

STATISTICAL PARAINFORMATION PLATFORM – FOUNDATION OF INFORMATION TRANSPARENCY IN HETEROGENEOUS INTERNATIONAL ENVIRONMENT (with special reference to the Eastern Partnership initiative)

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ABSTRACT

1. Transparency and coherence of social and economic information between countries is the prerequisite and of international cooperation and strengthening relations based on partnership and mutual trust. The closer are institutionalized and informal relations between countries, their governments, NGO's, businesses and citizens, the stronger is the need for transparency in all spheres of social and economic information.
2. The mission of official statistics in globalized, more open economy is to (a) providing methods and tools of quality control of public information, (b) producing information relevant to the needs of all users and (c) widening and facilitating the accessibility and international interchange of information.
3. In modern ICT environment the international parainformation platform embedded in official statistical systems of cooperating countries is the optimal, efficient, easy to implement and relatively cheap instrument to provide information transparency in international, heterogeneous environment.
4. General conceptual foundations and function of the platform are presented. It is stressed that the participation in information interchange *via* the platform does not need to introduce any changes in existing information systems of cooperating countries. The value added of the platform for all stakeholders would be the homogeneous retrieving of data from accessible systems and data bases both statistical and administrative systems via the platform. Important value added would be the integration of statistical parainformation resources of countries in one database, i.e. the base storing verified and updated information on accessible systems, information resources and the institutions managing those systems and resources of all cooperating countries and organizations.
5. The role and contribution of the statistical parainformation platform in strengthening the integrity of statistical information systems and relevant administrative and scientific information systems on international scale, with special reference to the needs of the Eastern Partnership, are discussed.

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1. Introduction

Statistical observation, measuring, analyzing and monitoring of social, economic and ecological processes in globalized, more open, market – driven, knowledge - based economies and in information societies need methodological approaches adjusted to their specific features and attributes.

Main theses of this paper are following:

- (1) information transparency, integrity and interchange between countries is the prerequisite of political, social and economic cooperation and partnership;
- (2) national statistical offices are predestined to developing, maintenance and operational management of information systems supporting the coherence, quality control and information transparency between countries;
- (3) *international statistical parainformation platform* (ISPP) embedded in and supported by national official statistical systems of countries is optimal, most efficient, easy to implement and relatively cheap instrument of supporting information interchange and transparency in international, politically and economically heterogeneous environment.

The needs for increasing of international transparency and interchange of information and growing information requirement of cooperating subjects based in different countries are the consequence of tightening international and supranational interdependencies of economic and social processes, i.a.:

- a) On international level legal and institutional systems are decisive for economic and investment decisions of businesses and individuals; national and regional governments use the procedures of deep institutional interventionism to regulate the processes of economic cooperation;
- b) Technological and economic processes in many economic branches are realized on the territory of two or more countries;
- c) Growing number of enterprises based and registered in different countries interlinked and realizing interdependent processes of production, trade and financing with enterprises of other countries;
- d) Foreign direct investments are important factor of economic development for all countries; foreign financial investments have strong impact on financial stability of national businesses;
- e) Financial institutions constitute integrated international financial market, especially in the field of banking and insurance;
- f) International remittances and transfers play important role for economic and social stability and development of national economy and regions;

- g) Growing importance of transborder cooperation for regional development of neighboring countries;
- h) For small - scale national economies and for specific branches of economy the transborder processes may have the impact on macroeconomic situation;

Information infrastructure of the countries cooperating within the frames of the Eastern Partnership has the following specific features and attributes important - from statistical point of view – for information transparency and interchange:

- a) Particular countries have developed their own, specific information infrastructures; because of that for social and economic subjects of one country the access to information from other country is often difficult, troublesome and expensive;
- b) Terms, concepts and definitions used in governmental administrative records and systems, primary records of legal persons and entrepreneurs, are specific for each country;
- c) Concepts and definitions used in social and ecological statistics (in broad sense) are adjusted to legal and administrative specificity of particular country;
- d) National systems of official statistics are integral parts of those infrastructures;
- e) In open economy statistical concept of “national economy” is fuzzy; economic processes in national economies cannot be explained and monitored without information from other countries;
- f) National systems of official statistics have implemented or are on the way of implementing international statistical principles and standards (mainly ISI, UN and specialized organizations of the UN, EU).

Because of wide use of international statistical standards national official statistical systems are more coherent and integrated than other administrative, economic and social national information systems. Higher level of integration, coherence and compatibility of statistical systems could and should be achieved by building international platform providing access and interchanging meta-information and para-information between national statistical systems.

2. Basic concepts and definitions

The definitions of terms and concepts presented below are commonly used in theory and practice of statistical systems modeling. The objective of presenting those definitions is to pay the attention on specific, in some sense new, functions of meta-information and para-information in national official statistical information systems (NOSIS) in modern ICT environment.

Statistical metainformation is the information on statistical information realizing in the NOSIS the following functions related to statistical information and data:

- Standardization
- Identification
- Consolidation
- Integration
- Interpretation
- Evaluation of data and information

Statistical parainformation is the information on statistical systems, processes and resources realizing in the NOSIS the following functions:

- Functional specification of NOSIS
- Standardization of NOSIS
- Documenting of NOSIS
- Organization of NOSIS
- Co-ordination of NOSIS
- Retrieval of information and metainformation
- Management of statistical resources, processes and systems

- Coherence of NOSIS's is the *isomorphism* or *equimorphism* of functions, organization and procedures of NOSIS's represented in national statistical parainformation systems. **Coherence is the category referred to the level of statistical systems, processes and resources of NOSIS's.**
- Integrity is the *isomorphism* or *equimorphism* of relevant statistical data and information in different NOSIS. **Integrity is the category referred to the items of data, metadata, information, metainformation, paradata and parainformation.**
- Transparency between NOSIS' is the unabridged availability and easy access to complete resources of statistical metainformation and parainformation for all stakeholders, both national and foreign. **Transparency is the category that is referred to the stakeholders of the NOSIS's.**
- Interchange between NOSIS's is the availability, accessibility and transfer of data, information, metadata, metainformation, paradata and parainformation between NOSIS's and all stakeholders of official statistics. **Interchange is the category describing relations between different NOSIS's as well as between NOSIS's and stakeholders of official statistics.**
- Statistical parainformation platform is the warehouse realizing the functions of collecting, statistical metainformation and parainformation from all NOSIS's, integrating, organizing those metainformation and parainformation in warehouse structures, providing the access for all stakeholders, and links between meta- and parainformation stored in the platform with relevant statistical data stored in particular NOSIS's.

It should be stressed that the terms defined above should be understood as categories relevant not only to statistical data, metadata and paradata, to statistical information, metainformation and parainformation, to statistical systems processes and resources but also to data, information, metainformation and parainformation and systems participating in statistical processes, i.e. administrative information systems and administrative records used for statistical purposes and primary records and information management systems of respondents supplying data to statistics.

3. Information transparency and its role in international cooperation

In globalized world, in information society and in knowledge – based economy, all political, social and economic subjects are acting in the environment of large and growing information gaps. The reducing of those gaps could be achieved by implementing and maintaining metainformation and parainformation systems oriented for the needs of specific groups of users, i.a. public administration, social and cultural organizations, political organizations and politicians, businessmen, researchers, teachers and students etc.

Providing methods and tools of quality control, accessibility and international interchange of information for specific, professional groups of users is the mission of official statistics on national, regional, international and trans – boarder scale. In modern IC environment official statistics should not only publish statistical data in the form “ready to use” by individual users, but also to create effective data retrieval systems supplying reliable, of good, verified quality, accompanied by relevant metainformation necessary for proper interpretation, understanding and use data. In modern ICT environment the metainformation platform for common use all stakeholders from the countries of partnership seems to be most effective tool for information interchange.

In the international environment of the countries cooperating within the initiative of Eastern Partnership the creating and maintenance of effective information retrieval systems enabling access to information stored in systems and resources managed by different organizations and subjects based in different countries, working in specific conditions of particular countries, is of special importance. In the community of Eastern Partnership there are collaborating numerous organizations, central, regional and local governments and subjects that are acting in different legal, cultural, social, economic, technological and environmental conditions of their own countries. Those countries have achieved different level of economic development; they have different legal systems, different competences and organization of governments, different regulations, procedures and practices of managing information.

Each country has developed its own information infrastructure. Legal regulations and practices of information production, storage and dissemination may not be compatible. Those differences are often the reason of the lack of

transparency of foreign information infrastructure and often cause difficulties in the exchange of information between managers of information systems, especially official information systems. Harmonization of these rules, procedures and practices is the complex process of harmonizing the laws of information management by governments and other subjects responsible for national information infrastructures.

Official statistics is – happily and unfortunately – the only official infrastructural information system that has achieved most high level of harmonization, standardization and coherence on global scale. Thanks to that, national official statistical systems are also relatively well harmonized on international and national levels. That is why national statistical offices and their regional units seem to be predestined – better than other infrastructural information systems - to creating methods and tools of information transparency between different countries. For information transparency of the countries of Eastern Partnership high level of compatibility and transparency of NOSIS's is extremely important.

As it was mentioned above, international cooperation in all fields of social life and in economic activities is based on trust of cooperating political, social and economic subjects. This trust is determined by information transparency of all parties on national, regional, local levels as well as on information transparency of particular political, social and economic subjects. The trust between organizations and individuals is based on open interchange of reliable information. Any gaps or difficulties in availability and accessibility of reliable, relevant, pertinent, complete political, social and economic information and its interchange between social and economic subjects cause disturbances of collaboration and may lead to blocking of mutually effective cooperation.

Except typical, simple, everyday situations, those subjects need more information that they have for their permanent disposal in their own resources. They have to get easy, transparent access to information that is relevant and pertinent for their specific usage situation. Usually the subjects are creating their own information environment, however it is limited to national administrative, statistical and commercial information. Important direct source of those information are mass media and in specialized public or commercial information services (now often portals in internet).

Economic and social information in mass media and in specialized services is extremely redundant. In the situation of extreme redundancy of social and economic information the retrieval of relevant and pertinent information for specific usage situations is difficult and expensive for decisions and practical activities of subjects. It is often not possible for the users to evaluate the quality of retrieved information.

Modern ICT technologies are providing effective tools for browsing very large information files and retrieving information in different forms of numerical data, texts, pictures, as well as in multimedia forms. However ICT tools are not solving growing problems of control of quality, completeness, timeliness,

comparability and pertinence of accessible information for particular users in their concrete usage situations.

The problem of control and evaluation of quality and pertinence of retrieved data is extremely important in global, international and supranational scale. For end – users that need information on other country the access to pertinent information is very difficult, sometimes not possible in due time.

Transparency and coherence of social and economic information on the level of countries is the prerequisite and of international cooperation and strengthening relations based on partnership and trust. This fact is well understood by international statistical community. Because of that, statistical services of global and regional international organizations put a lot of efforts to develop and maintain global and specific information standards and principles of information interchange within the frames of official information systems maintained or coordinated by those organizations.

Global system of official statistics coordinated by the United Nations in cooperation with regional and branch – oriented international organizations, is the largest information system of generating and disseminating information covering all areas of social, economic and ecological processes. It should be also remembered that very important function of the global system of official statistics is the elaborating and proclaiming information standards for statistical information as well as for many other administrative and economic information. Those standards refer mainly to *metainformation* (information about information) and *parainformation* (information about information resources, processes and systems) (see p. 4 below). Information availability and accessibility refers both to information describing phenomena and processes of real world as well as the *metainformation* and *parainformation*.

Common metainformation and parainformation platform seems to be most effective methodological and ICT solution for interchange of official and verifiable information between countries of the Partnership.

4. Transborder statistics – new challenge of official statistics in integrated international European environment

Important attribute of political and economic cooperation, especially in the European region, is the change of social and economic functions of political borders. Political borders between countries in large part of the world have played the function of geographic delimitation of national economies and societies. Political borders separated different political, legal, social, economic and monetary systems. Global system of statistics was based on the concept of national economies.

Political changes accelerated by democratization, integration processes and transition processes in many regions of the world have created new situation for official statistics. Basic statistical entity of global statistical system (coordinated

by the UNSC) – *national economy* – became fuzzy. Moreover, some sectors of national economy are operating on international and global scale, e.g. banking and finances, transport, communication, information sector (mass media), research and development etc. The fuzziness of national economy as a statistical category has the impact on the system of national accounts and on the interpretability of basic macroeconomic statistical categories. The macroeconomic indicators of the SNA have to be estimated on the basis of data from collected within the frames of countries, while economic and social processes are crossing the borders, and economic subjects are operating on many national markets. The estimates of GDP and related categories are based to large extent on conventions, less on precise algorithms and on complete source data. In transition countries the precise estimation of statistical aggregates is more difficult because of dynamic changes of information environment of statistics generating gaps and holes in reliable information sources.

Specific information needs of users representing regional governments and entrepreneurs were generated by dynamic social and economic processes that are taking place in transborder regions. In small scale national economies statistics the transborder processes is also of interest of central governments.

The dynamics of transborder processes extremely high along the borders between economic systems that differ much in the areas of laws, economic regulations and of the level of economic and social development (laws regulating economic activity, taxes, wages and salaries, laws on labor, social insurance, health insurance, environmental regulations, formal administrative procedures and their informal, practical implementation, like corruption and safety).

The “differences of potentials” between neighboring regions are stimulating and accelerating the activity and cooperation between enterprises. Good political relations between countries and regional governments are facilitating the cooperation of local governments along the border is also stimulating economic and social cooperation. Statistical identification and measuring of the “differences of potentials” in transborder regions may help the governments to support positive processes and phenomena of transborder cooperation as well as to eliminate or reduce negative social and economic processes.

Main statistical indicators characterizing the “differences of potentials” are the indexes or variables characterizing the differences in:

- Prices of comparable goods and services,
- Wages and salaries,
- Access to labor markets,
- Laws regulating labor markets,
- Supply of goods and services,
- Access to social services (health, education),
- Laws regulating economic activity (taxes, social insurance, reliability of financial system, risks of economic activity etc.),
- Ecological laws and practices,
- Safety and security of economic activity (laws, transparency, anti-corruption measures

- Quality of infrastructure (transport, energy, social infrastructure),
- Access to the markets of other regions (e.g. to the EU single market, to free trade zone of the CES as a whole),
- Policy in the field of non-registered economic activity and shadow economy.

The experiences of Polish statistics (Regional Statistical Office of Rzeszow and the Center of Transborder Statistics in Krosno) have elaborated specific methods of delimitation of transborder areas, methodology of monitoring and evaluating the differences of potentials and synthetic indicators of transborder cooperation. Those methods were verified, and implemented in cooperation with regional statistical services of Slovakia, Ukraine, Belarus and Russian Federation (Kaliningrad region) in the transborder regions along east, south and north boarder of Poland with those countries. The results of the transborder surveys and analyses have proven that transborder statistics should be considered as the specific domain of official statistics. It was also proven high importance and usefulness of specific transborder statistics methods for monitoring and explanation of economic and social processes, especially on transnational regional level.

It seems that in progressing liberalization of international trade, more free transfer of goods, services, money (investments, remittances) and more free migration of people, growing scale of international infrastructural projects, the transborder statistics should become standards segment of official statistics.

Information produced by transborder surveys may help governments to identify and evaluate different forms of transborder cooperation, to program and plan joint actions and projects in for optimizing transborder infrastructure, establishing proper rules of competition stimulating the development on both sides of boarders.

The Krosno - based Center of Transborder Statistics of the Regional Statistical Office in Rzeszow in cooperation with universities and local governments is preparing the project of monitoring and surveying the external Easter border of the European Union “*From Barents’ Sea to Black Sea*”. Preliminary interest in joining this project was expresses by most of the statistical services of the countries along this borderline. It seems that this project would be good opportunity for more extensive development of specific methods of transborder statistics and for verification of those methods in statistical practice. It is expected, that the experiences of statistical identification, monitoring and analysis of transborder processes of the countries along the borderline from Barents Sea to Black Sea, that represent highly developed economies, post-transition countries and the countries in different advancement of transition processes in society, economy and in official statistics, would contribute to the progress of official statistics on global scale.

5. Information coherence and transparency as the prerequisite of international cooperation

As it has been mentioned in the introduction, international information coherence and transparency is the prerequisite of social and economic cooperation of governments, businesses, organizations and individuals. The transparency and coherence refers to all kinds of information: legal, administrative, statistical, to all areas of life: economic, social, cultural, ecological as well as to any kinds of alert information.

Particular classes of political, social and economic subjects need different kinds of information, presented in forms and technologies, adjusted to the possibilities and specific conditions users and other stakeholders of information systems.

The governments and other organizations managing infrastructural information systems of cooperating countries of Eastern Partnership are expected by the stakeholders to develop and maintain information systems producing and providing to the users pertinent, verified, accessible information. Any information gap may cause of lack of trust, generating uncertainty and hesitations of economic and social subjects in undertaking economic and social activities, joint projects or investments in other countries, strengthening international cooperation.

Information transparency can be achieved if and only if in all collaborating countries or regions there is the reciprocal *information equilibrium* i.e. the compatible quality, availability and accessibility of information in all domains of life, in which all subjects are acting.

The reciprocal *information equilibrium* applies to all classes of infrastructural information systems, i.e.

- official juristic information and services
- organizational information on governments and institutions,
- information on administrative procedures,
- public alert information systems,
- information systems managed by public governments on central and regional level (administrative registers, tax systems, social insurance registers, registers of local and regional governments),
- information systems of businesses, especially information systems of enterprises offering services for the public and businesses (supply of energy, telecommunication, consulting firms, safety, security and insurance etc.),
- mass media and specialized public information services,
- official statistics.

Most important role in building trust thank to information transparency is played by public information systems managed by governments, official juristic and procedural information systems, mass media and official statistics.

6. Role of official statistics in information coherence and transparency

Official statistics, because of its special position and functions in the information infrastructure of the country, is responsible not only for providing qualitative, verified statistical information as the public good for any stakeholders. It is also responsible for supplying all metainformation needed for proper absorption and interpretation of users of information.

Official statistical agencies are (or should) developing complex *metainformation* systems and metadata warehouses supporting the realization of all functions of metadata mentioned above, i.e.

- Standardization
- Identification
- Consolidation
- Integration
- Interpretation
- Evaluation of data and information
- Documenting of methodology

Official statistical agencies are also developing (or should develop and maintain) official public parainformation and parainformation warehouses supporting the realization of the functions of the *parainformation* in the information infrastructure of the country, i.e. (as mentioned above, the functions supporting:

- Specification of official infrastructural systems
- Standardization of official information systems and resources
- Organization
- Co-ordination
- Retrieval of information and metainformation
- Management of statistical resources, processes and systems
- Documenting of information processes, systems and resources

In modern ICT environment official statistics may effectively support other official, public and administrative information systems by providing them good information standards, professionally elaborated *metadata* (classifications, nomenclatures, typologies, coding systems, registers), and professionally elaborated *paradata* (standards and tools for organizing, documenting, identifying and retrieval of systems, databases, data files, stakeholders of information processes and systems, procedures of management of information systems etc.).

Nowadays the responsibility of official statistics for information equilibrium should not be limited to official statistics only, but the duty of NOSIS as an important, specific layer of information infrastructure of the country and as the segment of international (e.g. EU, ECE) and global (e.g. UN) information system, is to help other infrastructural information systems of countries to obeying general information standards, integrity and quality rules and requirements on national and international level. It seems that in global ICT

environment and in more active international cooperation the integrating and standardizing function of information infrastructure is an important mission of official statistical agencies.

7. Practical problems of statistical information transparency in varied international environment of Eastern Partnership

From the point of view of statistics, the NOSIS's of countries taking part in the Eastern Partnership initiative could be classified to three classes:

- a) developed market – driven economies,
- b) post - transition countries,
- c) countries in transition.

Ad (a) The NOSIS's of developed market - driven economies were developed in long lasting, slow, evolutionary process of adjustment of statistics to the changes of economic and social life, to new needs of users, to new international statistical standards introduced UN and other organizations and new ICT. International standards were elaborated with active, often leading contributions of experts from statistical agencies of developed market economies.

Ad (b) The NOSIS's of post – transition countries are the systems created on the basis of statistics of centrally planned economies. They have passed accelerated (*revolutionary*) process of deep reconstruction of legal and methodological foundations of economic statistics, rapid transition from MPS – based economic statistics to SNA standards. Main changes consisted in replacing MPS based metainformation – classifications, nomenclatures, terms and definitions, by SNA classification standards, often in their versions adopted by EU. The NOSIS's in many post-transition countries have also passed the process of reorganization of relations and cooperation between the NSI's, ministries, central banks and regional governments. Usually the ministries take more active part in statistical production processes, collecting and processing statistical questionnaires and modernizing their administrative information systems. The decentralization of production of statistics was not always accompanied by strengthening the coordinating role of central statistical institutes in the field of methodology. Because of that in some fields of statistics the excessive methodological diversification is observed. The NOSIS's of post-transition countries have also passed very deep technological changes of statistical processes. This technological reconstruction, modernization and upgrading is continued.

Ad (c) The NOSIS's of the countries - in - transition are in different phases of accelerated, dynamic changes in all fields of statistical activities: statistical laws, programs of surveys, statistical categories, metadata, organization and technology of statistical processes, statistical capacity building adjusted to dynamically changing needs and requirements of all stakeholders of statistical processes and systems. Those processes of transforming the NOSIS's are advanced in different degree, according to the strategies of transition of economies and of social life.

The models of the NOSIS's in the countries of all three classes characterized above are different. Main reasons of the differences result from the specificity of political, legal, social and economic model of particular country. For the post-transition countries (b) and countries-in-transition (c) the differences are also the result of the adopted in practice strategy of transition of official statistics from centrally planned to market driven economy. Those differences are one of the most important reasons of gaps in transparency, coherence and compatibility of statistical systems. They also cause practical problems of accessibility and interchange of information between countries and stakeholders of statistical processes.

Practical procedures of dissemination of statistical data and metadata and of user's access are regulated by national statistical offices. In practice the laws, organization, procedures, economic conditions and practical information services offered by statistical offices are different in each country. For incidental and casual users, especially for foreign users from other countries, this situation is rather uncomfortable. In special cases it is possible in some countries to hire the *infobrokers* (firms specialized in providing information from different sources on individual request of users, on commercial basis), however the costs of information services offered by *infobrokers* are high and the quality of services is rather uncertain.

Often the institutional end – users (governments, businesses, social organizations) and the scientists, researchers and advisors need information from many countries and regions. They are looking for coherent, uniformed, interpretable, comparable data. Many of them need statistical information matched with administrative, scientific and commercial information. In such cases retrieval of complete, relevant, pertinent information from many countries and from many sources is extremely complicated for regular users, and for casual users it's a real pest.

The duty of official statistics is to develop end – user friendly information retrieval systems facilitating easy access of end – users to complete and pertinent information. International partnership of statistical agencies is the opportunity for developing statistical and related information retrieval systems on international scale.

8. Official statistical metainformation and parainformation standards as prerequisites of international information coherence

The foundation of transparency of social, economic and ecological processes on international scale is the implementing of relevant international statistical standards by all partners. Extremely important are metainformation and parainformation standards.

The process of implementing international metainformation standards in official statistics is rather advanced and the use of them in statistical surveys is rather common. Statistical agencies that are using national classifications, nomenclatures and definitions of terms, have elaborated, are maintaining and updating the classifications, nomenclatures, code lists, glossaries of terms, correspondence tables and methodological comments to definitions of concepts, algorithms of computing indexes and derived indicators.

In transition countries as well as in post-transition countries the processes of implementing new standards and methods in official statistics are rather well documented. This documentation is helpful for external end users for retrieval and interpretation of data. However often those detailed documentation is not available for the public, on the website of statistical agency. The access to full metainformation resources, including detailed documenting of methodology, is the task of statistical agencies. This obligation was directly was expressed in the UN Fundamental Principles of Official Statistics.

Official statistical and administrative information systems are very complicated and non-transparent for external users, even for regular users. Usually the retrieval of relevant data is the process of several stages of identification:

- 1) country or region
- 2) information system
- 3) survey
- 4) data base
- 5) data file
- 6) pertinent data
- 7) metainformation relevant to retrieved data

The multi-level process of retrieval and access to information is realized with the help of *parainformation*. As it was mentioned above, the information on information systems, processes, resources and stakeholders is called *parainformation*¹. The development of *statistical parainformation systems* is in rather early stage of development. Methods of designing and managing parainformation have been developed by information scientists and widely adopted in librarianship and in scientific and technical information systems. It

¹ The term *parainformation* was proposed by ICT experts for information on information systems, processes, resources, and stakeholders of information systems and processes. This term is not correct etymologically, but it occurred very useful in practice.

seems that statisticians should study the methods and practical experiences of librarians and adapt them creatively to the specificity of statistics.

For effective, user – friendly retrieval of statistical data there are necessary coherent metainformation standards and - what is still in the phase of research and experimental implementations – *statistical parainformation standards*. Harmonization of parainformation standards on international scale is still the future, hopefully not very distant future.

Practical information retrieval in heterogeneous information systems environment requires complex parainformation bases and metainformation bases. End – users should be given the tools for full identifying the existence of pertinent information in information systems, databases and publications. They should be navigated, how to access pertinent data, what are legal, economic administrative and technical constrains and conditions of access and use of required information. The answer to such questions shall be given by statistical parainformation bases. After getting positive answer from parainformation base, the users should be navigated to next phases of retrieval, accessing metadata base, formulating detailed queries in metadata-based retrieval language. The end - users should get final information together with all relevant metainformation.

However it would be a *wishful thinking* to expect that standards harmonizing parainformation on international scale will be commonly used in short time. Official statisticians are in the beginning of developing harmonized parainformation systems. What seems to be realistic is the designing of **common platforms for storage of structured parainformation**. The idea of such platform is presented below.

9. Common platform of statistical metainformation and parainformation – the tool of international information transparency and interchange

In many information systems (librarianship, scientific and technical information, business information etc.) effective tools supporting transparency and interchange of information on international scale are metainformation and parainformation platforms. In librarianship and in scientific information systems the interchange of information via metainformation and parainformation platforms is rather common. However in administrative and statistical information systems those methods and experiences are known by IT researchers. Statisticians have not paid the attention to the achievements of their colleagues from libraries and scientific information management centers. It seems that main problem of rather conservative approach of statisticians to information retrieval methods and techniques is the monopolistic position of official statisticians on their segment of information market, the monopoly for production and dissemination of official statistical data man metadata. However this monopolistic position has come to the end in the field of dissemination. Dissemination of official statistical information

is in hands of specialized portals, professional mass media as well as other intermediaries on information markets (national and international press agencies, *infobrokers* etc.).

Dissemination of statistical information and metainformation by the mass media and other intermediaries for the public, for non-professional, casual users could be accepted by statistical offices, if the mass media and intermediaries obey the rules of precise representation and interpretation of real content of statistical data. In case of dissemination of erroneous data, erroneous interpretation and incorrect presentation of statistical variables, indicators and indexes, statisticians should actively react explaining the errors (see UN Fundamental Principles of Official Statistics).

In modern ICT environment official statistical institutes have got new, exceptional opportunity of direct dissemination of statistical information to all professional users and to the public using Internet. The modern ICT enables also to define individually profiled information services for regular professional users and to provide direct information services for “VIP-users”. Those users could also be offered direct access to statistical data and metadata stored in database system or data warehouses.

Problem that needs improvement is the lack of simple, reliable, end - user friendly query languages for data and metadata retrieval. Usually each survey has its own metadata. Each database system is using specific procedures for accessing data and retrieving relevant information. On international level those problems are much more complicated. The postulate - often met in statistical ICT literature - standardization *ex ante* of all catalogues of statistical variables in the NSS, harmonization of names of variables and developing on this basis one query language for all surveys and data sets generated by surveys seems to be pure wishful thinking.

Much more realistic is the developing of *tailored metadata and paradata bases* realizing the functions of the gateways between end – users and statistical data stored and maintained in existing forms and structures. Those retrieval gateways – *metadata and paradata platforms* – are scalable according to the possibilities and need of statistical systems and end-users. They could be developed also for heterogeneous complex of many NOSIS’ in the form of common meta- and parainformation platform. The meta- and parainformation platform can also work in multilinguistic environment, storing metadata in many national languages and maintaining multi-linguistic correspondence tables .

The concept of the statistical common meta- and parainformation platform for retrieval and dissemination of statistical and related data is the adoption of similar platforms that are constructed in many other (but not in official statistics) information retrieval systems for multi-linguistic hypertexts. From technological point of view the parainformation platform is the data warehouse storing weak - structured information describing in harmonized form the objects of NOSIS’ and

related information systems and resources. Basic metainformation and parainformation objects stored on the platform are following:

- Statistical offices (institute, office, regional and local units) and its organizational structure
- Metadata bases: classifications, nomenclatures, code lists, registers, frames, glossaries)
- Statistical surveys
- Administrative records
- Administrative data sources
- Primary records used as statistical data sources
- Statistical microdata bases
- Statistical output data bases and warehouses
- Publications containing official statistical information
- Archived statistical files
- Stakeholders of statistical processes: managers of source records, respondents, intermediaries, users (all types)

The parainformation platform should also store the descriptions of similar objects of statistical systems of ministries and other institutions realizing official statistical processes. It is recommend to store on the statistical parainformation platform not only statistical paradata but also the structured descriptions of objects belonging to other infrastructural information systems of the country, e.g. national information systems of taxes, social insurance, health insurance, registers of population, business registers, territorial registers, registers of infrastructural objects etc.

General model of structured description of objects stored in the platform is the documentation format in library or in scientific information system adapted to the specificity of each type of information system and process. It seems that the list of objects can easily be reduced to limited number of types of objects.

The parainformation platform should be opened for all interested statistical agencies that are ready to share their *parainformational descriptions* of statistical objects listed above in standardized structures and form, and – reciprocally – to get free and full access to equivalent parainformation supplied by other stakeholders of the platform, i.e. the parainformation on other official statistical and administrative systems.

The parainformation platform as the common tool for navigation in numerous national statistical information systems is simple, cheap and effectively supporting the statistical information retrieval in heterogeneous international environment. The parainformation requirements do not interfere in existing laws, procedures and structures of statistical systems of participating countries and statistical offices. Each national statistical agency may take the decision of the scope of parainformation that is willing to deliver to the platform for dissemination and interchange both on national and international level. The parainformation platform is adjusted to the specificity and constrains of heterogeneous international environment.

10. Conclusions

Political, social and economic cooperation between developed market economies, post-transition and transition countries of Eastern Partnership needs high level of information transparency, coherence and wide interchange of data between countries, governments, businesses, social organizations and researchers.

The mission of official statistical agencies of Eastern Partnership countries is the creating of legal, organizational, technological and informational conditions and tools of interchange of official statistical information of good quality, obeying methodological standards, accessible in simple and harmonized way by all stakeholders of statistical processes.

Common parainformation platform seems to be most effective way to achieve high level of information transparency between countries cooperating within the frames of Eastern Partnership.

The implementation of statistical parainformation platform for transborder regions shall benefit to more dynamic and complex cooperation on political, economic and social spheres in transborder regions of all countries.

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