

# Towards a European Master in Official Statistics

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## *Abstract:*

*After several years of discussions and consultations on the need for and the opportunity to create a European Master in Official Statistics (EMOS), the main stakeholders interested (NSI, Eurostat, universities and national schools in statistics) have decided to undertake concrete actions in order to make the creation of a European Network of the Master programs in official statistics possible.*

*The paper describes the discussion and the current status of EMOS. Furthermore the article shows the next concrete steps needed to reach the position of starting the project in autumn 2014 and see the first generation of European Master Degree in Official Statistics awarded by the universities members of the Network in summer 2016.*

## **I. Introduction**

Statistical literacy is one of the main topics for National Statistical Institutes (NSI) around the world. Statistical agencies deal with highly complex information and the data producer business model is based on statistical and mathematical knowledge.<sup>1</sup> It is important that data producers have a high level of statistical literacy in order to generate high quality data for evidence-based decisions. For the data consumer, knowledge of statistics and data producing process is also essential. One of the tasks of the data producer - especially for NSI – is to create solutions that enable data users to access the data and meta data in an easy and intelligible way; the user has to be able to draw the right conclusions from the data and it is essential therefore that each data user also has a sufficient level of statistical literacy.

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<sup>1</sup> For knowledge intensive official organisation and their legitimation and social responsibility see Helenius (2011), p. 138.

Education and advanced training for staff members has played a prominent role within the statistical offices and, in the last decades, statistical training has become more and more relevant, reaching even beyond NSI offices. Statistical education starts consequently in schools. As positive examples, we can notice the Kid' zone from Statistic Canada<sup>2</sup> or the international project 'CensusAtSchool'<sup>3</sup>. Part of the learning content is much more than probability theory; one of the main aims is the understanding of the data producing process and the associated boundaries in interpreting these data.

At university level, statistics is an element in different fields of study. Social science, economy and medicine all have statistics inside their curriculum. Often it is a problem for a single statistical office to establish collaboration with a university. On the one hand, it is a matter of resources for the NSI and, on the other, the number of students who are interested in official statistics. Programs in English and French have the advantage that they can often recruit students from abroad; this is not possible for all European countries. For several years, various NSI and Universities have been discussing a European-wide solution to this situation.<sup>4</sup> An on-going and important point of this discussion is to find a workable link between advanced training and university degrees and Eurostat shows its intention to play an active part in a solution for (and working with) the European Statistical System (ESS) .

## **II. The statistical agency as educator**

Eurostat has a long tradition with internal training. For any employer, it is necessary to provide a system of vocational training and especially for a knowledge-intensive organization in a period with drastic changes in information technology. Eurostat also plays the role of coordinator in the field of training and development. For high quality European data, it is necessary that staff in all member states have an adequate level of statistical knowledge. To reach this goal, a coordinate training system is essential. The current European Statistical Training Program (ESTP) guarantees this task inside the ESS. This is only one part of statistical education.

In the last 20 years, most NSI have realized that their responsibilities are numerous and do not end up producing up-to-date data. The results of (official) statistics are often complex. "In addition to producing reliable, relevant, coherent, timely and understandable statistical information, we should pay special attention to user support, statistical awareness and statistical literacy"<sup>5</sup>.

This topic is of such relevance for statistical agencies that the International Association for Official Statistics (IAOS) has dedicated a full edition of its Journal, with various articles on

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2 [http://www.statcan.gc.ca/edu/zone/edu02a\\_0000-eng.htm](http://www.statcan.gc.ca/edu/zone/edu02a_0000-eng.htm).

3 <http://www.censusatschool.com/>.

4 For the discussion see <http://www.cros-portal.eu/page/emos-initiative>.

5 Helenius, R, (2011) S. 95.

statistical literacy to this subject.<sup>6</sup> Furthermore, the International Association for Statistical Education (IASE), a section of the International Statistical Institute (ISI), has established the International Statistical Literacy Project (ISLP), following the ISI World Numeracy Program from 1994, to contribute to statistical literacy across the world.

If statistical agencies create user support for a better understanding of the data producing process and the results of official statistics, it is helpful to segment the different user groups. Teachers require different information to their pupils; journalists need different information to researchers. Some NSI meet the various needs of their users with different information offers. For examples see the internet pages of Statistic Canada or Australian Bureau of Statistics.<sup>7</sup> Likewise, different European NSI offer specific information for different categories of statistic consumers.

Universities as a user group are different in their approach to other groups. First, universities supply statistical knowledge for various academic disciplines. In the context of statistical literacy, it is important for the NSI that this is more than probability theory. In the situation where statistics are offered as a minor study area (by way of example, to support a major in geography) it is also recommended that official statistics are also offered as part of this course.

One of the various effects of the Bologna process is the European Credit Transfer and Accumulation System (ECTS).<sup>8</sup> The ECTS is the ticket for the NSI to be part in minor fields of study. But for this purpose, it is essential to have regular offers in official statistics within the universities.

If statistics is the major subject in studies of social science, economics or mathematical statistics, the NSI must take a substantial interest and be part of the curricula. These groups of students become the next generation of stakeholders or professionals in the field of statistics. But in most European countries, university programs offer trainings mainly on descriptive and inference statistics. In Master degrees, we can find additional multivariate statistics and in the field of economy the econometrics as applied statistics.

Essential elements of the data production process, respectively survey methodology are frequently not part of this field of studies. Data producers, like NSI, have a very clear interest for official statistics to be included in the qualification of the young researchers.

First of all, data producers are employers. As employers the NSI are looking for young postgraduates in sociology or economics with skills in data production and analyses. Furthermore NSI are in competition with other (private) organisations for the 'best brains'. If the NSI are active in the qualification of students then they will have direct access to these

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6 Statistical Journal of the IAOS 27 (2011); inside see among other Forbes, S. et al (Statistics New Zealand and University of Auckland) and Townsend, M. (Statistics Canada) for views from outside Europe.

7 <http://www.statcan.gc.ca> and <http://www.abs.gov.au/>

8 For information about the Bologna process and ECTS see [http://ec.europa.eu/education/higher-education/bologna\\_en.htm](http://ec.europa.eu/education/higher-education/bologna_en.htm) .

human resources. This is the supply side. On the demand side, the NSI needs professionals in universities, research institutes and as policy advisers with sufficient skills to understand statistical outputs.

These are the reasons why statistical offices are more and more interested to be part of the university education system in statistics. The past has shown that often it is not enough to be a passive partner. If the NSI are interested for official aspects of statistics to become part of the university programs, they have to play an active role in the design of the courses and the degrees as well as Master or PhD programs. A positive example is the Master degree in official statistics in Southampton, collaboration between the University of Southampton and the Office for National Statistics in Great Britain.<sup>9</sup> Another positive example for an active part in statistical education by a statistical office is the 'École Nationale de la Statistique et de l'Administration Économique (ENSAE)' in France.<sup>10</sup>

### **III. The Steps towards a European Master in Official Statistics (EMOS)**

Inside the European Statistical System (ESS), the idea of a Master in Official Statistic was launched for the first time in 2008. The idea of creating a training capacity was explicitly mentioned in the "Communication from the Commission to the European Parliament and the Council on the production methods of EU statistics: a vision for the next decade"<sup>11</sup> which was adopted in August 2009.

After this first discussion, EMOS was topic in several meetings during 2009. In bilateral visits, the NSI of France, Germany and Poland discussed postgraduate degrees in official statistics. During the 2009 edition of NTTS<sup>12</sup> Conference in Brussels, the main stakeholders of the ESS expressed their interest for a project that contributes to the creation of a post-graduate degree in European Official Statistics by labelling existing programmes and by setting up a network of these programmes at European level.

#### **III.1 The Workshop on European Masters in Official Statistics in Southampton**

The next step forward in the discussion on a European Masters in Official Statistics was a workshop hosted by the University of Southampton and sponsored by Eurostat in June 2010. Over two days, Universities and NSI from more than 20 European countries discussed the common structure for a Master.

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<sup>9</sup> See [http://www.southampton.ac.uk/demography/postgraduate/taught\\_courses/msc\\_official\\_statistics.page](http://www.southampton.ac.uk/demography/postgraduate/taught_courses/msc_official_statistics.page).

<sup>10</sup> See <http://www.ensae.fr>

<sup>11</sup> COM (2009) 404 final.

<sup>12</sup> New Techniques and Technologies for Statistics.

The aims of the workshop were:<sup>13</sup>

- To discuss interests of different stakeholders, define potential steps and an action plan for the creation of European degree programmes in official statistics.
- To build partnerships between European Academic Institutions and NSI in the implementation of the “knowledge triangle” linking research, education and innovation as key elements for a knowledge-based society.
- To ensure that European Academic Institutions have a pivotal role in interactions with NSI through knowledge transfer, dissemination and direct partnerships for research.

The discussions were thought-provoking and different points of view were put forward. The main questions presented were as follows:

- Should NSI be funding general statistics Master courses in an attempt to have universities deliver better-qualified graduates, a selection who would work in NSI?
- Should NSI work with universities to develop industry-specific masters programmes which meet the needs primarily of staff at NSI to further improve their technical skills in the form of continuous professional development?

It was a common view that first these two fundamental questions need to be addressed before the concept of a European Master in Official Statistics can progress. The view of many of the NSI present at the workshop was that they were primarily looking at support for a programme based around the continuous professional development for their staff. They could not afford to contribute funding to an academic programme which did not deliver specific return on their investment.

### **III.2 EMOS - a Vision Infrastructure Project**

The various stakeholders – both inside and outside the ESS - came up with concrete proposals to take the next steps towards EMOS. A voluntary group, made up of representatives from some NSI and universities was created at the end of 2010.

This group was chaired by ISTAT and had the task of streamlining existing positions within NSI and the academia, clarifying scope, existing practice and proposals for establishing a European Master in Official Statistics, based on the close cooperation of NSI and the academia. This group presented these results to the ESS in the end of 2011.

Thereafter, Eurostat organised a special meeting during the NTTTS 2011 conference. This meeting underlined the clear interest of various NSI and universities to cooperate and work

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<sup>13</sup> For full paper, slides and minutes of the conference see <http://www.s3ri.soton.ac.uk/courses/european-masters/>

together to develop a European Masters in Official Statistics.<sup>14</sup> Moreover, there was a clear interest on behalf of the NSI for Eurostat to play an active role and Eurostat confirmed its view related to EMOS:

*"The main goal of this project is to establish a quality label for university 'European Official Statistics' programmes that meet agreed standards in education. University programmes that are benchmarked to these standards become members of the 'European Official Statistics' network."<sup>15</sup>*

The possible objectives were set out:

- Establish a network of EMOS course providers;
- Diffuse European culture and knowledge in official statistics;
- Create a repository of young statisticians having a sound knowledge in statistics but also in other fields related to official statistics (e.g. IT, social sciences, economics);
- Improve cooperation between universities and NSI; allowing the provision of scientifically sound solution to problems related to official statistics;
- Create a platform for NSI staff members training in Universities and students in NSI.

A series of preparatory activities related to the EMOS project were carried out within Eurostat; the two main ones were as follows:

- Technical specifications prepared for a study in 2012. The aim of this study is to provide an in-depth and comparative analysis concerning the postgraduate degree programmes in statistics in the ESS member states, in order to identify existing or potential programmes in official statistics, to assess the interest among potential providers (organisations) to join and participate in the EMOS Network; to evaluate the implication regarding the labelling mechanism to be put in place.
- Procedures to recruit a Seconded National Expert launched on August 2011 in order to consolidate the Eurostat project team.

### **III.3 The working paper "Prospects for a European Master in Official Statistics"**

In autumn 2011, the voluntary group, chaired by ISTAT, presented a draft paper entitled *'Towards the establishment of a Master in European Statistics'*. NSI and universities of twelve European countries worked on this.

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<sup>14</sup> For the minutes of the meeting see <http://www.cros-portal.eu/page/emos-initiative>.

<sup>15</sup> Ex-Ante Evaluation Document for VIP projects, May 2011.

The initial document presented a set of ideas and a few key questions in order to stimulate the exchange of views among the stakeholders interested.

The issues raised in this document were linked to the name of the programme, the involvement of other international organisations at this stage of the project; the scope, the objectives and the results; the target groups; the possibility to promote in parallel two categories of master (professional and academic), training staff and students profile, competencies profile; European accreditation (within ECTS).

#### **IV. EMOS – the current status**

In spring 2012, Eurostat launched the Call for Tender for the feasibility study 'Towards a European Master in Official Statistics'. The purpose of this study is to contribute to the creation of a European Master in Official Statistics and to create a network of programmes dealing with Masters in Official Statistics at European level.

The study will provide the main stakeholders, interested in the EMOS project (National Statistic Institutes, universities, Eurostat), with the information needed to take appropriate decisions with regard to establishing a European Master in Official Statistics, setting up a European Network of providers for such programmes and labelling these programmes at European level.

The main objectives of the study are the following:

- To provide an inventory of the Master programmes in statistics and their providers in the countries selected for analysis;
- To analyse the existing and potential Master programmes in official statistics, and identify whether they are suitable for joining a future European network of Masters in official statistics;
- To assess the interest of the providers and their capacity to join the EMOS Network (including their vision for the future network) and the administrative and technical barriers; on the basis of a questionnaire;
- To assess the interest of the NSI to participate in and to support the development of a European network of the Master programmes in Official Statistics;
- To analyse the advantages/disadvantages, the cost-benefits and technicalities of having labelling mechanisms and the role and implication of this on the NSI and Eurostat;
- To list and analyse potential funding facilities to get sufficient recourses for EMOS in the middle and long run;
- To propose a road map for the EMOS project.

The feasibility study will start in autumn 2012 and will draw to a close twelve months later with a final technical report. Assuming that the universities and relevant stakeholders remain interested and the systems of education across Europe are not too different, it is expected that the first courses of EMOS will start in the winter semester of 2014.

In order to achieve this objective, it is necessary that the curriculum and the labelling rules are developed in 2013. The process of coordination between all participating groups and the administrative implementation in different countries, with different systems of education, will be time consuming.

In the long run, permanent bodies will be required to support EMOS. The European Master's in Translation (EMT) could be used as a workable example.<sup>1617</sup>: a permanent group of stakeholders accompanied EMT as Member Board and this group elected an EMT Board for regular support. The Board is responsible for the curriculum, labelling and the rules to participate in the Member Board. On the European Union side, the Commission's Directorate-General for Translation (DGT) is responsible. DGT provides EMT with a permanent office for the administrative tasks.

## V. Conclusions

Knowledge is the main resource for future innovation, productivity and growth; the wealth of European countries is based more and more on a high level of education and information, both of which are essential elements in the main field of official statistics.

On the one hand, the process of producing reliable statistics as a base for decision-making is the core business of the NSI. On the other hand, the NSI have understood that in order to generate knowledge, it is also necessary that data users have an adequate level of statistical education. This topic is discussed under the label 'statistical literacy'.

EMOS is a joint project of different stakeholders (NSI, Eurostat, universities and national schools in statistics) with the aim of reaching a higher level of knowledge in various ways:

- Firstly, statistical producers could benefit from young and well-qualified researchers in official statistics.
- Secondly, other organisations with a link to statistics (ministries, central banks, research institutes, consultants etc.) could acquire better qualified staff in statistics on the labour market.

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<sup>16</sup> [http://ec.europa.eu/dgs/translation/programmes/emt/index\\_en.htm](http://ec.europa.eu/dgs/translation/programmes/emt/index_en.htm)

<sup>17</sup> Beside EMT exists different European Master inside the Erasmus Mundus Master Courses as possible examples for EMOS, for more information see: [http://eacea.ec.europa.eu/erasmus\\_mundus/results\\_compendia/selected\\_projects\\_action\\_1\\_master\\_courses\\_en.php/](http://eacea.ec.europa.eu/erasmus_mundus/results_compendia/selected_projects_action_1_master_courses_en.php/)

- A third point is that NSI and Universities stand to learn a great deal from each other through having this project in common. Staff members of the Universities could get a clear insight into the outside world of official statistics; working statisticians could learn more about the academic questions surrounding official data. In the long term, NSI experts could participate directly in drawing up the curriculum of EMOS and the different courses could be part of the advanced vocational training programmes.

Another point is that EMOS has an additional aim of supporting international higher education. Having a common EMOS programme in various universities will promote the mobility of young students across Europe; this could be supported by various actions of the Erasmus Programme. Indeed, EMOS seems suited to the basic architecture of the future 'Erasmus for all' project, foreseen to start in 2014 and this support may well be necessary as funding for the EMOS project presents the greatest challenge in the long-term.

The short and the medium-term prospects of EMOS are promising: certainly for the implantation phase, Eurostat has committed the necessary human and financial resources. Different NSI and Universities have also confirmed their interest to play an active role in EMOS and the Call for Tender was positive.

It now seems possible to have the first young researcher with a Degree in a 'European Master in Official Statistics' by summer 2016.

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