

"For a variety of reasons.....it has always been difficult to make a clear-cut choice between subject matter and function. Accordingly, the structure of most statistical offices is a mix of the two. Some functions are ideally suited to be grouped into agency wide functional units, such as sample design and field work. Other functions, such as questionnaire and publication content and analysis/interpretation generally require the direct involvement of a subject-matter specialist and should therefore be assigned to subject-matter units.

- *Data collection[8] should be organized as efficiently as possible in order to minimize the burden for both the respondents and the collecting agency and at the same time enhance timeliness;*

- *Statistical information should be disseminated in a manner relevant to the problems or questions that it addresses; implying that dissemination should be user-focused rather than based on statistical sources and processes."*

The WB fully supports the UN perspective.[9]

The UN provides the example of the reorganization of Statistics Netherlands as a best practice consistent with the analysis summarized above.

Box 1: Reorganization of Statistics Netherlands

The new structure regrouped statistical departments into four directorates:

Economic statistics (12 departments)	**Essentially: subject matter grouping**
Social statistics (nine departments)	**Essentially: subject matter grouping**
Methods and development (four departments, including the central computer department	**Functional grouping**
Office services (four departments)	**Functional grouping**

All departments were subdivided into divisions and subdivisions, and often had two additional layers.

Both the UN and the WB, having come to the conclusion that a statistical agency should optimize both its processes and the satisfaction of user needs, argue that acceptance of such an outcome

[7] UN, *op.cit. p.* 73.
[8] See footnote 2 above.
[9] World Bank, *Managing Statistical Organizations*, p. 4.

necessitates two additional considerations in setting up an organizational structure: the need for a "bridge" between the two organizational structures of functions and subject-matter; and the need for "coordination" of various activities related to the two objectives.

The UN says[10]: *"In order to connect the two structures, a bridge is required; this would take the form of a unit in charge of re-sorting data, after they have been collected and edited, into new groupings that better lend themselves to analysis and dissemination."*

WB[11] argues: *"In order to connect the functional and subject-matter units, a bridge is required."*

On the need for coordination, the UN highlights the importance of both formal and informal mechanisms to strive to achieve what it calls a "corporate culture". It is particularly important for senior management to think "corporate", for the benefit of the whole organization, rather than just their own limited areas of work. On the formal mechanisms, the UN[12] has the following to say: *"Among the more formal mechanisms to coordinate and promote corporate culture, a well-functioning system of committees is perhaps the most important and effective."* On informal mechanisms, the UN argues: *"Even more important, although it is a difficult topic, is the creation of a strong corporate culture: shared beliefs, values and norms."*

It is easier for a statistical agency to coordinate, both formally and informally, if it is a centralized statistical system such that it is the only producer of official data. In decentralized systems, both formal and informal mechanisms need to be established to achieve the coordination objective. Formal mechanisms could include: the statistical law, which provides the legal tools necessary for coordination; a committee structure that includes all statistical players that work from the same rules book; and a clear centralized focus in the dominant statistical agency to take charge of the need for coordination among all players. Indeed, EU regulations expect this to happen, as they have made the dominant statistical agency in a country responsible for coordinating all data produced in the country.

There is one additional substantive consideration in this context emphasized by both the UN and the WB: the difficulty of re-engineering existing organizational structures. They advise that the optimization objectives described above on both functional and subject matter grounds should be achieved through modifications to an existing organizational structure, rather than through a wholesale move to a totally different one.

Finally, as we contemplate change at the INS, it is desirable to drive it in the context of the objective clearly expressed by its President to make INS a role model for statistical agencies. This finds resonance in the objective suggested by the UN[13] for a high-performing statistical agency in Box 2 below.

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[10] UN, *op.cit.* p. 73.
[11] World Bank, *op.cit.* p. 5.
[12] UN, *op.cit.* p. 79.
[13] UN, *op.cit.* p. 17.

Box 2: Brand and No-brand Statistics

Recognizing quality in statistics and using them with trust are closely associated with the recognition of the agency that has compiled them. The wider the agency's recognition, the greater the acceptance of the information because of the element of trust. However, to gain the widest possible recognition, the statistical agency must be visible, and its visibility increases if it stands on its own as part of the central Government.

As an international best practice, it is safe to say, for example, that Statistics Canada is a "brand". The INS can strive towards becoming one. As an example, in 2010, a statistical issue, the census, was the number one Canadian story for months when Canadians realized that Statistics Canada's advice was misrepresented by the government and not followed.

We summarize this guidance from the UN and the WB for a functional review and its implications for the organization of a statistical agency as four key principles:

- ***Optimize statistical processes***: This should be done using GAMSO/GSBPM.
- ***Optimize subject matter organization***: Optimize subject matter organization to meet the needs of the users;
- ***Build a bridge***: Build a "bridge" to connect the statistical processes function with the subject matter set-up;
- ***Coordination***: Given the reality of two organizational systems working side by side, ensure there is formal and informal coordination, which is particularly important in a decentralized statistical system;
- ***Branding:*** In achieving all these objectives, it is useful to remember the context for the activities of the national statistical agency. The UN recommends a distinct brand that could be recognized by citizens and alike, that should help the statistical agency become a role model for excellence.

A re-organization of an organization may present efficiency and operational benefits if such a change is based on sound fundamental principles. At the same time, a re-organization—a change in how things are done—entails risk as moving from an established way of operating to a new unknown world can create worries on the part of staff. A re-organization should, therefore, occur when the benefits exceed costs. This is the basis for our recommendations in this report.

2. An Assessment of the Current Situation of INS

We review below the current situation at the INS. We first offer some observations on its current capacity. This is followed by a review related to the four principles listed in Section 1: statistical processes; subject matter set-up; coordination; and branding.

2.1. Current Capacity

SWOT Analysis

The analysis of INS and its performance concluded on the strengths and weaknesses of internal environment and on the opportunities and amenities coming from external environment where INS activates.

Strengths (S)	Weaknesses (W):
• Qualified experienced staff, operational capacity and staff mobility, availability to engage in new projects. • Great experience in developing and implementing the Annual National Statistical Plan (PSNA) and the Multi-annual National Statistical Plan (PSNM). • Existing statistics infrastructure – Data collection, processing, and analysis technologies. • Independence in organizing statistical processes. • Large variety of statistical data and products, database. • Transparency of reporting is respected. • Harmonizing national statistics with EU and international standards. • Active international collaboration. • Institutional collaboration and cooperation with Public Central Authorities (APC), such as Ministry of Finance, etc. • Data dissemination mechanism. • Web platform for Sustainable Development Goals (SDG) data) / national platform for reporting SDGs. • Experience and tools for ensuring data confidentiality, including anonymization of personal data. • Implementation of SICCA cost control tool (cost collection software). • Data quality management in INS is efficient. • GSBPM (standard statistical processes) – business – maturity level 3 out of 5 Standard (standardization level). • GSBPM - methods – maturity level 1 out of 5. • GSBPM - information maturity level – 1 out of din 5. • GSBPM- applications maturity level – 1 out of 5 • Online standardized metadata database. • Availability of personnel to assimilate new knowledge and valorisation of the appropriate skills • Existence of system/operational procedures. • According to Standard GAMSO (management process standard) and principle # 13 Opportunity and Punctuality of CoP, as part of the dimension of quality assessment in	• Shortage of specialized staff (IT, statistical modelling experts, operators etc.); insufficient human resources for carrying out all activities by INS and STD. • Lack of a consistent motivational system; low wages; lack of special program to stimulate young specialists/staff; lack of opportunities to stimulate staff who get more involved and perform; big differences in the payment scale between INS's central office and STD – wages at STD are much lower; legislative constraints to stimulate staff or job incompatibilities. • ITC technical infrastructure is partially modernized; old software for which support/maintenance is not provided anymore; it doesn't meet modern requirements. Physically and morally obsolete computing equipment both at INS and STD. • INS position as central public authority – inappropriate; The legal framework is not enforced – Law 226/2009, Law 422/2006, OPINS 528/2009. • Inadequate financial resources/ lack of funds for training and professional development for staff, statisticians, IT, GIS, and interview operators. • Limited access to administrative data sources. The data format/content does not meet statistical needs. Difficulties in getting data from other data producers– authorities/institutions. Lack of data in interoperable electronic format. In the present context, the lack of administrative data sources endangers large, such as censuses, given that data collection can no longer be done in the traditional way. • The other 17 official statistics producers don't use GAMSO/GSBPM; don't have statisticians; don't disseminate data online like INS. They lack metadata libraries and statistical culture. Data quality management is almost non-existent. • Undersized budget components in relation to real needs. • Poor communication among departments, the decisions to carry out statistical research don't not have the necessary financial support. • Lack of human resources development strategy and action plan for implementation. Lack of continuous training program/center in the field of statistics at INS and STD, as well as at the National Statistical System (SSN) and data providers.

statistics, it applies the weekly task monitoring system, as part of the PSNA. • Active operation ensuring quality management at the level of INS and the Territorial Statistical Directorates (STD). • Existing legal framework in statistics. INS's responsibility recognized by the law regarding producing of official statistical data.	• The applicability of legal and institutional framework of the SSN has not been adequately improved. Poor coordination and collaboration within SSN and the National Statistical Committee (COMSTAT). • Low/limited training and capacity in attracting external technical assistance, lack of capacity to absorb the allocated funds. • Inefficient organizational structure; INS organization is not functional (see the functional review). • Slightly deformed image of the statistical system in the Central Public Administration structure. • Limited administrative capacity of statistics to react to changes in the economy. • Limited and financially unmotivated and non-existent research activity within STD. Absence of explicit budgetary mechanisms to attract and keep researchers, especially those with specialized technical training – e.g., mathematics, statistics, cybernetics, econometry, operational research, data analysis, computer programming. • INS as part of Central Public Administration. • Limited influence at the government level to size resources. • Insufficient resources allocated for GIS at INS and STD, especially regarding the geo-locations of censuses. • INS is not certified to engage in scientifical research. • There is not high-level committee in INS to sort out tensions among key parties/stakeholders at the level of vice-president. • There is no formal element in the organizational structure of the INS to meet the responsibility of being the formal SSN representative in relation to the EU. • The metadata database is outdated and must be restored/there is no integrated metadata system. • There is no IT strategy integrated in the National Statistical System Development Strategy (SDSSN). • Data collection could be improved. • There is no professional status of the statistician. • INS can't use own revenues/income to pay the staff. • The sanction/contravention system for failing to provide data from administrative sources is not/can't be enforced; STD can't enforce sanctions for economic agents who fail to provide data. Law 229/2009, with subsequent amendments and changes, provides in Article 46 for the commission of sanctions /contraventions by legal entities (the law doesn't distinguish between public or private law). • Lack of interest of data providers to cooperate and communicate with INS/STD to send data that is necessary to produce official statistics. • INS don't have communicators with background in statistics, there is no functional communications department to communicate and promote statistics to the media and social-

	political environment; lack of marketing activities and lack of specialized staff with experience in communications and marketing. • Limited capacity to implement changes in new methodologies. • Great level of burnout for the staff and several tasks are being redistributed due to lack of staff available at INS and STD. • Annually, until the Government Decision (GD) approving the PSNA is issued, the STD lack the legislative framework pertaining to data collection from economic agents (the GD is late for reasons independent of INS, such as not getting the legal approval from relevant public entities/ministries in due time, frequent changes in the Government structure and cabinet members). • The central dissemination database (TEMPO) needs to be modernized. • Limited trainings to learn how to use latest high-tech applications (e.g., SAS, R, Python, etc.) • The practical non-existence of a sustained training program in the field of quality of statistics for new staff • Lack of equipment necessary for telework • Restricted access of INS and STD staff to various web pages, which makes difficult identifying data providers and collection of statistical data. • Negative effects of the General Data Protection Regulation (GDPR) in the process of statistical data collection. • Major difficulties in the collection of statistical data. • Overloading the statistical data providers with statistical research containing sometimes the same information that can be obtained from administrative sources. • Need to increase/improve the image of INS, as to reflect its true value.
Opportunities (O) • Possibility to access structural funds and grants from the European Commission—Eurostat. • Principles of sustainable development promoted by EU. • Availability of various training and professional development programs in Romania and abroad, according to the EU statistical requirements. • International trend towards digitalization (collection–CAPI, CAWI, and dissemination - online). • Increasingly high-performance statistical applications. • Strong development of new technologies. • Reuse of electronic survey and standardized metadata etc. (or part of them) and for other statistical surveys/research. • Better use of existing database to develop new indicators for estimation on small domains by applying econometric models	**Threats (T):** • Unattractive wages for IT specialists in the public sector • Unattractive wages for young people in the public sector • Impossibility of adequate compensation/salaries of specialists who perform at work. • Administrative burden for data collection at the level of enterprises. • Budgetary constraints (budget cuts). • Need of more complex data. • Restricting some of freedoms and liberties of citizens, movement of goods and services due to the SARS-Cov2 COVID19 pandemic. • Corruption • Ageing of the labor force at INS and STD • Migration of the qualified labor force • Covid19 or similar transmissible diseases

• Access to EU public policies. • EU Strategies. • Modern and flexible legislation. • Easy access to training through EU funds. • Improving IT infrastructure through the EU digital policy. • Changing the law on statistics would allow to strengthen INS' role as coordinator of the SSN. • Globalizing economic activities. • Use of favorable economic factors. • Increasing labor productivity. • Increasing mobility, including the level of international cooperation. • Access and use of free technologies and open sources. • Technological competition and innovation. • Intelligent and creative labor force. • Mobility of labor force. • Desire to implement best practices. • Increasing the level of professional training. • Development of the curricula for statistics in universities and training of young labor force that can be attracted to join the field of official statistics. • The interest of the press and general public in presenting simplified statistics that everyone can understand. • Opportunities for collaboration with academia and research. • State budget and structural funds support research and innovation. • Collaboration with the field of scientific research, universities, national research and development institutes etc. • Telework • Revenues for statistical services • Deepening and expanding globalization • Digitalization of the public sector • Increasing foreign investment • Increasing the role of energy and "green" investments • broadband internet	• Absence of statistical culture among population leading to reluctance to provide information for statistical purposes. • Lack of promoting the importance of statistics in the society (schools and high-schools). • Lack of staff specialized in public policy. • New benefits provided by the state budget (increasing the pension point by a much higher value than the salary/economic increase, special pensions and exemptions from the payment of pensions). • Difficulty regarding inter-institutional collaboration • Institutional instability • Difficult access to administrative data • Consequences of the global crisis • Decreasing confidence in the public sector • Decreasing confidence in statistical information (inflation rate etc.) • Changes in the structure of the production activities and the economic system. • Lack of care for employees • Lack of trust in public institutions • Routine and losing interest of staff, lack of desire to further improve. • Individual insecurity (the individual is not protected by the public/state institutions) • Resistance to changes • Lack of models to follow. • Stress and burnout • Mobbing (putting mental stress on someone at the work place). • Lack of non-financial motivation of staff in the public sector • Not meeting the deadlines for programs and projects under implementation • Unfavorable demographic trends • Captive clients and monopoly on technology • Inadequate, unsustainable legislative changes • Lack of impact studies for public policies • Lack of real public debates • Political involvement (politicizing) • Generalized lack of trust in public institutions • Legislative instability at the national and European level • National and international lobby groups • Stakeholders • Exhaustible natural resources • Lack of solidarity and cohesion within communities • Geopolitical instability • Divergences between the EU and the United Kingdom

As can be seen from the SWOT analysis, the INS have more weaknesses than strengths and more threats than opportunities. That is why strengths and opportunities must be used to the fullest to strengthen weaknesses and circumvent threats.

Based on this analysis we identify 7 area of intervention:

A. Improving the promotion and adequacy of statistical products and services

a) *Improving the dissemination of statistical information:* The dissemination of the statistical information should include development of different tools for fast dissemination of information to statistical data users, while organizing different forms of dissemination for the general public based on targeted communication for various group users and specific data needs. Based on demand, INS should focus more on online publications, rather than print version, while measuring and monitoring the efficiency of data dissemination through indicators targeting the effectiveness of dissemination of aggregated data (through google analytics, for example).

b) *Development of statistical communication:* Statistical communication could be strengthened by having an annual communication plan to promote statistics, together with the statistical culture and education, in addition to modern communication products in the form of publications (print and digital), brochures, leaflets, websites, interactive tools, and so forth. In parallel, INS should organize communication and education campaigns targeting different groups, hire professional communicators with experience and knowledge of modern forms/styles and tools, and organize trainings for existing communicators. An improved mechanism should be able to provide relevant and objective information to requests, including by setting up internal procedures for responding to requests, ensuring that answers are communicated within the timeframe as per the law.

c) *Promotion of statistical culture & education:* Activities to raise awareness on the statistical culture and education should include conferences, workshops, public events where INS staff should present and explain the statistical products, as well as communication sessions and meetings with different stakeholder groups (public, private, academic etc.) to get them familiar with official statistics and the process of generating statistical products. This should be accompanied by brochures and briefs on specific statistics in an easy, friendly language (print and electronic versions) with background information on data sources, methods, collection process – same can be done by engaging formally/informally with public and private entities. Statistical education should target different groups, like media and students. To improve the quality of statistical information in the media, INS could organize workshops to strengthen journalists' knowledge on statistics, provide them more background information so they can better understand the overall statistical process. Similarly, students could learn from young INS staff about the importance of statistics through talks and public events in schools, in addition to an annual statistical competition in both schools and universities.

d) *Exploiting digital opportunities for information dissemination*: The development of a modern website should enable users get quick easy access to complex information through all different communications means via internet (mobile phone, tablet, laptop etc.). A user account would allow better address the user's needs, in addition to archive the search history and have a targeted communication based on their demands. Videos and PowerPoint presentations would better explain some of the key statistical indicators (e.g., GDP, resident, unemployed population etc.), while providing background information on data sources, purpose, methods and the process of data collection and compilation. Other measures to improve information in the digital format include development of thematic sections on the website and updating with new field/sectors, and asking for users' feedback to improve dissemination as to make it more attractive, user friendly (e.g., simplifying access, data/information search). In addition, INS should increase cooperation with other producers of official statistics and set up a common platform on the on the INS website (or improve existing platforms, if any) to disseminate all official statistics.

e) *Modernization of the activity of designing statistical publications:* INS should modernize the design of the statistical publications by employing a modern, friendly design, including with visual elements, that should help present the information and statistical data in a more attractive and engaging manner.

f) *Redefining and implementing an evidence-based editorial policy: the editorial policy will be developed based on the number of users.*

g) *Improving intra & inter-institutional communication:* A better intra- and inter-institutional communication would employ a few good practices when engaging with institutions and producers of statistics and other stakeholders, using the intranet to strengthen communications among INS' various departments, and setting up a template for electronic press releases on the institution's intranet.

B. Development of statistical products and services

a) *Improving collection of statistical data by using CAPI/CATI/CAWI for all surveys:* Statistical products and services can be improved by using CAPI/CATI/CAWI methodologies for data collection for all statistical surveys, based on the research dimension.

b) *Standardization of statistical processes (GSBPM-GSIM) on statistical domains:* The standardization of statistical processes (GSBPM-GSIM) by employing standards on matters like methods, information, application, in addition to supporting these operations by inputs and outputs should help build a modern statistical production process.

c) *Improving/modernizing statistical processes*: The modernization of the statistical processes would require a set of interventions. This should include actively participating in the development of SSN in the field of labor statistics in order to comply with the new requirements regulated at European level and endorsed at national level, redesigning the information system in the field of health statistics, and implementing the methodologies harmonized at European level and correlated with the EU strategy on

the modernization of social statistics as well as with the National Strategy. INS should also concentrate to improve the quality of data on agricultural statistics to meet both the EES and national requirements, in parallel with an integrated approach to agricultural statistics by implementing the Regulation on Integrated Farm Statistics (IFS). Other areas of interventions should emphasize on statistical research on the global value chain and international outsourcing, development of quality statistics in energy and climate change altogether with energy indicators to meet the "European Energy Union" priority, and enforcing the requirements on the new integrated FRIBS enterprise statistics regulation.

d) *Development of statistical registers*: The statistical process should improve by setting up statistical registers on specific issues like population, farms, enterprises etc.

C. Identify and use new data sources and develop innovative models for estimation

a) *Identification and incorporation of new data sources in the statistical production process:* Identifying and using new data sources would require some changes in the legal framework as to allow INS get access to private data sources and develop a new standardized methodological framework. Additional measures are required to ensure confidentiality of private data sources, get access to technological resources to process such data sources by sharing them at the EU level, and train staff on how to use the new hardware and software tools.

b) *Collaboration with the academic and private sector:* INS should work with the academic sector to train statisticians on the use of new data sources and develop together with domestic and international academic institutions joint statistical research projects, in addition to joint projects with private data holders.

c) *Development of statistical models and rapid estimation methods:* New statistical models and methods should involve getting new modern methods of rapid estimation (e.g., Handbook on Rapid Estimates 2017), implementing these methods (like estimates, flash estimation, interpolations, nowcasting), and integrating the machine learning methods in the processing of new data sources for statistical purposes.

D. Develop and implement an IT strategy

a) Assure all the IT&C infrastructure for electronic data collection (CAPI, CATI, CAWI)
b) Assure all the IT&C infrastructure for communication and dissemination (new website, electronic library at EU standards)
c) Develop and implement a plan for modernization of INS IT&C infrastructure (hardware and software)
d) Assure the maintenance for the INS IT&C infrastructure.
e) Assure the INS IT&C business administration (with IT personal or outsource services)

E. Improving the quality of statistical products and services

a) *Improving the quality of official statistics:* The quality of official statistics can be refined by developing methodologies for monitoring the quality of statistical products, periodic reviews of quality documentation in official statistics, and a plan for reviewing the quality of statistical products and services (internal and/or external audit – good quality audit reports or self-assessments, questionnaires completed by producers, respondents/users).

b) *Coordination of the standardization of statistical processes*: Essentially, the standardization of the statistical processes would require setting up a methodology compartment for coordinating the standardization of GSBPM dimension – methods and coordinating the implementation of GSBPM. This process should also point out the good practice tools with regard to the standardization of statistical processes developed at EU level and their parameterization to the specifics of SSN, as well as identify the resources and knowledge necessary to implement the new standards at international level.

c) *Development and maintenance of the data confidentiality framework:* To maintain data confidentiality, INS should develop an efficient and transparent mechanism for compliance with microdata confidentiality criteria, update periodically the data confidentiality rules, carry out and update a procedure on protection of personal data, and implement ISU for all administrative data sources dealing with personal data.

F. Improving statistical cooperation and the use of administrative data sources in the statistical process

a) *Strengthening the structure and coordinated operation of the National Statistical System (NSS):* Improving the structure and operation of the NSS would require some changes. One of them is to improve the legal and operational framework of official statistics as to extend and strengthen the role of the National Statistical Council and COMSTAT in substantiating, monitoring and evaluating the results of the development strategy and multiannual and annual statistical programs. Another action is about restructuring the NSS by transferring totally or partially the specific statistics in the fields of social and economic statistics (e.g., agriculture, education, health, environment etc.) to other producers of statistical data, in line with future expected amendments to the Law 226/2009, and train producers of official and departmental statistics to help strengthen their capacity regarding official statistics. In addition to improving the role and structure of territorial statistical directorates - considering new data sources and statistical data requirements at the level of territorial administrative units (TAUs) -, INS should develop a center of competence focusing on increasing the use of administrative sources in the statistical process (such as identification and integration of administrative sources in the statistical system, design and implementation of common data collection, and processing from administrative sources integrated in GSBPM and GSIM).

b) *Improving collaboration within the SSN:* SNN should strengthen cooperation with national authorities managing the administrative sources in order to include useful variables in the generation of statistical date, in addition to conclude agreements and

regular monitoring of administrative data providers. Designing and implementing adequate tools would enable expand and improve the collection of primary information and data from holders of administrative sources (databases and registers), hence increase the quality of administrative data and coverage area. Further cooperation could be achieved by building the architecture of the administrative sources in the NSS and a database system as a unitary and coherent information support for statistics from all socio-economic fields through storing longitudinal information about statistical units, in addition to have COMSTAT members work together for the preparation, evaluation and monitoring of SSN strategic documents (e.g., PSNA, PSNM, Strategy 2021-2027).

c) *Development of international statistical collaboration:* INS should make efforts to improve statistical collaboration at international level by getting more engaged as a member of the European Statistical System, actively participating to activities of international statistical bodies (such as the Statistics Commission/UN, Conference of European Statisticians, Statistics Committee and Governance in Statistics/OECD), in parallel with intensifying the bilateral cooperation and exchanging good practices with national statistical systems recognized at both European and international level. While focusing more on getting grants from the European Commission and structural funds that should help implement the Strategy for the development of the national statistical system, INS should also change the legal and administrative framework as to become a donor of technical assistance for less developed national statistical systems.

G. Capacity building

a) *Development of the administrative capacity of the INS:* A Public Policy Unit (with minimum 5 public policy specialists) should help develop INS' ability to produce evaluations and implement public policies and review the organizational responsibilities and related procedures as to better the strategy design and operationalization of the PSNM. Other measures aimed at helping INS develop capacity include a monitoring strategy and evaluation systems, increasing staff knowledge and enforcement of integrity standards, a cost accounting system for statistical production and the related administrative activities for the evaluation of the cost-effectiveness ratio (SICCA), and introducing strategic procurement planning.

b) *Improving human resource management and adjusting to the organization's needs*: INS should better its human resources through improving staff recruitment, strengthening staff motivation, development of an organizational culture at the institution level, and putting together a training plan for all staff.

When we reviewed available resources and INS commitments as laid down in the statistical law, we came to the conclusion it does not have the ability to fulfill its commitments to fully deliver on its annual and multi-year statistical programmes. It should be provided adequate resources to achieve its obligations.

There is worldwide transition to digital means to do statistical work from statistical processes to data dissemination. INS need to take significant strides to move from a world of paper to CAPI

and CAWI. Consistent with that, the types of human resources needed, their compensation and their numbers, are increasingly important issues.

We felt there was a need for INS to organize itself in a manner to have a better capacity to use registers and GIS. There is also an urgent need to use more administrative data.

We are living in an era of huge change. This requires the statistical agency to have an ability to undertake regular assessments of where they are and how to improve. We offer suggestions in this report on how that can be accomplished and offer some mechanisms.

2.2 Organizational set-up

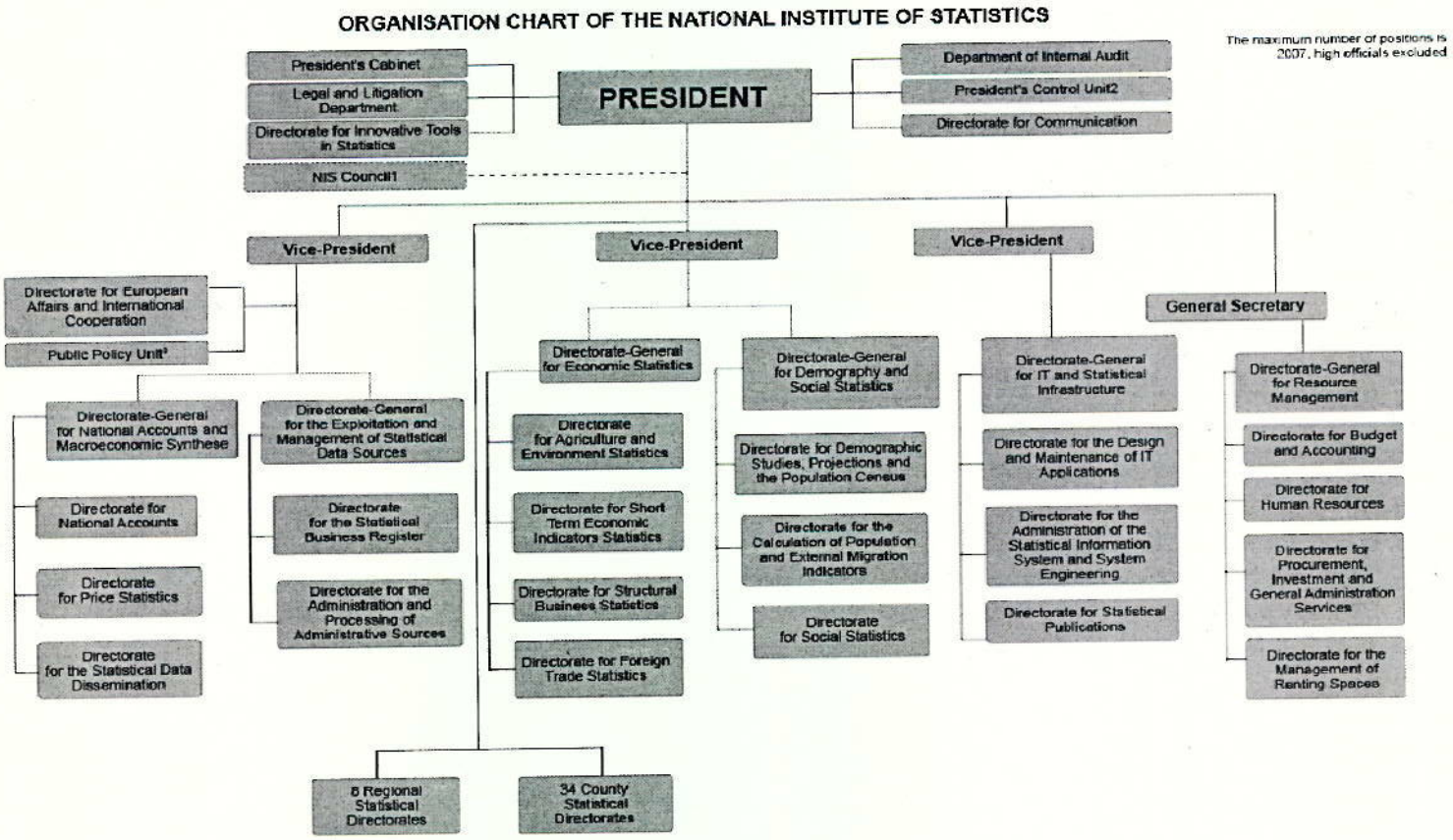
We offer some general observations with reference to the existing organizational structure in Chart 1 that are relevant for all of the four principles listed above.

- Most of the boxes in the organizational structure relate to the two groupings we have described above as desirable, related to ***functions*** and ***subject matter.*** However, these boxes are spread over the organization, rather than being together for similar and related tasks. For example:
    - Areas related to statistical processes can be found attached to the office of the President and two Vice-Presidents;
    - Areas related to economic subject matters are dispersed over two Vice-Presidents;
    - Corporate services are spread over a General Secretary, a Vice-President and the office of the President.
- The office of the President has many tasks to perform. This includes legal matters, internal audit, communication, statistical processes-related tasks and regional and territorial matters.
- This is in contrast to what the UN believes to be the key responsibilities of the head of a statistical agency: leadership and management of those responsible for directly taking care of the functions of the organization; management of high-level external relations; and, legal aspects.

Regarding the data collection coordination, the INS organisational chart presents the missing part of coordination between STD and the statistical departments from INS, those are direct connected only with the President not with a department responsible for the data collection. Moreover, each statics department are in charge with the coordination of the data collection for their specific needs and there is no coordination between them (silo organisation culture).

The chart 1 depicts the silo organisation at the department's organisation. According with the UN recommendations all economic work should be together, all social data shall be together and so on. Unfortunately, we can see that economic work is split between two general directorates: one is the National Accounts and Macroeconomic Synthesis and the other one is Economics Statistics.

Chart 1: Organization of the National Institute of Statistics



1. It is organised and operates by order of the President
2. It is organised and operates as a department
3. It is organised and operates as a directorate

Also, the register for the Enterprises are placed in another general directorate: Management of the Statistical Data Sources. This makes it hard to effectively communicate and coordinate the economic work

2.3 Statistical processes

We note upfront that, as discussed above under the heading of "organizational set-up", work on statistical processes is dispersed all across the organization, which is not optimal. After the review in this Section, we offer our suggestions for change in Section 3.1.

To assess the status of implementation of the GAMSO and GSBPM implementation, the UNECE Modernisation Maturity Model (MMM[14]) has been used. This model was implemented precisely to support statistical organisations in the assessment of the current situation related to UNECE standards. Using the MMM template the INS–World Bank group analysed the progress of in the GSBPM-GAMSO usage following four different dimensions: Business, Methods, Information, Applications.

2.3.1 Assessing the current situation for four GSBPM-GAMSO dimensions

The **Business** dimension focuses on the business activity domain, i.e. the organisation's core business practices and policies. INS in 2017 started describing the detailed activities for each GSBPM phase and subprocess. The same description was implemented for the first two levels of GAMSO (Chart 2). This list of activities was officially approved, has been validated by all Directorates and tested against 5 different surveys, to verify which are the elementary activities that compose the GSBPM sub-processes. INS also started a training program on GSBPM-GAMSO that involved a large number of employees.

Chart 2: GAMSO Activities at INS

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FAZĂ nivel 1		SUBFAZĂ nivel 2		ACTIVITĂȚI nivel 3		PAȘI nivel 4	
Cod	Denumire	Cod	Denumire	Cod	Denumire	Cod	Denumire
		A.01	Definirea viziunii	A.01.1	Limi directoare la nivel național și internațional	A.01.1.01	Analiza legislației europene în domeniul statisticii
						A.01.1.02	Analiza memorandumurilor elaborate la nivel european în domeniul statisticii
						A.01.1.03	Analiza documentelor ședințelor grupelor de lucru: Eurostat și alte organisme internaționale și naționale
						A.01.1.04	Elaborare puncte de vedere referitoare la documentele ședințelor grupelor de lucru: Eurostat și alte organisme internaționale și naționale
				A.01.2	Definirea viziunii, misiunii și scopurilor strategice	A.01.2.01	Elaborarea obiectivelor generale
						A.01.2.02	Definirea viziunii INS
						A.01.2.03	Definirea misiunii INS
				A.01.3	Definirea valorilor organizației	A.01.3.01	Definirea valorilor organizației
				A.01.4	Comunicarea valorilor și așteptărilor	A.01.4.01	Elaborarea documentelor referitoare la valorile organizației
						A.01.4.02	Publicarea documentelor referitoare la valorile organizației
				A.01.5	Crearea interesului și încrederii guvernului și comunității în produsele statistice	A.01.5.01	Elaborarea angajamentului de încredere a guvernului în datele statistice
				A.02.1	Dezvoltarea strategiilor pentru atingerea scopurilor	A.02.1.01	Elaborarea strategiei INS/SSN
				A.02.2	Prioritizarea portofoliului de capacități	A.02.2.01	Elaborarea priorităților INS
				A.02.3	Prioritizarea portofoliului produselor și serviciilor statistice	A.02.3.01	Prioritizarea portofoliului produselor și serviciilor statistice
				A.02.4	Definirea programului statistic anual / multianual	A.02.4.01	Elaborarea PSNA, Strategia SSN
						A.02.4.02	Elaborarea PSNM

[14] https://statswiki.unece.org/pages/viewpage.action?pageId=129172266

The Annual Plan (PA) should list the INS activities considering GSBPM phases, trying also to insert "reference period" as a dimension in PA activities. The same reference to GSBPM phases should be inserted in the National Statistical Annual Program (NSAP). For what concerns the ONAs, they will be involved after the release of SICCA to share with them the details of statistical processes.

Apart from this, in conjunction with SICCA activities, INS should explicitly state that GSBPM and GAMSO are part of the official strategy of the administration.

For this dimension INS is rated at third level "Early implementation: Use of the standard is spreading, but it is used in an inconsistent manner by individuals and single business units. A corporate-wide programme/strategy for use of the standard is being prepared".

The **Methods** dimension focuses on methods i.e. how methods are designed, structured, implemented and executed. It includes statistical methodology, quality, IT methods, data collection methods, process methods and any other methods needed to support the business.

For this dimension INS is rated between level one "A few individuals are becoming interested in the potential value of the standard. The organisation as a whole is unaware of the standard." and level two "Initial implementation. Use of the standard is basic and limited to a few individuals. Parts of the organisation are becoming interested in the potential value of the standard."

From one side it is true that "Methods are identified and defined with no reference to GSBPM" (level 1), but on the other side the documentation quoted above also includes in the description of the sub-processes the methods, that are in such mediated way connected with GSBPM.

Important to collect documentation about the methods used in all the GSBPM steps: the assessment of currently used methods is the first step to improve the reusability and the possible standardization activities. The absence of a direction dedicated to the statistical methodology certainly makes any operation of standardization and reuse of statistical methods more difficult.

The Information dimension focuses on how information and/or metadata are structured and integrated, how information is modelled, abstraction of the data access from the functional aspects, data characteristics, service and process definitions, handling of identifiers and the information model.

The situation for the data flow in INS is particular: in part of the data collection phase and in the dissemination phase the data is in many surveys managed in an integrated manner. Actually, for data collection the business statistics use the e/Sop "portal"15 in which all collected data is stored in an Oracle database, while in the social surveys the recently developed surveys adopted the Survey Solutions environment, which stores data on the free PostgreSQL database. For other surveys the data is collected using Visual FoxPro, an old platform whose latest release was

[15] http://www.insse.ro/cms/files/Site_eSOP_v2/intro.html

released in 2004 (support to the product stopped in 201516). For almost all the surveys the data, after data collection, is moved to another platform, because the vast majority of control and correction operations are still performed (often by statisticians) using Visual FoxPro. After the cleaning and analysis, data go back to an integrated database (TEMPO-ONLINE17Phare projects) prepared for data dissemination and managed by the Oracle database. Inside TEMPO, a reduced set of Metadata is also available and there are links to Metadata system (see above).
Survey Metadata portal is available to users through a web application18 where "reference metadata19" are stored in Oracle db. The system was developed in 2005. Another portal with Oracle data, SENIN20, is used to store and disseminate Classifications, with links to Metadata portal and to e/Sop portal.

For this dimension INS is rated at level one "A few individuals are becoming interested in the potential value of the standard. The organisation as a whole is unaware of the standard." Data management in INS seems to lack a strategy and an overall vision, being left to the decision of individual survey managers.

The **Application** dimension focuses on the structure and interaction of applications to provide business functionality using the methods and information/data assets needed to deliver this functionality. This dimension, therefore, concerns the software environment and programs that are used to implement the statistical methods to be applied to the data and metadata of the various surveys.

As explained in the previous dimension, the software choices in INS are often managed by individual survey managers, without a clear strategy at the INS level. In the data collection phase three software packages are used: web applications developed on request stored in the portal (in Oracle) e/Sop, Survey Solutions and Visual FoxPro21. In "central" phases (Process and Analyze) the most used tool is Visual FoxPro, a package released 15 years ago, even if there is some usage of SAS and some first usage of "R" statistical tool. Oracle is then used for the dissemination database.

We underline the importance to have a clear documentation about the software used in different GSBPM steps. If INS does not know which software is used in its surveys, the choice of new standard software would be taken without having data on the current reality and, therefore, without knowing the impact of the choice itself and the size of the necessary changes.

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[16] https://support.microsoft.com/en-us/lifecycle/search/1111

[17] http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table

[18] http://colectaredate.insse.ro/metadata/public.htm?locale=en

[19] https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Metadata

[20] http://colectaredate.insse.ro/senin/index.htm?selectedClassification=&requestedpage=general_description&gob acktosearch=true&locale=en

[21] There is also Intrastat, a tool used to collect data about the trade between European member states http://www.intrastat.ro/index_en.php

Also, for the Applications dimension INS is rated at level one: "A few individuals are becoming interested in the potential value of the standard. The organisation as a whole is unaware of the standard." As mentioned before, INS should first document the current Applications situation and then define a strategy to increase reuse and standardization of the tools used.
About the situation of IT department: INS has a limited amount of IT resources, mainly due to the low wages compared with private sector. In INS 21 positions for developers are foreseen of which 14 occupied, while for system engineers 21 positions of which 18 occupied.
To give a comparison in European National Statistical Institutes IT department usually includes between 8% and 12% of total employees. In Italy for example the IT department employs exactly 10% of employees, and some IT resource are present also outside from the IT department.
The situation in INS is today far from these figures: INS cannot face the challenges of these years without a stronger IT department.

2.3.2 Desired target maturity levels and suggested activities

The workgroup analysed the maturity model and proposed the following target levels, to be achieved in 1-2 years, well before the end of the project.

Table 1: Desired Targets

Dimension	**Current Maturity (1-5)**	**Target Maturity (1-5)**	**Key Steps Requirements**
Business	3	4	SICCA, PA, NSAP, strategy
Methods	1	3|4	Document methods
Information	1	2	Document input/output
Applications	1	2	Document software

2.3.3 Subject Matter Set-up

We assess the organization of subject matter boxes in light of the considerations described in Section 1: within the existing organizational set-up around functions and subject matters, is the distribution of subject matter tasks optimal?

This is what we find:

- There are three Vice-Presidents and a General Secretary. Their areas of responsibility are not specified as part of their titles;
- This is because they do not have specialized areas of responsibility. The first Vice-President, on the left side of the organization chart has the responsibility for:
    - Economic-related subjects such as the national accounts, macroeconomic synthesis, price statistics;
    - Data collection related areas such as business registers and administrative data sources;
    - International affairs such as European and international cooperation;
    - Data dissemination;
    - A Policy Analysis unit.
- The second Vice President, in the middle of the organization chart, has responsibilities for:
    - Economic statistics, including agricultural and environmental statistics; and
    - Social statistics.
- The third Vice President has responsibilities for:
    - Some, not all, statistical processes-related tasks (IT, information systems); and
    - The unrelated task of statistical publications.
- The General Secretary has responsibilities for:
    - Resources (both financial and human) and procurement.

2.3.4 Coordination

In any organization of a reasonably large size, coordination—both formal and informal—would be essential for an efficient functioning of the organization. We assume that a considerable amount of coordination takes place at the INS.

This coordination is required on a number of fronts.

- With two organizational systems in place—on functional and subject-matter basis—there would be a natural need for coordination through both horizontal and vertical committee structures.
- Corporate issues such as the distribution of financial resources, corporate priorities, recruitment of professionals, the provision of general training for all classes of staff, and the standards for dissemination all require coordination.

- Coordination would be even more important if the organizational structure is inefficient, such as similar subject matter areas are spread over many parts of the organization.
- Coordination is essential among many ministries if there are multiple producers of official data and many others who generate administrative data.

The above considerations suggest the following in reviewing the INS situation.

- There are many committees at INS but no standing committee at the highest level that would resolve tensions among key parts of the organization on an ongoing basis.
- There is no formal focus in the organizational structure on meeting the EU obligation for the INS to deliver on the responsibility for being the representative of the overall national statistical system.

2.3.5 Branding

As we mentioned in Section 1, an assessment of an organization as part of the functional review and any suggestions for organizational change should be thought of in a broader context of what the underlying objective for change is, since change itself can be challenging. The UN recommends, naturally, that a statistical agency should strive to be a brand itself with a keen focus on establishing trust.

Branding is important as well in the context of a bitter reality that a statistical agency faces that the relevance and quality of the data it produces deteriorates automatically over time. A brand would always try to be on top of the situation with these automatic declines over time in relevance and quality of the data it produces.

The needs for official statistics are many; the resources are limited, by definition. There is thus a necessity that resources are allocated to the most important needs of the country and the policymakers. There is the other reality that a country does not operate in a static world; the economy, society and the environment are constantly evolving. In this world of change, ***any*** distribution of resources to produce certain types of data would become inappropriate over time. In other words, relevance of any data over time ***automatically*** deteriorates. There is, therefore, a need to periodically assess the situation and reallocate resources among many needs.

That is not to say, it is an easy exercise. All current data likely have users, who are not expected to be happy if their area is one which sees a shift away in resources. This is another example where leadership is critical in achieving desired outcomes.

The same is true of data quality. The word "quality' has been defined in many ways and there are different components under a variety of different definitions. To keep things simple, and not get into a debate on the appropriate definition, it is sufficient for our purpose to state that quality refers to the "representativeness" of collected data of the "truth" related to the universe that the data refers to. Like relevance, data quality deteriorates ***automatically*** over time as the universe it tries to capture evolves.

Looking at the INS in this context, we believe it is important to highlight the importance of a number of both tangible and intangible factors that should be kept in mind, as change is contemplated, that are critical for establishing a brand.

Tangible factors include the following:

- ***EU Code of Practice[22]:*** This must be followed in its entirety. It means, for example, a senior management, which includes the President, appointed in a manner that preserves their professional independence. A statistical agency is as good as its staff. This requires that the system must allow the hiring of the best and the brightest and an ability to train them on an ongoing basis, particularly in the context of the automatic deterioration, over time, in data relevance and quality discussed above. As well, technological change is progressing at a rapid pace and affects all aspects of a statistical agency ranging from means of data collection to data dissemination. This requires both the resources to get new technologies and the staff that can manage them though the skills they bring and an ability to maintain them.
- ***Status of data relevance, data quality and communication strength.*** These are all critical areas for the success of an organization. We have not been able to assess these as there are no recent accessible reviews.

Intangible factors are essentially related to two areas: first, a political commitment from all players in a democratic system that good official statistics are fundamental to achieving the dreams a country may cherish; both in the official domain where policies are evidence-based; and the public domain where citizens use statistics for informed decisions. Second, like any important and complex objective that needs to be achieved, striving to get to the desired end point for official statistics requires strong and effective leadership that gets things done that need to be done. It is easy to see the interaction between these two factors: on the one hand, effective leadership is required to produce good data and to convince the political side of government of the importance of using good data, and the role they need to play in ensuring that all necessary steps are taken on the political side to achieve that; on the other hand, political commitment is needed to allow a statistical agency to produce good data.

Having a branding focus, with an emphasis on executing the intangible factors, would mean the following:

- ***Vision that is linked to "branding".*** Adopting, communicating and implementing a clear medium- and long-term strategic vision and to put in place mechanisms to ensure the organization is on track to make continuous progress towards achieving this vision.
- ***Building Partnerships:*** It is essential to build partnerships with the political leadership in communicating the importance of a well-functioning statistical organization. Strong partnerships are also needed with data users, data suppliers and survey respondents; a national statistical office must be attentive to their needs and concerns.

[22] EU, *Code of Practice*, 2017.

- ***Corporate Focus:*** The organization must have a corporate focus when making any and all decisions. This means that all senior managers must think corporately rather than as silos. The emphasis must be on decision-making that optimal for the organization as a whole rather than for any one group.
- ***Governance Structure:*** The existence of a well-established and coherent governance structure based on the creation of management committees, committees of experts from different areas of the organization, and finally advisory committees whose members are external. effective, coherent and transparent functioning of a national statistical system.
- ***Managers' commitment:*** Senior management must be committed to achieving the vision and playing their part in the sound and effective management of the organization and their active participation in conveying the desired vision, values and culture to employees.
- ***Strong management practices:*** These are needed in every aspect of the functioning of the organization, particularly for integrated strategic planning, project management, quality management, financial management and talent management.
- ***Flexible and nimble:*** There are two realities that will always stay with us: resources are limited, and the world is constantly evolving. These realities require an organization that is flexible and nimble.
- ***Values and ethics:*** A value-based corporate culture rooted in respect, integrity and confidentiality, and which encourages co-operation, innovation and team spirit.

As we contemplate a functional review, and reorganization of the INS, these considerations, both tangible and intangible, should be the context for reform in establishing a INS brand.

3. Road Map for Reform

We present a road map for reform along the same four principles highlighted in the above sections: statistical processes; subject matter set-up; coordination; and, branding.

3.1 Statistical processes

3.1.1 Future activities connected to GSBPM-GAMSO

The main suggested activities connected to GSBPM-GAMSO are listed below:

1. **SICCA:** the first important activity is the implementation of the SICCA application (SICCA stands for "IT Integrated Solution for the Architecture and Computation of the Costs of Products and Activities INS") that will be implemented to collect the costs for each activity using GAMSO and GSBPM as standards. In the configuration of the system also information about statistical methods used, quality indicators, software used and input/output data will be introduced.
2. **Documentation**: methods, information and applications used in different surveys will be documented for each GSBPM phase using the Excel sheet (see Chart 3). Even if information about

methods is already available in Methodological Notes or in Guidelines (on paper and in pdf), it's important to make them available in a system using which managers can verify the methodologies used in surveys / sectors / domains in connection with costs, technologies and quality indicators of the surveys. This documentation system will be the first nucleus of future Metadata system (see next)

3. **Metadata** system: to go beyond this first documentation, INS will need an Integrate Metadata system in place. As Metadata in INS are currently stored in many different systems, there is the need of an integrated system to manage together reference and structural metadata. SICCA system can add some other necessary information, but the development of the integrated Metadata system deserves special attention and perhaps an ad-hoc project. The Integrated Metadata system will be:
    a. based first on documentation collected with Excel sheet
    b. designed after the release of SICCA
    c. GSIM-compliant
    d. using ideas and/or components coming from other European countries
4. The **Quality** management is a topic strictly connected with GSBPM, to the point that UNECE has published a wealthy list of Quality Indicators for each GSBPM phase[23]. After a training course on GSBPM and Quality, held in January 2020, the group INS-WB defined the following proposed activities:
    a. start some pilot Quality Audit activity possibly using DESAP European questionnaire integrated with GSBPM
    b. prepare self-assessment for statistical processes using DESAP European questionnaire integrated with GSBPM
    c. release new Quality Guidelines linked to GSBPM, following the Hungarian guidelines and start a formal Audit process based on them
    d. selecting standard Quality Indicators for INS statistical domains and GSBPM phases and sub-processes
    e. use the results of GSBPM Excel sheets to start standardization activities on surveys: Quality Indicators, methodology, IT.
5. We recommend the definition of a new IT strategy to be integrated / merged in the National Strategy for the Development of Statistics -NSDS[24], that will be defined in the WB project. This strategy should implement a set of recommendations on the software to be used in different GSBPM steps.

[23] https://statswiki.unece.org/display/GSBPM/Quality+Indicators

[24] https://ec.europa.eu/eurostat/statistics-explained/index.php/Statistics_in_development_cooperation__National_Strategies_for_Development_of_Statistics

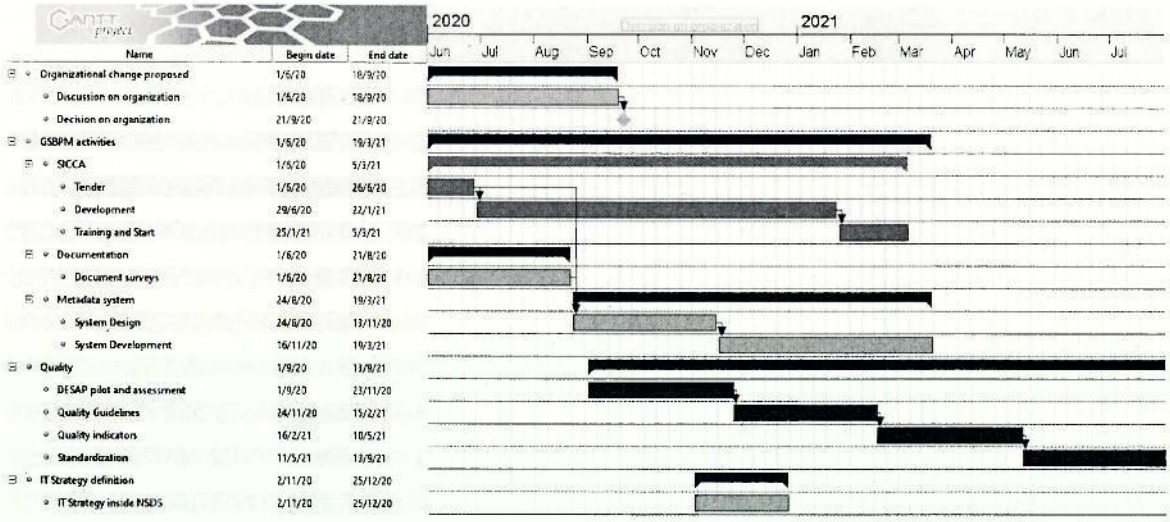
Chart 3: Main GAMSO/GSBPM Activities

Direcția responsabilă	Direcția de Statistică Socială
Cercetare statistică	Ancheta asupra calității vieții
Periodicitate	anuală
Perioadă de referință	eră în funcție de variabilele colectate

Acțiuni		Direcția responsabilă	Direcția colaboratoare	Periodicitate	Metode statistice utilizate	Indicatori de calitate utilizați	Software utilizat	Infrastructură necesară (sugestii)	Informații Input	Informații Output
D.Specificarea nevoilor	D.01 Specificarea nevoilor de informații	Direcția de statistică socială		Ori de câte ori este necesar	- Identificarea indicatorilor solicitați prin Regulamentele Eurostat din domeniul statisticii sociale - Identificarea și monitorizarea noilor nevoi (cereri noi de date)		Microsoft Office (Word, Excel)	PC, retea Internet	Regulamentele europene; Solicitări utilizatori	documente
	D.02 Consultarea cu utilizatorii de date statistice și confirmarea nevoilor	Direcția de statistică socială	Unitatea de politici publice	Anual	- Consultarea ministerelor de specialitate - Elaborarea protocoalelor/ convențiilor de colaborare instituțională	Numărul cercetărilor statistice noi introduse în PSNA	Microsoft Office (Word, Excel)	PC, retea Internet	Protocoale, scrisori	PSNA
	D.03 Stabilirea gradului de detaliere a rezultatelor	Direcția de statistică socială	Unitatea de politici publice	Anual	- Stabilirea criteriilor de calitate pentru realizarea statisticilor - Elaborare/ actualizare fișă PSNA cu noile variabile/ indicatori		Microsoft Office (Word, Excel)	PC, retea Internet	Protocoale, scrisori	PSNA
	D.04 Identificarea conceptelor statistice și a clasificărilor	Direcția de statistică socială		Ori de câte ori este necesar	- Analiza conceptelor (termenilor) metodologice care urmează să fie măsurate în conexiune cu nevoile utilizatorilor	Numărul de indicatori noi identificați	Microsoft Office (Word, Excel)	PC, retea Internet	documente	documente
	D.05 Verificarea și analiza disponibilității datelor				- Identificarea sursei (statistică sau administrativă) de date pentru noile variabile/		Microsoft			

Chart 4 below proposes a timetable for discussion purposes with the INS, before it can be completed. The chart below has some illustrative timelines for the duration of activities and their interrelations. As you can see, in the timetable there is also room for the discussion about the proposed organizational schema: this activity, even more than the others, must be agreed and planned together with INS.

Chart 4: A Timetable for Discussion Purposes with INS



Name	Begin date	End date
Organizational change proposed	1/6/20	18/9/20
Discussion on organization	1/6/20	18/9/20
Decision on organization	21/9/20	21/9/20
GSBPM activities	1/6/20	19/3/21
SICCA	1/6/20	5/3/21
Tender	1/6/20	26/6/20
Development	29/6/20	22/1/21
Training and Start	25/1/21	5/3/21
Documentation	1/6/20	21/8/20
Document surveys	1/6/20	21/8/20
Metadata system	24/8/20	19/3/21
System Design	24/8/20	13/11/20
System Development	16/11/20	19/3/21
Quality	1/9/20	13/9/21
DESAP pilot and assessment	1/9/20	23/11/20
Quality Guidelines	24/11/20	15/2/21
Quality indicators	16/2/21	10/5/21
Standardization	11/5/21	13/9/21
IT Strategy definition	2/11/20	25/12/20
IT Strategy inside NSDS	2/11/20	25/12/20

In view of the above road map, we propose that all aspects of work related to statistical processes be brought together under one roof to achieve the objectives of the proposed reforms.

It is important to note four aspects of this proposal:

- First, we propose to move a number of units from the rest of the organization to this group that deals with statistical process issues (Let us call it GSP): this includes the unit for innovative tools from the Office of the President; and, the Director for administrative data, the Director for business registers, and the Director for the exploitation and management of data sources from the first VP (on the left side of the existing organization chart).

  Since this is just a transfer of existing units from other parts of the organization to GSP, there is no need to change the nature of their work. INS should examine whether the existing number of resources are sufficient for the needs in view of strengthening that is needed in improving statistical processes.

- Second, we wish to strengthen the methodology and data quality functions at INS. The purpose of the methodology unit would be to ensure that INS uses state-of-the art statistical concepts, variables, classifications and methods. The purpose of the quality unit would be to evaluate the quality of data produced at INS, recommend changes to improve

any quality deficiencies found, and advise both subject matter areas and GSP on best practices to follow in ensuring high quality data.

This may require the establishment of new units for each of the two objectives—methodology and quality-- at the Director level. For them to be effective, the units should have about four analysts each.

- Third, add a GIS unit. The potential value provided by the use of geographic information systems is immense. To be effective, it would be desirable for such a unit to be established at a Director level with about four staff.

- Fourth, bring all registers under GSP including the business register, the population register, the buildings register and the agriculture register.

3.2 Subject Matter Set-up

We recommend reorganizing INS to bring together similar subject matters.

- Economic subject matters;
- Social subject matters; and
- Corporate services.

Economic Group

The Economic Group should have all economic subjects in one place. That would include economic statistics and national accounts and topics such as business statistics, trade statistics, prices, agriculture and environment, among others.

Social Group

This group should pull together all social statistics in one place and would include demography, migration and population projections.

Corporate Services Group

This group should pull together all resource related areas such as financial resources, human resources, budget and accounting, procurement, general administration.

3.3 Building a "bridge"

Although the UN calls it "a" bridge, its purpose is to connect multiple subject matters to multiple processes. This can be accomplished with the establishment of what the UN calls a "unit". However, again, this should not be thought of as a unit in the traditional sense; rather, the purpose is to connect functions and subject matters, which is possible to do in multiple ways.

The UN describes this feature as follows[25]:

"The above two requirements could give rise to two different organizational structures within an agency: one for data collection and one for data dissemination. In order to connect the two structures, a bridge is required; this would take the form of a unit in charge of re-sorting data, after they have been collected and edited, into new groupings that better lend themselves to analysis and dissemination. "

Most statistical agencies in the world have two organizational structures in place: a functional set-up and a subject-matter set-up. Naturally, they interact with each other one way or the other. Thus, most statistical agencies already have the UN-labelled "bridge".

At ISTAT, this "bridge" function is performed by small groups in the functional areas that act as an interface with each of the subject matters. As examples, both in the Data Collection Directorate and in the Dissemination Directorate, there are groups dedicated to interface with each of the subject matters. Each subject matter thus finds in the functional directorates a reference point which is aware of the themes and terminologies of subject matter statistics, thus simplifying the exchange of information and mutual understanding.

Canada uses an efficient and effective matrix management system to connect representatives from subject matters and functions. Their interface can be described by using a chart (Chart 5) borrowed from Statistics Canada[26].

Statistics Canada calls this system a "network of interfaces". For example, interface 1 could be a project manager (and his staff) from an "economic" subject matter working with a functional manager (and his staff) from the statistical processes group (GSP), such as methodology, to ensure the final data produced meets the methodological requirements for the economic subject matter. There could be other interfaces for this project manager in other functional areas such as data development and design, data collection, data processing or data analysis to mention just a few areas (all related to GSBPM). Subject matter representatives could be from other fields as well, such as social or environment.

This raises two issues: where are these interfaces housed and how many are there?

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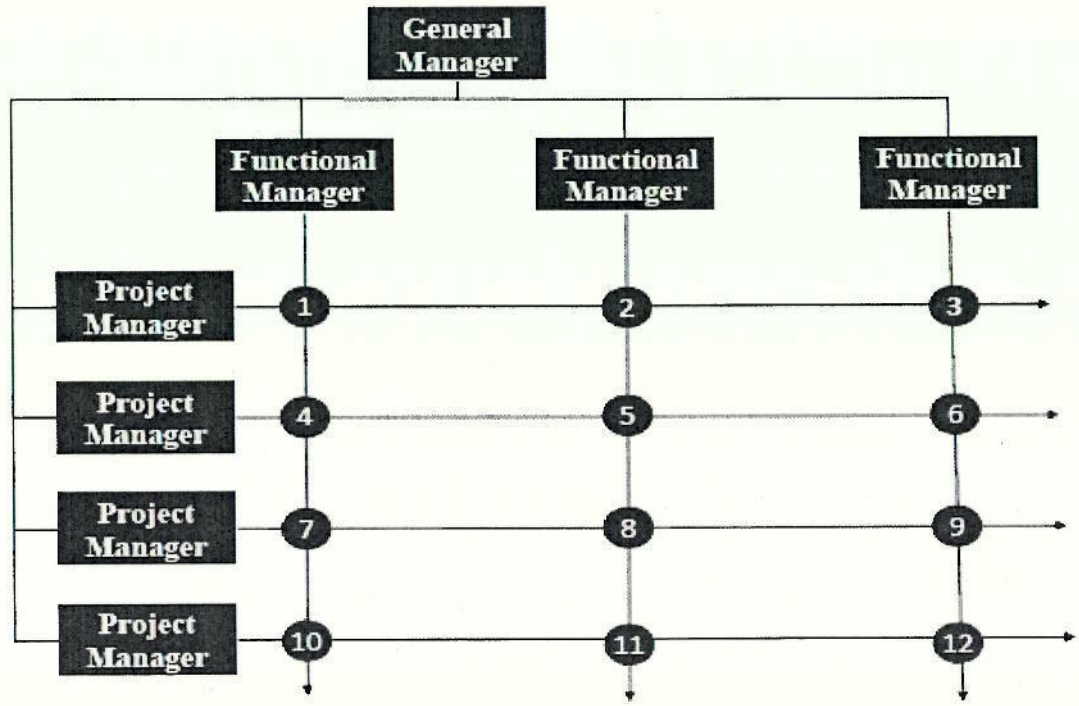
[25] UN, *op.cit.* page 73.M

[26] Statistics Canada, *op.cit.* page 76.

Statistics Canada's approach is to establish "teams" with representatives from subject matters and functional areas. These teams are stand-alone and do not belong to any group in the organizational structure. In terms of numbers, there are many: at this time, for example, the number is close to 100.

Within this matrix set-up, employees are assigned to specific project teams for a specified period of time. They also have a permanent functional unit, typically known as their "home", where they continue to reside during the project life cycle. Although the project areas are allocated the total budget for their program, they transfer budget to functional areas for these to carry out activities with respect to the project. As a result, employees often report to two or more supervisors: the project manager and the functional or line manager. The project manager is responsible for meeting the objectives and deliverables. However, it is the functional or line manager who maintains supervisory authority and ensures that the standardized and rigorous expertise is being provided to support the project.

Chart 5: Building a Bridge to Connect Functional and Subject Matter Organizational Structures



3.4 Coordination

Section 2 identified the need both for formal and informal coordination and suggested that INS must have many mechanisms for informal coordination. It, however, saw two gaps in the set-up for formal coordination: coordination to ensure that the EU obligation for coordination of the national statistical system (NSS) is met; and formal coordination to ensure a smooth functioning of all INS corporate-wide issues.

To deal with these two gaps, we propose two mechanisms: an improved group that pulls together all activities related to the NSS; and a standing committee at the highest level to ensure smooth corporate operations.

NSS Coordination Group

INS need to have a focal point for NSS coordination at a senior level. This position will "coordinate" all NSS activities, so there is one individual who is able to see the operation of the whole statistical system and is also accountable for its performance. This group would include government-wide coordination, headquarters-regional-territorial coordination, internal INS coordination and INS-international coordination.

The present law also needs to be strengthened to give more authority to INS to ensure the whole statistical system producing official statistics follows international standards and that INS can perform its role, under EU regulations, of being responsible for the overall NSS.

The picture that should emerge is that is the "driver" of the bus called NSS and, therefore, has responsibility for it.

This group should do six things: coordinate with external official data producers and those providing administrative data to ensure all aspects of their responsibilities are met; take on the responsibilities for managing COMSTAT and NSC; work internally with parts of INS to ensure consistency of what is needed and available; ensure the development of the new statistics law and its passage in Parliament; coordinate data production in regions/counties with the work of INS; and taking on the responsibility to produce an NSS Annual Report (this report would build up on the existing INS Annual Report).

At the evaluation time UPP plays the role of NSS Coordination Group. In the same time, UPP has a compartment for library and one for the archive. However, only 10 persons are in charge with the following 12 complex activities.

Table 2: UPP personal needs to accomplish the legal responsibilities

UPP activities according with Regulation for Organization and Functioning of INS approved by OPINS nr. 1636/08.08.2017	Existing FTE	Needed FTE
a) Coordination of the National Statistical System;	0	1
b) Organizing and updating the institutional relations between the INS and the producers and users of statistical data;	1	2
c) Coordination and monitoring of the activities for the realization of statistical publications at the level of the territorial directorates (BSLJ);	1	1
d) Coordination of projects initiated by international bodies on territorial statistics;		
e) Coordination of the elaboration of the NHSP, NHPD and of the SSN Development Strategy;	1	3
f) Coordinating the elaboration of the Activity Program (PA) of the INS;	1	1
g) Management of the monitoring system for the accomplishment of the PA works;	1	1
h) Substantiation of the physical indicators for the "INS Budget Program Sheet";	0,5	0,5
i) Coordinating the elaboration of the Annual Activity Report of the INS and of the territorial statistical directorates;	0,5	0,5
j) Coordinating the evaluation of human resources consumption and their allocation, on statistical works;	1	2
k) Coordinating the elaboration of the Organization and Functioning Regulation (ROF) of INS and the management of ROF DRS / DJS;	1	1
l) Negotiation and improvement of conventions and collaboration protocols between the National Institute of Statistics and sectoral administrative partners	2	2
Total	10	15

The table above illustrate the need of 5 additional specialised personnel in UPP Office for coordination statistical system, develop and monitor public policies and activity programs, in order to fulfill the above listed activities for coordination of the NSS.

Management Board

Like most organizations, INS is run by a leader, the President, and the College of the INS which includes the vice-presidents (3), the general directors (6), the directors (26) under the leadership of the INS president. There is also a small College composed of vice-presidents (3), general managers (6) and directors of independent directorates (8) under the leadership of the INS president, which met on a bi-monthly basis.

We propose that INS be run by a management board (the small college), which would feel obligated for collective and continuing responsibility for the organization, with the final decisions made by the President. INS would be run by an institution, not an individual.

This is a ***standing committee*** at the highest level. The existing role, if INS accept the analysis and recommendations of this Report, it will be the Board-the existing Small College, with the President at its helm, which would have the additional responsibility for developing a roadmap for the implementation of the Report's recommendations. Implementing all the recommendations, if accepted, would take time and a Board, through its continuity and corporate memory, would be essential in getting to the finish line.

As one of its key functions, the Board (the existing INS small College) would provide corporate coordination and oversight. It would play multiple roles, as described in the next section, but corporate coordination would be an important one (which would include roles such as management-labour relations, labour security service, data protection).

3.3 Branding and the management board

Branding is another name to convey that the target for the statistical agency is to achieve excellence and establish trust of the highest order.

It is our view that the changes we have proposed above would help towards achieving this objective. But they are not sufficient in themselves. We need to ensure that the tangible and intangible factors mentioned in Section 2 above, are implemented.

On the tangible side, this includes:

- ***Fully implementing the European Code of Practice***: This includes independent senior management, a new law, hiring the best and the brightest and having an ability to train and keep them, and resources to implement the most important needs of INS;
- ***Reviews and evaluations of data relevance, quality and communication strengths of INS.*** Such reviews would be useful in taking stock where things are and build from there.

On the intangible side, we need the entire senior management of INS clearly and explicitly focused on this objective and take collective and individual steps to make progress over time in meeting this objective.

We feel that the using the actual INS small College as an effective management board is a pre-requisite for meeting this challenge. A board of this nature would be instrumental in providing regular assessments of where INS is, where it needs to go and what improvements are required to get there.

The board would help achieve the twin objectives described above of a focus on the importance of intangible factors and a holistic-integrated-corporate management of the INS. It would review all issues related to the INS that the President brings to its attention and meet regularly at scheduled times (one possibility: once a week/two weeks). It would be able to establish committees to look into any issue of importance for the organization and report back to the board for discussion and decision.

An issue is the appropriate size of the board. There are pros and cons for a small vs a large board: a small board has the advantage of allowing greater focus on issues and clear responsibilities and accountabilities. A large size allows more, and more diversified, input but becomes less manageable. We propose that a small board (the existing INS small college), combined with the flexibility for the President to invite other INS staff to participate on an issues-by-issue basis would achieve the advantages of both a small and a large board.

It is a best practice both at Statistics Netherlands and Statistics Canada. Both these Boards have limited memberships including the Chief Statistician and their number twos (five people) and the person managing the Chief Statistician's office.

It is the view of a former Chief Statistician of Canada that, if there is one thing that has contributed the most to the organization's success over its long life, it is the existence and effective performance of its Executive Management Board (EMB). Statistics Canada itself describes its EMB as follow[27]:

"The leadership of Statistics Canada is provided by the Executive Management Board (EMB). The EMB is chaired by the Chief Statistician and composed of the Assistant Chief Statisticians of all functional areas and the Chief Statistician's Chief of Staff, reflecting a matrix management model at the highest level of governance. This governance model is based on the objective that significant corporate issues be reviewed at the highest appropriate level. Final decisions are rendered by the Chief Statistician on the advice of EMB members. The EMB provides strategic direction for the organization and acts as the corporate decision-making body. Centralized decision-making ensures that all key decisions are optimal for the corporation. This includes ongoing discussions and decisions about organizational structure and the appointment of individuals to senior management positions."

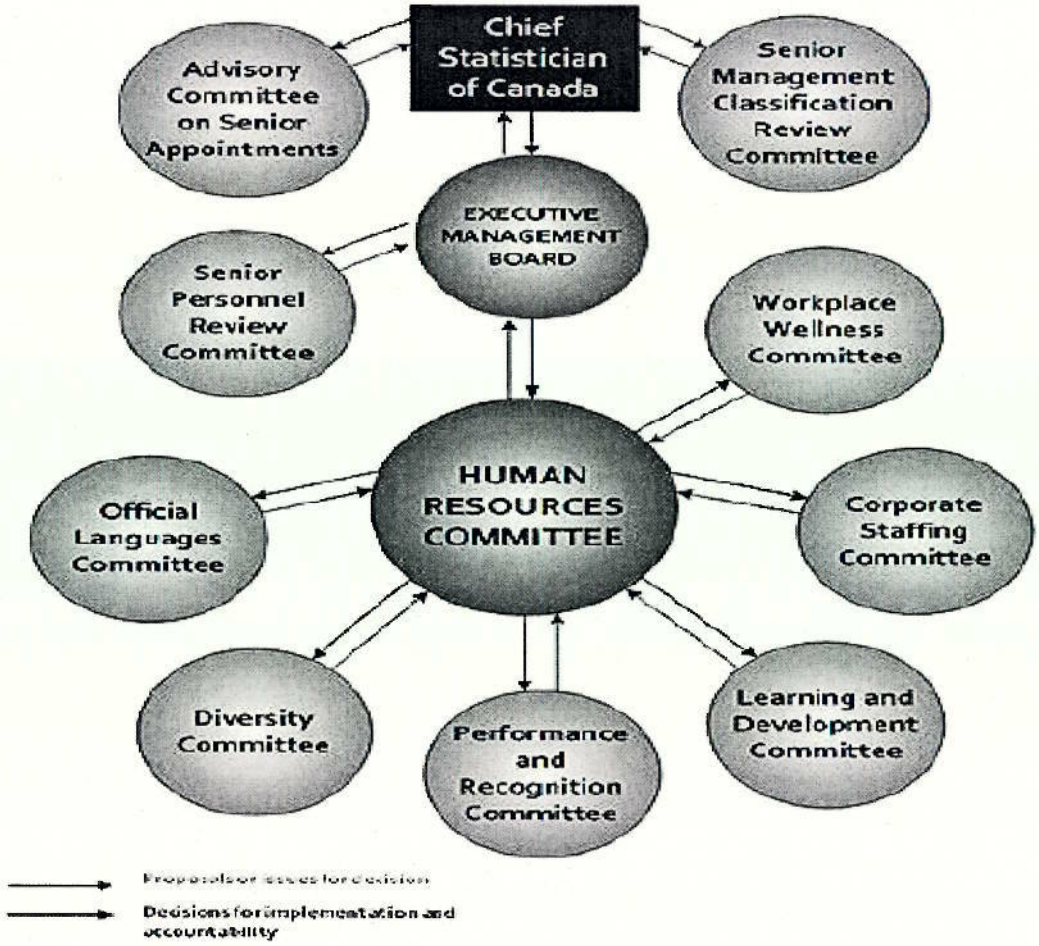
The Board we recommend is not a very different entity, but the small difference is that this board (the existing INS small College) should takes on the obligation to provide collective leadership to an organization with the objective that it achieves excellence and collectively deal with *each and every major* issue that the organization faces. It must meet regularly, ideally on a weekly basis taking stock of the state of affairs—all key affairs—and making decisions to deal with them.

[27] Statistics Canada, *op.cit.* p 77.

If there is a need for specialized sub-groups to be set up for a limited period, they should under the direction of the Board. There may also be a need for setting up some permanent groups—and if some already exist—to bring them under the supervision of the Board.

As an example, we present below in Chart 6 the set-up of the HR committee structure at Statistics Canada. There are other committees that report to the Chief Statistician through the Board.

Chart 6: Executive Management Board and HR at Statistics Canada



4. Challenges and Next Steps

We have offered a functional review of INS based on four principles and proposed a number of changes that, in our view, offer benefits that exceed the cost of change.

Regardless of the final form of the re-organization that INS deems important, it is to be recognized that change is never easy. The UN[28] offers the following advice in this context:

- *"Keep the reorganization process as brief as possible;*
- *Make sure that the views of all staff members are heard;*
- *The reasons for any reorganization should be made perfectly clear, because people resent working within a framework that is not fully understood."*

On Statistical processes, the first activities to start should be the following:

1. Complete the surveys documentation using Excel;
2. Support developers in the development phase for SICCA; and
3. Start activities related to quality, with a DESAP Quality audit.

5. Conclusions

This review has assessed INS capacity and recommends strengthening it as a first step. Beyond that, the review established four key principles as the basis for its work: optimize statistical process; optimize the subject matter set-up, connecting it to data collection organization with what the UN calls a "bridge"; ensure an appropriate level of coordination within the statistical system; and work towards an organization that has excellence in mind as it conducts its affairs—in other words establish what the UN calls a "brand" for the statistical agency.

We used these principles to review the operations of INS and proposed change—which always entails some risk—where we felt the benefits would be significantly larger than any cost.

6. Recommendations

Our key recommendations are the following:

- Strengthen INS capacity as a first step by providing it with reasonable levels of resources, both financial and human.

[28] UN, *op.cit.* p. 78.

- Optimize functional statistical processes by bringing together all related functions under one roof, make progress on GAMSO/GSBPM, and strengthen the methodology and data quality functions.
- Optimize subject matter set-up by bringing all economic subjects together under one roof, all social subjects under one roof and all remaining corporate functions under one roof. A "bridge" links the work of the two organizational structures, functional and subject matter.
- Improve coordination of work that takes place within INS and across the National Statistics System by: explicitly recognizing the need for improving UPP with 5 additional specialized personnel in order to be able to take control of all NSS-related subject matter, be they internal, across producers of administrative or other official data, territorial or international; and a management board (Small College of INS) that is a standing committee that corporately runs the INS under the leadership of the President.
- Work towards establishing the INS as a "brand": the responsibility for achieving this objective should rest in the hands of the above-mentioned management board (INS College) that would collectively run the organization with the President as its head. As an example, it would be this board that would implement the recommendations in this, and other, World Bank reports over the longer term, since the transformation of a statistical organization is likely to be a multi-year project. A board of this nature would be instrumental in providing regular assessments of where INS is, where it needs to go and what improvements are required to get there.

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