

58th ISI World Statistics Congress
International Statistics Institute
Special Topic Session 15
What in takes to improve statistical systems
Organized by Misha Belkindas

**Complementarity of best practices
as the foundation of capacity building of national statistical system**

by Jozef Olenski
Warsaw University

Abstract

In globalized, knowledge – based, market - driven economy the statistical capacity covers the capacity of statistical offices as well as the information capacity of other stakeholders of statistical processes. Statistical capacity building on national and supranational level requires external stimulation coming from outside the entire system of official statistics. Most efficient and pragmatic approach to statistical capacity building is the creative adoption and adjustment of selected best practices of other national and international statistical systems that are acting in similar or compatible political, legal, economic, technological and social environment. Direct “transplantation” of best practices developed for non - compatible statistical environment, may disintegrate not only national statistical systems, but also other information systems of economy. Effective strategy of statistical capacity building should be based on complex SWOT analysis of existing national statistical system, elaboration NSDS (*National Strategy for the Development of Statistics*) and the selection and creative adoption of those best practices of other countries and agencies, to specific legal, social and economic environment of a given country and national economy. Orchestration of laws, organization, technology, methodology, staff, methods and tools of cooperation with external stakeholders of statistical processes is the prerequisite of successful, “best practices driven” statistical capacity building.

Key words: *statistical capacity, best practices, NSDS*

1. Statistical capacity in of social and economic information infrastructure

The concept of *statistical capacity* is the complex of resources necessary for efficient functioning of statistical information system as an integral subsystem of national information infrastructure of a country, society and economy. Minimal functionalities of national statistical capacity are related with the producing of statistical information and providing professional statistical services for all main groups of users that should be built and maintained in a country, region, sector of economy.

For national official statistics priority in capacity building is the development and maintenance of the resources necessary for production of statistical data for governments and international organizations in short and middle term. For international and supranational statistical organizations the priority in statistical capacity building on both national and international levels is given to the resources necessary for coordination and harmonized collecting of statistical information from many countries by respective international statistical organizations. The participation of national statistical systems in global and international official statistics, as well as bilateral and multilateral cooperation between countries requires certain minimal level of national statistical capacities of all countries participating in international or supranational statistical systems. National *statistical capacity* should also enable statis-

tical agencies to react - as quickly as possible - on new or extraordinary phenomena and processes by identifying, measuring and analysing those new and extraordinary social and economic processes.

In globalized world and in knowledge – based economies the progress in economy and society is more and more depending on social capital of economy and on the development of infrastructures in the domains of institutions, social services energy, transportation, environment etc. and – last but not least – information infrastructure of society and economy. Information infrastructure is the complex of information laws and standards, information systems and processes, information resources of data, metadata and paradata, as well as organizations actively involved in managing information processes and systems, necessary for proper functioning of other economic, social and information systems and organization. Official statistics is one of most important pillars of modern information infrastructure on national and international level.

2. Layers and components of statistical capacity

Statistical capacity is the complex of resources necessary for proper functioning of official statistics as the integral part of information infrastructure and consists of following main layers:

- A. *Internal institutional layer* of official statistics: national statistical offices, agencies and institutes;
- B. *External institutional layer* of official statistics: organizations involved in statistical production processes;
- C. *Integrated information environment* of official statistics i.e. information systems and resources managed by the stakeholders of official statistics institutionally interlinked with official statistical systems and agencies;
- D. *External information environment* of official statistics, i.e. information systems and resources managed by the stakeholders of official statistics independent on official statistical system and agencies.

Statistical capacity of all layers consists of following components:

- Laws and regulations
- Organizational structures and procedures
- ICT
- Staff of statistical agencies and stakeholders of statistics

Proper hierarchy of priorities and harmonization of development of all components of statistical capacity refers to all layers. The following components of statistical capacity seem to be of special importance:

- International recommendations and supranational regulations (e.g. for the EU member countries) that are or should be used by governments as the foundations of relevant national laws of statistical systems and activities.
- National laws regulating official statistics and other social and economic information systems of the country, laws determining coordinating competences of national statistical institutes (NSI's) in statistics in broad sense, i.e. the national statistical systems (NSS's) and other economic and social information systems of the country, laws regulating statistical standards (e.g. classifications, nomenclatures, socio – economic concepts and definitions important for statistics), laws determining the duties and rights of all stakeholders participating in official statistical processes and systems.
- Organizational infrastructure of official statistics: organization of statistical offices, regional network of statistical units, organizational structures of statistical services of ministries and other institutions of the state, organizational infrastructure of processes of statistical produc-

tion, organization of statistical services, organization of research, education and promotion of statistical culture.

- Tools of coordination and complementary collaboration of stakeholders of statistical processes and systems (e.g. programs of surveys and statistical services, common administrative registers used for statistical purposes and statistical standards used for administrative, economic and social activities by governments, businesses, NGO's ea.).
- Methods, techniques and tools of management of official statistics (programming, planning and realization of surveys, production and dissemination of information, organizing and maintaining databases and archives).
- Statistical methodological resources (registers, frames, classifications, methodology of particular surveys, methodologists).
- Information technology of statistical agencies (hardware, software, orgware), external ICT environment of official statistics, i.e. the ICT resources of external stakeholders (respondents, intermediaries, users).
- Statistical information resources (statistical databases, statistical metadata bases, statistical *paradata* bases and archives).
- Administrative information environment of statistics (administrative information systems, information systems and resources obligatorily maintained and managed by businesses and other organizations on the basis of laws, e.g. tax information systems managed by tax offices and tax records managed by businesses, social insurance, administrative information system used for regulation and control of economic and social activities of businesses and non-profit sectors by governments and other institutions, e.g. environmental monitoring, sanitary control, control of limits of production in agriculture etc.).
- Scientific capacity of universities, research institutes as potential intellectual support of official statistics.
- Research and development activities in official statistics: organization of research units within the structures of statistical agencies, programming, planning and financing of research projects, organization implementing the results of research.
- Intellectual capital of statistics. Staff involved in statistical activity (number of professional personnel, its professional profiles, skills, experience, cooperativeness, propensity to learn, professional ambitions, statistical ethics of staff, with special reference to the ethical foundations of managerial and methodological personnel, level of salaries, knowledge, skills and professionalism, motivation for work and modernizing knowledge and skills)
- Information culture of society, businesses and governments. The level of development of information society in the country, understanding place and role of official statistics in the process of building information society and knowledge based economy by decision makers in governments, NGO's and businesses.
- System of budgeting, financing and economic coordination of statistical activities of official statistical agencies and of other stakeholders of official statistics in all layers specified above (governments, suppliers of source data, users, ICT providers and research institutes).

All components creating statistical capacity should be harmonized and coordinated. The efficiency of statistical capacity depends on the "weakest link of a chain". E.g. the effects of investments in most modern ICT depend not on the technological level of hardware and the functionalities of software but on ICT-literacy or on ICT-illiteracy of statistical staff, mainly methodologists and survey managers.

Statistical capacity building is a dynamic, long term, continuous process of anticipated adoption of national statistical system to the needs modern knowledge - based economy and information

society. The following factors are decisive for defining national strategies of statistical capacity building for countries and regions:

- a. globalization,
- b. institutions,
- c. information technologies,
- d. ethics, skills of top managers of official statistical agencies and their position among other governmental institutions.

Ad (a). *Globalization* processes are changing the information needs and the expectations of users towards official statistics. Globalization from statistical point of view means that political, economic, social, ecological processes and events taking place in any part of the world are interfering national economies and social processes of the countries. In globalized economy and society objective, timely and pertinent informing of users on economic and social processes in their complexity and in global scale is the prerequisite of usefulness of statistics. Decisions of governments and businesses can not be based on “traditional” statistical information limited to national statistical data and some generalized indicators from other countries. Statistical data supplied to the users by statistical agencies should represent respective global processes and events and the impact of these processes on national economy and society. In globalized world the borders of countries can not be the borders of the NSS’s.

Official statistics should anticipate the changes of potential information needs and profiles of stakeholders of statistical processes. The frames of reference of official statistics in globalized world are:

- 1) national states, their societies and economies, and their interrelations with other countries
- 2) global political, social, economic and ecological processes, their mutual interrelations.

Official statistics should elaborate models of (1) and (2), adequate concepts, methods and tools of observation and measurement of real world phenomena and processes in global scale. Official statistics is obliged also to develop the tools and techniques of providing advanced information services for users and other stakeholders of statistical information systems supplying to the stakeholders complete information on phenomena and processes in their complexity and globalism.

Ad (b) *Institutionalisation*, total, deep institutional interventionism, is the phenomenon of the world of today. It is difficult to find any sphere of social, economic, political or even of private life not regulated by some laws, directives, recommendations. Institutional frameworks are often global in this sense that most of national laws and regulations are embedded in conventions and resolutions of international organizations which are accepted or ratified by national governments. All political, social, economic processes are regulated by national, international and supranational institutions. In decision making, in research, especially in social sciences, any explanation of cause – effect relations in economic and social processes is not possible without taking into account the impacts of institutions, laws and practical methods of interpreting and implementing those laws. Total institutionalism changes the information needs of users and the dynamics of those changes.

Nowadays complete statistical messages should be the sets of information containing numerical statistical data, relevant meta-information and pertinent information on institutional frameworks of phenomena and processes measured and described by those numerical data, accompanied by pertinent, verified information selected from other, not necessarily statistical sources.

Ad (c). Recent *development of ICT* has changed dramatically statistical information environment and the technology of statistics. Modern ICT have deep influence not only on qualitative changes of organization of statistical production processes, on defining statistical data sources, but also on methods of statistical observation, on techniques of measuring, availability of data, methods of processing and dissemination of the outputs of statistical production processes. The development and use of ICT in social and economic environment of statistics, especially the use of ICT by respondents, users and the level of ICT of administrative records of governments and businesses are decisive for technology and organization of statistical production processes, services and offices and costs of official statistics.

Ad (d). *Statistical staff* - intellectual and social capital of statistics. The phenomena mentioned above (a,b,c) need adequate quality of statistical staff. Dominating number of employees in statistical offices and in statistical services outside official statistics were educated and formed their skills in technological and information environment that is disappearing not only in high developed economies, but also in developing countries. Statistical methodology was also developed in pre-internet time. Because of that, the “*re-education*” of statistical staff may be crucial for the efficacy of modernization of statistical capacity.

3. Internal and external factors of development of statistical capacity

Progress and innovativeness in official statistics is determined by internal and external factors. Some of those factors are stimulating the progress and improvement, however some of them are hampering and retarding the modernization and are slowing down the processes of adoption of official statistical systems to existing and changing information environment and to the needs of users. For defining optimal strategy of statistical capacity building it is necessary to analyze *sine ira et studio* all those factors and to identify all prerequisites, preconditions, bottlenecks and advantages by SWOT analysis.

Main *internal factors* determining progress in official statistics are

- 1) Fundamental law of information in knowledge – based, market - driven economy: ***Worse information ousts better information***¹. This law is influencing all information processes in market driven economies.
- 2) Law of inertia of official statistics²: ***Inertia is the only internal driving force of progress in official statistics*** in all domains: program, methodology, organization, technology.

The conclusion that must be driven from those laws is that internal factors of progress in statistics are oriented to supporting the stability and maintenance of existing statistical system. They are identifying any news as a transplant that should be rejected as quickly as possible. Modernization and qualitative changes, real progress in official statistics could be achieved only by the impulses and pressures coming from outside statistical offices: from international organizations, from governments, explicitly and firmly presenting information requirements of important users of statistics, from scientists developing statistical sciences and from scientists using statistical data in their research.

The impulses stimulating progress in official statistics may also come from the part of other stakeholders of statistical processes, from institutions managing external information environment of statistics, i.a. infrastructural administrative information systems of governments and other sources of economic, social and environmental data.

Main sources of external stimulation of progress of national statistical systems are following:

- (1) statistical components in national laws, explicit statistical requirements of governments,
- (2) international or supranational statistical standards, recommendations, directives and laws (conventions, resolutions, statements), adopted by international organizations,
- (3) achievements of statistical sciences, initiatives of statistical learned societies and associations, especially the societies of the ISI,

¹ Olenski J., *Fundamental law of information in knowledge – based economy*, Warsaw University (Polish version planned for print in 2011, English version in translation).

² See Olenski J., *The structure of the statistical information system and the methodology of surveys in terms of computerization*, w: *Proceedings of the ISIS 78 Seminar on integrated statistical information systems and related matters*, Economic Commission for Europe and the Conference of European Statisticians, wyd. United Nations Computing Research Center, Bratislava 1978.

- (4) requirements of politicians, organizations representing influential groups of interests, professional mass media,
- (5) statistical culture of institutional stakeholders of statistical processes and of governments supervising official statistics,
- (6) development of ICT and its implementing in the information environment of statistics,
- (7) best practices and achievements of other national, international and supranational statistical agencies,
- (8) and last but not least – the innovativeness of high level staff managing statistical offices and statistical services of other governments,
- (9) innovations introduced in international statistical systems.

The innovativeness of high-level managerial staff of statistical offices is the indispensable prerequisite of efficient progress in statistics. However having in mind the mentioned above *law of inertia in official statistics*, one can not expect, that impulses of progress will come from inside from the part of *statistical clerks*. Those impulses could come from statisticians who are joining official statistics bringing with them the experience and knowledge of other organizations: mainly from universities, research institutes and advisory and analytical units of governments.

Only the innovation - oriented managerial staff of statistical offices will be willing to activate all other positive factors (1) – (5) for harmonized progress and modernization of statistical systems. The most effective modernization of statistical system is achieved by creative adopting and implementing of best practices of other statistical institutions and offices.

4. *Verba volant, scripta manent, exempla trahunt*³ – best practices and their role in progress in statistics

Despite of the obviousness of famous Latin proverb *Verba volant, scripta manent, exempla trahunt*, the process of capacity building should cover all three phases:

- *verba* – education, training, advocacy,
- *scripta* – documentation, handbooks and guidelines, metadata and databases, archives, statistical parainformation system,
- *exemplae* – best practices of other statistical offices.

If any of these phases fails, the whole process of capacity building would be ineffective. E.g. implementing of best practices without documentation and respective advocacy, education and training will be expensive, long lasting and superficial. Education and training of official statisticians can not be limited to academic statistical knowledge, but should be embedded in practical experiences and best practices of other agencies. Systematic, well structured documenting of surveys and databases, documenting the methodology, maintenance of metadata are complementary to the education and to implementing best practices.

The processes of building statistical capacity are driven by:

- (a) laws,
- (b) politics.
- (c) intuition of clerks working in statistics,
- (d) scientific knowledge,
- (e) practical experience of other statistical offices and countries.

³ Latin proverb: *Verba volant, scripta manent, exempla trahunt* – words escape, writings remain, but examples allure

Real progress in official statistics is achieved by “concatenation” of scientific knowledge best practical experiences and obedience of statistical clerks. Scientific knowledge needed to improving statistical systems covers at least the following disciplines: statistical sciences, management sciences, economics, sociology, politology, information science and ICT science. “Best statistical practices” before its implementing in other statistical system should be analysed from the point of view of those sciences. One should understand that “best” does not mean “good” or even “admissible”. Obedience of statistical clerks can be achieved only if new methods, approaches and organization are formulated in the form of detailed technical procedures and introduced as the law by top management, or – better – by the governments supervising the NSI’s.

Implementing best practices of foreign offices is rather attractive for management of statistical offices. Those practices, often well documented and presented in the form of technical procedures, seem to be ready to use (*prêt a porter*). The reason of that way of thinking is very simple: if the approach, method, technology, occurred to be successful in one statistical agency, especially in the agency on the top of global ranking, why not to repeat that success in “my agency”. That approach is often supported by external experts, who are assuming that all statistical offices are similar. However, the experiences have proven that “transplantation approach” is often not only wrong, but may lead to worsening the existing system.

It is obvious, that without strong determination and active support from the part of all high level managers of statistical offices, without intuitive acceptance of modernizing initiatives by statistical clerks and without laws and regulations making statistical clerk to follow the procedures, the *law of inertia* as the only internal driving force of progress shall show its power and will successfully block any modernizing initiatives. Natural propensity of statistical clerks is not to change anything. They are convinced that they are doing good things and the better is the enemy the good. Convincing all statistical staff that changes and modernization are not against them, but for them, does not seem to be realistic. The strategy of adopting and implementing best practices should be oriented on managerial staff and elaboration of technical procedures for other statistical staff.

5. Strategy of implementing best practices - transplantation versus adoption

Practical experiences and so called *best practices* are the results of work of national statistical offices in specific national or regional conditions: legal, administrative, social, cultural, economic, technological etc. Statistical capacity building by implementing best practices is optimal and successful if the best practices of other countries and agencies are creatively adapted to specific of implementing country.

However, it happens that national statistical offices, especially in the countries in transition or in developing countries, are presented best practises of highly developed statistical agencies, worked out in different political, economic and technological environments. They may not have the expertize how to adapt those fine practices to their reality. They may feel some kind of pressure on implementation of those best solutions as *pret a porter*.

Typical situations that may happen in best practices – driven statistical capacity building are following:

- The solution was recommended by important international organization. The authority of these international organizations is the guarantee of its correctness, efficacy and adaptability in our statistical office. In case of lack of success the responsibility will be shared by recommending organizations.
- The solution was elaborated and successfully adopted by “leading” national statistical offices from the top of the ranking of statistical agencies. The authority of “best statistical office” and the help of high level experts from that office is the guarantee of success.

- The syndrome of *one trip abroad*. The experts during study tour were shown the solutions and were convinced on their usefulness.
- The syndrome of *following the majority*. We often assume that the majority cannot be mistaken. If so many offices have implemented some solutions, we should do the same too.
- Best practice already has proven its efficiency, so it should be good for solving the problems and improve the office and surveys in other countries too.

The approach of capacity building by *following best practices* of other countries is effective if and only if – as it was mentioned above – the experiences of other offices will be creatively adapted to real political, legal, social, economic, technological environment of the country and to the existing capacity of statistics.

Capacity building projects based on best practices are accelerating the processes of evolutionary development of resources of statistics. Best practice driven approach is also protecting statistical system against the revolutionary approaches that usually is devastating existing achievements.

Top management of statistics taking decisions on adopting and implementing of best practices of other countries and offices should take into account the following:

- Best does mean good or admissible. It could be also bad and inadmissible.
- Best practices are not transplantable, but adaptable
- External best practices should be carefully analysed, in what environment they have been developed and implemented, what are the prerequisites and pre-conditions of implementing this or that best practice.
- In implementing foreign best practice, they are converted from their original form into the form compatible to the national statistical system of the country.
- Capacity building needs harmonized development of all resources: staff, laws, organization, methodology, technology, and external statistical environment.
- Capacity building needs (a) strong leadership of the CSO, reasonable (b) time and (c) money. Programming and scheduling the projects of capacity building need respective budgetary resources and time. Especially training and education of staff is most time consuming and needs respective resources.
- Human resources of statistics, real, not verbal, good understanding and acceptance of all priority goals of capacity building by all managerial staff on all levels of statistical offices are the prerequisite of success and efficiency of statistical capacity building.

6. Strategy of statistical capacity building by implementing best practices: evolution versus revolution

Evolutionary strategy of capacity building by adopting and implementing best practices - driven is often considered as the only possible, practically applicable approach, especially for statistical systems with long history and traditions. However in some periods of development of governmental and international institutions, societies and economies, in some stages of development of information technologies, official statistics should adopt itself to the needs of main users actively anticipating the changes of the sources of information, needs on main users and information technologies. In those stages of technological, social and economic development evolutionary progress in statistics should not mean slow, step by step, local, isolated improvements of selected elements or subsystems of national statistical systems.

Capacity building should be concentrated on harmonized, orchestrated transformation of all inter-linked resources of statistical system – external and internal, : motivation, knowledge and skills of

statistical staff, statistical laws and the laws directly or indirectly influencing official statistics, organization and management of statistical offices and statistical processes, ICT, capacity of data sources and – in the field of dissemination of information – the capacity, methods of work and ICT of intermediaries and of end – users.

Analyzing best statistical practices of countries and international organizations one may conclude that in case of good intellectual and social capital of statistical agencies the optimal strategy of efficient capacity building of statistics would be the adoption of best practices and their implementation by “*local harmonized revolutions*”, e.g. deep modernization of some surveys, implementing of parainformation system, database system for some domains etc. leaving the rest of the system without any change. Using the terminology of classic cybernetics, it is the *development by controlled local catastrophes*. This strategy may be effective if it is based on long term NSDS and complex orchestration of modernization of all interrelated resources and processes of statistical system and their compatibility with national and international statistical environment is needed.

The criteria, methods and tools of orchestration and compatibility of the resources should help to identify what resources of statistics should be changed, modernized or upgraded “revolutionary”, i.e. as one complex project of transforming statistics realized in short time, as quickly as possible. One should remember that national, international and supranational statistical systems are the complexes of hundreds of interlinked technological information processes of production, storage, dissemination and use of information. The efficacy and reliability of “*chain – structured systems*” of many relatively autonomous interlinked technological processes depends of the “weakest link” in all chains of the system.

However in some cases and resources the “revolutionary” approach seems to be the only effective way of modernization of statistical capacity. Those cases are following:

- upgrading of ICT,
- re-engineering of standard software,
- replacing paper questionnaires by electronic questionnaires from corporate respondents,
- replacing questionnaires by administrative data sources,
- technology of dissemination of output data.

Evolutionary approach in modernization of statistical technology leads to parallel use of “old” and “new” technologies and standards. Working in such heterogeneous technological environment is difficult both for respondents, statisticians and users.

7. SWOT analysis of existing NSS – foundation for NSDS

Objective SWOT analysis of existing NSS and the elaboration of long term NSDS is necessary for middle term programming and for taking optimal decisions of statistical capacity building. The SWOT analysis is helpful in evaluating what best practices of other statistical offices are acceptable and implementable in national environment of the country, what should be re-designed or re-engineered. The SWOT analysis provides information needed for evaluating the complementarity and substitution of proposed best practices with the solutions that already exist in the NSS. Precise determination of those relations is necessary taking proper operative decisions on what and how to modernize particular surveys, methods, metadata or procedures adopting foreign best practices.

SWOT analysis is helpful for comparative evaluation of existing solutions, procedures and technologies with best practices of other offices. It is important especially for modernization of those segments of statistics, which are at the same time important elements of information infrastructure of the country, e.g.:

- metadata bases: concepts, definitions, classifications, nomenclatures, correspondence tables, registers and frames,
- direct implementation of international standards versus building gateways between international and national standards,
- implementation of concrete solutions on microlevel – one time decision and change

Selection, evaluation and implementation of best practices need the long term strategy of development of information infrastructure of the country and specific criteria of evaluation driven from detailed SWOT analysis. The following is needed:

- Long term SNDS - National Strategy for the Development of Official Statistics (10 - 15 years) embedded in the concept of the information infrastructure of the country;
- SWOT analysis of the NSS
- SWOT analysis of each project of implementing best practices taken from other national or international statistical agency and system; specification of *Weaknesses* and *Threats* taking into account specific national conditions; careful analysis of all weaknesses and threats;
- Creative adoption of “best practices” to the specificity of the information infrastructure of the country and to the specificity of national statistics
- Individualized strategies of modernizing specific surveys by implementing adapted best practices; the strategies should be verified by SWOT analysis, especially time, costs, development of staff
- Long term programme of forming human capital and social capital of official statistics: training, education, special promotion of high level experts
- Statistical tools and methods: registers, frames, database systems, metadata, statistical procedures
- Laws regulating statistics should be harmonized with other information systems of the country, and *vice versa*.

8. In lieu of conclusions

In market driven economy worse information ousts better information (Fundamental Law of Information)

In official statistics the only driving force of progress is its inertia

Best practice for me may not be the best for you.

Best practice does not mean good practice or even acceptable

Timeo Danaos et dona ferentes: gifts for free may be most expensive (e.g. software)

Beware of “besserwissers”

Adapt best practices of others to your environment

Best ideas are worth as much as the people who are implementing them

When implementing new solutions remember not to cut the tail of a cat by fits and starts

Intellectual capital and social capital of statistics is the best foundation of statistical capacity