

# *The Institutionalisation of European Statistical Harmonisation from the Perspective of the Network Society: The Role of Croatia in the European Statistical System*

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Following its accession to the European Union, Croatia became a member of the European Statistical System (ESS). The ESS has the characteristics of a network (polycentrism, decentralisation, and self-regulation), in which the Commission's (i.e. Eurostat) role is to lead the way in the harmonisation of statistics in close cooperation with national

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statistical authorities. The actors building and developing European official statistics are Eurostat, national statistical institutes, and other national statistical authorities which are responsible for the development, production, and dissemination of European statistics (such as national banks), as well as various interest groups. The analysis centres on the networking capacity of ESS institutions, the harmonisation process of official statistics itself, and the Croatian Bureau of Statistics' involvement in the work of the ESS. Finally, the authors reveal that the process of harmonisation of official statistics, which is a result of networking of all the statistical authorities of the EU, has expanded to the point that it has become institutionalised.

*Keywords:* statistical harmonisation, standardisation, European Statistical System, networking, institutionalisation

## 1. Introduction

Official statistics are an interesting factor for the functioning of the European Union (EU) from an economic and financial perspective because, first of all, statistical data determine the amount of member states' funds that will be directed to a common European budget. Statistical data also determine the amount that each member state can obtain from EU funds and have a significant impact on various kinds of policies, and so on. In addition, rating agencies evaluate a country on the basis of statistical indicators. Also, statistics play an important role in accessing the European Union. Chapter 18 of the statistics *acquis* contains about 500 regulations and is closely connected with all the other negotiation chapters, as it produces data for them (Valdevit & Godinić, 2009). After the accession, Croatia became a contributor to official European statistics, i.e., the European Statistical<sup>1</sup> System (ESS). The ESS has the characteristics

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<sup>1</sup> Official statistics are an important and free constituent of planning, management, and decision-making in everyday life, providing the government, the economy, and the public sphere with data. Statistical authorities determine user needs; they choose the relevant ones and transform them into measurable concepts for collection and processing. They provide a coherent and harmonised statistical and information system in accordance with agreed European and global standards. National and international statistical institutions, national and international central banks, and other authorised bodies publish statistical information on

of a network in which the Commission's, or Eurostat's, role (Eurostat is the coordinator of official European statistics) is to lead the way in the harmonisation of statistics in close cooperation with national statistical authorities. Eurostat, as the statistical authority of the EU, is responsible for the gathering and dissemination of harmonised and comparable data from the EU and the Eurozone. In cooperation with member states, financial institutions, and various interest groups, Eurostat creates and promotes statistical standards and strives to achieve a wider acceptance of those standards in the global community.

The cooperation of ESS members means the joint production of official statistics, use of integrated information systems, and sharing of tools and infrastructure between European member states. The implementation of this collaboration is planned as part of ESS Vision 2020, which is a framework for the development of the ESS in the years up to the 2020s. This collaboration "will be based on trust and intensive dialogues to agree on shared goals, collective resources, and accountability to stakeholders. It will require commitment, engagement and determination to achieve common objectives" (The ESS Vision, 2020). This is possible through centres of excellence, which will provide the instructional framework, but with active involvement of all the partners in the decision-making process. A centre of excellence as a form of collaboration refers to a team of persons or an entity that provides methodological expertise, support for IT solutions, and best practices and/or training in a focused area.

In this paper, the analysis centres on the process of harmonisation of official statistics, which is a result of the networking of all the statistical authorities of the EU. Therefore, the purpose of the paper is to enhance understanding of the networking capacity of ESS institutions, the harmonisation process of official statistics itself, and the Croatian Bureau of Statistics' involvement in the work of the ESS. Another aim of the paper is to demonstrate the extent to which the process of European statistical harmonisation has become institutionalised.

As the methodological apparatus, content analysis is used for processing publicly available data which were collected from Eurostat's web portals<sup>2</sup> for harmonisation. The analysed material consists of recommendations

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infrastructural areas of life, such as general and regional statistics, economics and finance, population and living conditions, industry, trade and services, agriculture, forestry and fishing, international trade, transport, environment, energy, and science and technology.

<sup>2</sup> <https://ec.europa.eu/eurostat/cros/>, <https://www.cen.eu/about/RoleEurope/ESS/Pages/default.aspx>

for harmonisation and standardisation, calls for work in ESS projects, and conclusions from meetings and similar documents in which Eurostat addresses national statistical institutes on the subject of harmonisation.<sup>3</sup>

The research contribution of this paper is reflected in new insights into the impact of supranational institutions on nation state institutions, a better understanding of the roles of ESS members in lending legitimacy to the harmonisation process, and the possibility of using this conceptual and methodological research framework in other institutional or social structures.

The paper is theoretically based on the concept of institutionalisation and on some principles of the network theory. The concept of institutionalisation derives from institutional theory, which analyses the deeper and more resilient aspects of social structure. It considers the processes by which structures, including schemas, rules, norms, and routines, become established as authoritative guidelines for social behaviour. It enquires how these elements are created, diffused, adopted, and adapted over space and time, and how they fall into decline and disuse (Scott, 2004). A structure that has become institutionalised is one that has become taken for granted by members of a social group as efficacious and necessary; thus it serves as an important causal source of stable patterns of behaviour (Tolbert & Zucker, 1996). On the other hand, network theory understands a network as a system in which a group of elements can exchange information, and it is usually some kind of structural theory and systems theory. The most general one is systems theory, in terms of which a network can be defined as a relatively open system linking at least three relatively closed systems. The relatively closed system is the unit and at least three of these create a network. These units can be viewed as relatively closed systems because they contain elements that primarily act among themselves to reproduce the unit in a (pre)determined way. Another important aspect of systems theory is the self-regularity of systems through feedback. To be able to function well, the system must be efficient. As soon as these closed units are forced, for one reason or another, to interact with their environment and to link themselves to other units in a network, they create an open system. In an open system, complete determination

<sup>3</sup> This research has been carried out by Nevena Jerak Muravec, one of the authors, for her PhD thesis. The title of the dissertation, which, at the moment of writing, has been accepted for defence at the Faculty of Humanities and Social Sciences of the University of Zagreb, is *Diskurzivna analiza ideologije europske statističke hamonizacije (Discourse Analysis of the Ideology of European Statistical Harmonization)*.

is lost and replaced by chance and random events, which allows change and new opportunities. This is the secret of networks or of networking as an organisation principle. Explained in a biological sense, networks can be seen as adaptive systems which support interactions within and between system units. Increasing or intensifying interaction leads to more variation in information retrieval and communication. This means that individual units need to be networked so that the multitude of information that is managed by any individual unit can also be used elsewhere throughout the system. The final process is selection, in which the goal of networking is reached: choosing the most successful actions and actors. After a particular system has been adapted, retention follows (van Dijk, 2006). In the following text this theory will be transposed to the ESS.

## 2. European Statistical Networks

A prerequisite for significant impact in the global statistical environment is the cooperation and mutual action of all European statistical authorities. Globalisation, the development of information technology, and EU enlargement are all factors that have led to major changes in cooperation modes of European statistical authorities. Even though social networks are a very old form of social organisation, now social networks are powered by microelectronics-based information and communication technologies (Castells, 2004). According to Castells, we live in an Information Age which has brought about new information technologies, particularly communication technology, and “dominant functions and processes in the Information Age are increasingly organized around networks” (Castells, 2000, p. 500). Communication technologies, such as the internet, allow for the decentralisation of operations and focusing of control, increasing the effectiveness of networks relative to hierarchical structures. Castells argues that power now rests in networks and networks constitute the new social morphology of our societies, and the diffusion of networking logic substantially modifies the operation and outcomes in the process of production, experience, power, and culture. These networks are based on IT, computer-mediated communication in the “space of flows”, in which a dizzyingly rapid flow of information takes place (Castells, 2000). Furthermore, networks also exist within and between businesses, where the organisational unit has shifted from being capability-oriented (e.g. accounting, human resources, etc.) to being project-oriented. Resources (including employees, consultants, and other businesses) are brought

together to work on a particular project, then disbanded and reallocated when the task is complete. The ability of an actor in a network (a company, individual, government, or another organisation) to participate in the network is determined by the degree to which the node can contribute to the goals of the network. This new environment requires skilled and flexible workers. This leads to a binary process of inclusion and exclusion from the network, because the network is a set of interconnected nodes. A node is the point where the curve intersects with itself. A network has no centre, just nodes (Castells, 2004). The ESS can be seen as a network. Nodes in this network are national statistical institutes (NSIs) of 28 member states, financial institutions and other international organisations that have an impact on the EU, and indirectly or directly on the ESS, as well as Eurostat. Although Eurostat is leading the harmonisation process, it is also a node due to initiatives from member states. The relative importance of a node does not stem from its specific features but from its ability to contribute to the network's goals, and all the nodes in a network are necessary for the network's performance (Castells, 2004). Eurostat does not conduct statistical research (statistical surveys); only national statistical authorities do. Eurostat collects data for EMU<sup>4</sup> and develops statistical systems in candidate countries for EU membership. This may be the reason why Eurostat has this mechanism and forces member states to become involved in the harmonisation process.

Networks do not usually have a single centre. They are polycentric, as some nodes are (much) more important than others. For this reason, the network society is less centralised in the sense of having single centres in the economy, politics, government, and culture. They are replaced by a multitude of centres cooperating and competing with each other. Concerning polycentrism, Magonette (2013) claims that the "EU is more integrated than the classic international organization in terms of cooperation and imposed legal and political obligations, and also guarantees greater independence to its members than one that enjoys components of the federal government" (p. 17), regardless of the fact that the Union has a central executive power (the Commission), with counterbalancing powers: one representing each state (the Council of Ministers) and the

<sup>4</sup> The Economic and Monetary Union (EMU) is an umbrella term for the group of policies aimed at converging the economies of EU member states in three stages. The policies cover the 19 Eurozone states, as well as non-euro EU states. [https://en.wikipedia.org/wiki/Economic\\_and\\_Monetary\\_Union\\_of\\_the\\_European\\_Union](https://en.wikipedia.org/wiki/Economic_and_Monetary_Union_of_the_European_Union)

other representing the Union as a whole (the European Parliament). The system is completed by the European Council, which performs the functions of “Head of State” and the Court, which resolves conflicts. Magnette (2013) also notes a remarkable similarity of the EU with classic federal regulation, particularly that of Germany. But the founders of the Union: Jean Monnet, Paul-Henri Spaak, Konrad Adenauer, and Robert Schuman, as he says, were ordinary statesmen and not federalist idealists. They were convinced that states which cooperate with each other are the fundamental pillars of European policy.

Furthermore, let us briefly comment on the supranational characteristics of the EU. Societies evolve and change by deconstructing their institutions under the pressure of new power relationships. The twin processes of globalisation and the rise of communal identities have challenged the boundaries of the nation state as the relevant unit to define a public space. The nation state is not disappearing (quite the opposite), but its legitimacy has dwindled as governance has become global and governments remain national. Castells points out that “nation-states renounce part of national sovereignty accessing the EU, which weakens them and strengthens the supranational institution” (Castells, 2007, p. 258). Castells also says that the EU is an important instrument for the survival of nation states within the Union, provided that the nation states gradually surrender part of their sovereignty in exchange for greater participation in global and domestic developments in the globalisation era (Castells, 2003).

## 2.1. Statistical Harmonisation

In the discourse of official statistics, statistical harmonisation is a generic term for procedures that aim to achieve, or at least improve, the comparability of surveys from different countries. The genesis of the harmonisation process coincides with the development interests of the scientific community towards statistical surveys, which began in the second half of the 19th century. Consequently, the International Statistical Institute (ISI) was founded. The ISI is an international institution which deals with the development and improvement of statistical methods and their application. It has consultative status with no direct impact on statistical offices and is one of the oldest active scientific statistical authorities in the world. By collecting data from different countries on a voluntary basis, comparative analyses pointed to clear statistical discrepancies between countries. This knowledge paved the way for the idea of approximating statistical results



from different countries; that is, it demonstrated the need for a real harmonisation process. The United Nations Statistical Commission, which is in charge of improving the comparability of statistical results and further development of statistical methods, began to work systematically on the standardisation of concepts. Also, many recommendations and standards are achieved as a result of the work done by the Conference of European Statisticians (CES). An effective impetus for harmonisation in the European statistical area has been the gradual emergence of the EU; i.e., EU enlargement, thereby increasing the requirements for the comparability of statistics and the cross-border phenomenon.

Generally speaking, the harmonisation of official statistics means a compliance of production methods, business and information processes, and IT solutions. In this context, harmonisation implies generic and commonly accepted information concepts and methods, a common legal framework and terminology, as well as modular and interoperable IT infrastructure. Harmonisation methods can be applied at any stage of the life cycle of the statistical survey (preparation and production of statistical methodologies, development of instruments for research, collection, data processing and analysis, or dissemination and evaluation).

The European Statistical System was built up gradually with the objective of providing comparable statistics at EU level. The ESS is a partnership between the statistical authority of the Union, which is the Commission (Eurostat), national statistical institutes (NSIs), and other national authorities responsible in each member state for the development, production, and dissemination of European statistics. The partnership also includes the European Economic Area (EEA) and European Free Trade Association (EFTA) countries.<sup>5</sup> The ESS functions as a network in which Eurostat's role is to lead the way in the harmonisation of statistics in close cooperation with national statistical authorities. The ESS also coordinates its work with candidate countries, and at the European level with other Commission services, agencies, and the ECB, and international organisations such as OECD, the UN, the International Monetary Fund, and the World Bank. EU member states collect data and compile statistics for both national and EU purposes and deliver validated data to Eurostat. Eurostat publishes aggregate data from the EU and the euro area. The role of Eurostat is to consolidate information and ensure production according to established rules and

<sup>5</sup> More at: <http://ec.europa.eu/eurostat/web/ess/about-us>



statistical principles, as well as to provide comparability and the use of harmonised methodology. Comparability is a precondition for the harmonised exchange of standardised metadata and data between national statistical authorities and Eurostat, and for the constitution of European statistics in the global statistical and information environment. The harmonisation process within the ESS is established on the basis of the European Statistics Code of Practice, whose principles, along with the general principles of quality management, jointly frame the quality of the ESS. Comparability is one of the quality criteria of official statistics. The process of harmonisation is becoming part of a binding contractual relationship within the ESS. European treaties indicate that the Commission may request from member states all the information necessary to perform the tasks that are entrusted to them and carry out verification or validation, and may legitimise any request from Eurostat towards member states. Also, European institutions can issue legal acts such as regulations and directives, which allow the Commission to receive the requested information (Ehling, 2003). The integration of the ESS provides synchronisation and standardisation of statistical methodology for data collection, data validation, dissemination, and communication within the ESS; access to microdata for researchers; harmonisation of IT infrastructure; and sharing of IT tools to facilitate the use of the agreed statistical methods. In addition, the integration provides the harmonisation of metadata, which enables an easy and efficient exchange of data and metadata, and this in turn leads to better quality and higher productivity of statistical data processing.

## 2.2. Statistical Standardisation

The concept of harmonisation is often associated with the concept of standardisation. Standardisation is an important component of communication in the modern information society and a prerequisite for the further integration of data, methods, and processes within the ESS. Standards are collaborative tools and a prerequisite for a “common language” in the field of statistics; they reduce duplication and consolidate the use of statistical products in the global information community by increasing the accessibility, interpretability, and comparability of statistics. Statistical standards are clearly defined rules on conducting statistical surveys in order to provide comparability of results obtained, both at the national and international level.

On 14 April, 1994 the United Nations Statistical Commission adopted the fundamental principles<sup>6</sup> of official statistics that are still valid today. The 20<sup>th</sup> anniversary<sup>7</sup> of adopting the fundamental principles was used as an occasion for revision and an update, and their additional worldwide promotion and implementation. The principles of statistics are: professional independence, impartiality and relevance, professional standards and ethics, accountability and transparency, prevention of misuse, sources of official statistics, confidentiality, legislation, national coordination, the use of international standards, and international cooperation. From these principles the fundamental principles of European and Croatian official statistics are derived. Principles 9 and 10 are the most interesting ones.

**Principle 9: Use of international standards**

*The use by statistical agencies in each country of international concepts, classifications and methods promotes the consistency and efficiency of statistical systems at all levels.*

**Principle 10: International cooperation**

*Bilateral and multilateral cooperation in statistics contributes to the improvement of systems of official statistics in all countries.*

(United Nations Fundamental Principles of Official Statistics)

Dramatic changes in the statistical environment, primarily the large influx of data, are a big problem for statistical producers. One solution is statistical production based on standards; this phenomenon is known as “industrialisation” in official statistical discourse. The strategic response of the ESS was the establishment of the High Level Group for Strategic Development in Business Architecture in Statistics – HLG (now called the High-Level Group for the Modernisation of Statistical Production and Services), in order to harmonise the work of different groups which act under the auspices of the Conference of European Statisticians and other groups in the field of modernisation of statistical production. The projects that were carried out under the auspices of the HLG resulted in fundamen-

<sup>6</sup> <http://unstats.un.org/unsd/statcom/1994-special-session/documents/statcom-1994-special-report-E.pdf>

<sup>7</sup> [https://www.unece.org/fileadmin/DAM/stats/documents/technical\\_coop/2014/mtg3/Implementation\\_Guidelines\\_FOC\\_state\\_of\\_the\\_art\\_September\\_2014.pdf](https://www.unece.org/fileadmin/DAM/stats/documents/technical_coop/2014/mtg3/Implementation_Guidelines_FOC_state_of_the_art_September_2014.pdf)

tal business and IT standards of the ESS (GSBPM, GSIM<sup>8</sup>, and CSPA). GSBPM is the acronym for Generic Statistical Business Process Model and is used to define and describe statistical processes in a coherent way. GSIM is the acronym for Generic Statistical Information Model – a conceptual model that provides a set of standardised, consistently-described information objects and flows, which constitute the inputs and outputs in the design and production of statistics. GSBPM and GSIM form the basis of the CSPA (Common Statistical Production Architecture). The CSPA is the statistical industry reference architecture for statistical production. It fosters interoperability in official statistics (sharing software is easier). The process of standardisation has been developed for the ESS by the Sponsorship on Standardisation and the ESSnet on Standardisation (both available on CROS-portal; Collaboration in Research and Methodology of Official Statistics<sup>9</sup>). There are numerous ESS documents on standardisation available through network collaboration systems, such as the CIRCA<sup>10</sup> or CROS-portal, including regulations, recommendations, methodological manuals, gentlemen's agreements, and other documents. In order to achieve the optimum degree of order in the context of the implementation of the mission and vision of the ESS, an ESS standard has been established and approved by ESS members. This standard provides rules, guidelines, or characteristics for the development, production, and dissemination of European statistics for common and repeated use by several actors in the ESS. The principles of the ESS standardisation are: consensus, transparency, openness, balance, due process, and relevance.

### 2.3. Croatian Statistical Authority within the European Statistical System

The emergence of statistics in Croatia dates back to 1875, when Croatian Viceroy Ivan Mažuranić, prompted by the relatively difficult living conditions in the former Kingdom of Croatia, Slavonia and Dalmatia (which was then part of the Austro-Hungarian Monarchy), initiated the study of social and economic circumstances to calculate specific indicators based

<sup>8</sup> More on GSBPM and GSIM: <http://www1.unece.org/stat/platform/display/metis/The+Generic+Statistical+Business+Process+Model>

<sup>9</sup> <http://ec.europa.eu/eurostat/cros/>

<sup>10</sup> CIRCABC is a collaborative platform, which offers an easy distribution and management of documents.

on which specific measures to improve living standards would be taken. The national statistical office began its work on August 1, 1875, and the first yearbook with data calculated for 1874 was published two years later. The territory, structure, and names of the office have changed several times throughout the years and finally, in 1992, the Republic of Croatia established the Central Bureau of Statistics (CBS). The production of statistics was sustained throughout all that time and the office is independent in its work.

The CBS is a government administrative organisation that is autonomous in performing its activities in line with the provisions of the Official Statistics Act (NN 12/13, consolidated text). Its regular statistical surveys are based on the Programme of Statistical Activities of the Republic of Croatia 2013-2017 (NN 69/13) and the Annual Implementation Plan of Statistical Activities, which define all the institutions that, along with the Bureau, form the Croatian system of official statistics. The CBS is the main producer, disseminator, and coordinator of the official statistical system of the Republic of Croatia, as well as the main representative of the national statistical system in front of European and international bodies in charge of statistical affairs. The Annual Implementation Plan is based on the national users' needs and EU requirements as is set out in the Eurostat Statistical Requirements Compendium. Most statistical activities are financed by the national state budget and some are financed by EU grants, the implementation of which is supervised by Eurostat.

The Croatian official statistics body has always been part of the European Statistical System, although Croatia only joined the EU on 1 July, 2013. Previously, Croatian statistical authorities had harmonised national statistical processes with the ESS. Following Croatia's accession to the EU, the national statistical system formally joined the supranational organisation (ESS) and the nature of their relationship became obligatory. This implies the acceptance and adoption of the legal framework of the supranational organisation, and the business and technological processes and infrastructure of the national organisation have started to depend upon the system of the supranational organisation. Although this process, as was noted earlier, began even before Croatia's accession to the EU, it was intensified on joining the European family of statistical institutions. The CBS shows strong tendencies towards continuing the harmonisation of the Croatian system of official statistics with the ESS.

The CBS has implemented an adjusted GSBPM, whose template is used for describing and documenting every statistical survey in a standardised

way. GSBPM was chosen because it exhaustively describes and defines a set of business processes needed to produce official statistics. It provides a standard framework and harmonised terminology in order to help statistical organisations to modernise their statistical production processes, as well as to share methods and components. The GSBPM is also used for integrating data and standardisation of metadata, as a template for process documentation, for harmonising statistical infrastructures, and to provide a framework for process quality assessment and further improvements.

The CBS has developed a central metadata repository (CROMETA) as the driver of the statistical production system. The CROMETA model contains Reference Model concepts originating from Eurostat's MetaNet project (2000-2003). The Reference Model incorporates different types of metadata that describe statistical data and processes, and was the basis for the implementation of the integrated statistical information system, which processes statistical surveys and provides a tabulation process.

Statistical surveys and other statistical activities use classifications according to national and international standards. Classifications, their versions, and levels constitute an important area of metadata and are included in the central database. Therefore, the CBS implemented the GSIM Statistical Classification Model.

The CBS made validated and protected census data for 2011 available to Eurostat's Census Hub, which is based on the SDMX<sup>11</sup> standard. The Census Hub is designed to provide an effective solution for the dissemination of census data and metadata that are methodologically comparable and equally structured in all member states. Users have the flexibility to cross tabulate different tables, an easy access to data, and detailed data which is methodologically comparable. Census data are not collected and stored in one place, but access to the database of each country is organised directly through Eurostat hubs. This is the "pull" method of gathering

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<sup>11</sup> SDMX, which stands for *Statistical Data and Metadata eXchange*, is an international initiative that aims to standardise and modernise ("industrialise") the mechanisms and processes for the exchange of statistical data and metadata among international organisations and their member countries. SDMX message formats have two basic expressions, SDMX-ML (using XML syntax) and SDMX-EDI (using EDIFACT syntax and based on the GESMES/TS statistical message). The standards also include additional specifications (e.g., registry specification, web services).

data.<sup>12</sup> The CBS also transmits data to Eurostat, structured in the SDMX format for several statistical domains, currently using the “push” method. The CBS transmits reference metadata to Eurostat in the ESMS and ESQRS<sup>13</sup> structure. Reference<sup>14</sup> metadata describe the contents and quality of the statistical data. The ESMS is currently a unique structure in use by Eurostat for the dissemination of reference metadata at the European level. It is also the structure used for the collection of national reference metadata files from National Statistical Institutes, as stated in the Commission Recommendation 2009/498/EC. The EP and Council Regulation 223/2009 was voted into effect in March 2009. This legal act further details in its Art. 12 the list of quality criteria to be reported. Based on these documents and on Regulation 223/2009, a standard structure for the collection of quality reports was built and is called the ESS Standard for Quality Reports Structure (ESQRS). The ESQRS is now also used for the collection of national quality reports from National Statistical Institutes.

In order to establish a comprehensive system of quality, the Croatian Bureau of Statistics uses the model of Total Quality Management, which also contains the Code of Practice of European Statistics. This model offers the possibility of continuous improvement for each business process. Not only does it focus on products and services, but also on the users and their satisfaction, the active participation of employees, long-term business success, and social benefits. Communication is recognised as a

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<sup>12</sup> The *pull* mode implies that the data provider makes the data available via the Internet, and then the data consumer fetches the data on his own initiative. The *push* mode is traditional method. It means that the data provider takes action to send the data to the party collecting the data.

<sup>13</sup> In 2009, the SDMX community established and released the SDMX Content-Oriented Guidelines (SDMX COG). These guidelines recommend practices for creating interoperable data and metadata sets using the SDMX technical standards. They are intended to be applicable to all statistical subject-matter domains. The guidelines focus on harmonising specific concepts and terminology that are common to a large number of statistical domains. Based on the SDMX-COG, Eurostat selected 21 of the 66 cross-domain concepts in order to create a structure to be used for the dissemination of reference metadata on its website. These 21 concepts that form the Euro-SDMX Metadata Structure (ESMS) have been further broken down into several sub-concepts.

<sup>14</sup> Reference metadata should include all of the following: a) “conceptual” metadata, describing the concepts used and their practical implementation, allowing users to understand what the statistics are measuring and, thus, their fitness for use; b) “methodological” metadata, describing methods used for the generation of the data (e.g. sampling, collection methods, editing processes); and c) “quality” metadata, describing the different quality dimensions of the resulting statistics (e.g. timeliness, accuracy) (OECD glossary of statistical terms – <https://stats.oecd.org/glossary/detail.asp?ID=7076>).

key element of all statistical processes that affect business success. The CBS regularly submits quality reports (based on ESS metadata standards – ESMS and ESQRS), using templates prescribed for each statistical area by the responsible organisational unit of Eurostat. In order to produce a comprehensive quality report so that all quality indicators are taken into account, the CBS prepared a handbook entitled *Calculating Key Quality Indicators*.<sup>15</sup> These standards are the main harmonisation standards developed at ESS level.

### 3. Institutionalisation of the Harmonisation Process

In this chapter the mechanisms and practices that the European Statistical System uses for the articulation and establishment of the harmonisation process will be presented. Those mechanisms are legally and legitimately used within the ESS by its members, and their originator is mostly Eurostat.

The basic regulation governing the harmonisation process, the goal of which is the comparability of statistics across the EU, is the Commission's Regulation<sup>16</sup> No. 223/2009 of the European Parliament and of the Council of 11 March, 2009. This regulation provides the legal framework for the development, production, and dissemination of harmonised and comparable European statistics, and provides guidance for the cooperation of the ESS and the European System of Central Banks (ESCB), the management of the statistical system, the production and dissemination of European statistics, the establishment of working groups, guidelines for the activity of national statistical authorities, the confidentiality of data, the possibility of giving transfer grants to national statistical bodies and other statistical bodies, EU financial assistance for national and other statistical bodies during the implementation of temporary statistical measures decided upon by the Commission, and other matters. In addition to general regulations that apply to the entire area of statistics, there are a number of regulations governing individual statistical areas or domains.

<sup>15</sup> [http://www.dzs.hr/Eng/international/Quality\\_Report/Quality\\_Report\\_Documents/Quality\\_Report\\_Statistical\\_TQM.pdf](http://www.dzs.hr/Eng/international/Quality_Report/Quality_Report_Documents/Quality_Report_Statistical_TQM.pdf)

<sup>16</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009R0223&from=EN>



Eurostat monitors the work of national statistical authorities. Eurostat verifies the received data by means of various control mechanisms, logical and computational controls, quality controls, and the like, and if there is a deviation from the usual value, national authorities are obliged to either confirm the accuracy or correct inaccurate information. Furthermore, for violation of data transmission deadlines, financial sanctions may be imposed on member states for failure to comply with regulations. In order to avoid violation of data transmission, Eurostat introduced a mechanism for the proper and timely delivery of data: reminders to persons responsible for data transmission.

An important means of harmonisation is a systematic assessment of the compliance of national statistical authorities with the European Statistics Code of Practice (CoP): peer review in the ESS. Independent experts use an audit-like approach to conduct peer reviews of all EU member states, EEA / EFTA countries, and Eurostat based on Self-Assessment Questionnaires (SAQ) and a five-day visit to the reviewed country or organisation. All the answers in the questionnaire must be supported by evidence. Each peer review results in a report that contains recommendations for improvement. These recommendations must be implemented nationally within the time specified in the report.

Harmonisation is conducted following the principle of approaching an ideal state, starting from the current situation in each domain. Usually Eurostat has an initiative or request for the national statistical institutes and requires their opinion on the proposals of new standards, in the form of *Impact Assessment*.

Eurostat is the leader of the harmonisation process, but statistical methodologists are mainly from MSs, so there are numerous advisory boards, working groups, sector groups, task forces, and committees that operate at different levels on behalf of the ESS. All these bodies are established by the legislator to assist the Commission in developing methodology, terminology, definitions, standards, guidelines for the implementation of new methodologies, and other aspects. Representatives of all the EU member states and the European Economic Area (EEA) are invited to participate, but participation is voluntary, which means that engaging in the work of the ESS depends on the will and the initiative of individual organisations.

Eurostat is the moderator and leader of the harmonisation process. Eurostat sends preparatory documents for the meetings, and questionnaires to explore the views of the MSs on proposals and possible themes of the meetings, called the *Exchange of Views* questionnaires. Meetings are most-

ly led by Eurostat, which is responsible for electronic correspondence, distribution of materials to members, and the formation of the meeting agenda. Moving through the agenda items, member states express their agreement with proposals, disagreement, remarks, and the like.

Another instrument used by Eurostat to foster involvement and encourage member states to engage in cooperation and harmonisation within the ESS are EU funds, called *grants*. Eurostat approves non-refundable financial assistance for projects that will benefit the EU in the long run and can be used to develop the production process of statistics, or for the production of new statistics and similar improvements. In addition, this mechanism is useful beyond the ESS, as it can include various private consultancies, companies that will provide technical solutions, and so on. The purpose of grants is that everything that is produced is used continuously and developed further in the ordinary course of statistical production. Beneficiaries of grants must submit detailed reports on the use of funds to Eurostat, and these are called *deliverables*. Eurostat also provides consultants for each project (from another EU member state), and these monitor the progress of the project and provide advisory services to the beneficiary.

In principle, all ESS actors approve of the Commission's (Eurostat) requirements and activities. The purpose of statistical data is their use; therefore, Eurostat requirements are viewed as common sense. Harmonised statistics are the goal of any national statistical authority. However, the variety of different organisational and IT models that have been established by the statistical authorities of member states hinders the standardisation and industrialisation of the ESS. Additionally, any change in the ESS implies an adjustment of business and IT processes in all member states. This has created some controversy within the ESS networks, but this will be presented in another article.

## 4. Conclusion

Nation states are inevitably a part of transnational networks and thus depend on the achievements of powerful social actors as they give up part of their sovereignty in the process of integration. The same applies to national statistical authorities, specifically, national statistical institutes. Adapting to the global statistical environment is inevitable in order to achieve cooperation in established networks. Cooperation is based on the

ability to communicate between networks, and this ability depends on the existence of codes of translation and on interoperability between networks (protocols of communication), as well as on access to connection (Castells, 2004).

Networks operate in accordance with binary logic: inclusion/exclusion (Castells, 2004). If the national statistical institute, in this case the Croatian Bureau of Statistics, wants to be a part of the ESS network, it must comply with the requirements of Eurostat; otherwise it is excluded from the network, which can mean regression. There is a debate between the degree of integration of the EU MSs in the ESS and participation in the production of European statistics on the one hand, and production for national needs and preserving independence on the other. Croatian statistical production takes place in accordance with the principles of the ESS and national production is established on the basis of these principles. Hence, the Croatian CBS is firmly attached to the common official statistics network called the ESS and influenced by the central node, i.e., Eurostat.

In the process of interaction and exchange of data/knowledge/experience/influence with and across the ESS network, national statistical authorities and Eurostat (as nodes) can influence the development of the common environment. In information science, a network is a set of linked nodes with the possibility of each actor participating in the creation of the network. However, the network has no centre, only nodes. The nodes are different and need not be the same. It is important that nodes have certain specifics and special abilities that will allow them to remain autonomous, but also that they use their abilities and contribute to the work and development of the ESS network. Autonomous nodes in the context of European statistical harmonisation, are, for example, innovative Sweden, which has developed PC-Axis, a software package for the presentation and dissemination of statistical information; the Netherlands, which has developed Blaise, a computer system for interviewing in official statistics, used around the world; and, maybe one day, Croatia, with the Integrated Statistical Information System (ISIS) (which includes a system for the management of metadata, glossary terms for quality, base quality indicators, tools for processing validation controls, instruments for tabulation, and a tool for managing classifications). Furthermore, this system could become the basis for the development of a comprehensive statistical warehouse. ISIS has been developed within CBS Croatia, with their own resources, and is used in internal statistical production, but it has not had enough exposure or promotion that would bring it to the attention of the European Statistical System and Eurostat. This could actually be achieved

through centres of excellence. Therefore, if the future of the Croatian statistical system – specifically, the Croatian Bureau of Statistics – is to participate in the building of the European Statistical System, getting involved in the work of the common statistical system will be inevitable.

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## Legal sources

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### THE INSTITUTIONALISATION OF EUROPEAN STATISTICAL HARMONISATION FROM THE PERSPECTIVE OF THE NETWORK SOCIETY: THE ROLE OF CROATIA IN THE EUROPEAN STATISTICAL SYSTEM

#### Summary

*Following its accession to the European Union, Croatia became a member of the European Statistical System (ESS). The ESS has the characteristics of a network (polycentrism, decentralisation, and self-regulation); in which the Commission's (i.e. Eurostat) role is to lead the way in the harmonisation of statistics in close cooperation with national statistical authorities. The actors building and developing European official statistics are Eurostat, national statistical institutes, and other national statistical authorities which are responsible for the development, production, and dissemination of European statistics (such as national banks), as well as various interest groups. The analysis centres on the networking capacity of ESS institutions, the harmonisation process of official statistics itself, and the Croatian statistical institute's involvement in the work of the ESS. Finally, the authors reveal that the process of harmonisation of official statistics, which is a result of networking of all the statistical authorities of the EU, has expanded to the point that it has become institutionalised. The purpose of this article is to enhance understanding of the networking capacity of ESS institutions, the harmonisation process of official statistics itself, and Croatian statistical institute's involvement in the work of the ESS. Another aim of this paper is to demonstrate the extent to which the process of European statistical harmonisation is institutionalised.*

*Keywords: statistical harmonisation, standardisation, European Statistical System, networking, institutionalisation*

## INSTITUCIONALIZACIJA HARMONIZACIJE EUROPSKE STATISTIKE IZ PERSPEKTIVE UMREŽENOG DRUŠTVA: ULOGA HRVATSKE U EUROPSKOM STATISTIČKOM SUSTAVU

### Sažetak

Ulaskom u Europsku uniju Hrvatska je postala članica Europskoga statističkog sustava (ESS-a). ESS posjeduje svojstva mreže (policentrizam, decentraliziranost i samoregulaciju), dok je uloga Europske komisije, tj. Eurostata, voditi postupak harmonizacije statistike zajedno s nacionalnim statističkim tijelima. Za izgradnju i razvoj službene europske statistike zaduženi su Eurostat, nacionalni statistički zavodi i druga nacionalna statistička tijela (poput nacionalnih banaka) koja se bave razvojem, proizvodnjom i diseminacijom europske statistike, te također različite interesne skupine. Ovaj se rad bavi analizom kapaciteta umrežavanja institucija ESS-a, samim postupkom harmonizacije službene statistike i radom Državnog zavoda za statistiku u sklopu ESS-a. Autorice otkrivaju kako se postupak harmonizacije službene statistike, kao rezultat umreženog rada svih statističkih tijela Europske unije, razvio do te mjere da je postao institucionaliziran. Radom se nastoji pridonijeti razumijevanju kapaciteta umrežavanja institucija ESS-a, razumijevanju postupka harmonizacije službene statistike i rada Državnog zavoda za statistiku u sklopu ESS-a. Radom se također nastoji pokazati u kojoj je mjeri institucionaliziran postupak harmonizacije službene europske statistike.

Ključne riječi: harmonizacija statistike, standardizacija, Europski statistički sustav, umreženost, institucionalizacija

