

THE
ESS
REPORT

2013



EUROPEAN
STATISTICAL
SYSTEM

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CONTENT

- > Foreword **4**
- > What is the European Statistical System? **6**
- > Key achievements and initiatives of the European Statistical System in 2013 **9**
- > Interview with Marko Kristof, head of the Croatian Bureau of Statistics **14**
- > Role of the Presidency of the Council **16**
- > Interview with Pdraig Dalton, Head of CSO Ireland **18**
- > Interview with Vilija Lapeniene, Head of Statistics Lithuania **20**
- > Big Data **22**
- > Interview with Thomas Wieser, Chairman of the ESGAB **28**
- > Population census – the present and the future **30**
- > New communication channels for statistics **36**

FOREWORD

Are you a student about to write a thesis on the process of European integration? Or a teacher who has to explain Europe to their school class? Maybe your children have recently asked you how many people are out of work in your country? Or are you one of the people who work with statistical figures on a daily basis – a politician, an economist? If so, then our publication might be just what you were looking for.

Statistics play a decisive and continually growing role in the life of today's society. European policymakers and citizens alike keep requesting more and more information on areas such as globalisation, well-being and climate change. The financial and economic crisis has also clearly demonstrated the need for reliable and trustworthy statistics on the 'real' European economy and the financial sector for the proper functioning of EU economic governance.

Independent, impartial and timely data have become a solid part of democracy on our continent, just like the existence of multi-party political systems and equal voting rights for all citizens. With huge amounts of data of varying quality available on the internet, we would like to make it clear that we are referring to European Statistics as produced and released by official data producers, such as the national statistical authorities and Eurostat.

The brand "European Statistics" represents the highest quality of statistical information.



WALTER RADERMACHER
*Chief Statistician,
Director-General,
Eurostat, European
Commission*

Common agreed principles and standards, highly developed methodologies and modern technologies are applied to produce this information. European Statistics are based on facts and observations. For citizens, decision makers, researchers and journalists this guarantee of quality makes a difference when the daily flow of information turns into a flood.

The quality of European Statistics not only refers to its reliability, but also to its comparability across Member States. Producing harmonised high quality European Statistics is the main objective of the European Statistical System (ESS), uniting the National Statistical Institutes



KONRAD PEENDORFER
*Former Chairman, ESS
Partnership Group,
Director-General,
Statistics Austria*

(NSIs) of 28 EU Member States (in 2013 Croatia was welcomed as a new EU member), with those of the European Free Trade Association EFTA (Iceland, Liechtenstein, Norway and Switzerland) and Eurostat.

The aim of the 'ESS Report' is to take you behind the scenes and allow an insider's view into the world of statistical production on our continent. The Report will give you an annual overview of the most important developments in European Statistics and also shed light on the process of their modernisation.

In this edition of the ESS Report you will be able to find out about the organisation and

structure of the ESS and learn about some of its key achievements and initiatives in 2013. We feature an important consultative body, the European Statistical Governance Advisory Board (ESGAB), and its annual report on the activities of the ESS is presented in an interview with the Head of ESGAB, Thomas Wieser. The role of the rotating Presidency of the European Council is explained, while two countries, Ireland and Lithuania, summarise the main results of their 2013 Presidencies.

Next, we explain the concept of Big Data and reflect upon its usefulness for the world of official statistics. Big Data was one of the leading themes discussed at the annual meeting of the Directors-General of the European National Statistical Institutes. We then focus on population censuses, which count as the earliest statistical exercises known to man, in use for thousands of years. We look at how they work and explain the evolving methodology behind these complex statistical exercises. The final article deals with an array of new communication tools entering the world of statistics, which are a direct result of the latest advances in IT. They include mobile device applications, interactive graphics and the use of social media.

We hope that the ESS Report will bring the European Statistical System closer to you and at the same time reinforce your interest in statistical issues. ■

WHAT IS THE EUROPEAN STATISTICAL SYSTEM?



Meeting of the
Directors-General
of the National
Statistical Institutes
and Eurostat, held
in Scheveningen in
September 2013

Statistics were present from the very beginning of the construction of the European Union. In 1953, a statistical service of the European Coal and Steel Community was created. In 1958, when the European Community was founded, it became a Directorate General of the European Commission.

The expansion of the European Union and the development of new community policies brought forth an increasing demand for high-quality, comparable European statistics. This meant that a closer cooperation between Eurostat and the NSIs was needed and thus, at the beginning of the 1990's, the foundations of the European Statistical System (ESS) were laid.

The ESS was constructed as a partnership between Eurostat, NSIs and other national statistical authorities, i.e. institutions producing European statistics and included in national statistical systems. Today, it includes the 28 EU Member States and the countries that belong to the European Free Trade Association (EFTA): Iceland, Liechtenstein, Norway and Switzerland. At European level, the ESS coordinates its work with candidate countries and other Commission services, agencies, and cooperates with the European System of Central Banks (ESCB). In 2013 the European Statistical Forum was created, with the aim of enhancing the cooperation at strategic level between the ESS and the ESCB.

The ESS also collaborates with international organisations such as the Organisation for Economic Cooperation and Development (OECD), the United Nations, the International Monetary Fund and the World Bank.

The mission of the ESS is to provide all the citizens of Europe with independent, high-quality information on the economy and society on European, national and regional levels and make the information available to everyone for decision-making purposes, research and debate. The ESS Member States collect data and compile statistics for national and European purposes, while Eurostat leads the way in the harmonisation of statistics in close cooperation with the national statistical authorities.

Both Eurostat and the national statistical authorities of the ESS follow the principles set

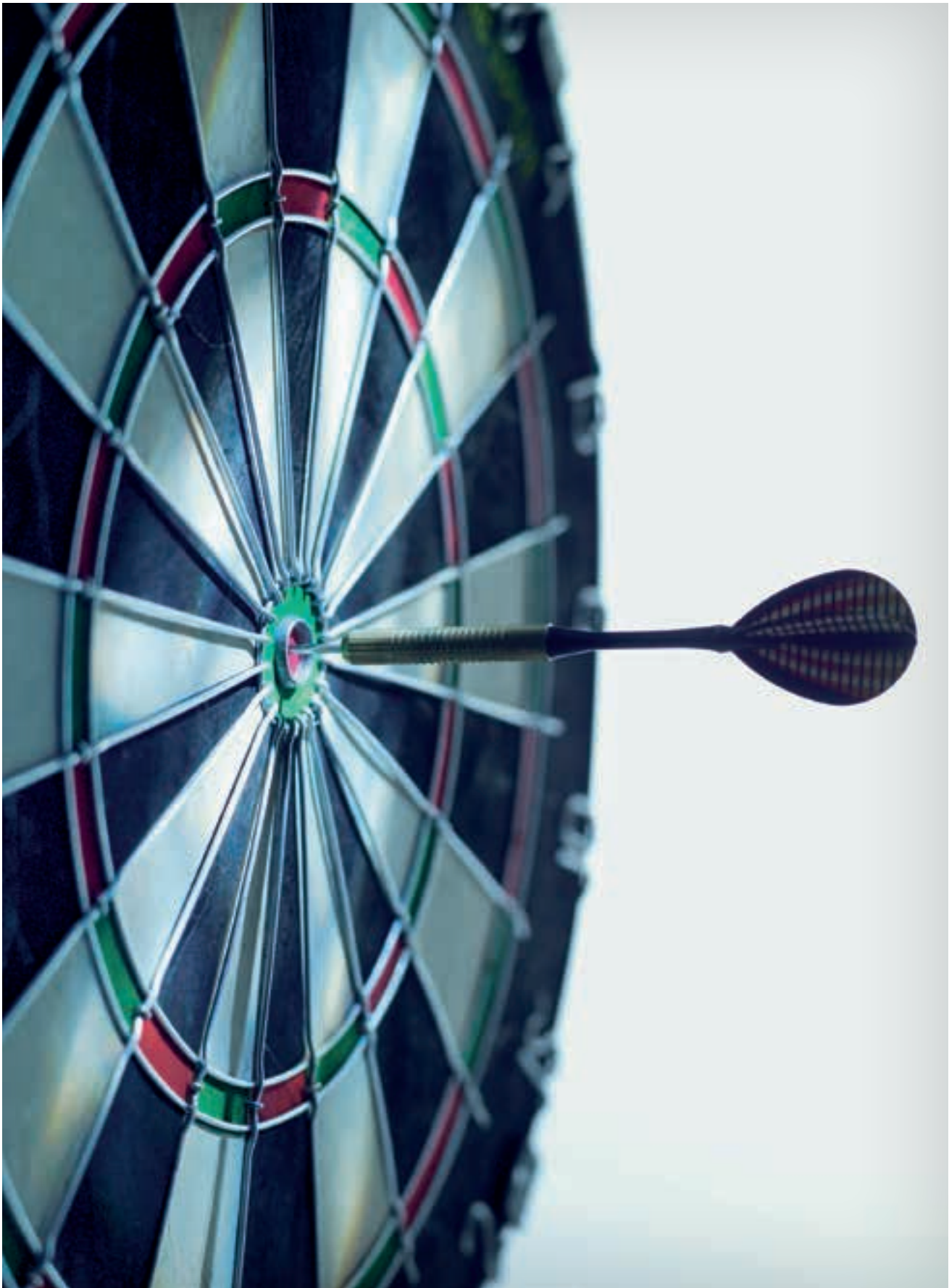
out in the European Statistics Code of Practice. The Code of Practice (CoP) contains a set of 15 principles that guide European statistics, among which are: professional independence, impartiality and objectivity, limited burden on respondents, cost effectiveness, accessibility and clarity. The CoP represents an important tool to reinforce the quality of statistics.

The European Statistical System Committee (ESSC) is the highest authority for the ESS. It is made up of the Heads of the Member States' NSIs and is chaired by the Director-General of Eurostat. Liechtenstein, Iceland and Norway, through the Agreement of the European Economic Area (EEA), and Switzerland through the Agreement between the EU and the Swiss Confederation on cooperation in the field of statistics, fully participate in the ESSC without the right to vote. Other participants are observers. The ESSC meets four times per year and its task is to provide professional guidance for developing, producing and disseminating European statistics and to discuss strategic issues for the development of the ESS.

To support the work of the ESS, two specialised entities were created in 2008: the European Statistical Governance Advisory Board (ESGAB) and the European Statistical Advisory Committee (ESAC). ESGAB is an independent advisory body composed of experts possessing outstanding competence in the field of statistics. Its task is to provide an overview of the ESS as regards the implementation of the CoP. This edition of the ESS Report features an interview with the Head of ESGAB, Thomas Wieser, on its latest annual report on the activities of the ESS.

ESAC, on the other hand, represents users and other stakeholders of European statistics, such as the scientific community, social partners and civil society, as well as institutional users, such as the Confederation of European Business, Committee of the Regions and the European Parliament. Its role is to ensure that user requirements are taken into account in developing the Statistical Programmes of the ESS.

Over the years, the European Statistical System has developed together with the European Union and now stands as a point of reference for high quality European statistics ■



KEY ACHIEVEMENTS AND INITIATIVES OF THE EUROPEAN STATISTICAL SYSTEM IN 2013

Statistical priorities and achievements of the European Statistical System in 2013 were closely linked to the policy needs of the EU, as statistics produced by the ESS play a key role in the definition, monitoring and assessment of European policies. In particular, many of the statistical achievements of last year followed the targets set in the European Union's ten-year growth strategy 'Europe 2020'. It would be impossible to mention all the achievements of the ESS in 2013; instead this article focuses on a selection of the most important developments and explains key statistical initiatives started last year.

The European System of National and Regional Accounts (ESA 2010)

National accounts play an important role in the governance process of the European Union. Gross Domestic Product, or more precisely Gross National Income, is the basis for the calculation of the EU budget, while regional GDP is used to rationally distribute structural funds between the regions of Europe. Ratios of public deficit and debt, calculated in percentage of GDP, are used to determine European fiscal policies under the Excessive Deficit Procedure, which can be launched by the European Commission against any Member State exceeding the budgetary deficit ceiling imposed by EU legislation. Quarterly growth rates of GDP influence the monetary policy of the Eurozone. The above examples show how important it is that the methodology used for compiling national accounts is kept up to date.

In 2013, a crucial update of the existing European System of National and Regional Accounts



(ESA 1995) regarding methodology and data transmission rules was officially adopted. The resulting ESA 2010 reflects recent developments in modern economies and, in particular, the importance of research and development for economic growth, advances in methodological research as well as increased needs of statistics users. ESA 2010 is the European equivalent of the System of National Accounts 2008 (SNA 2008), developed by the United Nations Statistical Commission in cooperation with a number of international parties, including members of the ESS.

ESA 2010 will be implemented across the ESS starting in September 2014.



Improved timeliness

One of the important advances directly linked to the introduction of the new ESA 2010 is a more timely publication of statistical figures. Improved timeliness has for long been one of the more urgent demands on the part of data users. The introduction of ESA 2010 will address this concern in a number of domains. For instance, quarterly GDP and main aggregate figures will, from September 2014, be published just two months after their reference period (described as 't'). With this change, the ESS will match the internationally important benchmark of t+60 days for the release of the first quarterly main aggregates data. More timely data will be also published on the quarterly non-financial sector accounts and the financial accounts of general government for euro area members. Here, the new release date will be t+85 days.

Another important data set for policymakers concerns gross value added and employment at regional level. These figures are crucial for the allocation of the EU's structural funds, created to financially help the poorest parts of the EU and reduce regional differences. Currently, this information is only available 24 months after the

end of the reference year. This deadline will now be advanced to 12 months, which will provide much more timely information for European policymakers.

In the important area of social statistics, steps are being taken to speed up the delivery of official data. As the Commission has requested more timely data on inequalities and poverty, an action plan has been agreed among ESS members to improve the current situation. A pilot exercise involving nine EU Member States sending their early data on material deprivation was conducted in 2013. Intensive collective efforts continued across the whole ESS, with some visible results, although at this stage Member States can only make progress at a rate depending on their national circumstances.

European System of environmental accounts

Environmental accounts deal with the links between the environment and the economy, both at EU and national levels. They measure the impact the economy has on the environment, such as resulting air pollution, and they also look at how the environment contributes to the economy,

for instance by looking at the use of raw materials and resource efficiency.

Those measurements are conducted by using the accounting framework and concepts of the national accounts and alert the policymakers to the need to intervene if, for example, the production and consumption patterns of a society start exercising negative effects on their natural resources and the environment.

The EU 2020 growth strategy fixed three main targets for climate change and energy sustainability. They are to lower greenhouse gas emissions by 20% compared to 1990, to achieve 20% of all EU energy from renewables, and to increase energy efficiency by 20%.

In September, for the first time ever, the first data from ESS Member States on air emissions and environmental taxes became available. Then, in December, the figures were published on the material flow accounts.

The policy needs for data on the mutual interactions between the economy and the environment have been developing fast in recent years and so have environmental accounts. The seventh EU environment action programme, adopted in 2013, includes resource efficiency and low-carbon dimensions and stresses the maintenance of natural capital and biodiversity. Three new modules of the environmental accounts have been jointly developed by ESS members (environmental protection expenditure, environmental goods and services sector, and physical energy flow accounts) and data collections will start soon.

Resource efficiency indicators

Natural resources, such as materials and minerals, clean air and water, arable land and fish stocks are crucial for European economies and the quality of life of EU citizens. Their proper and careful use guarantees economic growth. However, measuring resource efficiency has always been a statistical challenge.

In December, Eurostat presented for the very first time the ‘European Resource Efficiency Scoreboard’, compiled in collaboration with its

ESS partners. The scoreboard is a set of tables listing 30 indicators helping to assess the use of natural resources in the EU and monitor progress towards creating a resource-efficient economy.

Today, users of the scoreboard can get an instant idea of the greenhouse gas emissions per capita generated by individual EU Member States and the EU as a whole, check the figures on water use or on the generation of waste and recycling.

The publication of the scoreboard last year gave a major boost to the implementation of the so-called ‘resource-efficient Europe initiative’, an important part of the European Union’s Europe 2020 growth strategy. The initiative, which “aims to create a framework for policies to support the shift towards a resource-efficient and low-carbon economy”, focuses on reaching resource efficiency in key areas, including economy, energy, transport, construction, agriculture and fisheries. The scoreboard is a crucial step in the preparation of an efficient monitoring system for the whole of the EU.

Improving the measurement of innovation in Europe

The impact technology and innovation have on modern economies cannot be overestimated. In fact, today technological innovation is often viewed as the very key to economic growth. In recognition of this, the need to raise combined public and private investment levels for research and development to 3% of the European Union’s GDP, became one of the five targets set out in the ‘Europe 2020’ strategy.

In September, the European Commission launched a new innovation indicator, prepared in consultation with ESS members, which focuses on innovation outputs. The “Indicator of Innovation Output” measures the extent to which ideas from innovative sectors reach the market, resulting in the creation of jobs and making Europe more competitive. It also complements the already existing Innovation Union Scoreboard and its Summary Innovation Index, which includes a broad set of 25 components. However, it monitors a reduced set of dimensions including, for instance, the contribution of fast-growing firms to job

creation. The indicator has four components: patent applications, persons employed in knowledge-intensive activities, competitiveness of knowledge-intensive goods and services, and employment in fast-growing firms in innovative sectors.

An overview of the EU Member States' performance shows that the economies of the top performers feature high shares of knowledge-intensive sectors, fast-growing innovative firms, and high levels of patenting and competitive exports. The Indicator of Innovation Output will be used to measure the performance of the EU and its individual members, and draw attention to those areas where corrective action might be considered.

Towards the ESS vision 2020

Official statistics have always strived to adapt to major developments in society and the economy. Since September 2013, a dedicated task force uniting 14 ESS members (Austria, Belgium, Finland, France, Hungary, Germany, Greece, Ireland, Italy, Norway, Portugal, Slovenia, the Netherlands and Eurostat) has been developing a comprehensive vision for the future cooperation between ESS Member States and Eurostat.

The 'ESS vision 2020' builds upon a recent programme aimed at modernising the production of European statistics designed to ensure that the ESS remains competitive and its work relevant in the future. It focuses on a set of priority actions to be undertaken in the timeframe 2014 – 2020, although some of them might require efforts that continue after the end of this decade.

They include:

- Engaging users of official statistics to ensure their continuous feedback
- Making quality a driving force for all activities of the ESS
- Seizing opportunities provided by new data sources such as Big Data
- Intensifying cooperation between ESS members to make their statistical production more efficient
- Focusing on proper communication and dissemination of European Statistics

Discussions between ESS Member States and Eurostat on the best form of their future cooperation are continuing. The results of this debate will shape the future ESS partnership and the face of official statistics in Europe.

Second round of peer reviews started

2013 also saw the launch of a second round of peer reviews - assessments aimed at evaluating the extent to which ESS members comply with the European Statistical Code of Practice.

The Code, adopted in 2005 and updated in 2011, sets the standards for the development, production and dissemination of official European statistics. Building upon the common ESS definition of quality in statistics, the Code targets the institutional environment, statistical production processes and the resulting official statistics. Regular assessments such as peer reviews help to evaluate the progress of ESS compliance with the Code.

The first round of peer reviews was carried out in the period between 2006 and 2008, and looked at the implementation of the Code in the areas relating to the institutional environment and dissemination of statistics. Last summer, the second round of reviews was successfully piloted in Iceland and Slovakia, which tested the new methodology, jointly developed by all ESS members.

The scope of the second round of peer reviews is broader, the assessment of Code compliance extending to cover all 15 of its principles. Also, apart from assessing the compliance with the Code on the part of the National Statistical Institutes, this round will also review a number of other national producers of European statistics. The assessments will also consider the ways statistical authorities organise and coordinate the production and dissemination of European statistics in their countries. To guarantee fully independent results, ESS peer reviews will be conducted by independent experts with previous knowledge of the ESS.

As in 2006-2007, the EU Member States, EFTA countries and also Eurostat will be subject to an



individual peer review. The whole project will be completed and reports published by end 2015.

The ESS peer reviews play a crucial role in the implementation of the Code of Practice across the European Statistical System. They improve the functioning of the ESS, contribute to its transparency, encourage the sharing of best practice between its members and are vital for the process of shaping ESS governance.

Cooperation between the ESS and the European System of Central Banks

Apart from the European Statistical System, European statistics are also compiled and disseminated by the European System of Central Banks (ESCB), which includes the European Central Bank (ECB) and the national central banks of all EU Member States. While the ESCB produces statistics needed for monetary policy, the European Statistical System's statistical output is much wider. In addition to the Memorandum of Understanding specifying the cooperation between Eurostat and the European Central Bank which has been in place since 2003, the ESS and the ESCB signed a Memorandum of Understanding in April 2013.

The Memorandum aims to "facilitate close cooperation in areas of shared responsibility or common interest, thereby increasing the

potential synergies in the production of balance of payments, financial statistics, government finance statistics, macro-economic statistics and national accounts". The two Systems pledge to "jointly address the increased demand from the Member States and Union institutions for improved statistical information, identify possible gaps and the best way to address them, minimise the burden on respondents". This formalised cooperation should result in a better quality of European statistics, "eliminate inefficiencies and work duplication, enhance the transparency and accountability of statistical producers".

The Memorandum established the European Statistical Forum, made up of Directors-General of the National Statistical Institutes and Directors of Statistics of the National Central Banks. The Forum is co-chaired by the Director General for Statistics of the European Central Bank and the Director-General of Eurostat. Its mandate is to advise on the strategic and operational cooperation between the ESS and the ESCB. In November, members of the Forum met for the first time to discuss their working programme, priority-setting and further cooperation in the area of the Balance of Payments statistics.

The state of the cooperation between the ESS and the ESCB, as agreed in the Memorandum, is to be reviewed in December 2015. ■

INTERVIEW WITH MARKO KRIŠTOF, HEAD OF THE CROATIAN BUREAU OF STATISTICS

As a new EU member, Croatia also joined the ESS on 1 July 2013. Head of Statistics Croatia, Marko Krištof, spoke to The ESS Report about the importance of this membership for his country.

Becoming part of the European Statistical System is a game changer for the Croatian Bureau of Statistics (CBS). Apart from the fact that we are far better informed about upcoming developments, we are particularly glad to also have the possibility to shape the ESS by taking part in its decision making process. Active participation in the European Statistical System Committee, various Directors groups' meetings, working groups and task forces enables us to be well prepared for all forthcoming challenges.

So much has been achieved since Croatia declared its independence in the '90s. Setting up the national statistical system was particularly difficult, as the statistical system of former Yugoslavia was centralized and the former federal statistical authority was in charge of prescribing the annual statistical programme and was responsible for the methodological issues. Despite initial challenges, a strong legal framework which entered into force in 2003, has enabled the CBS to further strengthen its position within the government administration and reinforce its professional independence. The Official Statistics Act recognizes the Croatian Bureau of Statistics not just as a main producer and disseminator of official statistics in the Republic of Croatia but also as a main coordinator of the whole system.

In the course of alignment with the EU acquis on statistics, a great number of new statistics have been introduced while the existing ones were redefined in order to meet not only the requirements laid down in EU legislation, but also to implement the best ESS practices. In that



*MARKO KRIŠTOF,
Head of the Croatian
Bureau of Statistics*

context, the development of a comprehensive and up-to-date statistical business register proved to be complicated. Nevertheless, our statistical business register is now well prepared for the changes that are currently being discussed in the ESS. A significant emphasis was put on the development of national accounts and agricultural statistics, since these were the areas for which closing benchmarks for the accession negotiation chapter on statistics were set. However, these were not the only areas affected by the process. Literally all statistical areas were re-evaluated and redefined.

In addition, we began to modernize our statistical processes: web questionnaires and computer assisted personal interviewing are being introduced in data collection, an Integrated Statistics Information System was developed as a metadata driven solution for survey processing, while our dissemination policy is constantly re-examined and improved. However, funding remains a significant issue for us.

I would like to point out that all this was done in a constant race with time due to Croatia's aspiration to become an EU member state in the shortest possible time. Trying to simultaneously develop all areas of statistics put a lot of strain on our resources, which at the end presented the greatest challenge of all. I am particularly proud that the CBS staff recognized the importance of the task they were faced with and committed themselves to seeing it through.

All throughout the EU accession process we had a lot of help. Numerous activities were and still are financed through EU pre-accession funds. Many of them were carried out in partnership with national statistical institutes and experts from the ESS. These partnerships resulted in good relations and pave the way for what I hope, will

be an excellent cooperation with the ESS. I would like to take this opportunity to thank all national statistical institutes for helping us on our journey to ESS membership. I would especially like to thank Eurostat for all their guidance and genuine support in that process.

Today, CBS is a professionally independent institution, employing over 500 people and annually carrying out over 200 surveys. We are well established and a nationally recognized provider of relevant official statistics. We hope that the process we went through in the last decade and more makes us well prepared for the challenges ahead. We are proud to have become a member of the ESS family, and it is our ambition to be the best possible partner to our colleagues in the ESS. ■



ROLE OF THE PRESIDENCY OF THE COUNCIL

The role of the Presidency of the Council is to set up a detailed work plan for different European policy areas, including statistics, establish the agenda of Council meetings, chair these meetings, and also facilitate the dialogue both at the Council meetings and with other EU institutions. For instance, the latter task means that the Presidency is responsible for all communication between the Council and the Parliament on legislative initiatives.

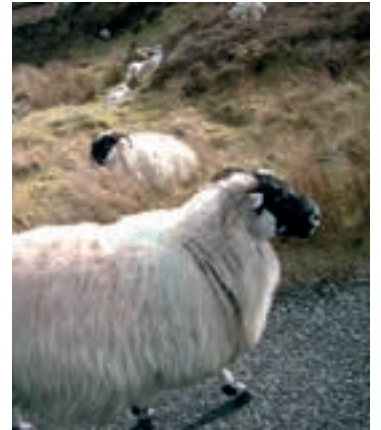
The work of the Presidency of the Council is important for the European Statistical System, as its functioning is largely based on EU legislation, adopted jointly by the European Parliament and the Council, in the so-called co-decision procedure.

The Presidency function rotates among Member States on the basis of a schedule defined well in advance. Each country holds the Presidency for a period of six months. To improve coordination and to ensure continuity of the work of the Council, countries set up so-called "trio presidencies", meaning that three countries, which will ensure three successive presidencies, establish a common basic programme with shared priorities.

The country ensuring the Presidency has an important function and the opportunity to influence developments at Union level. This is illustrated, for instance, by an early access to information, a privileged position as the immediate interlocutor of the Commission services and the European Parliament, as well as the possibility to focus discussions on areas that are of high interest for the Presidency.



Insights from Ireland...



... and Lithuania



INTERVIEW WITH PÁDRAIG DALTON, HEAD OF CENTRAL STATISTICS OFFICE IRELAND

Compared with your initial goals, how do you assess the actual achievements of the Irish Presidency in statistics?

The Presidency is, of course, a relay between Member States and the achievements over the six months are often built on the hard work of previous Presidencies. This was certainly true in our case. Ireland's highest priority was the revision of Regulation No 223/2009 on European Statistics, which established "a legal framework for the development, production and dissemination of European statistics". This dossier had been very substantially advanced by the previous Presidency, Cyprus.

When the Irish Presidency began, the file had already been in the Council for seven months. The agreement reached in the Council working party in February was a milestone step, building on the work done by Cyprus, and this was followed by the trilogue negotiations with Parliament.

The co-decision procedure highlighted the roles and responsibilities of the different actors at each stage in the process – in particular, the responsibility to find common ground for agreement. While our Presidency team agreed a compromise text with the Parliament in June, this dossier was always going to be a challenge. It is disappointing that agreement has not been possible.

Please describe the main achievements and explain their impact on the ESS and their benefits for users.

Two Regulations were published during the Irish Presidency. Regulation No 99/2013 on the European Statistical Programme 2013-2017 provides the roadmap for the ESS and is a key reference point for planning in NSIs and national statistical systems. Regulation 549/2013 on the European System of National and Regional



PÁDRAIG
DALTON,
Head of Central
Statistics Office
Ireland

Accounts (i.e. ESA 2010) represents a significant step forward at a time of increased scrutiny of key economic indicators.

The amendment of Regulation No 691/2011 on Environmental Economic Accounts is an important dossier to address data needs in relation to environment and energy statistics. This was advanced substantially in the Council Working Party.

In addition, negotiations with the Parliament were opened on the Regulation on European Statistics on Demography. It was important to move this dossier forward, as it will provide the statistical basis for population statistics to be used in Qualified Majority Voting from November 2014.

What were the main difficulties that you encountered?

The objective of any Presidency is to reach agreement. Often, agreement between parties depends on being willing or able to give ground on some issues in recognition of the collective interest. In this case, the collective interest is the strengthening of European Statistical System. If

INTERVIEW WITH VILIJA LAPENIENE, HEAD OF STATISTICS LITHUANIA

Compared with your initial goals, how do you assess the actual achievements of the Lithuanian Presidency in statistics?

The overall priorities of the Lithuanian Presidency were set out in the Irish-Lithuanian-Greek Trio Presidency Programme. Emphasizing the need to produce high-quality official European statistics relevant for policy making and society, we continued with five “inherited” legislative proposals, taken over from the preceding presidencies. On top of this, six new initiatives were launched or started by the Lithuanian presidency. Altogether, we dealt with 11 legislative proposals of different complexity and different political, statistical and financial importance. For this reason, I think that both the scope of activities as well as the achievements over the six-month period exceeded our initial goals.

Please describe the main achievements and explain their impact on the ESS and their benefits for users.

One of the main achievements of the Presidency period is the adoption of the Regulation on European statistics on Demography. The aim of this framework regulation is to provide the first-ever harmonised official statistics on the total population of the Member States and to regulate the production and dissemination of detailed national and regional demographic statistics. The legal text imposes the internationally recommended population definition of ‘usual residence’ to be used for Qualified Majority Voting in the Council, while flexibility is given to Member States to use their own national population definitions (mainly legal or registered population) for demographic statistics in general.



VILIJA
LAPĖNIĖ,
Head of Statistics
Lithuania

Two other Regulations – one regarding agriculture and fishery statistics and the other one amending the European Statistical Programme 2013-2017 – also became law in 2013, having been published in the Official Journal of the European Union.

The proposal on the European Environmental Economic Accounts gives priority to the regular production of a core set of accounts based on the revised European Strategy for Environmental Accounting (ESEA 2008). It will also ensure that NSIs maintain and expand their work on environmental accounting, with the main objective of providing additional harmonised and timely data of good quality on the environment.

Additionally, two very important proposals (i.e. Macroeconomic imbalances procedure and Amendment of Regulation No. 223/2009), envisaging quality assurance and a strengthening of the coordination role of the NSIs, as well as the continuous improvement of cooperation between the European Statistical System (ESS) and the European System of Central Banks (ESCB) were discussed.

What were the main difficulties that you encountered?

We felt a real time pressure ahead of the approaching end of the Parliamentary term while coping with an extremely high number of proposals launched by the Commission just before and during the Lithuanian Presidency. For the dossiers that were “inherited” from the previous presidencies, we had to decide on priorities also taking into account the importance attributed to them by other partners.

In the cases of disagreements about purely statistical issues compromises were easier to reach, in more political cases, disagreements often resulted in lengthy discussions or even a deadlock. As one of the biggest challenges, the revision of Regulation No. 223 on European Statistics can be mentioned. Throughout six months, and in close cooperation with all involved parties, we were trying to narrow the gaps between the different positions. Unfortunately, reaching a compromise was not possible during our presidency due to firm positions of some Member States concerning several important legal provisions.

And what worked well?

We were happy to use a number of best practices introduced by the previous presidencies, such as the written consultations with other Member States. We exploited this tool as many as 13 times and were never disappointed. These written consultations helped us to prepare the meetings of the Council Working Party on Statistics and contributed to efficient decision-making during these meetings. Due to the scarcity of these meetings (only five) and the abundance of files, we were rather demanding with our short deadlines. Nevertheless, Member States were patient and cooperative in sharing their positions. It was clear that all of them cared strongly about the quality of statistics, about public trust in official statistics and strived to work for the future of the ESS in the most efficient way. This was a strong stimulus for us in our work!

In these activities and issues of controversy, an assisting hand was always provided by the Council General Secretariat and the Council Legal Service. The timely and transparent exchange of positions with the Commission in many cases facilitated quicker and more advanced results. Also, the cooperative spirit of our ‘Trio’ partners was very helpful when it came to taking and handing over the *know-how* regarding the “inherited” dossiers and related procedures. ■



BIG DATA

In recent years, the amount of digital data being created, stored and processed worldwide has grown at an exponential pace. Every minute, every second, governments and public institutions, private companies and individual citizens alike, generate scores of digital footprints which, due to their sheer size, have been named Big Data.

Big Data consist of billions of records from different sources. The data come from the internet (for example Google search queries), social media and mobile networks, satellites, various sensors and cameras, and also include customer and sales records and banking transactions involving millions of people.

The wealth of the information is so large that new units of measurement, such as zettabyte or yottabyte, and sophisticated multiple storage devices had to be created to deal with the permanent influx of data. For instance, Twitter users alone produce well over 200 million tweets a day. Those tweets shed light on a multitude of aspects of our daily life and behaviour. The fact that our world can now be seen as one big source of data cannot be ignored by professional statisticians, even if the phenomenon of Big Data goes beyond 'pure' statistics and ventures into other sciences, such as informatics, mathematics, and physics to name just a few.

A number of private enterprises have recognised the potential of Big Data early on and have been collecting data from many areas of our daily lives, using them for commercial purposes. Among the members of the European Statistical System (ESS), CBS Netherlands has been one of the pioneers in the use of Big Data for the purposes of official statistics. For this reason, it was only fitting that Big Data should become one of the main topics discussed during the annual conference of the Directors-General of the National Statistical

Institutes (DGINS), held in Scheveningen in the Netherlands in September 2013.

The DGINS conferences have over the years become a forum for discussions regarding issues of significance for the European Statistical System. The choice of Big Data as a conference theme reflected both the importance of the topic for the ESS and a willingness on the part of its members to cooperate in this domain.

Opportunities

There is a widespread consensus that Big Data might create a number of opportunities for the National Statistical Institutes (NSIs) making up the European Statistical System. To start with, Big Data could possibly offer the NSIs a chance to release their figures more frequently as compared to the release dates of statistics acquired from traditional sources, such as surveys and administrative registers. In addition, it could often be more relevant to particular user queries, filling the gaps left in conventional statistical production. Big Data come from a huge variety of sources and involve scores of themes not covered by official statistics. In many domains, new indicators could be developed, which would either complement the existing ones or open up new avenues of research.

Another important aspect in this discussion is the fact that the increased use of Big Data could mean a significant reduction in the burden on respondents to statistical questionnaires. This could also be an answer to overall falling response rates in many countries.

Last but not least, access to Big Data could significantly lower the costs of statistical production for many official data producers, already affected by severe resource and spending cuts.



... and challenges of Big Data

However, the phenomenon of Big Data also poses a number of challenges for the members of the European Statistical System. For one thing, Big Data are not the result of a designed statistical production process and consists of numbers, texts, image files and video files, often combined. This means that it evades common classifications, definitions and formats and is therefore difficult to harmonise or translate into statistical structures. Its huge volume and velocity have a direct impact on the storage capacities of statistical organisations. New tools and statistical methods will need to be developed for the pre-processing, classification, summarisation, feature extraction, anonymisation and visualization of Big Data.

Another important issue that needs to be addressed is the uncertain or uneven quality of Big Data and its potential incompleteness. Common ways to deal with missing data, reporting errors, editing ('cleaning', checking and validating of the figures) would have to be internationally agreed before any wider use could be considered. The issues of data privacy and security as well as a variety of legal aspects relating to the ownership of Big Data pose further challenges to the ESS.

All of the above means that, at least for the moment, Big Data can only be used to a limited degree to supplement, and not to substitute the traditional data sources in certain statistical domains.

Using Big Data for official statistics

Statistics Netherlands has conducted a number of Big Data case studies on the use of Big Data for the purposes of official statistics. For instance, in the area of traffic and transport statistics, researchers used data originating from more than 10.000 traffic detection sensors, or “traffic loops”, which register vehicles passing a certain point, for instance cars arriving at a traffic light or moving on a motorway. Around 80 million traffic loop detection records are produced every day across the country, which could be used as a source of information for statisticians and Dutch policymakers alike. The resulting data are very detailed, but they are also quite selective as, for instance, not all major Dutch roads possess detection loops. Statisticians are working hard on the best ways of obtaining reliable information from the data, which would mean faster and more detailed figures on traffic in the country and, as a result, shed light on the economic development in the Netherlands.

Another interesting area of research is mobile telephony. The use of mobiles creates a vast amount of data, stored by the network operators. Those records reflect much more than just the phone calling or texting habits of the population; they also document the behaviour of people across the country, particularly involving their location and movements. This information could be very useful for statisticians working on population density and mobility, including for instance commuting, tourism, transport of goods and many more issues. Similarly, statistics obtained through an analysis of the content and sentiment of social media can bring valuable information about consumer confidence, if analysed from the point of view of the sentiment towards the economic situation. However, it should be remembered that in this case also, the volatile behaviour of users could significantly influence the quality of the data.

Statisticians of the future

Given the multidisciplinary nature of Big Data, the profiles of future statisticians will need to evolve to adjust to the changing realities of

their jobs. Faced with a growing number of methodological, legal and IT issues, statisticians will have to perform a range of new tasks and display new sets of skills. They will need to be able to distill pertinent information from a wealth of unstructured data and make it understandable to their users. The term “data scientist” has been coined to reflect various educational requirements expected of a future statistics professional, such as versatility in mathematics, physics, economics and IT. In Scheveningen, members of the ESS officially recognised the importance of this issue and stated that “the use of Big Data in the context of official statistics requires new developments in methodology, quality assessment and IT related issues”. They added that “systematic efforts, like appropriate training courses and establishing dedicated communities, including academics, for sharing experiences and best practice” would be necessary to handle the issue of Big Data in the future.

Scheveningen Memorandum

Heads of European statistical institutes also agreed that it was the right time “to share experiences obtained from concrete Big Data projects and to collaborate within the ESS and beyond, on a global level”. This important recognition was part of the Scheveningen Memorandum, signed by all ESS members at the end of the DGINS 2013 conference.

Heads of European statistical institutes also agreed that it was the right time “to share experiences obtained from concrete Big Data projects and to collaborate within the ESS and beyond, on a global level”. The “implications of Big Data for legislation, especially with regard to data protection and personal rights” were also acknowledged and future cooperation with “experts and stakeholders from various domains including government, academics and owners of private data sources” strongly encouraged. ■

ESS Members react!

ITALY

What is your national experience of working with Big Data?

Istat is deeply committed to this new field of research at both national and international level.

At the moment, we are carrying out two separate projects involving the use of Big Data.

The first one consists of us capturing data from the internet, based on the statistical information derived from Istat's *Survey on information and communication technology in enterprises*. The aim is to collect information from websites by analysing their content using automatic procedures, such as a machine learning approach.

The second project concerns the use of mobile phone tracking. Here, we are working on estimates of population flows, including commuters and tourists in concrete administrative areas, based on their mobile phone data. Our estimates are produced on the basis of a combined use of administrative sources and Big Data.

What, in your opinion, is the future of Big Data from a European perspective?

In my opinion, the European future of Big Data is clearly outlined in the *Scheveningen Memorandum* approved by the NSIs and Eurostat. In general, Big Data represents new opportunities and challenges



EMANUELE BALDACCI,
Head of Department
for Integration, Quality,
Research & Production
Networks
Development

for official statistics, which should incorporate all potential innovative data sources into their conceptual design.

The implementation of new production methods for European statistics as well as improving efficiency and data quality is also an objective of the European Statistical Programme. We should concentrate on the cross-country features of Big Data, as they can help to create synergies and partnerships with experts and stakeholders from various domains at the European level. Here, the NSIs are faced with new developments in methodology, quality assessment and also with a number of IT related issues.

However, it is also necessary to consider some potential limitations in the use of Big Data, which include implications regarding data protection, legislation, personal rights, public trust and acceptance of data re-use, access and use of data. In addition, we should take into account the financial issues related to the potential cost of outsourcing the data production as compared to all the benefits of Big Data. ■



*GOSSE VAN DER VEEN,
former Head of Statistics
Netherlands*

THE NETHERLANDS

What is your national experience in working with Big Data?

Over the past few years, Statistics Netherlands has been experimenting with a number of Big Data sources. The potential of social media sites is enormous, as 70% of the Dutch population are now active on social media. We focused on Twitter messages and conducted several experiments, where both the content and the sentiment of the messages were studied.

The most promising experiment concerns a Twitter-based sentiment indicator, which shows a very high correlation with traditional survey-based Dutch consumer confidence, in particular towards the economic situation. The Twitter-based sentiment indicator could result in better timeliness of data and it is stable even on a weekly basis.

Other noteworthy examples concern the use of internet robots to produce housing market price information, our work with the traffic detection loop data, already described in your article, as well as with mobile phone records. The latter project, which was also mentioned before, allowed us for instance to estimate the number of German tourists visiting Scheveningen beach in the northern part of the country on sunny days.

What, in your opinion, is the future of Big Data from a European perspective?

It is not yet clear how to produce reliable statistics from the Big Data sources. They certainly offer new opportunities and unlock huge volumes of data. This might lead to statistics that are more detailed, up-to-date and better tailored to public demand. However, in contrast to traditional, survey-based statistics, we do not own the Big Data sources. This means that we must find ways to cooperate with data owners in a mutually satisfactory way.

During the DGINS conference in September, the Heads of the National Statistical Institutes discussed the suitability of Big Data for official statistics. They saw opportunities for both new and existing statistics, but identified internal challenges concerning methodology, IT infrastructure and staff skills. Key external challenges concern privacy and access to data.

Now that budgets are tight, statistical offices must collaborate at European level to confront these challenges. The Scheveningen Memorandum on Big Data shows a clear commitment to Member States working together in this area. ■

DENMARK

What is your national experience in working with Big Data?

Statistics Denmark has been working with Big Data for decades, in the sense that we have been exploiting huge amounts of administrative data to build a national statistical system – and the administrative data have most of the characteristics that are nowadays associated with the term Big Data, although they are more organised. Regarding Big Data from private sources, for the past two years, with support from Eurostat, we have been preparing to use bar-code data from supermarkets as one of the sources for price statistics. This will lead to a reduced burden on supermarkets, a smaller number of price collectors in the statistical office (boosting efficiency), and an enhanced quality of the price indices. Statistics Denmark plans that the system should be used in the process of statistical production in 2015. In addition, this year we will be testing data from the banking sector on the use of credit cards and other payment cards as an indicator for travelling costs and their geographical distribution.

What, in your opinion, is the future of Big Data from a European perspective?

The use of Big Data is an opportunity and a challenge. As demonstrated by a number of national examples, Big Data can provide us either



*JØRGEN ELMESKOV,
Head of Statistics
Denmark*

with inexpensive data for existing statistics, or with data for new statistics. So far, there have been few specific examples in both cases, but the use of Big Data is slowly expanding. This slow development is due to a number of challenges. One important challenge has to do with the fact that most Big Data is produced by private enterprises. For this reason, in many countries there is no legal basis for the access to and use of Big Data for official statistics as is often the case with the use of data coming from the administrative sources. Another significant challenge has to do with the fact that the amount of ‘noise’ in relation to major Big Data sources, such as social media, is very high. In addition, the samples are often quite ‘heavily’ selected and biased, as compared with the samples that statistics are supposed to deal with. Furthermore, the fact that data from sources such as mobile phones appear in very diverse formats and contexts poses quite a challenge for a more systematic use of Big Data. All in all, the challenges posed by the use of Big Data should be addressed at European level to ensure their usability for the production of official statistics. ■

INTERVIEW WITH THOMAS WIESER, CHAIRMAN OF THE EUROPEAN STATISTICAL GOVERNANCE ADVISORY BOARD

The European Statistical Governance Advisory Board (ESGAB) reports annually to the European Parliament and the Council of the European Union providing an independent overview of the European Statistical System (ESS) as regards the implementation of the European Statistics Code of Practice (CoP).

ESGAB was created in 2008 as an independent body to enhance professional independence, integrity and accountability, three key elements of the Code of Practice in the European Statistical System as well as the quality of European statistics. The Board is composed of seven internationally recognised members serving three-year-terms, renewable once. The members are selected on the base of their high-level competence in the field of statistics. Eurostat participates in meetings as an observer. In 2013, ESGAB consisted of: Thomas Wieser, Chairman (Austria), Jean-Michel Charpin (France), Margit



THOMAS WIESER,
Chairman of ESGAB

Epler (Austria), Patricia O'Hara (Ireland), Pilar Martin-Guzmán (Spain), Edvard Outrata (Czech Republic) and Günter Kopsch (Germany).

Thomas Wieser has been Chairman of the European Statistical Governance Advisory Board since 2012.

Can you give us more details on ESGAB's role?

ESGAB's existence is bound to the Code of Practice and recognised in the Regulation on European statistics. ESGAB was established to assess the implementation of the Code in the "ESS as a whole". An interpretation of what this entails and the amount of information available to ESGAB, have directly influenced the way it works. There is also an additional issue of financial and human resources available to carry out its work.

Eurostat and the national statistical authorities of the ESS follow the 15 principles set out in the European Statistics Code of Practice.





In its work, ESGAB has chosen to focus on a number of principles of the Code of Practice (mostly professional independence, quality, resources) and on other topics pertinent to good governance and the smooth functioning of the system. Many of those issues involve not only the ESS members, the National Statistical Institutes (NSIs) and Eurostat, but also their 'political masters'. For this reason, ESGAB's recommendations, which are set out in its annual reports, often take several years to take effect, as many suggested actions involve legal revisions and changing procedures.

ESGAB's annual report 2013 stresses co-ordination issues in the ESS. Why do you think it is so important?

It is true that in our fifth report we call for a stronger coordination role for the National Statistical Institutes. This will ensure compliance with the European Statistics Code of Practice on the part of all other producers of European statistics at national levels. We looked at the processes involving other national statistics producers than the NSIs, starting with the data transmission to Eurostat and ending with the dissemination of comparable statistics between countries and regions. We observed that while data transmitted to Eurostat are of generally good quality, a relatively high amount of data corrections in the course of validation and before data dissemination is needed in the case of those other producers. Such corrective measures could be substantially reduced if other producers of European statistics also complied with the Code

of Practice and ensured sufficient quality of the source data. This would increase efficiency of the whole system.

It is clear to us that the degree of compliance with the Code of Practice by other producers of European statistics directly sending their data to Eurostat should be reinforced. To achieve this, ESGAB calls for the NSIs to obtain a mandate allowing them to better coordinate the work of other producers of European statistics. This mandate should include a right for the NSIs to address all quality and methodology issues with the owners of administrative data. ESGAB also supports a stronger involvement of the NSIs in the process of recruiting top managers for other national producers of European statistics and encourages updating the Code to reflect the above recommendations.

How is ESGAB's work organised in practice?

ESGAB meets six to seven times per year, principally in Brussels. Most of the year's work focuses on collecting and analysing the information needed for the preparation of our annual report for the Parliament and the Council. Much of this information comes directly from the NSIs as responses to our questionnaires. We also obtain it in the course of open discussions with the representatives of individual NSIs and in exchanges of views with other ESGAB-like bodies, which exist in some countries. This year however, our work is very different because, as part of the new round of ESS-wide peer reviews, we are conducting a peer review of Eurostat. ■

POPULATION CENSUS – THE PRESENT AND THE FUTURE



Population censuses have existed in many different forms for thousands of years, going back to Babylon, Egypt, Ancient Greece and Rome. In the nineteenth and twentieth century, a general model of population censuses emerged, involving census takers, or enumerators, visiting all dwellings to collect information about the demographic and social situation of all individuals and households at a key reference date.

The population census is a key source of information on the size and characteristics of a country's population. The data are used by governments to develop and monitor policies and, among many other uses, to plan public services and to allocate money to different areas. Unlike many other data sources, the census provides geographically detailed data that are vital for local planning.

The census is a complex operation involving years of planning and minute preparation. For most members of the public, a population census is also the only contact they will ever have with a National Statistical Institute. The problem is that, more often than not, the enumerator is someone who was recruited a couple of weeks earlier and who has only received a very basic training for the purposes of the census. For this reason, finding the right people for the job is crucial.

The census is an expensive exercise because it is done on a large scale and across the whole of the country. The costs include its planning and preparation, the recruitment and training of thousands of extra staff as well as computer hardware and other IT investments. Many complex preparatory tasks are important to the success of the census, such as ensuring that enumerators have accurate address lists or maps of the area for which they are responsible and checking that the census questions are easily understood by the public. To lower the costs, in some countries visits by enumerators have been reduced in favour of encouraging respondents to fill in the questionnaires online or to return paper questionnaires by post.

Partly because of these high costs and partly because people are increasingly reluctant to cooperate with the census or are hard to locate and contact, a number of countries are moving

away from the traditional formula of a full enumeration of the population. A growing trend, seen in many countries in Europe and beyond, is to make use of available administrative data sources to either complement or completely replace the need to physically visit millions of households across the land. The rate of this change is accelerating.

Variety of methods

Administrative data can most readily be used when a country possesses a good population register, as is the case, for example, in the Nordic countries. The use of a common personal ID number, which is also used in other administrative systems, helps to ensure that information is regularly updated as part of the citizen's normal contacts with the national administration. As no single register provides statisticians with a full picture of the country's population, data from several registers may be combined. The personal ID number makes it easier to reliably link data on the population register with other administrative information held by the state. These can include registers used for tax, social security, health and education systems.

Sometimes though, it is not possible to obtain reliable information from administrative sources for all of the statistical topics covered in the census. Some countries therefore combine information from administrative registers with other types of data. Administrative data may be used to support and simplify a traditional census enumeration. Alternatively, administrative data may be combined with data from existing sample surveys – as was done for the 'virtual census' in the Netherlands in 2001 and again in 2011, or with data from ad hoc sample interviews – as in the case of Germany in 2011.

An interesting example of a country with its own census system is France, which practices a so-called rolling census. The French census takes its name from 'rolling', or ongoing, schedule of the survey, which takes place in all French municipalities and regions. Over a period of five years about 70% of the population is covered, allowing statistically sound averages to be calculated over five-year cycles. These are updated every year. Advantages of this approach are that data are available more frequently and that the financial and human resource demands of the census are spread over several years.

Difficulties along the way

As noted above, the main difficulty related to the preparation of a population census is the high cost and very complex logistics of the operation. Another issue is ensuring good and representative coverage of the population, including groups that may be hard to contact, that often change address or that are reluctant to take part in the census. Giving respondents the possibility of completing the census forms online, as practiced in recent years by some European countries, can help to some extent but only among those people who are willing to cooperate with the census.

Increasing the use of administrative data sources is a good option for countries which possess a reliable system of registers, even if a number of factors still need to be considered. Among the most important of them is the quality of the available data, which can be more difficult to verify than the quality of the figures coming directly from a population census. The quality of administrative data may often only be as good as is needed for the administrative purpose. For example, where a person's taxes are paid via an employer, the tax administration may not need to regularly check and update their address details.

Statistical processes based on administrative data are also vulnerable to changes that are outside of the control of the national statistical institute. This means that if a specific register is terminated, such as the registration of one's permanent address with the municipality or police, they lose an important data source, which is difficult to replace. This has a direct impact on the quality of the population statistics.

Countries also differ on the degree to which statisticians can access administrative sources. In the past, there have sometimes been barriers due to legal restrictions and confidentiality considerations. A common trend though, now seen in much of Europe, is towards an opening up of administrative data sources to statisticians.

Census Hub

On a European level, the collection of the population census data has for several decades followed a well-established procedure similar

to that seen in many other statistical domains. ESS Member States produced their population data in many different ways and filled in the dedicated tables provided by Eurostat by a given date. Eurostat would then check and aggregate those data, disseminating them as comparable European census statistics.

A brand new project, a result of more than five years of intensive work on the part of Eurostat and NSIs, will be launched over the next few months. Called the Census Hub, it provides a flexible and user-friendly way to specify online detailed data requests that will then be extracted directly from databases held by the individual countries.

A key value of the census over other types of statistics is that it offers the possibility of detailed cross-tabulations, or juxtapositions, of many different variables and for small geographical areas. As different users have widely differing interests and data needs, it is almost impossible for statisticians to foresee each individual request and prepare a suitable statistical table.

To address this problem, the European statistical legislation for the 2011 census defined sixty multidimensional aggregations, also called hypercubes. Each hypercube will be produced to agreed specifications and formats, and contain up to seven dimensions, such as the area of residence, the sex of the person, the year of their entry into the country, their occupation, activity status, country of citizenship and age. Users will be able to access the Census Hub via the internet to specify the detailed cross-tabulations that they need.

The Census Hub will use the hypercube data stored on databases in the NSIs to compile the tabulations that correspond to the user needs, with the extracted data being available online to the user within a matter of seconds. This is an innovative approach to statistics dissemination that has required extensive consultation and co-operation between Eurostat and the ESS Member States. One departure from previous ways of working is that Eurostat will not execute comprehensive quality checks of the Census Hub data as Member States are solely responsible for the census data stored in their databases.

ESS Members react!



JANUSZ WITKOWSKI,
Head of the Central
Statistical Office
of Poland

POLAND

Could you explain the way you conducted your last population census and tell us about the advantages of this approach?

The National Population and Housing census was carried out in Poland in 2011 using a mixed-mode approach, i.e. a census based on a combination of administrative registers and sample surveys. The census was supported by the use of modern technologies, such as data collection from different channels, including administrative registers, internet self-enumeration (CAWI), computer assisted personal interviewing (CAPI) and computer assisted telephone interviewing (CATI).

The electronic questionnaires used in CAWI, CATI, CAPI were initially 'pre-filled' with data from administrative registers. The application of electronic questionnaires made it possible to entirely eliminate paper. The application of GIS (geographic information system) technology at every stage of the census constituted an important innovation. Digital maps were used for the preparation, management and monitoring of the field work and were an essential tool used by interviewers.

The development of the IT environment for collecting, transforming and processing data obtained from all channels was undoubtedly a challenge. The most important elements of the IT infrastructure were:

- Operational Microdata Base – it allowed the merging of data from all channels; it also made it possible to process and generate the anonymised census data (the so-called “Golden Record”) to be transferred to the Analytical Micro-Database
- Analytical Microdata Base – it allowed the processing of the Golden Record, conducting analyses, data aggregation and generation of reports for all data users
- Geostatistics Portal – IT platform for spatial presentation of data and geostatistical analysis results, developed to disseminate census results

The use of modern technologies for the purposes of the census allowed us to achieve the following: cost reduction, lower non-response rate, improved security of transmitted data, positive public perception, high level of automation of data collection and data processing and a wide range of presentation options for the results, based on multidimensional spatial analyses.

In addition, the exercise allowed us to gain valuable experience in the fields of the organisation, methodology and infrastructure, which will constitute a good basis for the modernisation of other statistical surveys.

On the whole, the practical knowledge we obtained through the implementation of modern IT solutions in the 2010 census will provide us with a broad perspective for further improvements and innovations for the 2020 census round. ■

PORTUGAL

Could you tell us the reasons behind your decision to switch from the traditional census to one based on administrative sources in the future?

The time has come to move on...

The Census is “**the**” statistical operation for any NSI. It is the core structural operation for all social statistics and has many implications throughout the statistical production. Census is of particular importance to Statistics Portugal because the 150th anniversary of the first “modern” Census, held in 1864 according to international rules, is being celebrated this year.

As with all other statistics, it is time to modernise the Census model.

In 2006, when Statistics Portugal started the Census 2011 preparations, there was already a clear awareness of the need to replace the traditional census with an alternative model. Therefore, the Census 2011 legislation included a provision that this would be the last Census conducted according to the traditional model.

...And to prepare for the future

The views that new models for a Census on Population based on administrative data are less expensive, provide more frequent data and reduce the statistical burden on respondents are broadly shared at international level, by NSIs and international organisations.



ALDA CARVALHO,
Head of Statistics
Portugal

Budget constraints, improvements in IT and the quality of administrative data sources give us a great boost and opportunity to modernise the census process.

Different scenarios are still open for the 2021 Census model, but our intention is to use administrative sources as much as possible.

However, the legal framework is a severe limitation to this, since in Portugal no unique identifier is allocated to each individual. Statistics Portugal is working with the National Data Protection Authority to find the best solutions for this severe constraint.

We believe that Statistics Portugal will be able to meet these new challenges and be ready for a Census of modern times in 2021. ■



STEFAN LUNDGREN,
Head of Statistics
Sweden

SWEDEN

Why would you recommend that other Member States conduct register-based population censuses?

Mainly for two reasons: to save money and to reduce the response burden.

The philosophy underlying this concept is to take advantage of existing administrative sources, namely different kinds of registers on individuals, households and dwellings. These sources are linked at the individual record level with information on business, tax, education, employment and other relevant registers. While it is theoretically possible to link records on the basis of a name and other unique details of individuals, a unique identification number for each individual, household and dwelling allows a much more effective and reliable linkage of records between different registers.

At Statistics Sweden we have used registers for census purposes since 1975. Since then we have increased the use of registers more and more until we undertook a totally register-based census in 2011.

Administrative registers are kept primarily for administrative purposes, but are also very useful for statistical purposes. Units and variables of administrative data are described according

to administrative rules and demands. Before a register is used for census purposes, the suitability of its data in terms of definitions, concepts, content, reference date, accuracy etc. are statistically tested by comparing it with previous censuses and survey results and conducting quality and compatibility surveys. To use the register approach for censuses, it is essential that a country has an established central population register of high quality and good coverage with an effective system of continuous updating. In the case of local registers, continuous updating must be combined with good communication between the register systems.

The primary advantages of a register approach are reduced costs for the census process, greater frequency of data and a reduced response burden. However, establishing and maintaining administrative registers involves higher costs than the census alone may justify. The need for the register will therefore be largely based on its contribution to a more reliable and efficient administration. Its use for statistics may be valuable, but is likely to be a secondary consideration. ■

NEW COMMUNICATION CHANNELS FOR STATISTICS



Official statistics play a fundamental role in today's society, assuring the availability of impartial statistical information, essential for European decision makers and the functioning of a civil society as a whole. They enable the planning of policies, which affect the lives of hundreds of millions of people on our continent, and shape, on a daily basis, the process of political decision-making on European and national levels.

The European Statistical System (ESS) plays a crucial role in assuring a free of charge access to data for all interested parties, including policymakers and citizens alike. This happens through a number of dissemination channels, which also provide explanations of how the statistics were obtained, what they mean in detail and what limitations, if any, might be associated with their collection methodology.

Being where the users are

Until now, data were mostly accessed by users via traditional dissemination channels, such as websites and printed publications. However, this trend began to change with the advent of new communication methods, beneficial for both users and the statistics producers, as the data are available more quickly and their dissemination costs are lower.

Serving the needs of its users has always been the top priority of the ESS. This means adapting dissemination services to the different needs of the different groups of users, which includes for instance taking advantage of the latest trends in the area of web technologies.

Many European National Statistical Institutes (NSIs) have created powerful and innovative *data visualisation tools*, which are already available on their websites. Additionally, they started the development of *applications for mobile devices*, such as smart phones, and enabled access to their data through *social media*.

Data visualisation tools

It is often said that a picture is worth a thousand words, because it communicates key messages in an intuitive and understandable way. The new data visualisation tools are one step beyond pictures – they provide insights into complex data sets by highlighting the information required by the user.

There are two categories of data visualisation tools used across the ESS, widgets and dashboards. As opposed to classical spreadsheets, where users have to analyse rows and columns of numbers, here the information is communicated through graphical means.

Widgets are small web applications that show a relatively limited amount of data, usually only one indicator, in a simple representation, such as a line-chart. They can be embedded, free of charge, in any website, by simply copying and pasting a link made available on the original website. Widgets are very popular among the NSIs, as they represent the easiest way of presenting data in a dynamic and attractive manner.

Dashboards, on the other hand, are more sophisticated visual representations of the statistical data. They cover much broader data ranges than widgets and present a number of different indicators by employing more complex tools, such as maps.

Both widgets and dashboards are ‘dynamic’, which means that they automatically use the latest publicly available data.

Social media

In recent years, social media have been gaining in importance as novel dissemination tools employed by National Statistical Institutes, as they represent innovative and user-friendly ways to access statistical information.

Social media technologies used by the European NSIs include web applications and services, such as Twitter, Facebook and YouTube. Using these channels allows the NSIs to disseminate their data to a wider audience and target new user groups, such as teenagers and students.

One of the main advantages of using social media is the fact that the information reaches its recipients quickly and can then be passed on by them to more people. Users re-tweet or share data that they consider interesting and in this way the figures reach a larger audience. In addition, social media provide very good feedback channel to data providers, as users can comment on individual data releases and things that interest them. Due to this interactive element, social media offer a unique way for the NSIs to keep in touch with statistics users, which in turn promotes the ‘brand’ of official statistics.

Currently, the preferred social media channel for most of the NSIs is Twitter, as it offers the simplest way of transmitting statistical information to users via a short text message.

Applications for mobile devices

Every day, people from all over the world surf the internet on their smartphones or tablets, in search of information for professional and leisure purposes. Today’s mobile devices possess powerful web browsers, which allow them to be used in the same ways as computers. The market for mobile devices has been growing rapidly, which led many members of the ESS to invest in the development of applications providing statistical information and data. An application, or an app, is a software programme that can be downloaded and accessed by a smart phone or another mobile device.

In line with other ESS dissemination services, all apps are free and can be found on the websites of the National Statistical Institutes. They provide the latest data, updated in real time, on different indicators, displayed as graphs, maps or tables. Due to their design, the apps allow users to find what they are looking for almost instantly, making them a perfect data dissemination tool for a fast-moving society.

As the use of data around us is expanding, the European Statistical System makes sure that it stays on top of user expectations by offering novel methods of data dissemination. In doing so, it also reminds members of the public of its important role as the leading producer of high-quality statistics in Europe. ■

ESS Members react!

THE UK

Could you explain to us the advantages of using data visualisation tools in communicating statistics?

Would it also be possible for you to briefly explain your experience with Open Data?

The vision for the Office for National Statistics is to be widely respected for informing debate and improving decision making through high quality, easy to use statistics and analyses on the UK's economy and society. A fundamental precept of this is to provide our statistics in forms that encourage reuse and accessibility for everyone.

Our approach is to be open by default. This means we aim to publish all our statistical outputs in open data formats, free of charge and under an 'Open Government Licence' so there are no restrictions on use or distribution.

We plan to expand our work with producers so we can help realise the full potential of valuable datasets for the public good.

We don't feel accessibility is simply about providing data, it is vitally important for us to help people understand our statistics. We firmly



JIL MATHESON,
UK National
Statistician

believe the way we communicate informs debate, not just for policy makers but for all of our users.

We see data visualisation as an opportunity to produce insightful content that can be shared to increase the audience for our content beyond the traditional users of our website. We have a well established, dedicated Data Visualisation Centre with the remit of exploring the use of data visualisation techniques for official statistics.

The team work with modern, open source tools like the D3.js JavaScript library, to produce a range of interactive and animated web visualisation. Their inter-disciplinary and innovative approach has increased our audience reach into the millions. The centre is continuing to develop this area and is hosting the global 'Graphical Web' conference in August 2014 to share expertise with specialists from around the world. ■

FINLAND

Would you recommend that other ESS Member States consider developing statistical apps for mobile devices and why?

Statistics are not complete unless they are used. Reaching out to statistics users is a challenge, as there are several kinds of user groups, all with different expectations and, when talking about apps, or mobile applications, different levels of skills and a variety of tools or gadgets.

However every day more and more people are using smart phones and tablet devices. This fact offers new opportunities for providing statistical information to users, wherever and whenever. The key is to offer usable interfaces that adapt to the device being used.

Mobile applications are typically designed to run on certain types of mobile devices, smart phones or tablet computers. The history of apps use is short, but they have become extremely popular among today's users and developers.

Developing apps can be seen as a new channel for offering statistical information to users, maybe even new user groups. However, it is not an easy task to develop an app that is both simple to use and covers a wide range of statistical information, such as a typical internet site of a statistical institute.

My recommendation would be to develop statistical apps for a 'focused' use. This could mean focusing on content, a set of indicators or information collected in a census. An important feature of apps, especially those for mobile phones, is their usability. An app must be simple to use and offer a positive user experience.



*MARJO BRUUN,
Head of Statistics
Finland*

I have briefly scanned available statistical apps that I could find. My favourites for a phone are those offered by the Australian Bureau of Statistics (simple to use, basic information) and Eurostat (country profiles, simple comparability of two countries by statistical theme). Among the tablet apps, I quite like the statistical yearbook of Sweden (simple to use, easy to search, rich in information, nice appearance).

By offering large amounts of open data, statistical offices create an opportunity for anyone to create apps for statistics. In the near future, I hope to see a new type of collaboration between statistical offices and other players creating information services for society. Apps could be one type of these services.

The annual Apps4Finland contest is looking for creative and inspiring ways of utilising open data. The ambitious goal of the contest is to make Finland one of the top countries in open data utilisation by increasing the degree of collaboration and commitment between various interest groups. Statistics Finland is one of the organisers of the competition. So far, we have gathered some excellent ideas. However, the best apps are still waiting to be developed. ■



EUROSTAT

What is Eurostat's experience with Twitter?

Eurostat took its first tentative steps into the brave new world of social media in May 2011, when we opened our Twitter account, @EU_Eurostat. From the beginning, we have used the account primarily to promote our News Releases, by tweeting a headline or two and a link to the full text of the News Release on our website. From time to time we have tweeted in the same way on other important publications and new Statistics Explained articles.

So, two and a half years later, where do we stand?

During this time, we have made over 700 tweets. We passed 25,000 followers at Christmas 2013, and are continuing to gain new followers at around 250 a week. And an analysis of these followers shows that they are a valuable audience, with many journalists, economists, business people, students, politicians and NGOs among their number.

It is fair to say that Twitter has today become a routine part of our communication activities, and can be viewed as a reasonable success. We have seen that our tweets are often re-tweeted, and although for practical reasons we tweet almost exclusively in English, we see further tweets translating our original text into other languages. Our tweets can provoke a reaction, with subjects such as unemployment in particular leading to hundreds of tweets commenting on our



WALTER RADERMACHER
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Director-General,
Eurostat, European
Commission

News Release in the hours after publication, and hundreds of people clicking through to read the full release. But it must be admitted that not every field of statistics is as interesting to the Twitter audience as unemployment.

The resource implications have not been excessive: once a News Release has been written, selecting and preparing a tweet or two only takes a few minutes extra.

And for the future? Although we intend to largely continue along the same lines, we do have improvements in mind – for instance to make more use of graphics attached to tweets to better illustrate our data. ■





EUROPEAN STATISTICAL SYSTEM

ESS - http://epp.eurostat.ec.europa.eu/portal/page/portal/pgp_ess/ess/ess_news

Eurostat - <http://ec.europa.eu/eurostat>

-  Statistics Belgium - <http://statbel.fgov.be>
-  National Statistical Institute of Bulgaria - www.nsi.bg
-  Croatian Bureau of Statistics - <http://www.dzs.hr/>
-  Czech Statistical Office - www.czso.cz
-  Statistics Denmark - www.dst.dk
-  Federal Statistical Office of Germany - www.destatis.de
-  Statistics Estonia - www.stat.ee
-  Central Statistics Office of Ireland - www.cso.ie
-  Hellenic Statistical Authority - www.statistics.gr
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-  National Institute of Statistics and Economic Studies of France - www.insee.fr
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-  Central Statistical Bureau of Latvia - www.csb.gov.lv
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-  Statistics Luxembourg - www.statistiques.public.lu
-  Hungarian Central Statistical Office - www.ksh.hu
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-  Statistics Netherlands - www.cbs.nl
-  Statistics Austria - www.statistik.at
-  Central Statistical Office of Poland - www.stat.gov.pl
-  Statistics Portugal - www.ine.pt
-  National Institute of Statistics of Romania - www.insse.ro
-  Statistical Office of the Republic of Slovenia - www.stat.si
-  Statistical Office of the Slovak Republic - <http://portal.statistics.sk>
-  Statistics Finland - www.tilastokeskus.fi
-  Statistics Sweden - www.scb.se
-  Office for National Statistics of the United Kingdom - www.ons.gov.uk

EFTA COUNTRIES

-  Statistics Iceland - www.statice.is
-  Office of Statistics Liechtenstein - www.as.llv.li
-  Statistics Norway - www.ssb.no
-  Federal Statistical Office of Switzerland - www.bfs.admin.ch

