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Topic (iii): Innovation

The concept of the new organization of statistical surveys

Prepared by Janusz Dygaszewicz, Central Statistical Office, Poland

I. Introduction

1. The mission of public statistics is to deliver reliable, independent and high-quality statistical information on the status and changes that occur in society, economy and natural environment, thus responding to the needs of domestic and international recipients.

2. At present, in the age of IT innovation, the reality mounts new challenges to public statistics. In order to implement them and strengthen the challenges and growing needs of recipients, changes in the way the public statistics operates are necessary. It is, after all, not only the key element functioning within the IT system of the state but also European statistics. What is also relevant, is the exploration and appropriate use of the new possibilities that are, at present, offered by the growing dissemination of data and dynamic development of new technologies.

3. The most relevant challenges facing public statistics include:
   (a) Customers' raising needs (growing expectation of dissemination not only data but proper metadata, also taking into account quality)
   (b) Putting pressure to improve the effectiveness of official statistics functioning
   (c) The needs of cost effective data collections (cheaper data) and reducing respondents' burden (registers).
   (d) Time shortage expectation of the statistical production process
   (e) Orientation on cooperation and communication
      - external (with the statistical customer)
      - internal (sharing the knowledge and methods)

(f) Surrounding changes (organizational, IT, legal), which would face the challenges

4. Concept of Statistical Surveys Organization in the CSO of Poland requires taking action aimed at *increasing the efficiency of the statistical production process and accompanying organizational and coordination processes*. To achieve this goal a lot of activities must be taken, out of which three main ones, taken with the view of making the organization more efficient, are as follows:

(a) Identifying and establishing processes within the particular stages of official statistics, based on the Generic Statistical Business Process Model - GSBMP1) and preparing the Polish Integrated Statistical Business Process Model (ISBPM), that includes models appropriate to reality and the needs of Polish official statistics; specifying the vision of implementing statistical surveys– standard of integrated statistical production process taking into consideration metadata objects.

(b) Standardizing organizational processes, which is based not only on ensuring uniform solutions regarding data collection and processing, but also on implementing the entire statistical process according to uniform principles and procedures.

(c) Preparing the procedures that make it possible to automate planning processes and survey implementation.

(d) Implementing the concepts, rules and procedures in stages, with regard the possibilities and human and financial resources.

(e) Preparing and implementing in stages data collection strategy as well as data storage, processing and dissemination.

(f) Defining goals and requirements for the metadata system and the analysis of potential use – for the survey on the basis of the statistical surveys program – of solutions designed or implemented in projects conducted in the CSO, i.e. in censuses and the Official Statistics Information System.

(g) Preparing and stage-wise implementing the meta-information concept that enables the use and creation of meta-information on every stage of the statistical process as well as management of the access, users and the quality of meta information.

5. The Concept of Statistical Surveys Organization in the CSO of Poland covers the entire transformation programme from the current surveys organization model, based on a stovepipe model, to the **Integrated Statistical Business Process System**, which will be fully implemented by 2020.

II. The current model of statistical surveys organization systems

6. The legal basis of implementation of statistical surveys of official statistics is constituted by the *Act dated 29 June 1995 on official statistics* (further referred to as the **Act**) and *the annual programme of statistical surveys of official statistics* (further referred to as **PSSOS** or **Programme**), which constitutes an attachment to the regulation of the Council of Ministers with regard to the surveys programme for a given year in accordance to the provisions of the Act mentioned above.

7. The programme specifies the topical and subject range of statistical surveys and related duties. The document regulates the collection and transfer of statistical data in a given year, data regarding the entire year and indicated statistical data for previous years.

8. Every statistical survey included in the Programme is implemented on the basis of the so-called statistical

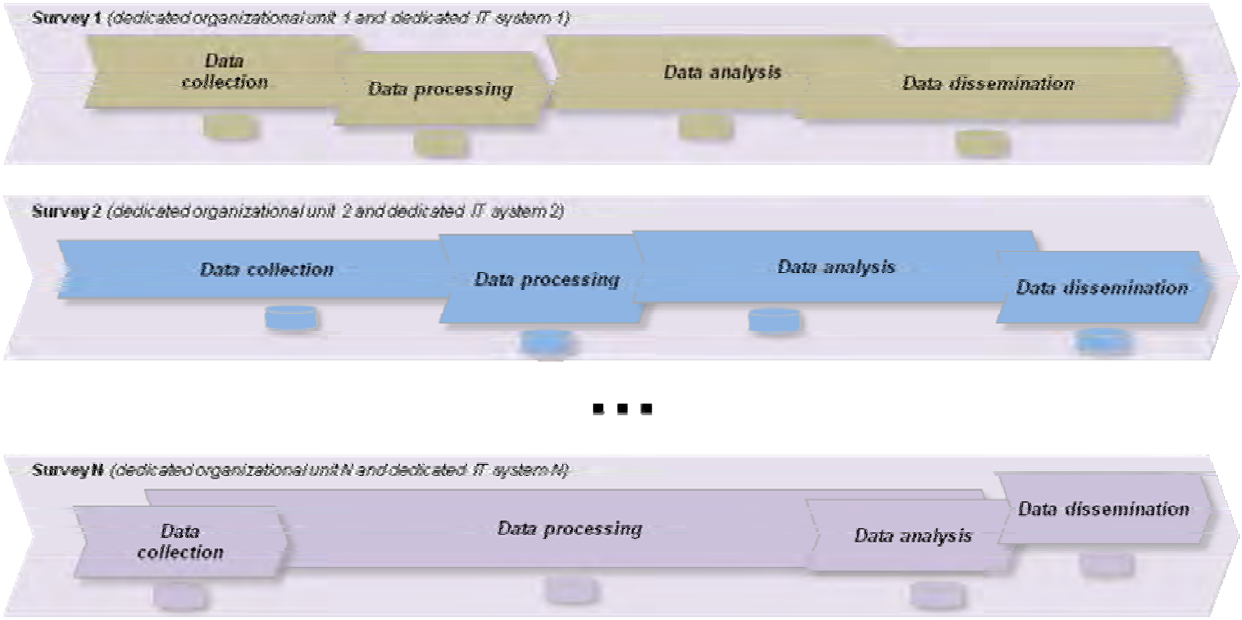
[1] www.unece.org/stats/gsbpm

publications, i.e. separately obtained and processed data collections with a specified information span. A detailed plan is prepared annually by CSO i.e. plan of statistical publications (known as **PSP**).

9. Plan of statistical publications is a set of single executive plans for particular publications – with a distinction made between primary and secondary publications. At the beginning of such plans a description of the publication is presented and then a detailed plan on how to prepare it. The plan is divided into preparation and implementation phases and indicates the persons responsible for particular tasks, deadlines and IT system used within the publication's implementation.

10. The Plan of statistical publications for 2012 included altogether **721** publications including **215** primary publications and 5**06** secondary publications;

11. At present each of the 721 publications is performed independently. A particular "production line" is prepared practically for each of the 721 publications. To a relatively small degree there is a "co-use" of IT solutions – on average one dedicated IT system is managing 2,75 publications. The average mentioned earlier might seem a bit "optimistic" bearing in mind that to implement "simpler" publications, among other things, the generally available standard software is used – such as MS Excel, MS Access, SPSS.



Picture 1. Stove-pipes model of current survey organization

12. The main characteristic features for the present organizational model of statistical survey implementation could be include:

(a) Diversification and lack of unification of labour processes that lead frequently to:

- multiple performance of the same tasks within different processes;
- increased workload;
- increased costs of preparing and delivering final products;
- excessive complexity of labour processes;
- extension of the time necessary to prepare and deliver final products.

(b) Wide diversity of surveys implementation, resulting in:

- dispersion and isolation of knowledge and competences of persons implementing particular surveys (for example dispersing information on the primary needs voiced by the recipients);
- separating and dispersing the communication within the organization (e.g. between particular leader units and recipients of products of public statistics);
- dispersed responsibility and convoluted reporting lines;
- duplication of human resources dedicated to particular surveys;
- decrease in elasticity of particular units and the entire organization in the scope of reacting to the changing internal and external conditions (including increased vulnerability to the so-called fortuitous events).

(c) Excessively complex IT environment, difficult to maintain and develop, consisting of several hundred dedicated and independent IT systems, created for the needs of particular publications. The result of such an organization of IT environment are additionally:

- significant redundancy / duplicating of functionality;
- increased expenditure (finance, and staff) on maintenance and development of IT environment.

(d) Concentration on the "traditional" methods of data collection including:

- realization of the original surveys based on the data collected directly from reporting entities and respondents – "form – centricity" of surveys;
- the use of non-diversified forms of obtaining data in surveys (lack of the multi mode collection).

(e) Collecting data independently for particular surveys and the impossibility to share them for the needs of other surveys (data gathered in several separated bases).

(f) Lack of a comprehensive metadata service.

III. Public statistical surveys organization

A. Process approach

13. Traditional (vertical) approach to the organization based on treating the organization as a collection of hierarchical, separated (isolated) vertical sections or departments is making its functioning difficult. It frequently happens that the employees employed in particular departments while looking through the prism of their achievements are not aware of the goals of the entire organization. They do not fully understand the specificity of different departments operation as well as their input into the realization of organizational goals.

14. The "silo" effect comes into play to help optimize the actions inside particular departments. It is particularly difficult to solve problems which are managed by employees of different functional cells. The form of reaction to the problems presented above is the holistic approach to organizational matters, i.e. perceiving the organization as a complex system while acknowledging the following:

(a) Organization is a complex system, consisting of subsystems – it is necessary to have a broad view and be aware of the fact that the effect of operation of the entire organization is not a simple sum of effects of particular subsystems – effect of operation of the entire organization can be strengthened thanks to the synergy effect.

(b) Organization functions in a complex, changing environment.

(c) The behaviour of the organization is determined by feedback of both internal kind as well as with the surrounding – so if it wants to effectively function, it has to adapt itself to the existing internal and external conditions.

(d) Optimization of only one element of the organization can cause a worsening of the functions of other

elements and even the entire organization and the performed change in any subsystem of the organization can entail changes in other subsystems.

15. A certain form of a detailed approach to the above mentioned holistic systemic attitude is the so called process approach to the organization. The process approach is considered more flexible and innovative in relation to the earlier applied forms of approaching the organization. In this approach, the man criteria of grouping positions and organizational cells into bigger structures belongs to specific work processes. These processes concentrate first of all on actions related to fulfilling the particular needs of clients – recipients of these processes.

16. Apart from process approach the following elements should be reforming:

(a) Reorganization of the statistical survey process:
(b) Improvement of organizational structure of official statistics
(c) Integration, consolidation and standardization IT solutions including adaptation of solutions to the new working processes, organizational structure
(d) Creating the coherent and effective knowledge management system

B. The idea of the improvements

17. The current model of statistical surveys organization system seems that there are problems with the surveys organization of public statistics resulting from the so-called silo-effect of the organization. There is a certain focus – within particular organizational units – only on own tasks, trying to implement them in a familiar way – as good as possible but with "old" methods of work. This situation has such a result that, within the organization of public statistics the following problems are identified:

(a) Considerable variety (including lack of "compatibility" and standardization) of work processes.
(b) Redundancy and lack of specialization in the performed activities, especially the redundancy referring to the scope of information obtained from respondents.
(c) Duplicating competencies resulting from the lack of specialization of activities.
(d) In relation to every conducted survey a separate IT system is developed and maintained (in many cases using the solutions from the 90's of the previous century).
(e) Domination of surveys for which data are collected via a form and survey directly from respondents with insignificant use of information available in public administration databases.

18. The future organization of public statistics should be based on the so-called process approach – using the familiar and successful solutions, i.e. GSBPM. Among the basic features of the mentioned process approach one can mention:

(a) Concentration of entire activities within the organization of statistical public surveys.
(b) Adapting a perspective of the "from the outside to the inside" analysis, based on taking client's expectations as a departure point with regard to a product which is to meet these expectations.
(c) Firstly, concentration on relations (so-called "interfaces") between particular processes and organizations, secondly, looking at the inferior of the organization or the process.
(d) Activities (in particular processes) should end with a well-defined (qualitatively and quantitatively) product (half-product or final product).
(e) Activity (especially processes) should start after receiving a well-defined (quantitatively and qualitatively) initial product or half-product, so-called "input".

19. The presented solutions, are aimed at increasing efficiency of processes of the public statistics organization system while preserving their effectiveness. It seems that the increase of efficiency can be achieved through:

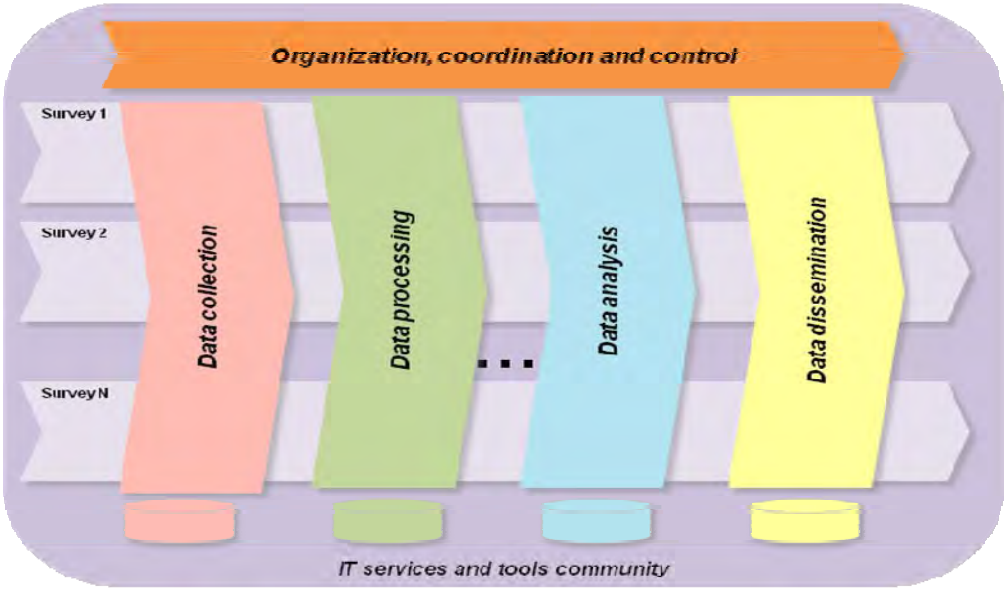
(a) Optimization and standardization of labour processes.
(b) Tasks specialization of organizational units.
(c) Consolidation and unification of IT solutions.
(d) Optimization of the manner of collecting data – single time collection of added value of variables used simultaneously in many surveys.
(e) Maximal use of already used information – e.g. information available in the registers of public administration.
(f) Minimization of the use of "costly" methods of data collection – i.e. by respondents;
(g) Minimization of social costs of data collection – i.e. limiting engagement of respondents.

C. The Integrated Statistical Business Process Model

20. The concept of the model of statistical surveys is based on the perspective of work processes. The description of fundamental elements of concept solutions was presented while discussing particular groups of model processes including: specification of needs, designing, construction, data collection, data processing, data analysis, data dissemination, archiving and ex-post evaluation.

21. Organization of surveys of public statistics requires a holistic approach – in particular looking through the prism of a single survey but also through the prism of all surveys and, as was already signalled earlier, drawing attention to the fact that the effect of the entire organization does not have to be simply a sum of particular effects and can be, in a major way, strengthened thanks to the synergy effect.

From the analysis of authors of this publication it can be inferred that it is possible to significantly simplify the architecture of work processes – i.e. reduction of numerous independent production processes with single processes (Picture below) – in particular thanks to implementation of task specialization and related competence concentration.



Picture 2. – Target model of statistical production

22. Taking into consideration all observation – including the possibility to secure the proper management of work processes – it seems possible that a certain improvement (and simplification) can be performed on the organizational structure of the organization system public statistics, where in the place of "silos" one should introduce organizational units with the following task specifications (functional) – i.e. specialization regarding:

(a) data processing;
(b) data storage;
(c) data analysis;
(d) data dissemination (i.e. customer service);
(e) organization, coordination and control;
(f) providing IT services.

23. Activities of the aforementioned "specialized" units (further referred to as key units) require also the support from help units – dealing with managing staff, servicing administration and finance. Along with the implementation of specialized units it will be required to appropriately organize them e.g. by creating appropriate profiled teams with precisely established team roles, preparing work and creating action procedures.

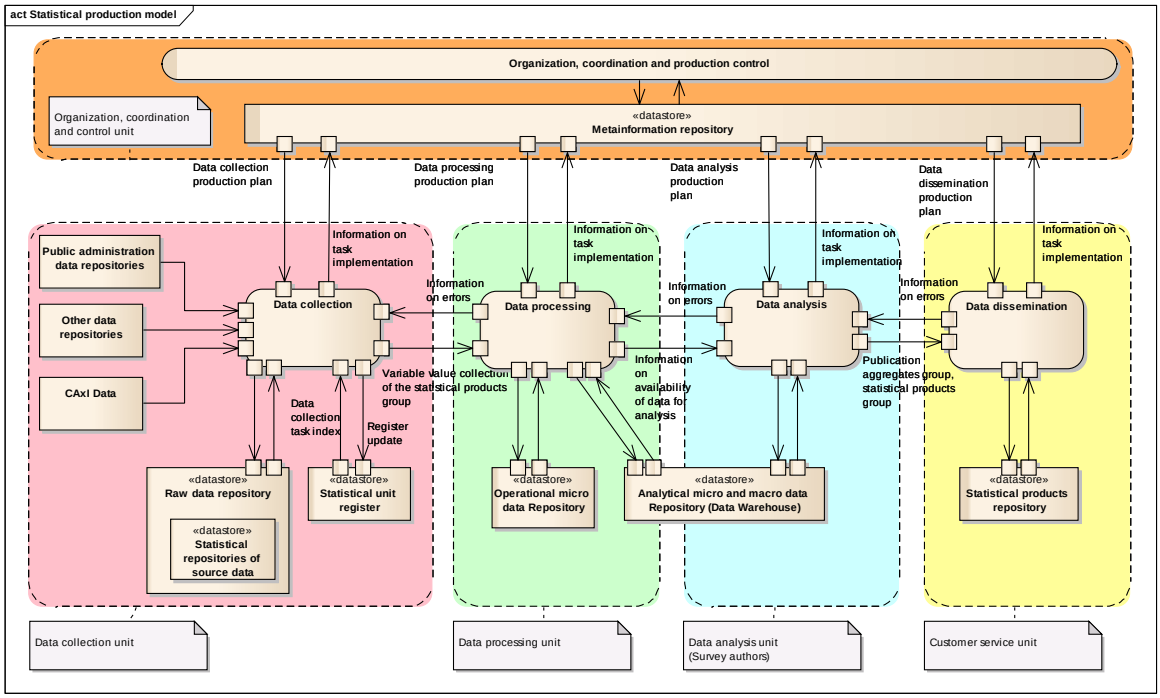
24. Invoking the idea of a holistic approach to the organization of statistical surveys, one should pay attention to the fact that the structure of work processes should be strictly correlated to the so called "production environment" used within the same processes. In the case of the public statistics the production environment is, first and foremost, consisting of the IT solutions used to gather, process, analyse and disseminate data. The used solutions to a large degree impose the way of conducting numerous activities ("because it cannot be done in any other way"). The significant number and diversity of solutions determine numerous (understood as lack of standardization) of activities performed within the work processes of statistical and public surveys.

25. The idea of reorganization presented herein is strictly related to the need for change of the production environment of surveys organization of public statistics. It seems that the integration, consolidation and standardization of IT solutions – within one unified production environment – will be an effective method of supporting reorganization, optimization and standardization of work processes. Additionally, the mentioned consolidation of IT solutions should, in a major way, influence the optimization of development costs of those solutions and their later support.

26. The proposed changes of organization of surveys of public statistics, aims at transferring the organization into an organization depicted in sector-specific publications as "*Functional organisation*" and at creating the so-called integrated statistical business process system.

27. Below a more detailed version adapted in the subsequent description of the model is presented:

(a) The holistic approach to a certain string of events occurring within the organization of public statistical surveys.
(b) Adoption of the perspective of "from outside to inside" analysis assuming as point of departure "what' is to be an expected effect of a group of processes.
(c) Concentration mainly on relations (so-called "interfaces") between particular process groups (and organizational units).
(d) Pointing to key entry objects to the process group.
(e) Pointing to key exit objects from the process group.



Picture 3. General idea model of statistical production

IV. Framework plan of reaching the Integrated Statistical Business Process Model in Poland

28. Within the plan of accessing the Integrated Statistical Business Process System one proposes the following phases:

(a) Phase 1 – Preparation;

(b) Phase 2 – Pilot of concept along with the transformation preparation;

(c) Phase 3 – Verification;

(d) Phase 4 – Transformation;

(e) Phase 5 – Target Status.

29. In the above phases, particular attention should be paid to such aspect as:

(a) gradual increase of share of surveys performed with new methods of implementing statistical surveys in relation to the general number of surveys;

(b) evolutionary transformation of the organization;

(c) evolutionary transformation of the IT environment.

(d) Successive implementation of new work processes

30. The aim of the Phase 1 should be to fundamentally prepare grounds for accessing the Integrated Statistical Business Process System. Within this phase, one should perform in particular such tasks as:

(a) Appointing a Team on reorganizing the statistical surveys system.

(b) Working on details of the Integrated Statistical Business Process Model.

(c) Preparing implementation plan of the Integrated Statistical Business Process Model.

(d) Establishing surveys/ publications expected to be performed within the pilot programme – so called survey / pilot programme.

(e) Analysis and designing work processes (on the basis of the improved concept of the Integrated Statistical Business Process Model) in the scope of surveys / publications expected to be performed within the pilot programme.

(f) Preparation of the implementation plan for a given phase.

31. The aim of the 2nd phase is practical, pilot verification of the correctness of the concept of Integrated Statistical Business Process Model gathering experience and conclusions introducing potential correction, preparing details of the Integrated Statistical Business Process Model and preparation of transformation to the target solutions (of the Integrated Statistical Business Process Model). Within this phase, the following groups of tasks should be performed along with the tasks that are included within them:

(a) Piloting of the concept ISBPM (for surveys edition 2014) – modeling the whole cycle of the statistical surveys realization (including the Integrated Statistical Business Process Model) including:

- Conducting specific activities for the process group of Specification for the needs of the surveys/ pilot publications.
- Conducting specific activities for the process group of Designing for the surveys/ pilot publications.
- Conducting specific activities for the process group of Construction for surveys/ pilot publications.
- Conducting activities specific for the process groups of statistical production for the surveys / pilot publications.
- Conducting specific activities for the process group of Archiving for the surveys / pilot publications.
- Conducting specific activities for the process group ex-post Evaluation for surveys / pilot publications.

(b) Preparation of phase 3 and directing for further implementation within this phase surveys/pilot compilations, including:

- Preparing implementation plan for phase 3.
- Comprehensive ensuring of the continuation of implementation of surveys performed as pilot surveys.

(c) Preparation of transformation including:

- Preparing details of the Integrated Statistical Business Process System (work process projects, organization structure project, IT system project), taking into consideration results stemming from pilot concept.
- Preparing the transformation plan.
- Preparing the implementation plan for the 4th phase.

32. The aim of 3rd phase is to safeguard the continuation of surveys performed as pilot study and subsequent re-verification of the validity of the concept of the Integrated Statistical Business Process Model, implementing corrections and performing transformation plan update. Within this phase the following task should be performed and the task that compose it:

(a) Continuation of the statistical surveys implementation performed as pilot study – in edition 2015;

(b) Continuation of the implementation of statistical surveys exercised as pilot survey in the 2016 edition;

(c) Verification, including:

- Concept verification,
- Updating the details of the Integrated Statistical Business Process System and taking into

consideration conclusions stemming from the implemented pilot programme and concept verification,

- Transformation plan update.

33. The aim of 4tht phase is the final transformation of the statistical surveys organization system into a target Integrated Statistical Business Process System in particular in such areas as:*:*

- Organization structure
- Work processes
- IT environment

34. Initially most of the surveys implemented in the present structure of the statistical surveys organization system with the use of the present IT environment and according to the work processes corresponding to the present methods of the statistical survey implementation. In subsequent years – increase of surveys implemented with the new methods, used by the Task Group which used the new IT environment supporting the Integrated Statistical Business Process Model

35. At a certain point in time a "tipping" point will be reached where most surveys will be implemented with the use of the new Integrated Statistical Business Process Model, performed by the new organization of surveys and supported with new IT environment – i.e. already within the Integrated Statistical Business Process System. At this moment the so far Task team will be dissolved. Its place will be taken be the already operating task team, which task will be to safeguard the performance - "the old way" – of those surveys which will not be transferred to the new model of statistical surveys implementation. These surveys will be conducted with the use of the elements of the present IT survey environment and according to the work processes corresponding to the present models of implementing statistical surveys.

36. The 5th phase means that the status in which the public statistics functions already in the target Integrated Statistical Business Process System was reached, i.e. all surveys of public statistics will be performed according to the new, outlined herein(and detailed in the 2nd phase) - Integrated Statistical Business Process Model, i.e. already:

(a) in new organizational structures;
(b) according to new work processes;
(c) in new IT environment.

In this phase special pressure should be placed on the successive increase of the quality of performed surveys and the improvement of the way of performing them within particular editions of statistical surveys.

III. Summary

37. Implementation of the described changes concepts constitutes a strategic decision, bringing benefits in the perspective of many years. Still, as in the case of every organizational transformation it is related to certain costs, therefore making a decision on enacting the Integrated Statistical Business Process Model should be naturally preceded by a further, more detailed analysis of the benefits and costs. However, comparing the present conditioning, in which the public statistics functions, with the benefits stemming from the use of the proposed solutions, a great potential seems to be lurking in the proposed model. This model seems to eliminate numerous following inefficiencies:

(a) Several connected and integrated IT systems instead of hundreds existing.
(b) Several specialized organizational units, extracted according to task specialization, concentrating specialist competences instead of many „independent" organizations.
(c) Instead of the knowledge dispersed in organization it is proposed that it be concentrated and employed with the use of the Knowledge Base which will support more efficiently capacity building.
(d) Instead of using independent and individual approach to the realization of each of the surveys – standardize of realization statistical surveys processes, preparing common methods and the best practices, used for the various stages.
(e) Comprehensive look at all conducted surveys – elimination of structural ineffectiveness sources by proper products grouping.
(f) Instead of collection data independently for each survey and lack of cooperation for the needs of other surveys – using dedicated system which would support collection data for many surveys.
(g) Instead of individual, dispersed communication between particular leader units and statistical products customers, it is suggested creating dedicated unit – a connection point with statistical customer.
(h) Instead of dispersed information on the primary needs reported by customers, it is suggested creating a single place for storing and analyzing data.
(i) Instead of expensive data, collected from direct surveys, it is suggested increasing obtaining cheaper data – from administrative sources and sharing data within the organization and many surveys from different fields.

38. In 2013 Central Statistical Office of Poland has already started implementation at above mentioned concept of the new organization of statistical surveys.