Supply of a feasibility study related to the setup of a European Masters Programme in Official Statistics (EMOS)

Synthesis report (D3)

Implementation Period:
6 December 2012 – 6 December 2013

This project is funded by the European Union and implemented by ICON-INSTITUT in consortium with Genes

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Abbreviations

D1  Deliverable 1
D2  Deliverable 2
EC  European Commission
ECB  European Central Bank
ECTS  European Credits Transfer System
EFTA  European Free Trade Association
ELOS  European Label for Official Statistics
EMOS  European Masters in Official Statistics
EPSCP  Etablissement Public à caractère Scientifique, Culturel et Professionnel
ESAC  European Statistical Advisory Committee
ESCB  European System of Central Banks
ESS  European Statistical System
ESSC  European Statistical System Committee
ESTAT  Eurostat
ESTP  European Statistical Training Programme
EU  European Union
FAO  Food and Agriculture Organization
FENStatS  Federation of European National Statistical Societies
GExp  EMOS Expert Group
IMF  International Monetary Fund
INSEE  Institut National de la Statistique et des Études Économiques
ISI  International Statistical Institute
ISTAT  Istituto Nazionale di Statistica
MOOCS  Massive Open Online Course
NSI  National Statistical Institute
NTTS  New Techniques and Technologies for Statistics
OECD  Organisation for Economic Cooperation and Development
OFS  Office of Federal Statistics (Switzerland)
UNDP  United Nations Development Programme
UNESCO  United Nations Educational, Scientific and Cultural Organization
UNO  United Nations Organization
UNIDO  United Nations Industrial Development Organization
WB  World Bank
WTO  World Trade Organization
Executive summary

The main objective of this study is to contribute to the establishment of EMOS and the creation of a network of Masters programmes in Official Statistics at the European level. This initiative is considered to be fundamentally important for European official statistics.

Four results are expected: enhanced Masters programmes in Official Statistics; a reinforced network of professional statisticians and strengthened cooperation between academia and the ESS; a shared vision for the methodology, organisation, management and assessment of the production of European statistics; and a repository of young statisticians.

As a prerequisite, the project’s stakeholders were analysed. Eurostat is the central stakeholder. National statistical institutions were identified as the project’s main beneficiaries. Universities and their academics also have an important role. The European Statistical System and associated committees have a key role. Line ministries and central banks are important stakeholders for their role as coordinators and users of national statistical data. International organisations are also included as potential employers and support of internships and student theses.

The study’s first phase involved a quantitative survey. Its purpose was to provide an inventory of Masters programmes in statistics and their providers in 39 countries and to analyse the existing and potential programmes and determine if they would be suitable for inclusion in a future European network of Masters in Official Statistics. It began with the selection of EU Member States as well as candidate and potential candidate countries, and European Free Trade Association countries. The questionnaire was then designed, using LimeSurvey. The fields of study were identified, and included subjects within the broad purview of Statistics and Economics: Social Sciences, Econometrics, Finance, Actuarial Sciences, Business/Management and applied Statistics and Economics. Data were then collected and entered into a database. The variables used were: city and country, university, the title of the Masters programme, contact details and an identification code. Invitations to take part in the survey were sent in March 2013, and were followed in April 2013 by reminders. The results were statistically analysed.

An exhaustive database of Masters programmes related to Official Statistics was created.

The second phase – the qualitative survey – took place between May and September 2013. Its purpose was to complement the available information, clarify issues and gain additional insights that were not obvious from the quantitative survey. Based on the results of the quantitative survey and taking account of geographical representativeness, 14 countries were selected for a more detailed analysis. When these countries were approved by Eurostat, two experts conducted interviews with relevant institutions in each country. All National Statistical Institutes (NSI) in those countries were also interviewed thanks to a guide that was elaborated. To harmonise the implementation of interviews, interview guidelines were prepared: one guide for interviews at universities, and one for interviews with NSIs. The guide for universities covered the following topics: the institution and its administration, the structure of its Masters programme and pedagogical guidelines, the students, the links with the national statistical system, and the perspectives. The main objective of this guide was to identify whether the programme complies with the EMOS objectives.

The third phase was concerned with designing the EMOS project. It analyses the project’s advantages and disadvantages, the cost-benefits and technicalities of labelling mechanisms and their role and implications for NSIs and Eurostat. A detailed analysis of labelling and accreditation options was also conducted and a design for a possible EMOS project was developed.

The main stakeholders for the EMOS project are universities; NSIs; the European Statistical System Committee; the European Central Bank and the European System of Central Banks; Eurostat; and the Federation of European National Statistical Societies (FENStatS). More than 700 Masters programmes in statistics were identified in 39 countries. The NSIs are a key...
stakeholder as future employers of European statisticians. Eurostat plays a special role in the project as focal point for all NSIs in the European Statistical System, while FENStatS promotes mutual communication, cooperation and exchange of views between those with an interest in statistical sciences. Other stakeholders include local, regional, national and international organisations, and the private sector.

It was found that EMOS created interest in most countries, subject to it not impacting universities’ accreditation. Some universities are ready and willing to join the project now, others are still to fulfil all requirements. However, a first EMOS community can be identified.

There is scope for cooperation between some complementary Masters programmes, but due account must be taken of local regulations and circumstances. English is proposed as the project’s lingua franca, but this may be challenging in some situations. There are significant differences in the costs of Masters programmes throughout Europe.

EMOS cannot meet the expectations of all stakeholders and priorities must be set. Although constraints and potential conflicts of interest were identified, synergies and interactions can be created for a win-win strategy for EMOS.

The Bologna Process is now widely accepted in most countries. Almost every Masters programme has a scientific committee and accreditation, but those that have adopted the Bologna Process are most likely to be accredited. About two-thirds of Masters programmes have a relationship with their country’s NSI.

There are major differences in Europe in the way that students are funded and in the cost of tuition, which ranges from zero to €7,000. This might be problematic and efforts should be made to develop acceptable solutions for all stakeholders.

A European label must demonstrate excellence in European statistics and apply quality standards recognised by all concerned stakeholders. EMOS should also take into consideration the diversity of eligible Master programme which gives EMOS the scope to ensure that it can be widely applied – in, for example, health, labour, education, economics, social science, demography and finance.

Quality is at the core of this project both on academic and professional level. The selection of Masters programmes must be open to foreign students, new IT tools: innovation and development of statistics for the future.

The balance and existing links between academia and the professional environment are particularly important in guaranteeing the success of EMOS and fulfilling its main objectives.

Three main tasks were identified for the design of EMOS. First is the definition of a syllabus for a common module for the EMOS community. ‘Teaching European Statistics: the objective is to define a transferable common European module that can be taught using traditional methods, distance learning, or more individual methods stemming from e-learning techniques, derivatives thereof and MOOCS. Second is the management of an EMOS community/network (summer schools, relationships between Masters programmes, symposium). The objective here is to share best practices within the community through the management of a dynamic network that enables stakeholders to meet regularly and to exchange using a common platform. This network should allow synergies to be created between key stakeholders. And third is the development and management of practice in official statistics through master thesis and internship. The aim here is the sharing and progress of statistical practice in a self-assessing community that promotes synergies between academics and professionals.

Since the beginning of the project, the mobilisation of a ‘scientific committee’ was envisaged to provide guidance during the project’s phases. It was decided that this committee should comprise academic representatives who are highly familiar with the topic, with the constraints of educational systems, and who have an excellent background in official statistics at the European level and representatives from NSIs. It was decided to call this committee the EMOS Expert Group (GExp).
Three meetings took place during this feasibility study and the main findings were welcomed within this GExp. The principle of creating an additional module for EMOS – rather than creating a whole new Masters programme – was approved by the GExp. The EMOS module can therefore be added to existing core programmes.

The EMOS module should focus on European methodology, innovation and frameworks in the European Statistical System. This module has to be a value added, but should not impact existing national, regional or local accreditation of a Masters programme. Even if the EMOS module is common to all EMOS Masters, it has to be conceived as enough flexible to be able to complement – and not to replace – existing courses or programmes. Each programme director should be able to adapt the module according to the core programme’s content. The pilot phase proposed in the road map will be an important test for the implementation and adaptation of the syllabus. It should be delivered with two main principles. A formal dimension sees the structure and content of the normal programme and the European module (courses taught in English, links with NSIs and foreign students). And a dynamic dimension includes innovation, e-learning, participation in the EMOS community, internships and theses dedicated to the professional practice of official statistics.

The aim of the EMOS module is to provide a lowest common denominator of statistical knowledge and skills for the professional and expert staff of the European Statistical System; NSIs; and other stakeholders.

The general scope of the EMOS module is the mission and mandates of official statistics; statistical standards and their role in data harmonisation and integration; and modern IT and actively innovative environments.

During the GExp meeting in Luxembourg in November 2013, it was agreed that the EMOS module should represent at least 10 percent of a traditional Masters programme, meaning around 12 ECTS. That proportion could, of course, increase if the programme director agrees. Therefore, a certain degree of flexibility should allow adaptation to the constraints and priorities of the EMOS community members.

The main EMOS bodies are the EMOS community (membership should be envisaged as a dynamic process), an advisory board (to provide guidance), a labelling committee. The future of GExp should be discussed at a later stage.

Analysis suggests that staff required for the EMOS Pilot Phase will be a project supervisor, coordinators for each of the three EMOS missions, a secretariat to provide support, and an IT expert.

The training should be delivered in English. Qualified trainers are yet to be identified. The NSIs and Eurostat could provide support.

The qualitative surveys found that addressing training needs is important for NSIs, specifically on European topics. To a large extent, EMOS will cover these topics. Therefore, we strongly recommend the inclusion in EMOS of specific sessions open to statisticians and related professionals. Opening this module to professionals would enable a return on investment in the EMOS label.

Nevertheless, it must be kept in mind that there are the NSIs in Europe and that not all are in close alignment with the EMOS module. This training should be made available, at the same cost, to all NSIs, to avoid discrimination.

Regarding the EMOS community and networks, the objective is to facilitate exchanges between all stakeholders to promote a shared European statistical culture. There is a range of ways to achieve this, including summer schools; a symposium; and a permanent EMOS network.

Internships and Masters theses should bridge the gap between theoretical and practical knowledge in official statistics. This is expected to be a win-win process for the two parties involved. For academia, it offers immersion in the administrative organisation, service provision and real-life challenges of operational statistical agencies; while for operational statistical agencies: a different...
vision and perspective of current practices. Internships should include a European dimension and it will be an asset for students to travel abroad for the EMOS internship. The EMOS Masters thesis could be managed in the same context and with the same professional objectives as the EMOS internships. The thesis can be developed by collaboration between an EMOS Masters programme in one country on a subject suggested by an NSI or other stakeholder in another country. At first sight, it would appear that ‘cross-border dissertations’ may be easily organised and may be of primary interest to the European statistical community. Research should extend to projects and partnership work between universities and NSIs financed by regional, national and European level statistical institutions. In the future, an EMOS doctorate and products from partnerships and consultancies between universities and NSIs will stand as an indicator for the success of EMOS.

The EMOS community will promote discussion, exchanges and evaluations, contributing to an EMOS Information System. This precious knowledge can then be disseminated. An EMOS community using modern communication tools and organised in a dynamic network promoting exchange, discussion and evaluation will create a heritage of theoretical and practical knowledge, plus experimental information, that can be widely disseminated. The originality of EMOS relies on the universities as main stakeholders on training, and as holders of the value and recognition of the diplomas. Research, innovation and the ability to use the information for professional good should be at the centre of this process.

Finally, the study addressed challenges that must be considered.

First of all, the financial issues and costs to finance the EMOS module.

Another problem relates to the use of English for EMOS content. Many universities are ready to adapt their courses, even if they do not currently offer courses in English.

Regarding the project’s sustainability, even if some financial support is envisaged for the EMOS launch and experimental phase within the next two or three years, the project’s future – beyond that initial period – must also be considered. If funding is available for the project now, that may mean that the project could require funding indefinitely, which would endanger the project. On the other hand, scholarships offered from the outset to students of a certain level would be a good way to start the project. Any support for EMOS that already exists (e.g., Erasmus) may offer an opportunity to promote exchanges between European countries and create potential synergies.

Solutions to the sustainability issues include a system of organisation (within Eurostat and in the NSI network); a balance between theoretical and professional approaches (universities and NSIs); and the development of social skills and know-how.

For the EMOS pilot phase, this study strongly recommends duration of 24 months, plus six months of evaluation, making a total of 30 months. Some 25 Masters are immediately eligible for the pilot phase. However, a maximum of eight should be selected as ‘Pilot Masters’. A selection procedure should be finalised and performed according to specific criteria and based on the results of this feasibility study.

During the GExp meeting in Luxembourg in November 2013, it was discussed that, if possible, the pilot Masters should begin in autumn 2014.

There should be four main bodies supporting EMOS. The EMOS community, whose membership should be envisaged as a dynamic process, should clarify procedures for joining the EMOS community; the mandate for community membership; and make regular reports to the community. An Advisory Board should be designated to provide guidance on EMOS. This board should not comprise more than 15 members in order to remain effective. An authority should be designated to provide guidance. Members should be selected from stakeholders, thus ensuring that their interests are represented. A Labelling Committee should be selected to define the content and the selection criteria for EMOS. The members of this committee should represent the interests of the main stakeholders. During the GExp meeting in November 2013, it was agreed that the European Statistical System should be the label owner. GExp is the fourth body, whose future should be discussed in 2014.
Analysis suggests that the following staff will be necessary for the EMOS pilot phase: one main project supervisor; staff to coordinate each of the three main EMOS missions; a secretariat to support the team; and an IT expert responsible for the website and communication tools.
1 Introduction

1.1 Overview of the project

<table>
<thead>
<tr>
<th>Contract title</th>
<th>Supply of a feasibility study related to the set-up of European Master programme in Official Statistics (EMOS)</th>
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<td>Date of contract termination</td>
<td>6 December 2013</td>
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<td>Duration</td>
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<td>Recipient Countries</td>
<td>EU member states and EFTA countries</td>
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<tr>
<td>Contractor</td>
<td>ICON-INSTITUT Public Sector in consortium with Genes</td>
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<tr>
<td>Responsible persons</td>
<td>Project Manager: Mr Alain TROGNON Manager Assistants: Mr Kalifa TRAORE Ms Natacha BRENNER</td>
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</table>

1.2 Background information

The European Masters in Official Statistics project (EMOS) was selected by Eurostat as a Vision Infrastructure Project for 2012. This is in line with the objective of creating a true European statistics research and training facility in, as outlined in Eurostat’s communication (COM [2009] – 404 Communication from the Commission to the European Parliament and Council). Four results are expected from EMOS:

1. Enhanced Masters programmes in official statistics in Europe, with the curriculum adapted to the changing professional needs of statistical authorities;
2. A reinforced network of professional statisticians at the international level and reinforced cooperation between academia and the European Statistical System (ESS);
3. A shared vision for the methodology, organisation, management and assessment of the production of European statistics, with academia and the ESS as teaching parties in EMOS; and
4. A repository of young statisticians and training facilities in the Member States.

This initiative is considered to be fundamentally important for European official statistics. Since 2008, there have been many meetings and consultations with a range of stakeholders. The most important events were:

- Creation of a project group in Eurostat with a mandate of establishing an ex-ante evaluation of the EMOS project, which involves other Directorates-General of the European Commission (EC);
- A workshop hosted by the University of Southampton in June 2010, which enabled exchange of views between universities and national statistics institutes (NSIs) from 20 countries;
The 2011 New Techniques and Technologies for Statistics (NTTS) conference was another opportunity for further discussion of the project.

Eurostat has always expressed its interest in the EMOS project. It has played an active role in facilitating meetings and discussions between the potential stakeholders. This feasibility study represents a step towards its realisation.

1.3 Objectives of the project and expected results

The main objective of this study is to contribute to the establishment of EMOS and the creation of a network of Masters programmes in Official Statistics at the European level. It provides the main stakeholders with the information needed to take appropriate decisions on establishing EMOS, setting up a European network of providers and identifying an accreditation system for these Masters programmes at the European level.

Results expected from this feasibility study

**Objective 1: To provide an inventory of Masters programmes in Statistics and their providers in the countries selected for analysis**

- **R1.1:** A list of selected countries for the feasibility study is established
- **R1.2:** An inventory of Masters programmes in Statistics and their providers in the selected countries is available for analysis
- **R1.3:** A database of the sample countries and their Masters programmes is available

**Objective 2: To analyse existing and potential Masters programmes in Official Statistics, and determine if they are suitable for joining a future European network of Masters programmes in Official Statistics**

- **R2.1:** A descriptive analysis of existing and potential Masters programmes in Official Statistics is made
- **R2.2:** A comparative analysis of existing and potential Masters programmes in Official Statistics is made, based on their capacities to join EMOS

**Objective 3: To assess the interest of providers and their capacity to join the EMOS Network (including their vision for the future network), and any administrative and technical barriers, on the basis of a questionnaire agreed by Eurostat**

- **R3.1:** An assessment of the interest of providers and their capacities to join the EMOS network is made
- **R3.2:** An analysis of the administrative and technical barriers to joining the network is made

**Objective 4: To assess the interest of NSIs to participate in and support the development of a European network of Masters programmes in Official Statistics**

- **R4.1:** The interest and support of NSIs for the implementation of the EMOS project is assessed

**Objective 5: To analyse the advantages/disadvantages, the cost-benefits and technicalities of having labelling mechanisms and the role and implication of these on NSIs and Eurostat**
### R5.1. A labelling mechanism for EMOS is designed and described

### R5.2. An analysis of the advantages/disadvantages and the cost-benefits and technicalities of the labelling mechanism is made

#### Objective 6: To propose a road map for the EMOS project

- **R6.1. A project file is elaborated**
- **R6.2. A multi-annual work plan is designed**
- **R6.3. An estimation of the cost of the project is made**

### 1.4 Project meetings

To ensure the project’s smooth implementation, regular meetings and videoconferences were organised between Eurostat and the consortium. The minutes and documents presented during these meetings are included in Annex 1.

- The kick-off meeting was held on 11 December 2012 in Luxembourg.
- The first progress meeting was held on 7 March 2013 in Brussels after the NTTS conference.
- The second progress meeting took place on 13 June 2013 in Luxembourg.
- The third progress meeting took place as a video conference on 17 September 2013.
- The fourth progress meeting was held on 26 September 2013, also as a video conference.
- The fifth progress meeting took place as a video conference on 6 November 2013.
2 Methodology

The terms of reference described five tasks to be implemented. Many tasks and activities took place in parallel, so it was decided to structure the project and the report by periods of time. All tasks in the terms of reference are included in the study’s three main phases. This table offers an overview of tasks and activities and aligns them to the phases that form the structure of this report.

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Activities</th>
<th>Project phase</th>
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<tbody>
<tr>
<td>1: Management of the activities</td>
<td>1.1: Coordinate overall project implementation</td>
<td>The whole duration of the project</td>
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<td>1.2: Financial management tasks</td>
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<td>1.3: Coordinate data collection in the countries</td>
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<td>1.4: Organise data processing and statistical analysis</td>
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<tr>
<td>2: Methodology and research tools for data collection</td>
<td>2.1: Review of literature and definition of criteria for selection of the countries for analysis</td>
<td>Phase 1</td>
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<td>2.2: Design of the sampling method</td>
<td>Phase 1</td>
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<td>2.3: Identify key informants in the countries for the qualitative survey</td>
<td>Phase 1</td>
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<td>3: Data collection</td>
<td>3.1: Prepare an inventory of Masters programmes in Official Statistics</td>
<td>Phase 1</td>
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<td>3.2: Design of the questionnaire for the survey of Master programmes in statistics</td>
<td>Phase 1</td>
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<td>3.3: Interviews with key informants in the countries</td>
<td>Phase 2</td>
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<td>4: Country analyses</td>
<td>4.1: Detailed descriptive analyses of existing and potential Masters degree programmes</td>
<td>Phase 1</td>
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<td>4.2: Comparative analysis of countries and providers</td>
<td>Phase 2</td>
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<td></td>
<td>4.3: Design of the EMOS project</td>
<td>Phase 3</td>
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<tr>
<td>5: Evaluate the consequences of applying labelling mechanism</td>
<td>5.1: Analyse the strengths and weaknesses of setting up a labelling process of qualifications and providers in Official Statistics</td>
<td>Phase 3</td>
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<td>5.2: Analyse opportunities and threats</td>
<td>Phase 3</td>
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<td>5.3: Prepare the future decision-making process</td>
<td>Phase 3</td>
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Therefore, the consultant structured the work by these main phases:

**Prerequisite: Stakeholder analysis**

<table>
<thead>
<tr>
<th>Phase 1: Quantitative survey</th>
<th>January-April 2013</th>
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<tr>
<td>Phase 2: Qualitative survey</td>
<td>May-September 2013</td>
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<tr>
<td>Phase 3: Design of the EMOS project</td>
<td>July-December 2013</td>
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The phases and activities are outlined in more detail in the following paragraphs.

**2.1 Prerequisite: Stakeholders analysis (Annex 2)**

Before data collection, it was essential that all relevant stakeholders were identified and analysed. A basic premise for the stakeholder analysis is that groups concerned with EMOS have a range of concerns, capacities and interests, and that these needs have to be explicitly understood and recognised in the process of problem identification, objective setting and strategy selection.

The ultimate aim is to help maximise the project’s social, economic and institutional benefits to target groups and final beneficiaries, and to minimise any potential negative impacts (including stakeholder conflict). Universities and NSIs are the focus of this project. In the country reports, specific features of each Masters programme are described and analysed to allow comparisons between countries and to facilitate identification of a common denominator. The following key institutions and stakeholders for EMOS were identified:

The **NSIs** will be the project’s main beneficiaries as:

- Future employers;
- Partners of the universities;
- Participants in the design of the European Statistics module; and
- Providers of internships or topics for Masters theses to students via Eurostat.

The **universities**, academics and students, are obviously at the core of the analysis. Those responsible, and/or the directors of the Masters programmes, may have an important role in commitment and in the project dynamic. Indeed, observations during the qualitative phase of this study emphasised that the success and good practice of the Berlin, Bamberg and Trier universities’ in Germany is based on a clear common will of those in charge to cooperate more or less independently of their university’s management. This is certainly a bottom-up approach that may be envisaged for an EMOS living community.

The **ESS**, via **ESSC** and the European Statistical Advisory Committee (**ESAC**) can be seen as a place of exchange between the main stakeholders involved in the production of statistics in Europe to support its development and dissemination.

The members of the **ESS** and the members of the European System of Central Banks (**ESCB**) signed a Memorandum of Understanding on Cooperation on 24 April 2013 (Annex 2).
Line ministries and central banks are among the key EMOS stakeholders. Indeed, no country has its official and national statistics concentrated exclusively within the NSIs, even if they do have a central coordinating role. High level education programmes related to official statistics are particularly important. Line ministries can therefore also provide internships and/or topics for Masters theses. Further, the financial sector has clearly demonstrated the significance of its role and its weight in local, regional, national and international organisations. Understanding of relationships, strengths, weaknesses and risks fall under the statistical and micro/macro-economic competences considered in the national, European and international official data. That explains why central banks are included in the present analysis.

International organisations, such as UNO, OECD, IMF, and UNESCO, are also included in this analysis. They could have interests as potential employers, but may also be involved in the dynamic process of the EMOS project, at least through specific internships or thesis subjects.

Eurostat is the central stakeholder as initiator of this study. It uses NSIs as a recruitment pool, even if this is indirectly done competitively or through seconded national experts introduced to the NSIs.

Other potential stakeholders not listed here are considered ‘non-key’ partners.

If Eurostat, the NSIs and the universities are clearly the main stakeholders, partnerships may be envisaged with institutions that use European statistics, in the sense of dissemination and promotion of statistical literacy.

2.2 Phase 1: Quantitative survey (Annex 3)

The specific objectives of this first quantitative survey were:

- To provide an inventory of Masters programmes in statistics and their providers in the countries selected for analysis; and
- To analyse the existing and potential Masters programmes in Official Statistics, and to determine if they would be suitable for inclusion in a future European network of Masters in Official Statistics.

The following steps were followed:

1. Selection of countries
   - EU countries (also including candidates and potential candidates); and
   - European Free Trade Association countries.

2. Questionnaire design (LimeSurvey)


4. Data collection and database creation. Variables: city and country, university, the title of the Masters programme, contact details and an identification code.

5. Invitations to take part in the survey and to complete the information. Emails sent in March 2013 and reminders in April 2013.

6. Analyses of the results: Software: Excel and SAS.

A total of 39 countries were covered by this study and are grouped as follows:

- The 27 members states of the European Union: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.
- Croatia as new member state since 1 July 2013.
The five candidate countries: Iceland, The Former Yugoslav Republic of Macedonia (FYROM), Montenegro, Serbia, Turkey.
- The EFTA countries minus Iceland: Liechtenstein, Norway, Switzerland.
- Three potential candidate countries: Albania, Bosnia and Herzegovina, Kosovo.

2.2.1 Database of relevant EMOS Masters degrees

The aim of this was to build an exhaustive database of Masters programmes related to Official Statistics.

The design of this database followed this methodology:

- Use of the websites of European universities, and corresponding wikipedia pages when available;
- Selection of Masters degrees that have mathematics, statistics and/or economics components, including Masters of Statistics, Economics, Applied Mathematics, Social Sciences, Finance and Actuarial, and IT; and
- For each selected Masters degree, the name of contact persons and the contact details (email, function and phone number) were recorded.

2.2.2 Questionnaire – online survey

The online survey took place in March 2013 using LimeSurvey. The questionnaire was structured in three main sections, with an introduction about the EMOS project (Annex 3).

- A brief introduction with an overview of the EMOS project and the Bologna process.
- Section A: Country and university details.
- Section B: Masters programme details.
- Section C: Last year of respondent’s Masters degree programme.

The inventory process included these steps:

- Information on the survey and an invitation to take part was sent to the universities using a mailing list derived from the documentary review. Other channels, such as the NTTS meeting in Brussels (5-7 March 2013), were also used to increase awareness of the project, the aim being to increase the number of respondents;
- Establish a reminder system via the mailing list to encourage universities to respond; and
- Follow-up the completeness of the responses and help respondents to complete the questionnaire.

Collecting data on the characteristics of institutions with Masters programmes in Statistics were carried out using an online survey support. Once the questionnaire was approved by Eurostat, it was organised and directly linked to a database system, where the data could be stored for further processing.

Letters of information were sent to respondent institutions asking them to fill in the online questionnaire. At the same time, guidelines on filling in the questionnaire were provided.

2.3 Phase 2: Qualitative survey

The qualitative survey took place between May and September 2013. The purpose of this phase was to complement the available information, clarify issues and gain additional insights that were not obvious from the quantitative survey.

Based on the results of the quantitative survey and taking account of geographical representativeness, 14 countries were selected for a more detailed analysis: France, Germany, Hungary, Italy, Luxembourg, Poland, Portugal, Spain, Sweden, Switzerland, the Netherlands, Turkey, the UK, Finland and Romania. In total, 11 country visits were made by the team of
experts. In addition, for France, Finland, Switzerland and Turkey, phone conferences or video conferences were organised (Annex 4). All NSIs in these countries were interviewed. After Eurostat approved the list of 14 countries, two experts conducted interviews with relevant institutions in each country.

### Distribution of countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Experts involved in the interviews</th>
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</thead>
<tbody>
<tr>
<td>Finland</td>
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<td>France</td>
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<td>The Netherlands</td>
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<tr>
<td>The United Kingdom</td>
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<tr>
<td>Turkey</td>
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</tbody>
</table>

To harmonise the implementation of interviews, interview guidelines were prepared: one guide for interviews at universities, and one for interviews with NSIs. In addition, all experts were briefed and prepared for the implementation of these interviews. A USB stick with all relevant information on the project was offered to the interviewees. The templates for reports on the interviews summarises interviews on the basis of a harmonised presentation.

The guide for universities covered the following topics: the institution and its administration, the structure of its Masters programme and pedagogical guidelines, the students, the links with the national statistical system, and the perspectives. The main objective of this guide was to identify whether the programme complies with the EMOS objectives.
A comprehensive analysis summarises the situation in the 14 selected countries.

### Phase 3: Design of the EMOS Project

Objective 5 aimed to analyse the advantages and disadvantages, the cost-benefits and technicalities of labelling mechanisms and their role and implications for NSIs and Eurostat. The consultant conducted a detailed analysis of labelling and accreditation options and developed a design for a possible EMOS project (presented under ‘Results’).
3 Results

3.1 Results from the stakeholder analysis

3.1.1 Description of the main stakeholders

The following stakeholder groups were identified.

**Universities**

Internet research on EMOS-related Masters programmes identified 703 programmes in statistics in 38 countries. The first assessment shows that only the universities in Lichtenstein do not offer Masters programmes that could potentially be considered for the EMOS project.

*Figure 2: University programmes relevant to EMOS based on internet search*

![Bar chart showing fields and percentage of EMOS related Master Programmes](chart.png)

**National Statistical Institutes**

The NSIs are a main stakeholder as future employers of European statisticians. The NSIs all seem to be in favour of the project and expressed interest to be included in the EMOS community, now or subsequently.

**European Statistical System Committee**

The task of this committee is to "provide professional guidance to the ESS for developing, producing and disseminating European statistics". The ESSC is chaired by the Commission (Eurostat) and composed of the representatives of Member States' National Statistical Institutes. EEA and EFTA countries' NSIs participate as observers. Observers from, for instance, ECB and OECD may also participate in the ESSC meetings. This committee includes various stakeholders involved with this study.

**European Central Bank and ESCB**

European statistics are developed, produced, and disseminated by the European Statistical System (ESS) and the European System of Central Banks (ESCB) within their respective sphere of competence. Cooperation between ESS and ESCB should be enabled through a European
Supply of a feasibility study related to the set-up of European Masters programme in Official Statistics (EMOS)

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in consortium with Genes

Statistical Forum, which is proposed in the April 2013 memorandum of understanding. The ECB is in charge of coordination and aggregation of ESCB statistical information.

**Eurostat**

Eurostat plays a special role in this project as the focal point for all NSIs in the ESS. Moreover, EMOS was selected as Vision Infrastructure Project for 2012 in the Vision for the Next Decade.

Eurostat could be described as the central coordinator. It is often connected to the European NSIs – through the data produced – and as regulator of the data production process (in reference to the corresponding European regulations). Acting as a centralizing data institution, Eurostat has a special interest in developing a common language for methodology, particularly for their European surveys. It is also a user of human resources from European NSIs. Eurostat staff consist, to some extent, of European statisticians. The NSIs are a recruitment pool for Eurostat.

The European Statistical Advisory Committee brings together 24 members, representing users, respondents and other stakeholders involved in European Statistics (including the scientific community, social partners and civil society) as well as institutional users (e.g., the Council and the European Parliament). The broad vision of ESAC’s multiannual statistical programme may be may be considered for the EMOS project.

**The Federation of European National Statistical Societies (FENStatS)**

**FENStatS** promotes mutual communication, cooperation and exchange of views between those with an interest in statistical sciences, in their broad scientific principles, and in as wide a range of applications as possible. It serves as an agency for the dissemination of technical and scientific information among the member National Statistical Societies. **FENStatS** aims to promote mutual communication, cooperation and statistical research in Europe, and to develop relations with society, with European institutions. In particular, it supports the diffusion of statistical education in Europe. **FENStatS** aims to ensure that more European funds are spent for research and education in statistical sciences and specifically:

- that programmes cater to research and education in statistical sciences; and
- that statistical societies are represented in panels where funding is decided.

EMOS must consider the involvement of **FENStatS**.

**3.1.2 Other stakeholders (e.g., private companies, and international organisations working with statistics)**

The proposed selection has been ordered according to the institutional status, the concerns and expectations of these institutions. For each type of organisation, the entry point is recalled.

**International organisations:**

- European Central Bank – Statistics Department (interview: Annex 4);
- International Monetary Fund – Statistics Department;
- World Bank – Statistics Department;
- World Trade Organisation – Economic Research and Statistics Unit;
- OECD – Statistics Directorate (interview: Annex 4);
- Food and Agriculture Organisation – Economics and Social Development Department;
• United Nations Economic Commissions for Europe, Statistical Division;
• European Commission – General Directorate for Education, Training, Culture and Youth;
• United Nations Industrial Development Organization – Programme Development and Technical Cooperation Division;
• International Statistical Institute – Permanent Office; and
• United Nations Educational, Scientific and Cultural Organization – Higher Education Unit.

Since these institutions are both users and producers of information, many have departments dealing with statistics.

National organisations:
• Governments – ministries of planning and finance;
• Line ministries – e.g., health, education, agriculture, labour and social welfare;
• Central banks – statistical units; and
• Statistical national councils – managing boards.

Regional and local organisation:
Germany (Länder), Spain (Provincia), e.g., Statistical Institute in Cataluña

Private sector – prospect for EMOS:
• Banks;
• Insurance companies;
• Transport and energy;
• Audit;
• Telecommunication, media;
• Industry;
• IT and related technologies;
• E-services; and
• Data science.

Other users:
• Students should be considered central stakeholders. The quality and the level of the existing diplomas stand as a guarantee for students despite opportunities in official statistics being limited. Designing a complementary programme with a good recognition system can add value for employers of statisticians.
3.1.3 Expectations of the key stakeholders and stakeholders analysis matrix

**Figure 3: Expectations of the key stakeholders**

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Concerns</th>
<th>Interests in EMOS</th>
<th>Possible action to address stakeholder interests</th>
</tr>
</thead>
</table>
| NSIs                 | • To better meet the needs of all users (national level, regional level and other users)  
• Budget cuts (crisis), pressure for productivity/efficiency/time gains through innovations and IT tools  
• Statistics that are compliant with European and international standards  
• European IT tools | • European dimension (code of practice, other European frameworks)  
• Quality (management and data production)  
• Professional qualification  
• Reinforcement of the NSS  
• Create a European network of statisticians  
• Create more links with universities  
• Some opportunities for research Masters  
• Internships | • Better prepare new recruits for work in official statistics  
• Improve the ability to integrate new technologies and methodological innovations  
• Exchanges of good practices  
• Common statistical culture |
| Eurostat             | • To provide statistics to European and international standards  
• Common language  
• Common knowledge  
• European IT tools  
• European statisticians mobility  
• To create more synergies between NSIs and universities  
• Recruitment pool for Eurostat | • Harmonisation of European statistics  
• Improve quality and innovations for statistics  
• Improve qualification of European statisticians | • Reinforce the network of statisticians  
• Contribute to defining a common language and common knowledge of official statistics |
| Universities (academics) | • High degree qualification  
• Employment (national and international level)  
• Network between universities (EMOS)  
• Attract more students  
• Source of funding from the students' tuition fees | • New opportunities for students  
• International label  
• International visibility  
• Mobility for academics and students  
• To consolidate relations between NSIs and other universities (research opportunities)  
• Funding opportunities | • Lifelong learning (including NSIs)  
• Summer school  
• Expertise in the NSIs  
• Research projects |
| Universities (students) | • Employment  
• Better salary  
• Diploma with a European label  
• Professional practice  
• English practice | • More employment opportunities at national and European level  
• Better qualification  
• Better job and salary  
• Scholarship opportunity  
• European mobility  
• Internship in NSIs network and stakeholders | • Support mobility of students  
• Internships opportunities  
• Creation of a prize for the best Masters thesis or internship |
3.1.4 Relationships between stakeholder groups (possible synergies)

There is the potential for interesting interactions and synergies between stakeholders in the table above, such as:

- NSIs/universities: create or reinforce links between NSIs and universities through, for example, employment, internships, data access for practice, scientific consultancy, research collaborations.

- Eurostat/NSIs/universities: adapt the curriculum (elective courses), promote certain questions and problems from their specific competences, create an EMOS community.

- Eurostat/NSIs/ESSC: coordinate management of the needs for initial technical training and lifelong learning.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Concerns</th>
<th>Interests in EMOS</th>
<th>Possible action to address stakeholder interests</th>
</tr>
</thead>
</table>
| ESSC        | • Benchmarking  
             • To provide statistics to European and international standards | • Harmonisation and development of statistical production  
             • Innovation (methodology) | • Exchange of good practices  
             • Common statistical culture |
| Fenstatss   | • Promote statistical science in general  
             • Support for the diffusion of statistical education in Europe | • Mutual collaboration and animation in the EMOS community | • International conferences, journals, books, publications supplied by the EMOS community |
| Line Ministries | • National statistical coordination  
                           • Data access  
                           • Data coherence/consistency | • Quality (management and data production)  
                           • Professional qualification  
                           • Reinforcement of the NSS | • Better prepare new recruits to official statistics  
                           • Improve the ability to integrate new technologies and methodological innovations  
                           • Exchange of good practices  
                           • Common statistical culture |
| Central Banks | • Financial regulation, risk management, overseas inter-relations  
                            • Data comparability | • European and international dimension  
                           • Quality: management and data production  
                           • Professional qualification  
                           • Internship opportunities | • Improve the ability to integrate new technologies and methodological innovations  
                           • Common statistical culture |
| International Organisations | • International data comparability  
                                • Adherence to standards | • Knowledge of international standards (concepts, classification, methodology) | • Take international standards into consideration  
                                • Common statistical culture (with an international perspective) |
- Students/universities: attract the best students, promote interest in official statistics, and European labelling.
- International organisations/Eurostat/ESSC: promote international standards, international programmes in statistical literacy.
- Central banks/NSIs and line ministries (relationships vary by country): improve the mobility of statisticians between institutions.

There is also potential for interaction between similar stakeholders in different countries.

- NSIs: networks between NSIs through professional exchange, methodology, common scientific language.
- European universities: create a network, summer school for Masters programme directors, exchange of experiences, reflection on the research and innovation.
- European Students: EMOS network, alumni EMOS network.

### 3.1.5 Matrix analysis of EMOS/Venn diagram

*Figure 4: Matrix analysis of EMOS/Venn diagram*
3.1.6 Possible conflicts of interest between stakeholders

The identification of potential conflicts of interest is difficult at this stage of the project. There may be competition between members with the same target, in particular between universities, and regionally in some countries. Some conflicts already appear obvious and EMOS should take due account of these:

- Political and economic environment of each country;
- Regulation of higher educational systems at national, regional, local levels;
- Sectoral statistics: priorities vary by stakeholder;
- Universities/NSIs: theoretical knowledge is often the priority for universities while practical skills are more important for NSIs; and
- Social skills and know-how (theory and practice; technical aspects and strategy)

3.2 Results from Phase 1 – the quantitative online survey

The quantitative online survey was carried out in the following steps:

1) Design of the questionnaire on Limesurvey.
2) For testing purposes, the questionnaire was twice sent to a sample of universities and Eurostat.
3) Inclusion of comments and observations of the testers and finalization of the questionnaire.
4) Build the survey database on the results of the stock taking and the databases provided by Eurostat.
5) Contact with the targeted universities and institutions and invitation to participate in the survey.
6) Establish a monitoring system to support the participants and ensure a good response rate.
7) Check and control the quality of the data recorded and ask participants for clarifications where required.

Data collection lasted about one month. Once the database was designed, a first invitation to take part in the survey was sent by email on 1 March 2013, with a link to the Limesurvey interface. Two reminder emails were sent later that month. Finally, personal emails were also sent to selected respondents who answered only partially. Respondents were also reminded by phone in the first week of April. During this period, some adjustments were made to the email addresses. The survey was completed on 11 April 2013. After extraction of the response file, cleaning was necessary. Double observations and clicks without answer were deleted. The cleaned data input contained 151 valid observations. The file was analysed using SAS and Excel software. The data file contained 82 variables including the variables from the database. The first step consisted of internal coherence and consistence checks of the data and cross-section validation.

The awareness-raising developed by the consortium and Eurostat using multiple channels (website, NTTS, other meetings) has influenced the number of universities that responded to the online questionnaire. Despite minor difficulties in understanding some questions, the overall results of the quantitative survey is sufficient to draw some interesting conclusions about the current situation of Masters programmes in Statistics throughout Europe.

After a univariate analysis, MCA was used on the data files. Then an HCA was used on the unit coordinates of the orthogonal components. Secondly, a Principal Component Analysis (PCA) was used for part C of the questionnaire.

Some questions have not been properly understood, and ambiguities could be rectified in the qualitative part of this survey.

### 3.3 Results from Phase 2 – the qualitative survey

A team of two experts conducted the interviews for each selected country. The organisation and coordination of the interviews was challenging and time consuming. It was not easy to identify the responsible person or to agree on common dates for the interviews on one hand with the Universities and on the other hand with the NSIs. Therefore, some of the interviews were achieved by video conference.

The interviews conducted were very interesting and fruitful. That enabled the team to better evaluate the real environment, the extent of willingness to join EMOS and the links between NSIs and universities. The interviews also helped to identify possible constraints to the project.

<table>
<thead>
<tr>
<th>Country</th>
<th>List of universities</th>
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<tbody>
<tr>
<td>Finland</td>
<td>Helsinki University</td>
</tr>
<tr>
<td>France</td>
<td>Toulouse 3, Strasbourg, ENSAI/Rennes 1, ENSAE</td>
</tr>
<tr>
<td>Germany</td>
<td>Munich, Berlin, Trier (BBT), Dortmund</td>
</tr>
<tr>
<td>Hungary</td>
<td>Budapest, Szegeld, Soprom</td>
</tr>
<tr>
<td>Italy</td>
<td>Bologna, Florence, Milan</td>
</tr>
<tr>
<td>Poland</td>
<td>Poznan, Lodz</td>
</tr>
<tr>
<td>Portugal</td>
<td>Braga, Vila Real, Lisbon University, ISCTE, ISEG</td>
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<tr>
<td>Romania</td>
<td>Bucharest, Babes Bolyai</td>
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<tr>
<td>Spain</td>
<td>Barcelone, Madrid Autonomia (2 Masters), Alcalá</td>
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Supply of a feasibility study related to the set-up of European Masters programme in Official Statistics (EMOS) in consortium with Genes

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<td>Sweden</td>
<td>Stockholm, Uppala</td>
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<td>Switzerland</td>
<td>Neuchatel, Bern, Geneve</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>Maastricht, Utrecht</td>
</tr>
<tr>
<td>The United Kingdom</td>
<td>LSE (London), Imperial College (London), Southampton, Manchester, Essex</td>
</tr>
<tr>
<td>Turkey</td>
<td>Ankara</td>
</tr>
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</table>

**Figure 5: Percentage of topics taught at interviewed universities**

Selection of Masters for EMOS

The EMOS project should be understood as a dynamic process with a label system valid for a certain period of time. The Masters should have the opportunity to participate in the project.

To cluster the Masters programmes, the consortium developed three categories of Masters (Figure 6).
3.3.1 Selection criteria

To be able to classify Masters programmes, the following selection criteria were developed.

Willingness to participate

The first criterion is if stakeholders are, in principal, open to participating in the EMOS project. This ‘willingness to participate’ was therefore the first question, in the knowledge that a verbal expression of interest does not indicate form commitment and may change subsequently.

Willingness to join EMOS was analysed according to the following aspects:

- Preparation in advance of the interview: the guides were sent in advance to the people interviewed, enabling preparation for the interview.
- Presence of a team: this indicates whether there is a team to support those responsible for the Masters programme. The quality of the interview has also been taken into consideration.
- Additional documents.

Structure of the Masters programme

The aims of this criterion include analysis of the courses according to their titles, identification of the extent to which they are oriented towards statistics, economics, quantitative methods, practical skills, and determination of their programmes and software. It is evident that the title of the course does not always provide an adequate picture of the actual contents taught.

Two examples may illustrate possible challenges. There are courses on time series analysis and survey sampling that are delivered by almost every Masters programme on Statistics. But it is important to understand whether courses on time series analysis also deal with questions of seasonality and calendar effects correction, which are of prime importance for international comparisons. Questions about, for instance, the type of time series presented as examples (macroeconomic time series such as the index of industrial production, consumer price index, or financial time series) and the software used (Eviews, Stata, SAS, Demetra+) must be clarified.

The following indicators were considered in developing an appropriate assessment of the Masters programme:

- Structure;
- Content of the courses (sometimes in detail);
Supply of a feasibility study related to the set-up of European Masters programme in Official Statistics (EMOS)

- Flexibility;
- Internships and thesis; and
- English language.

These indicators helped to measure the links between the content and the integration of international statistical frameworks (e.g., quality, comparability, accuracy), to evaluate the degree of flexibility and the practical dimension in the Masters programme. Flexibility refers to an assessment of whether modules in European statistics could be added to the existing curricula without affecting the national accreditation system. It was important to clarify if, and the extent to which, Masters thesis and internships are linked to official statistics. As English is the key language in the European context, it was also important to determine if courses and bibliographies were available in English.

**Links between universities and NSIs**

NSIs are key stakeholders in the EMOS project. So the extent and character of any cooperation between universities and NSIs needed to be analysed. The links between universities and the NSIs were analysed in these ways:

- Whether ‘official’ agreements exist;
- Internships offered to students;
- Data access;
- Teachers from NSIs teaching at universities; and
- Studies and expertise: intervention of professionals in the NSIs/courses in official statistics.

**Appropriate resources**

The availability of resources in terms, for instance, of communication tools, computers, and courses offered in English needs to be considered to assess whether a Masters programme is appropriately equipped to participate in the EMOS project.

### 3.3.2 Classification of Masters programmes

The indicators above were applied to classify Masters programmes into three groups.

Let $X_k$ the given value for the component (or criteria) $k$ ($k = 1, 2, 3$ or $4$) define as follow:

$$X_k = \begin{cases} 
2 & \text{if the component } k \text{ fullfills completely the criteria} \\
1 & \text{if the component } k \text{ fullfills partialy the criteria} \\
0 & \text{if the component } k \text{ doesn’t fullfill the criteria}
\end{cases}$$

We note $w_k$ the weight of the component $k$ and we suppose that $\sum_k w_k = 10$.

We define the indicator by:

$$I = \frac{1}{2} \sum_k w_k X_k,$$

and we choose $w_1 = 2; w_2 = 3; w_3 = 3; w_4 = 2$.

The division by $\frac{1}{2}$ of indicator $I$ gives a figure out of a total of 10, or the results can be given as a percentage. The weighting can be discussed and adjusted if needed. Our calculation gives a reasonable weighting to the links with the NSIs.

Based on this indicator, three categories of Masters have been elaborated:

- **Category 1:** $I > 7$
- **Category 2:** $5 < I \leq 7$
Category 3: $I \leq 5$

- Category 1: These Masters fulfil the conditions to integrate immediately the EMOS community next year. These Masters are fully supported by NSIs in the corresponding country.
- Category 2: The second category comprises Masters with the potential to join EMOS, but which are not yet ready – for various reasons – to be integrated (e.g., programme, organisation; English language, links with NSIs).
- Category 3: This category comprises Masters that are not interested or that do not fulfil the minimum criteria.

According to our analysis, the distribution is as follows and there are 22 Masters programmes that could be integrated in the pilot phase:

<table>
<thead>
<tr>
<th>Country</th>
<th>University (or City)</th>
<th>Category</th>
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<td>France</td>
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<td>2</td>
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1 Name of the universities are deleted for confidential reason
For all 14 countries, we combined the results of the quantitative and qualitative surveys. Based on the calculation system described and on the indicators elaborated, we summarized the findings for all countries.

### 3.4 Overview of the country reports

This graph below provides an overview of the distribution of the masters per category:

![Distribution of Masters by category](image)

In each of the following countries the NSIs and in minimum one university were interviewed. The full report includes a detail description of the results. In this public version the reports are deleted for confidential reasons.
3.4.1 Finland
3.4.2 France
3.4.3 Germany
3.4.4 Hungary
3.4.5 Italy
3.4.6 The Netherlands
3.4.7 Poland
3.4.8 Portugal
3.4.9 Romania
3.4.10 Sweden
3.4.11 Switzerland
3.4.12 Turkey
3.4.13 United Kingdom

3.5 Results of Phase 3 - design of the EMOS project

The identification of appropriate Masters programmes in those European countries that are ready, interested and able to participate in the EMOS project is the first key pillar that this feasibility study had to achieve. The second key pillar was to understand the available options for the project’s practical implementation. Depending on the complexity of the EMOS project there are a number of options on the table:

*Figure 7: EMOS certification options*

To be able to assess which would be the most appropriate approach for EMOS project, the consultative team investigated the options
3.5.1 Accreditation

Accreditation is an official decision based on a ‘contract’, which means a programme, specific objectives and a pedagogical team.

Accreditation is defined as every formalised decision by an appropriately recognised authority as to whether an institution of higher education or a programme conforms to certain standards.

Accreditation procedures have become an important means of external quality assurance in Europe. The European Consortium for Accreditation defines accreditation as “a formal and independent decision, indicating that an institution of higher education and/or programmes meet certain predefined standards”. Accreditation is achieved through a multi-step process:

- Self-evaluation or documentation submitted by the unit undergoing accreditation.
- External assessment by independent experts.
- The accreditation decision, which is based on the external assessment.

Almost all selected programmes in this study are nationally accredited by a ministry, an agency or a recognised institution. The accreditation is often a necessary condition to ensure that a Masters programme functions. So, non-accreditation has a social impact (a fall in the number of students). For a public university, this means that a non-accredited Masters cannot exist; if it does, the value of the diploma is affected.

The Bologna process relies on a process for recognition of diplomas among countries throughout Europe. In particular, Masters should be diplomas corresponding to a four-semester syllabus ending five years of higher education, and meeting comparable criteria and methodologies. In 2005, European Ministers of Education issued Standards and Guidelines for Quality Assurance in the Higher Education Area, also known as European Standards and Guidelines.

The accreditation processes are expected to contribute to this harmonisation. To date, however, these processes are only partly functional.

Although most Masters degrees are delivered after five years of higher education, only four years are required in some countries (e.g., the UK) or in certain universities. For instance, the two Masters in the Netherlands that are of most interest to EMOS, one, at the University of Utrecht, is delivered two years after the Bachelor degree, while the University of Maastricht demands only one year.

The picture can vary considerably from one country to another (Annex 5). In some countries, accreditation is delivered directly by a state office; in others, it is delegated to private agencies that are themselves accredited themselves by the state. In Italy, the accreditation process has changed in recent years in a process that is remains ongoing. In the UK, the recognition system takes place, in some sense, at the university level. Some programme directors are not really looking for general or national accreditation/labelling.

Accreditation, then, can be a rather complicated procedure. Therefore, EMOS should not jeopardise the accreditation system. This question was raised several times during the interviews with the various universities. EMOS will not work if it affects the accreditation system.

3.5.2 Labelling

This is a decision taken by an authority that recognises a degree as fulfilling a certain number of quality criteria. The label is a supplement to an accreditation and has no social impact.

The label would enable enough flexibility for EMOS and could complement existing Masters programmes.

The label needs to be defined with:

- Application criteria (eligible countries, eligible institutions);
- Definition of the label’s content; and
Supply of a feasibility study related to the set-up of European Masters programme in Official Statistics (EMOS)

ICON-INSTITUT Public Sector GmbH
in consortium with Genes

3.5.3 Certification

Certification is a recognition of a knowledge or a practice delivered by the professional environment. This formal procedure assesses and verifies (and attests in writing by issuing a certificate) the attributes, characteristics, quality and qualification in accordance with established requirements or standards.

There are two general types of professional certification. Some are valid for a lifetime, once the exam is passed. Others have to be periodically recertified.

Certification requires the demonstration of a certain level of knowledge or ability, confirmed by an authorized person or agency.

EMOS certification could be used for NSIs’ staff or other stakeholders interested in EMOS. The content could be divided into several modules all leading to a separate certificate.

In this case, the objective would be to upgrade the level of statisticians on new European concepts and methods. The participation of statisticians from the private sector should not be excluded. This would enable a return on investment.

In this case, NSI participants would have to pay to obtain this certificate.

3.6 Issues identified

The survey also revealed issues that should be considered by this report as part of a strategy for EMOS implementation. The following common issues were identified.

The first problem encountered in some countries is related to financial issues. This question was raised insistently by many universities in countries where budget cuts are important – in Spain, Portugal and Italy, for instance.

The second issue relates to the curriculum, which depends on the country and on the type of programme offered. Different reactions were observed in the interviews. Many interviewed universities would support the project if it does not affect the core programme of their nationally or regionally accredited Masters. Therefore, it seems that it is possible to implement an EMOS package content in the optional part of the programme. These additional courses must remain consistent with the academic recognition of the Masters degree.

Another problem is the English language, which is to be used for the EMOS content. Many universities are ready to adapt their courses, even if they do not yet offer courses in English. Nevertheless, this question might be problematic for the traineeship. The short-term feasibility question can be raised. For instance, in France and in particular in the ENSAE, 30 percent of the courses are currently taught in English (this figure is constantly increasing).

The final issue relates to project sustainability. If financial support is envisaged for the launch and experimental phase of EMOS within the next two or three years, the question of the project’s future must be considered. If there is a readiness somewhere to fund the project now, that could mean funding it forever. That would endanger the project. On the other hand, scholarships offered to students from the outset would be a good way to start the project. However, any specific support for EMOS that already exists (Erasmus, for example) could offer an opportunity for more exchanges between European countries.

3.6.1 Recommendations for resolution of issues

Having identified potential problems for stakeholders, we now turn our attention to possible solutions.

Financial challenges may be considered in various ways:

- Equipment for some universities to implement e-learning;
- Financing of seminars;
- Summer schools;
- Financing of internships for students;
- Financing of scholarships or accommodation for students, etc.

The project’s possible sponsorship by stakeholders that stand to benefit from it – such as central banks and international organisations – may also be considered.

The acceptance of (compulsory) EMOS courses can be facilitated by organising meetings between key stakeholders or experts that examine the various expectations. One possible scheme for the EMOS Masters would be:

- A core programme, including an internship or a dissertation toward EMOS;
- An EMOS pathway with complementary courses; and
- Optional courses.

The project’s sustainability can be promoted by ensuring its good management, a certified label (quality assurance) and good coordination of the network with (positive) facilitation, such as summer schools. The use of social networks, such as Twitter, Facebook or LinkedIn, may also be useful in fostering the project’s dynamic, particularly at the beginning. It would be interesting to establish such an EMOS community online as soon as possible.
4 Conclusions

4.1 Conclusions drawn from the stakeholder analysis

4.1.1 Aspects that cannot be solved – unrealistic objectives

Some issues clearly cannot be resolved, due, for example, to the diversity of actors and the different economic and regulation environments between countries. It is not possible to meet the requirements of all stakeholders, because of different needs or conflicts of interest. Another important aspect is the question of employment of students. Even if EMOS were to develop new opportunities for students, this does not mean that EMOS would create employment, particularly during an economic crisis. Finally, the structures of universities and NSIs cannot be changed. The independence and level of responsibility for the diploma system vary by country and legal and administrative frameworks.

4.1.2 Synthesis of the stakeholders analysis

The following conclusions can be drawn, based on the stakeholder analysis.

- Many stakeholders could be concerned by EMOS and ‘key stakeholders’ can be identified.
- EMOS cannot meet the expectations of all stakeholders and priorities must therefore be set. Expectations include international labelling, international visibility, improved quality of statistics, improved level of qualifications of statisticians, and promotion of European mobility.
- Some synergies and interactions can be created for a win-win strategy for EMOS.
- Some potential conflicts/constraints can already be identified and should be taken into account.
- The analysis offers a very good basis for identifying EMOS community members.

The roadmap for EMOS is based on this analysis.

4.2 Conclusions from Phase 1 and 2 – the survey

After some analysis of the obtained data file, the following conclusions have been drawn:

- The Bologna Process has now been adopted in most countries.
- Almost every Masters degree has a scientific committee and accreditation.
- Masters degrees that have adopted the Bologna Process are most likely to be accredited. The accreditation rate varies among countries.
- Two-thirds of Masters degree programmes have some relationship with their country’s NSI.
- Almost all Masters have a traditional educational structure with lecturers and academic staff.
- Two categories of Masters can be roughly discerned – those with academic and research objectives, and those with professional objectives. These objectives are consistent with certain features, such as the profile of academic staff, and the existence or absence of a final dissertation or an internship. Throughout Europe, the consortium noticed a distinction between research Masters and professional Masters. Programme directors usually do not know the kind of future the labour market holds for students. There is no
real national specificity, except for the UK and the group of four countries (Norway, Poland, Latvia and Italy).

- The number of students in a Masters programme, the number of ECTS by topics, the training methods, the academic staff and the proportion of courses taught in English vary according by country and field.

Various types of programmes have been identified:

**Type 1:** This is the easiest option. The second year corresponds to the anticipated Masters in Official Statistics and the optional part would enable the integration of a European module (FI, FR, IT, RO, SP, TR, UK).

**Type 2:** The programme relies on a balanced system combining both years. The first year is focused on theory and methodology, while the second focuses more on, e.g., IT and data processing.

**Type 3:** Programmes are complementary and their combination responds to the expectations of a European programme. Therefore, it is strongly suggested that Masters programmes in some countries are combined in order to meet expectations (HU, NL, PT, SP).

**Type 4:** While some programmes are willing to participate in the EMOS project, NSIs need more time. (DE, SE)

There are huge differences throughout Europe in the way students are funded and in the cost of study. We analysed the fees by country and differences between universities in the same country (see figure, below). These differences might be problematic and efforts should be made to develop acceptable solutions for all stakeholders.

*Figure 8: Average tuition costs, by country*

Acceptance of a European module

The idea of a European module is easily accepted, but subject to respect for the national accreditation system. This means that the module should have a limited impact: between two and 10 ECTS. This module will be prepared together by the main stakeholders: universities, NSIs and Eurostat.

Most Masters programmes include an optional programme, which allows the European module to be integrated. The accreditation system and its flexibility will be discussed in the next chapter.
4.3 Conclusions for Phase 3 – Design of EMOS project

A label for EMOS

Based on the systems discussed above, the best option for EMOS seems to be the labelling, and an additional module that does not affect the accreditation system. EMOS may therefore be renamed ELOS (European Label for Official Statistics).

The label would be delivered by Eurostat or a close institution. Similar labels already exist (e.g., EQUIS, AACSB, AMBA, EUR-ACE, QUESTE). These labels are for degrees accredited by other, peer-recognised, bodies.

Clear guidelines for obtaining an EMOS label must be defined in a formal document that describes each step fully.

A template for an EMOS application form should be developed. It should contain the following information:

- Presentation of EMOS: objectives, expected results;
- Submission of applications: rules and steps;
- Selection procedure; and
- Assessment criteria: assessment sheets.

Since the EMOS project started in 2009, it appears that some NSIs may be interested in training and certification for their staff. This would seem to be feasible, and EMOS could also introduce specialised training and offer certificates for certain modules.

The contract between the UK ONS, UK GSS and the University of Southampton for the Masters in Official Statistics is seen as an example of good practices that could serve as basis for EMOS. In the 1990s, France introduced the FCDA (Diploma of Continuous Training for attachés statisticiens from INSEE), which leads to an additional diploma.

In conclusion, the labelling system can be complemented by a system of certificates aimed at staff from NSIs willing to study for a short module course. This would allow links between the professional and the academic worlds to be reinforced.

4.3.1 EMOS Label

The European label must demonstrate excellence in European statistics and apply quality standards recognised by all concerned stakeholders. It should answer the question, “what is a good European Official Statistician?”

Statistical institutions need a broad variety of experts and specialists with a range of competences. This heterogeneous community has to share a common vision of the European statistical framework, vision and strategies. It must be built in the spirit of cooperation, exchange and shared progress by all partners. Genuine commitment is crucial to the project’s success.

The challenge for the label is to satisfy national, European and international needs. The label should not, in any event, jeopardise the system of accreditation of any Masters programme. Therefore, the criteria for the label should be prepared in close cooperation with Masters programme directors. These criteria will be based on the three missions of EMOS presented in the next chapter: the European module, the EMOS network and the practice of official statistics including innovation.

The label should be delivered with two main principles:

- A formal dimension: structure and content of the normal programme and the European module (courses taught in English, links with NSIs and foreign students)
- A dynamic dimension: innovation, e-learning, participation in the EMOS community, internships and theses dedicated to the professional practice of official statistics
4.3.2 Content of the label: general guidelines

The label should cover:

- Mission of official statistics;
- European frameworks;
- International frameworks of coordination and integration of official statistics in global scale (UN, ISI);
- Deontological, methodological and legal principles of official statistics in ISI, UN, EU and other organisations;
- Organisation of information systems of official statistics on a global scale, models of national systems of official statistics and their relationships;
- Legal and institutional frameworks of national systems of official statistics. Model of cooperation between national official statistical agencies, governments, businesses and research;
- Models of information infrastructure of modern society and economy. The place and functions of official statistics in the information infrastructure. The system of official statistics as a semantic and methodological integrator of social and economic information systems, especially of administrative records and information systems;
- Statistical standards and their role in harmonisation and integration of social and economic information, with special reference to meta-information and methodological standards;
- Sources of official statistics in modern ICT environment. Administrative information systems and Big Data as the sources of statistical information;
- Statistical production processes in the modern ICT environment. Basic types of statistical production processes. Impact of modern ICT on statistical production processes; and
- Quality of statistical information: criteria, methods, quality control tools.

4.4 General conclusions

- EMOS has created interest in most countries visited, subject to no impact on their core programme (accreditation);
- A first EMOS community can be identified;
- Some universities are willing to join, but do not yet fulfil all criteria;
- There is scope for cooperation in EMOS between some Masters programmes, because of their complementarity;
- Political and economic specificities should be taken into consideration (e.g., Ländere, provincia);
- Regulations of higher educational systems should be considered;
- English as training language might be challenging for some countries, but the following options may help to overcome those challenges:
  - EMOS module to be taught in English (MOOCs/e-learning)
  - The core Masters programme may be taught in the national language
- Internship reports or the Masters thesis should always comprise at least a summary in English (see curricular presentation); and

- Financial constraints.
5 Recommendations for EMOS

5.1 Strategy for EMOS

5.1.1 Identification of priorities in the objectives

Since the workshop held in Southampton, three main dimensions have been identified for EMOS by the different stakeholders:

1) Quality and excellence of the Masters programmes;
2) Contacts for the development of official statistics with a professional approach; and
3) Lifelong learning for staff within NSIs to adapt their competences to innovation.

The main priorities for EMOS are summarised as follows:

- The definition and creation of a European dimension in Masters programmes;
- The creation and active development of the EMOS community; and
- The definition of a European label that strengthens graduates’ capacity, catalyses a dynamic official statistics environment, and promotes innovation in the development of official statistics’ tools and products in Europe, and worldwide.

5.1.2 Approach to the first orientation to EMOS

**Diversity**

Masters programmes were selected from a large pool. That allowed a broad range of possible programmes to be included: statistics and economics (broadly defined), including social sciences, econometrics, finance, actuarial sciences, business/management and applied statistics, and economics.

This diversity is important and gives EMOS the scope to ensure that it can be widely applied – in, for example, health, labour, education, economics, social science, demography and finance.

That will also enable it to meet the expectations of the key stakeholders (e.g., NSIs, Eurostat, ESCB, ESS).

**Quality**

Quality is at the core of this project.

- Academic: national accreditation, programme, staff, research;
- Professional: balance between theory and practice, communication skills.

The selection of Masters programmes must be open to:

- Accepting foreign students
- IT tools:
  - Software;
  - MOOCs: in the sense of a MOOC system and a platform conceived at first for the benefit of the ‘closed’ community EMOS (NSIs and university departments with labelled Masters);
  - E-learning; and
  - Web management.
- **Innovation:**
  - Scientific publications
  - Applied methodology
- Development of statistics for the future.

**Balance between academic and professional requirements**

The balance and existing links between academia and the professional environment are particularly important in guaranteeing the success of EMOS and fulfilling its main objectives.

**5.1.3 Means to achieve the selected objectives**

Three main tasks were identified for the design of EMOS:

1. **Definition of a syllabus for a common module for the EMOS community.** ‘Teaching European Statistics: the objective is to define a transferable common European module that can be taught using traditional methods (body of itinerant qualified professors), distance learning (televisual conferences shared according to the technical equipment of the universities), or more individual methods stemming from e-learning techniques, derivatives thereof and MOOCS.

2. **Management of an EMOS community/network (summer schools, relationships between Masters programmes, symposium).** The diversity of experience in learning/pedagogy, practices, thematic, scientific analysis and cultures must be shared, discussed and evaluated by the EMOS community. The objective is to share best practices within the community through the management of a dynamic network that enables stakeholders to meet regularly and to exchange using a common platform. This network should allow synergies to be created between key stakeholders.

3. **Development and management of practice in official statistics through master thesis and internship.** The aim is the sharing and progress of statistical practice in a self-assessing community that promotes synergies between academics and professionals.

The principle of creating an additional module for EMOS – rather than creating a whole new Masters programme – was approved by the GExp. The EMOS module can therefore be added to existing core programmes.
5.2 Mission 1: EMOS module

The EMOS module should focus on European methodology, innovation and frameworks in the European Statistical System. This module has to be a value added, but should not impact existing national, regional or local accreditation of a Masters programme. Even if the EMOS module is common to all EMOS Masters, it has to be conceived as enough flexible to be able to complement – and not to replace – existing courses or programmes. Each programme director should be able to adapt the module according to the core programme’s content. The pilot phase proposed in the road map will be an important test for the implementation and adaptation of the syllabus.

The guidelines for competence profiles, prepared by the Task Force, for a European Statistician should be taken into consideration in preparing this module (Annex 7).

Almost all Masters programmes comprise two main elements: the compulsory and the optional components.

The EMOS module will be integrated in the optional component. Consequently, the duration of that module should be adapted to avoid any potential impact on accreditation.

General objectives

The aim of the module is to provide ‘a lowest common denominator’ of statistical knowledge and skills for the professional and expert staff of:

- The European Statistical System;
- National statistical institutes; and
- Other stakeholders.

The general scope of the EMOS module is:
Mission and mandates of official statistics;
Statistical standards and their role in data harmonisation and integration; and
Modern IT and actively innovative environments.

Duration
During the GExp meeting in Luxembourg in November 2013, it was agreed that the EMOS module should represent at least 10 percent of a traditional Masters programme, meaning around 12 ECTS. That proportion could, of course, increase if the programme director agrees. Therefore, a certain degree of flexibility should allow adaptation to the constraints and priorities of the EMOS community members.

Structure
Three main topics will be covered:
- Current and normalised statistical tools and practices;
- The European Statistical System; and
- Innovative approaches.

Five subjects can be included, each subject counting for 20 percent of the module:

1. Current and normalised statistical tools and practices

   EM1: Sampling techniques

   Today, sampling techniques are the main tools for data collection and aggregation in social and economic statistical surveys in all countries.

   - Objectives: provide the links between theoretical knowledge and practice in official statistics.

   - Contents

   It is assumed that students have already studied sampling theory. Therefore, in this part a focus on concrete survey issues is suggested, such as:
     - business statistics (e.g., structural, short-term, groups)
     - household statistics (e.g., living conditions, employment, health, education)

   - Examples: Sampling design, data control, treatment of non-responses treatment and their input, small area estimation, use of administrative and other data sources.

   EM2: ‘Timeliness’ modelling

   - Objectives: Analysis of temporal data or series of cross-sections.

Two main topics:
- Times series
- Panel data

   - Contents: It is assumed that students already have a basic knowledge of these topics.

   - Examples: Short-term survey sampling design, seasonal adjustment and calendar effects (Demetra+, X13as), cycles (HP, PAT/MCD), indicators, panel data (longitudinal vs. transversal, fixed effects vs. random effects, endogenous vs. exogenous attrition)

2. European Statistical System

   EM3: Principles and organisation

   - Objectives: to provide a basic knowledge of the legal foundations, organisation, and functioning of the ESS

   - Two topics:
- the role of ESS in the global statistical system; and
- statistical ethics as the foundation of data quality and confidence in official statistics.

**Contents:** general overview, because of the topics’ wide scope.

**Examples:** ESS in the global statistical system, ESS and Eurostat activities, fundamental principles of official statistics, code of professional ethics, EU quality requirements.

**EM4: European standards**

**Objectives:**
- to explain why standards in international statistics are needed
- To create understanding of the main principles underling aspects, such as creation, and rules in ESS.

**Two topics:**
- The role of European standards in international statistics production; and
- The main European standards.

**Contents:** the second topic covers various statistical topics, so we can present a general overview of European statistical standards and the European system of statistical classifications, and some examples from economic, social or environmental statistics.

**Examples:** European System of National Accounts, NACE and CPA, statistical classification of regions in the EU, European Waste Classification for Statistics.

**3. Innovative approaches**

**EM5: New advanced methods**

**Objective:** To propose scientific innovations, based on methods, for the future development of official statistics.

**Contents:** this must be updated periodically to reflect progress in statistics and related sciences, and in official statistics.

**Example:** new forms of interviewing and data processing, and storage, Big Data – data sciences, simulations, Bayesian statistics, and micro-econometrics.

There was a discussion in the GExp about the contents of the European module.

**Teaching methods**

Different training methods should be considered: traditional and more innovative methods (e-learning, video conference, MOOCs).

A massive open online course (MOOC) is a course with unlimited participation and open access via the web. In addition to traditional course materials, such as videos, readings and problem sets, MOOCs provide interactive user forums that help build a community of students, professors, and teaching assistants (TAs). MOOCs are a recent development in distance education.

A MOOC platform could be created to offer courses that promote the European statistical culture.

These methods should be discussed. This document also includes a report on a summer school based on distance learning (Annex 7).

**Trainers**

The training should be delivered in English. Qualified trainers are yet to be identified. The NSIs and Eurostat could provide support.

**Lifelong learning and EMOS**

The qualitative surveys found that addressing training needs is important for NSIs, specifically on European topics. To a large extent, EMOS will cover these topics. Therefore, we strongly
recommend the inclusion in EMOS of specific sessions open to statisticians and related professionals. Opening this module to professionals would enable a return on investment in the EMOS label.

Nevertheless, it must be kept in mind that there are 39 NSIs in Europe and that not all are in close alignment with the EMOS module. This training should be made available, the same cost, to all NSIs, to avoid discrimination.

5.3 Mission 2: EMOS community and networks

The objective here is to facilitate exchanges between all stakeholders to promote a shared European statistical culture. There is a range of ways to achieve this.

Summer schools

An EMOS summer could be developed and organised annually by a different university. European Masters directors would be invited to discuss the following issues:

- Innovative pedagogical and crosscutting tools;
- Continuous networks between universities;
- Creation of a dedicated Task Force;
- Ideas; and
- Internships and Masters theses.

The summer school may be envisaged as a steering committee, where innovations could be discussed. Participants from all stakeholders could be invited, including from NSIs and Eurostat. This group should always remain open and should invite relevant guests from Europe and internationally.

The consortium participated in the EMOS summer school organised by BBT in Germany to share best practices (Annex 7).

Symposium

A symposium could be organised regularly to discuss high level topics, specifically related to research and innovation. These meetings could be sponsored by various stakeholders depending on the selected topic.

Permanent EMOS network

The objective is to create a permanent platform for different Masters programmes and stakeholders, where relevant information can be shared. The network will promote higher standards for future European statisticians.

Social networks will enable the EMOS community to be dynamic and interactive. The quality of the network is directly related to its dynamism. The communication channels are very important. An EMOS letter could help to disseminate current EMOS work and information from the perspectives of universities, NSIs and other stakeholders, including students.

The network’s aim is to optimise connectivity between stakeholders and to strengthen relationships. Activities and interactions can produce value in and of themselves. They can be inspiring and add value to the development of new ideas. Reflection can trigger out-of-the-box thinking and open new perspectives. Participants can cooperate in seeking innovative approaches.
5.4 Mission 3: Internships and Masters theses

This aspect should bridge the gap between theoretical and practical knowledge in official statistics. It is expected to be a win-win process for the two parties involved.

- for academia: immersion in the administrative organisation, service provision and real-life challenges of operational statistical agencies; and
- for the operational statistical agencies: a different vision and perspective of current practices.

**Internships**

The internship must include a European dimension and it will be mandatory for students to travel abroad for the EMOS internship.

Internship requests will be evaluated by a responsible authority to be designated by Eurostat.

The rules and legal frameworks of different countries must be taken into consideration, because it is obligatory to pay trainees in some countries.

**Masters thesis**

This first challenge will be managed step-by-step by the EMOS community. An audit system/peer review of the subjects/theses by the Masters programme director and Eurostat has to be established. An annual catalogue of relevant topics and future needs will be produced.

The EMOS Masters thesis could be managed in the same context and with the same professional objectives as the EMOS internships.

The thesis can be developed by collaboration between an EMOS Masters programme in one country on a subject suggested by an NSI or other stakeholder in another country.

At first sight, it would appear that ‘cross-border dissertations’ may be easily organised and may be of primary interest to the European statistical community.

Internships or Masters theses should be recommended by:

- ESS (e.g., NSIs, Eurostat);
- ESCB and other stakeholders;
- Students; and
- Universities.

Some students might also select research topics for their thesis. The topics should be adapted to professional needs and to the needs of official statistics.

A system of validation must be defined and should include the Masters programme director.

It may be that a selection of (three?) thesis subjects can be suggested to students, who would then match them with their own priorities.

The following aspects should be taken into consideration:

- Synergies between academia the professional environment. NSIs and universities will jointly suggest topics for dissertations involving at least two or three countries. This would ensure a comparative approach.
- Sharing of good practices between universities, NSIs and other stakeholders.

**Research**

This third mission should extend to research projects and partnership work between universities and NSIs financed by regional, national and European level statistical institutions. In the future, an EMOS doctorate and products from partnerships and consultancies between universities and NSIs will stand as an indicator for the success of EMOS, in addition to the training of statisticians.
5.5 An EMOS information system

The EMOS community will promote discussion, exchanges and evaluations. This precious knowledge can then be disseminated.

An EMOS community using modern communication tools and organised in a dynamic network promoting exchange, discussion and evaluation will create a heritage of theoretical and practical knowledge, plus experimental information, that can be widely disseminated. There has even been talk of a digital tsunami for training. We hope that this revolution will also involve European statisticians.

The originality of EMOS relies on the universities as main stakeholders on training, and as holders of the value and recognition of the diplomas. Research, innovation and the ability to use the information for professional good should be at the centre of this process. The EMOS community and the three EMOS missions are directed to that purpose. The digital tsunami will also enable:

- creation of a new cognitive environment;
- creation of new digital opportunities (e.g., e-learning);
- creation of social learning through MOOCs and social networks; and
- empowerment of every official statistician and development of their skills.

5.6 Challenging issues

Financial issues

The major problem in some countries relates to funding. This issue was emphasised by many universities in countries that have seen substantial budget cuts: Spain, Portugal and Italy, for instance.

More specifically, the following questions must be taken into consideration:

- Costs and how to finance the EMOS module;
- Question of fees, which vary by country (ranging from zero to €7,000);
- Internships, taking account of each country’s legal framework (in some countries, the law requires interns to be paid); and
- Travel costs for the students and interns throughout Europe.

Potential solutions may include:

- Lifelong training that is open to NSIs and other stakeholders, such as private companies. The question of return on investment must be discussed.
- E-learning and MOOCs could reduce costs.
- Sponsorship could fund seminars, depending on the topics selected.
- Scholarships.

Question of the English language

Another problem relates to the use of English for EMOS content. Many universities are ready to adapt their courses, even if they do not currently offer courses in English. Nevertheless, this may be problematic for trainees. The short-term feasibility question can be raised. For instance, in France, and in particular in the ENSAE, 30 percent of courses are currently taught in English (that figure is constantly rising).

- In the Masters programme. During the qualitative interviews, difficulties were identified related to the use of English. The EMOS module should be taught in English.
- For the internships and Masters theses. One difficulty is that not all documents required for teaching may be available in English.
For labelling. Problems may arise if English is imposed as the only language. However, a summary of the Masters thesis, written in English, should be obligatory.

**Project sustainability**

The final issue concerns the project’s sustainability. Even if some financial support is envisaged for the EMOS launch and experimental phase within the next two or three years, the project’s future – beyond that initial period – must also be considered. If funding is available for the project now, that may mean that the project could require funding indefinitely, which would endanger the project. On the other hand, scholarships offered from the outset to students of a certain level would be a good way to start the project. Any support for EMOS that already exists (e.g., Erasmus) may offer an opportunity to promote exchanges between European countries and create potential synergies.

Possible solutions can already be suggested as a way to guarantee project sustainability.

**SET UP A SYSTEM OF ORGANISATION**

Two possible systems of organisation:

- **Within Eurostat.** Staff to coordinate the three main EMOS missions:
  - one project supervisor;
  - one expert dedicated to the coordination of each task;
  - a secretariat to support the team; and
  - an IT expert responsible for the website and communication tools.

- **The NSI network** (responsibilities according to competencies)
  
  The NSIs could work as a network, with Eurostat as supervisor.

**BALANCE BETWEEN THEORETICAL AND PROFESSIONAL APPROACHES: UNIVERSITIES/NSIS**

This balance is key to the project’s success, thus guaranteeing sustainability. The community should see the project as a win/win process for the various stakeholders involved. Therefore, the three missions are of equal importance and should be built in close cooperation with all concerned stakeholders. Such cooperation is a basis for the success of the three missions.

**SOCIAL SKILLS AND KNOW-HOW (THEORY/PRACTICE, TECHNICAL SKILLS/STRATEGY)**

In official statistics, quality in the process of production and dissemination, and in the relevance, of statistics and statistical analysis depends on theory, practice and know-how gained through experience. In this sense, a statistician’s work is comparable to that of an engineer. Quality management, stability and reliability of statistical processes are at the heart of their work. Through dissemination, these core characteristics are opening to the socio-economic and political worlds.

Many stakeholders met in the course of this study are expecting professionals to be able to manage communication strategies. Case studies could be prepared as part of Masters programmes and tested during internships.
6 Pilot Phase

Based on the analysis, we strongly recommend a duration of 24 months, plus six months of evaluation, making a total of 30 months, for the EMOS pilot phase.

6.1 Selection of the Masters for the EMOS pilot phase

According to the analysis, some 25 Masters are immediately eligible for the pilot phase. However, a maximum of eight should be selected as ‘Pilot Masters’. A selection procedure should be finalised and performed according to specific criteria and based on the results of this feasibility study.

During the GExp meeting in Luxembourg in November 2013, it was agreed that, if possible, the Pilot Masters should be selected to start in Autumn 2014.

6.2 Main bodies for EMOS

6.2.1 EMOS community

EMOS community membership should be envisaged as a dynamic process. These issues must be clarified during the pilot phase:

- Procedures for joining the EMOS community;
- Mandate for EMOS community membership; and
- Regular reports to the community.

6.2.2 Advisory board

A body should be designated to provide guidance on EMOS. This board should not comprise more than 15 members in order to remain effective. An authority should be designated to provide guidance. Members should be selected from stakeholders, thus ensuring that their interests are represented.

Members could be elected during the international conference in Helsinki, based on pre-defined criteria.

6.2.3 Labelling committee

This committee has to be selected according to specific criteria.

During the GExp meeting in November 2013, it was agreed that the European Statistical System should be the label owner.

The objective of this labelling committee is to define the content and the selection criteria for EMOS. The members of this committee should represent the interests of the main stakeholders.

6.2.4 GExp

The future of GExp should be discussed in 2014.

6.3 Staff needed for pilot phase implementation

Analysis suggests that the following staff will be necessary for the EMOS pilot phase:

- One main project supervisor;
- Staff to coordinate each of the three main EMOS missions;
- A secretariat to support the team; and
- An IT expert responsible for the website and communication tools.
7 The EMOS Group of Experts (GExp)

7.1 Objectives

Since the beginning of the project, mobilisation of a ‘scientific committee’ was envisaged to provide guidance during the project’s phases. It was decided that this committee should comprise academic representatives who are highly familiar with the topic, with the constraints of educational systems, and who have an excellent background in official statistics at the European level. To reflect stakeholder interests, this scientific committee should include academics and representatives from NSIs.

It was decided to call this committee the EMOS Expert Group (GExp).

Three meetings are foreseen with the GExp as part of this feasibility study:

- a kick-off meeting in Luxembourg took place in June 2013;
- a meeting to provide guidance on the results of the feasibility study from 20 to 21 November 2013 in Luxembourg; and
- a final meeting to prepare the project’s next steps.

The aim of the GExp is to accompany the running feasibility study and to develop a concrete draft of curricula and labelling rules on the basis of the feasibility study. The GExp will also help to clarify questions on the project’s governance structure and its sustainability. The findings are to be presented to the EMOS community during an international workshop in spring 2014.

The GExp is expected to:

- intensify dialogue between countries on EMOS;
- provide relevant inputs for the study;
- to commit the main stakeholders; and
- to give a face to EMOS.

7.2 Members

During the meeting in Brussels on 7 March 2013, the composition of the GExp was presented and confirmed in an email sent by Eurostat on 11 April 2013.

The members were confirmed as follows:

Feasibility study: Alain Trognon

Statistical Institutes:

- Pascal Ardilly, INSEE
- Jacek Kowalewski, Statistical Office in Poznan
- Ceri Regan, ONS in UK
- Maria Pia Sorvillo, ISTAT
- Markus Zwick, Eurostat
- CBS, nn

Data Archives

- Roxane Silberman, CESSDA

Universities

- Mojca Bavadz, University of Ljubljana
• Risto Lehtonen, University of Helsinki
• Ralf Münnich, University of Trier
• Natalie Shlomo, University of Manchester
• University of Luxembourg

7.3 Meetings of the GExp (Annex 6: documents related to GExp)

7.3.1 Kick-off meeting of GExp: 13 to 14 June 2013

The GExp kick-off meeting took place from 13 June 2013 at 14:00 to 14 June 2013 at 12:30.

The objective of this first meeting was to define the GExp framework and the mandate and to define a roadmap for EMOS. The Project Manager coordinating the feasibility study presented the progress of the feasibility study and shared the results of the project’s first phase.

After a short discussion on a draft mandate presented by Eurostat, the GExp agreed on the following mandate for itself:

• Assess the interim and final results of the feasibility study;
• Make qualified proposals on a core curriculum, or learning outcomes, as a quality benchmark for Masters programmes eligible for EMOS, based on the results of the feasibility study;
• Assess and validate the labelling mechanism for EMOS recommended by the feasibility study;
• Make proposals for the network’s internal governance structures (legal status, permanent board, committees, working groups), based on results of the feasibility study;
• Act as a programme committee for the EMOS International Workshop to take place in spring 2014;
• Prepare the first call for EMOS qualifications; and
• The mandate of the GExp will expire at the end of 2014.

The following persons attended the meeting:

• Universities and NSIs:
  Pascal Ardill (INSEE), Mojca Bavadz (University of Ljubljana), Antonio Cosma (University of Luxembourg), Jacek Kowalewski (CSO Poland), Ceri Regan (ONS), Natalie Shlomo (University of Manchester) via Skype, Roxane Silberman (CESSDA), Maria Pia Sorvillo (ISTAT),
  Ralf Münnich (University of Trier) only Friday, Monica Pratesi (University of Pisa) intermittently via Skype,
  Risto Lehtonen (University of Helsinki) absent with apologies.
  nn, (CBS) absent with apologies.
• Feasibility study:
  Natacha Brenner (ICON), Annie Millet (GENES-INSEE), Chourouk Ghorbel (GENES-INSEE),
  Kalifa Traoré (ICON), Alain Trognon (GENES-INSEE)
• Eurostat:
  Pieter Everaers (welcome address), Thana Chrissanthaki, Živilė Aleksonyte-Cormier, Markus Zwick

The following ‘homework’ was given to GExp:

• From our personal perspective, what is the minimum content (the most important) that should be in the EMOS?
Supply of a feasibility study related to the set-up of European Masters programme in Official Statistics (EMOS)

ICON-INSTITUT Public Sector GmbH
in consortium with Genes

§ Communication between NSIs and universities;
§ Should the focus be on the curriculum or the outcomes? What should the outcomes be?
§ Labelling system;
§ Proposals for the project name (other than EMOS); and
§ Other points of views and discussion of EMOS.

7.3.2 Feedback on the results of the feasibility study: 20-21 November 2013

The second meeting of the GExp took place from 20 to 21 November 2013 in Luxembourg. This meeting’s objective was to discuss the main results of the EMOS feasibility study.

The following persons attended the meeting:

§ **Universities and NSIs:**
  Pascal Ardilly (INSEE), Mojca Bavdaz (University of Ljubljana), Michael Beine and Antonio Cosma (University of Luxembourg), Jacek Kowalewski (CSO Poland), Monica Pratesi (University of Pisa), Ceri Regan (ONS), Natalie Shlomo (University of Manchester), Roxane Silberman (CESSDA), Maria Pia Sorvillo (ISTAT),

§ **Feasibility study:**
  Natacha Brenner (ICON), Ronald Delémont (ICON), Michel Grun-Rehomme (GENES-INSEE), Annie Millet (GENES-INSEE), Kalifa Traoré (ICON), Alain Trognon (GENES-INSEE)

§ **Eurostat:**
  Thana Chrissanthaki, Živilė Aleksonyte-Cormier, Annika Näslund, Markus Zwick

Apologies: Ralf Müller (University of Trier), Risto Lehtonen (University of Helsinki)

During this meeting, the results of the study were presented.

Creation of an additional module for EMOS (rather than creating a whole new Masters programme) was agreed in principle by the GExp. The EMOS module can therefore be added to existing core programmes.

The three missions were presented and the GExp approved these main orientations.

The GExp agreed the idea of an EMOS Pilot Phase.

The GExp agreed that the ESS should own the EMOS label.

7.3.3 Next steps

§ Spring 2014: Third meeting of the GExp (not financed by the feasibility study)
§ Spring 2014: International Workshop in Helsinki
8 Annexes

Annex 1: Minutes and documents related to the project meetings

- Minutes of the kick-off meeting on 11 December 2013 in Luxembourg
- Minutes of the first progress meeting on 7 March 2013 in Brussels
- Minutes of the second progress meeting on 13 June 2013 in Luxembourg
- Minutes of the third progress meeting on 17 September 2013 as video conference
- Minutes of the fourth progress meeting on 26 September 2013 as video conference
- Minutes of the fifth progress meeting on 6 November 2013 as video conference

Annex 2: Documents related to the stakeholder analysis

- A Memorandum of Understanding on cooperation between the members of the ESS and the members of the ESCB
- EMOS Logframe matrix

Annex 3: Documents related to Phase 1: the quantitative survey

- Questionnaire
- Analysis of the results
- Powerpoint presentation of the results

Annex 4: Documents related to Phase 2: the qualitative survey

- Interview guides
- Reports of all interviews conducted
- Synthesis and indicators

Annex 5: Documents related to labelling

- Accreditation system in countries

Annex 6: Documents related to the GExp

- Minutes of the kick-off meeting in June 2013
- Minutes of the second meeting in November 2013
- Powerpoint presentations on the results of the study
- Contributions from members of the GExp

Annex 7: Background information on EMOS (to be completed)

- Information on the European statistician competence profiles
- Report on the summer school 2013 in Trier