Feasibility Study into Integrated End-to-End Statistical Solution for GCC-Stat

TECHNICAL PROPOSAL

Submitted on 8 of May 2016

devstat

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Glossary

Acronym	Description
ETES	End-to-end solution
GCC	Gulf Cooperation Council
GCC-Stat	The Statistical Centre for the Cooperation Council for the Arab Countries of Gulf
GSBPM	Generic Statistical Business Process Model
IEC	International Electrotechnical Commission
ICT	Information and Communication Technologies
ISCED	International Standard Classification of Education
ISIC	International Standard Industrial Classification
ISO	International Organization for Standardization
IT	Information Technology
NSC	National Statistical Center
NSS	National Statistical System
OECD	Office of Economic Cooperation and Development
OLAP	Online analytical processing tools
SMDX (RI)	Statistical data and metadata exchange (Reference Infrastructure)
UNCTAD	United Nations Conference on Trade and Development
UNECE	United Nations Economic Commission for Europe
WHO	World Health Organization

1. Executive summary

The Statistics Centre of the Cooperation Council for the Arab Countries of the Gulf (GCC-Stat) was created in 2012 comprising six countries: the United Arab Emirates, the Kingdom of Saudi Arabia, the Kingdom of Bahrain, the Sultanate of Oman, the State of Qatar, and the State of Kuwait. GCC-Stat plays a role of strengthening cooperation, coordination and harmonization in the field of statistics, in order to improve the production and dissemination of timely and high quality data and statistical information to decision and policy makers, researchers, planners, as well as regional and international organizations, the private sector and the public.

The crucial goal of the forthcoming project is to support GCC-Stat to strengthen their ability to continue improving business processes in statistical data collection, data management and dissemination supported by the integrated solution. This will allow automatic information exchange and will lead to the provision of relevant, harmonized, timely and quality statistics among all six GCC countries. This reform might also include provision for a new Statistical Act or Regulation which would enable the government of each six GCC countries to collect, use and publish official statistics; improvements to the mechanisms by which many producers of the data in the countries share data; improvements in the quality of data and methods used to produce statistics; and finally the improvements in the accessibility of statistics, data and publications which users need. These might challenge the need of re-engineering of statistical system in one or the other country as well as introduction of appropriate tools and technologies.

It is expected that the new GCC-Stat infrastructure system will be based on the system of integrated database storing the official statistics data of each GCC country and making available data related to the entire life cycle, and on the support of geographical data. A metadata layer will make available both operational and descriptive metadata to GCC-Stat staff who will be able to construct statistical products using a new set of statistical tools. Data will be cleaned, aggregated and validated, to produce statistical outputs to be published on the Data Portal. The Data Portal will be accessed via the internet by users of statistical products.

This architecture will enable GCC-Stat to manage efficiently the whole production flow, from data collection to data dissemination, by reading the input of each phase from the integrated database system, transforming the input and output and storing it back in the reference database of the following phase. The integration of each data and metadata of each phase will help streamlining the whole process and improving data quality.

2. Background information

The world is changing rapidly and huge volumes of data are becoming available, new methods and technologies provide opportunities for significant efficiency savings, and statistical organizations are facing many new demands for data. In 2010, in the context of the international statistical cooperation in the UNECE region, a High-Level Group was created for Strategic Developments in Business Architecture in Statistics based on modern ICT.

The High-Level Group has developed frameworks to provide the necessary coordination and strategic direction to the many international initiatives currently working on related topics. This includes the strategy for further development of the production in the field of official statistics. The production of statistics should be based on common and standardized processes, transforming raw data into statistical products according to generic and commonly accepted information concepts. Industrialization of statistics production is on the way. The new view of the statistical process shown below is to be seen as the area where the statistical production is compliant with four constraints. The most known frameworks developed by the High-Level Group, adapted by the most advanced statistical offices, are the Generic Statistical Business Process Model (GSBPM), the Generic Statistical Information Model (GSIM) and the Common Statistical Production Architecture (CSPA). The methods and the technology are a practical implementation of the models in the conceptual area and as such the set of standard solutions used to produce statistics.

Figure 1: Statistical process
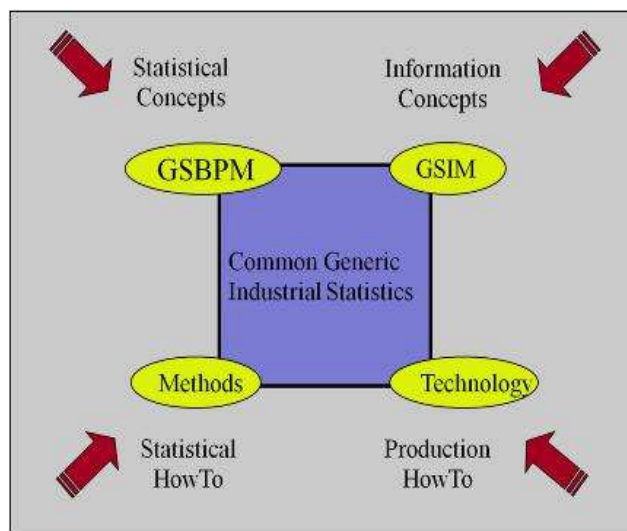
Interoperability supported by high quality interconnectivity in both national and international levels will lead to increased harmonization of production methods which is the prerequisite for internationally comparable statistical data. Implementation of the internationally adopted standards (e.g. ISO/IEC 11179; SDMX, DDI, etc.) plays a significant role to ensure interoperability. Metadata-driven production processes, data warehousing, web portals equipped with high level functionality for data collection and statistics

dissemination, supporting users with effective web services and easy accessible reference metadata, all should contribute to the modernization of statistical processes.

The statistical Metadata theory (elaborated by Swedish professor Bo Sundgren[1]) is a cornerstone of the mentioned approach. The general scheme showing the main components of integrated end-to-end statistical solution and links between them is presented below.

Figure 2: Main components of integrated end-to-end solution and links between them
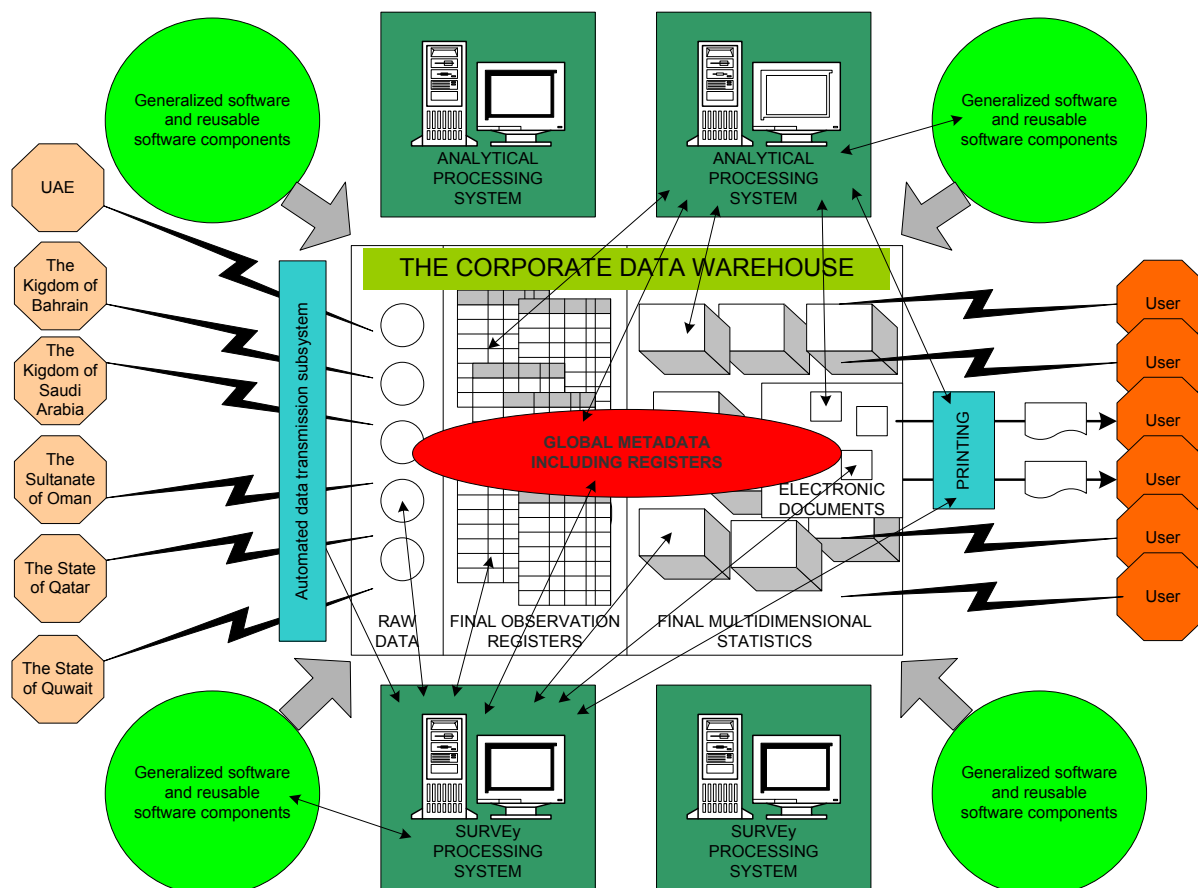
The development and implementation of the metadata driven statistical data production system will significantly improve the quality of all statistics produced as well as allow for a standardization of the production processes according to GSBPM. The system will provide high-quality data for the compilation of e.g. National Accounts and for the calculation of macroeconomic indicators. Implementing OLAP (online analytical processing tools) will speed up and simplify mentioned processes.

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[1] https://sites.google.com/site/bosundgren/my-life

2.1.1. Understanding the Enterprise Architecture

The National Statistical Office or any Statistical Institution/Organization has a heavy reliance on information management and information technology. Thus, in order to standardize its processes, it is important also to standardize its information management practices and supporting information technology. In order to achieve this Statistics, it is necessary to promote a 'shared services' enterprise architecture model. "Enterprise architecture model" means model of systems, which are designed and built by connecting standard business capability, where the process elements are mostly implemented as common services. The services are reusable software, which may be developed in-house, sourced from other NSOs or from private companies. The business logic is extracted from applications (statistical processes) and formalized as configuration rules which chain together processes and services into meaningful business workflows. Data and metadata are defined and managed using standards based formats aligned with the generic statistical information model reference framework, which has to be already developed. Processes and services are implemented in a standard way to collect performance and quality metrics to allow continuous improvement.

In addition, following the United Nations Economic Commission for Europe (UNECE), Enterprise Architecture is the model that defines what the industry (official statistics in our case) does and how it is done. The value of the architecture is that it enables collaboration in developing and using Statistical Services, which will allow statistical organizations to create flexible business processes and systems for statistical production more easily. The architecture is based on an architectural style called Service Oriented Architecture (SOA). This style focuses on Services (Statistical Services in this case). A service is a representation of a real world business activity with a specified outcome. It is self-contained and can be reused by a number of business processes (either within or across statistical organizations).

Thus, the definition of Enterprise Architecture being used by Common Statistical Production Architecture (CSPA)[2] is given below.

"Enterprise Architecture covers all the activities undertaken by a statistical organization, including those undertaken to conceptualize, design, build and maintain information and application assets used in the production of statistical outputs. Business Architecture drives the Information, Application and Technology architectures for a statistical organization."

CSPA focuses on architectural considerations associated with statistical production as bounded by GSBPM.

These internationally accepted frameworks will be used as a reference for the implementation of the project.

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[2] Source : High Level Group for the Modernization of Statistical Production and Services- UNECE

2.2. Scope and objectives of the project

The overall scope of this project is to support GCC-Stat in continuous development process respecting strategic objectives and strategies such as promoting and improving the quality and quantity of statistical products, developing and expanding statistics dissemination, aligning the national statistical strategies in the GCC countries, and especially establishing a culture of excellence in GCC-Stat Building effective business systems and processes.

This particular project aims at supporting and guiding GCC-Stat in the assessment of the current arrangements that GCC-Stat has within the six national statistics centers in the member countries, in which the statistical production will be more streamlined than before.

The project objectives are two:

- The first objective is to assist GCC-Stat in assessing the data that is exchanged among all six countries as well as the current metadata system. Based on that, recommendations for further improvements on data exchange and for developments of a common metadata system will be proposed. Use of metadata to guide a new workflow will be crucial, as it is in any modern statistical office. As statistical production by GCC-Stat will be increasingly based on automated data exchange with statistics centers of other GCC countries, common definitions, core topics, variables and classifications will have to be established.

- The second objective is to support GCC-Stat in developing the new, more efficient IT system, software tools and ICT infrastructure. These tools will support the statistical processes, from data collection to dissemination, for both old and new products. The analysis ad recommendations will be provided on what tool is to be used in each phase of process, and how will have to be established.

3. Approach and methodology

Our approach will be to turn GCC-Stat and its member countries to implementation of an **integrated, metadata-driven statistics management system** that will support standardization of statistical production processes, increase quality of statistics produced and harmonization it at the international level.

GCC-Stat web page functionality and services will be expanded in both data dissemination and data collection areas. SDMX-RI implementation will expand GCC-Stat interoperability on the country and international levels as well as it will provide the users of statistics with a most powerful interactive tool.

We shall start undertaking a carefully designed review of the current statistics production processes and the supporting ICT infrastructure, and as well as the existing development strategies of GCC-Stat. Based on this review a feasibility plan will be elaborated, in close cooperation with beneficiaries, for the upgrade of the GCC-Stat ICT system.

In this context, it is important to emphasize that the introduction of changes in the ICT system of an organization is a formidable endeavor. Experience demonstrates that current staff will not necessarily react positively to a change. New systems and processes may raise uncertainty over their role and position that in turn can lead to resistance to change. The project will account for this risk by conducting extensive and continuous consultations with ICT and other staff involved, at every stage of the developing the feasibility study . This will allow for the building of a wide consensus over the required changes, thereby solidifying support on the recommendations to be developed.

3.1. Project activities and deliverables

All activities described below will be conducted by a team of statistical and IT experts led by a team leader. The brief presentation of the team is presented in Section 3.2. During the kick-off meeting, our consortium and the proposed team will introduce themselves as well as key issues of the team and the implementation approach. The team will discuss and agree the below proposed framework of the feasibility study with the GCC-Stat. Any necessary adjustments and proposed changes will be taken into consideration and will be reflected in the detailed work plan.

In addition, the following topics will be discussed during the kick-off meeting:

- Project's scope and objectives
- Feasibility study framework
- Proposal of work plan
- Project's timetable
- Structure of the report
- Plan of the assessment missions

Right after the kick-off meeting based on the discussions the project team will provide the minutes of the meeting, revised feasibility study plan / work plan, its strategy, the structure of the report, the plan of assessment missions to be conducted by subject matter experts. The whole documentation will be provided in English and in electronic format and will be a subject to approval of GCC-Stat. The final approval of the documentation will be an actual start of the feasibility study.

Information and documents that may be requested by the team experts for the feasibility study include:

- Institutional information:
  - ✓ Structure of the GCC-Stat/ structures of the six NSCs/relevant units / departments
  - ✓ Coordination mechanisms
  - ✓ Exchange agreements between the six NSCs and GCC-Stat
  - ✓ Information on financial, staff and IT resources
  - ✓ Reports, business plans and other relevant work plans.
- Statistical infrastructure:
  - ✓ Registers and classifications
  - ✓ Metadata
- Methodological information on the statistical production process:
  - ✓ Statistical methodologies (documents describing statistical processes)
  - ✓ Quality reports, reports by external institutions
- Dissemination documents and practices:
  - ✓ Contacts with data users
  - ✓ Publications and press releases, publication calendars
  - ✓ Electronic data dissemination
  - ✓ Other media reports describing or assessing the current state of affairs
- IT infrastructure
  - ✓ IT systems/platforms
  - ✓ Software tools used
  - ✓ Telecommunications networks
  - ✓ Technical tools for data exchange
 - ✓ Other tools

3.1.1. Activity 1: Analysis of current arrangements

3.1.1.1. Sub-activity 1.1 Analysis of statistical processes

The proper analysis of the existing situation is an essential first step for defining the future activities. The project goals are clearly set, but they need to be prioritized according to urgency and the capacities of the GCC-Stat. Team leader and a leading expert of the IT team will conduct a comprehensive baseline analysis by means of series of meetings and interviews with key personnel of GCC-Stat and, if necessary, statistics centers of GCC countries, to get accurate information.

Analysis of the current statistical processes in the GCC-Stat will be done through the Generic Statistical Business Process Model (GSBPM), summarily presented below.

Figure 3: Generic Statistical Business Process Model
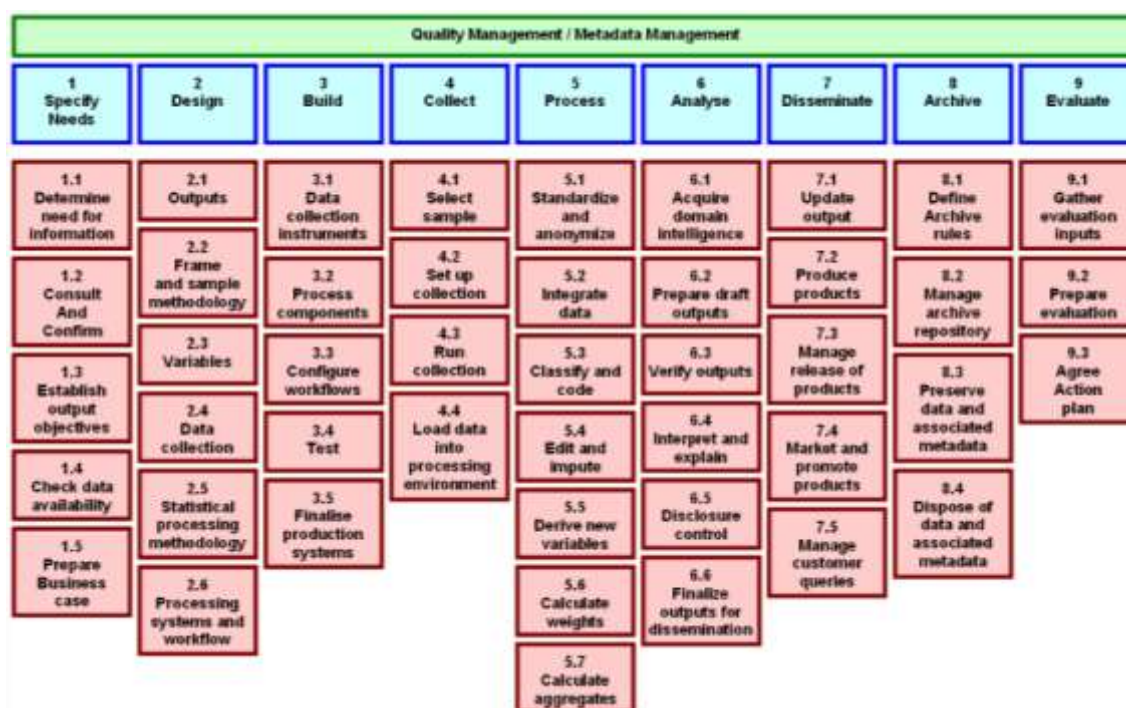
During the assessment, the team of experts will detect which statistical tools are currently being used, how they are used and what is the order of the implementation process of each phase and related sub-processes. These will be applied when assessing specific statistical domains. Thus, the assessment of specific statistical domains will be based on:

- A review of the material provided by GCC-Stat;
- The information gathered and discussed during the missions to GCC- Stat.

In order to clarify the scope of the different statistical domains, the table below provides the overview of the domains to be assessed based the invitation to tender and the statistical fields of GCC-Stat intervention. However, additional fields will be assessed based on the agreement with GCC-Stat.

Figure 4: Overview of domains to be assessed

Domain	Scope	International references
Science, Technology & Innovation	ICT manufacturing industries correspond to ISIC Rev. 4 classes: 2610, 2620, 2630, 2640, 2680. ICT trade industries comprise classes: 4651 and 4652. ICT services include classes: 5820 and division 61-Telecommunications (not included in this SR), class 5820 and groups 631 and 951 Telecommunication: Division 61 of ISIC Rev. 4 All business in relation to innovation and R&D Higher education, Research centres, non-governmental entities for research and development.	UNCTAD Manual on Information Economy Statistics ITU Handbook on Administrative Data Telecommunications/ICT OECD Guide on Measuring the Information Economy OECD Oslo Manual on Innovation Statistics OCDE Frascati Manual on R&D statistics
Agriculture statistics	Division 01 of ISIC Rev. 4	FAOSTAT commodity list Food items (commodities) CPC ver.2.1 expanded for agriculture (crops, livestock and derived products) and correspondences to FCL
Transport statistics	Divisions 49, 50, 51 and 52 of ISIC Rev. 4	Glossary for transport statistics (4th Edition).
Education statistics	Division 85 of ISIC Rev. 4	ISCED Classification – UIS of UNESCO UIS Glossary
Health statistics	Division 86 of ISIC Rev. 4	The WHO Indicator and Measurement Registry (IMR) Global Reference List of 100 Core Health Indicators 2015 – WHO
Monetary, financial and balance of payments	Division 64 of ISIC Rev. 4	Government Finance Statistics (GFS) Balance of Payments and International Investment Position Manual, sixth edition (BPM6) – IMF Balance of Payments Manual, fifth edition (BPM5) – IMF

Domain	Scope	International references
Environment statistics	Water: Divisions 36, 37 and 38 of ISIC Rev. 4	Framework for the Development of Environment Statistics (FDES 2013) – UNSD
Energy statistics	Electricity, gas, steam and air conditioning supply: Division 35 of ISIC Rev. 4	Energy Statistics Manual Energy Efficiency Indicators: Fundamentals on Statistics
National Accounts	The System of National Accounts (SNA) is the internationally agreed standard set of recommendations on how to compile measures of economic activity. The SNA describes a coherent, consistent and integrated set of macroeconomic accounts in the context of a set of internationally agreed concepts, definitions, classifications and accounting rules.	System of National Accounts 2008 (2008 SNA) – UNSD
Price statistics-CPI	A price relative is the ratio of the price of a specific product in one period to the price of the same product in some other period. In purchasing power parity (PPP) comparisons a price relative refers to the ratios of the same product in two countries. The ratio of the price of a commodity in the given period to the price of the same commodity in the base period; such ratios enter into price index numbers of the Laspeyres or Paasche form.	Consumer Price Index (CPI) Manual
Foreign trade statistics	International Trade Statistics is one of the Data Sources to compile BOP Statistics. These statistics measure the quantities and values of goods that add to or subtract from a nation's stock of goods as a result of movement into or out of a country. These data are compiled from forms submitted (by exporters, importers, or their agents) to custom officials or directly to the ITS compiler.	International Merchandise Trade Statistics : Concepts and Definitions (IMTS 2010) Harmonized Commodity Description and Coding Systems (HS) Manual on Statistics of International Trade in Services 2010 (MSITS 2010)

Domain	Scope	International references
Population and housing census	Population and Housing Census data represent an essential source of vital statistical information ranging from the lowest small-area geographical divisions to national and international levels.	Principles and Recommendations for Population and Housing Censuses, Rev.2 – UNSD
Tourism statistics	International tourism (IT), based on the definition of "international visitor"[3], has been traditionally described in monetary terms as the consumption by non-resident visitors, within the economic territory of the country of reference, of goods and services provided by residents (inbound tourism consumption) and the consumption by resident visitors, outside the economic territory of the country of reference, of goods and services provided by non-residents (outbound tourism consumption).	Glossary of tourism terms – UNWTO The conceptual framework for TSA – Tourism Satellite Account – UNWTO
Labour statistics	Labour statistics describe the size, structure, characteristics, results and contributions of the participants in the labour market and how these change over time. Conventionally, they cover many topics dealing with the size and structure of the labour force and the characteristics of workers and employers.	International Standard Classification of Occupations (ISCO) – ILO International Classification of Status in Employment (ICSE) – ILO International Standard Industrial Classification of all Economic Activities (ISIC) International Standard Classification of Education (a UNESCO classification) (ISCED)

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[3] For statistical purposes, the term "international visitor" describes "any person travelling to a country other than in which he/she has his/her usual residence but outside his/her usual environment for a period not exceeding twelve months and whose main purpose of visit is other than the exercise of an activity remunerated from within the country visited" (REC93, paragraph 29)

3.1.1.2. Sub-activity 1.2: Analysis of current ICT system

The starting point of the review of the current ICT system will be the critical evaluation of the key points and main directions of the GCC-Stat ICT Strategy, and an analysis of progress achieved so far. On the basis of this, the project team will undertake an in-depth assessment of the core components of the GCC-Stat ICT system and procedures including *organizational functions, hardware, software, telecommunications networks and infrastructure*. All of these areas will be assessed against a number of quality indicators, which, in turn, will be based on international and European best practices. An illustration of this approach is simplified in the table below:

Table 1: Quality factors for the evaluation of the current situation of GCC-Stat ICT

	Accountability	Reliability	Usability	Stability	Availability	Interoperability
Organizational functions	✔					
Hardware		✔				
Software			✔			
Networks				✔		
Infrastructure					✔	
Procedures						✔

The assessment will be conducted through interviews based on structured questionnaires with GCC-Stat staff and management both in the ICT and other departments. On the basis of the above, the assessment will focus on:

i. Organizational functions: Job descriptions for each member of staff should be clearly defined, to allow for the evaluation of staff productivity vis-a-vis the existing pool of skills and experience. On the basis of this evaluation, the project team will draw up recommendations for the better utilization of staff skills, along with identified training needs (in-site and e-learning). ICT operations will also be reviewed and recommendations will be drawn to reduce the operational cost of producing statistical data. Finally, the existing procedures will be assessed and proposals will be elaborated to enhance their responsiveness to the respective support prototypes of the system's online and batch operations.

ii. Hardware: The ICT infrastructure needs to be open, reliable, robust and fit to the software applied. In this context, the upgrade of ICT infrastructure will need to consist of three distinct levels, namely (a) collection and analysis of data; (b) technical support, security and control; and (c) allocation to central, regional and local sub-systems (if applicable). To address this, the existing hardware will be evaluated against efficiency requirements, usage degree, mean time to repair, rate of defects, fault tolerance and other. Special attention will also be placed to specialization, to ensure that at middle–level there will exist a number of different types of servers (Printer, Database, Telefax, Scanner, Mail

etc.), while the whole infrastructure will be categorized, recorded and evaluated into front and back–office equipment/ infrastructure.

iii. Software: The software embedded in an ICT system needs to be open, user friendly, integrated, parametrical, maintainable, expandable, portable and testable. Given this, the critical issue here will be to review and assess the extent to which the existing software addresses the qualitative and quantitative needs of its end-users and allows the efficient collection and use of data. In addition, it will be essential to review also the data that the ICT system collects, which will be cross-referenced to available dictionaries and inventories (for data cleaning, quality improvement, accuracy, completeness, audit ability and consistency). The project team will also review the existing tools for saving, processing, and managing data (storage, replication, extraction, transformation, movement, presentation and reporting), as well as, for analyzing data (data mining, online analytical processing, statistical analysis, what-if analysis). Particular attention will be paid to the system software, the back-up software and the database management system.
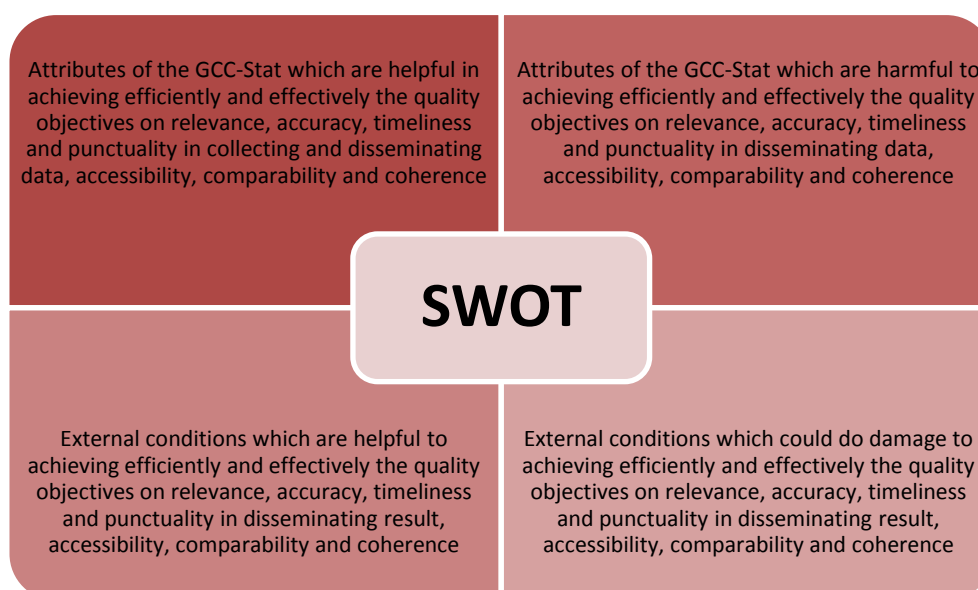
iv. Telecommunications network (LAN WLAN, Internet): Main emphasis in this area will be on the performance and control of the networks. Issues related to accessibility, expandability, and connection to other national networks will be explored, as well as its resilience to violations. The high level of network availability and security necessitate up-to-date methods of protection and safeguarding of confidentiality and integrity.

v. Infrastructure: Finally, the ICT system infrastructure (screens, spaces, furniture and lighting) will be analyzed to assess how the work environment impacts upon the health and performance of staff. Overall, malfunctions in the ICT system are considerably reduced when (a) there are facilities for testing the ICT system and training the users; (b) the standards for modern ergonomic design of the work environment are adhered to; and (c) the ICT system interface ifs friendly and does not isolate the end users.

Current state of art of GCC-Stat	
Entire business vision, strategy and goals	Information to gather at the assessment phase from GCC-Stat internal and external documents available for Consultant and personal interviews with the leading staff.
GCC-Stat ICT improvement goals in accordance with ICT System upgrade	
Organizational structure of GCC-Stat	
Current business processes and the way to upgrade them	
Description of the current business environment Hardware and software in use	Assessment of ICT infrastructure by collecting information of hardware and software available for statistics production.
Conclusions. Detected business problems, which lead to the Feasibility study	Results of Assessment phase presented

The collected information for each phase and each field will be presented in the assessment report in the form of Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis in the existing GCC-Stat statistical processes and systems. A particular focus will be to assess

the vulnerability of the existing arrangements to errors occurring in the disseminated statistics. The SWOT analysis will be presented according to the nine steps of the GSBPM.

Attributes of the GCC-Stat which are helpful in achieving efficiently and effectively the quality objectives on relevance, accuracy, timeliness and punctuality in collecting and disseminating data, accessibility, comparability and coherence	Attributes of the GCC-Stat which are harmful to achieving efficiently and effectively the quality objectives on relevance, accuracy, timeliness and punctuality in disseminating data, accessibility, comparability and coherence
SWOT	
External conditions which are helpful to achieving efficiently and effectively the quality objectives on relevance, accuracy, timeliness and punctuality in disseminating result, accessibility, comparability and coherence	External conditions which could do damage to achieving efficiently and effectively the quality objectives on relevance, accuracy, timeliness and punctuality in disseminating result, accessibility, comparability and coherence

Collected information will allow experts to analyze the process of statistical production, the current arrangements between the six NSCs and GCC-Stat and tools that are used at GCC-Stat, and to compare it with the best practices used at international level. Based on findings and discussions with GCC-Stat experts will propose recommendations for improving the statistical production process. Furthermore, IT experts will propose statistical tools that can be used in different stages of the redesigned process of statistical production. In additional to recommendations for proposed tools, the review of specific functionality will be provided.

Responsibility:	**The project team:** • Review and assess current arrangements with GCC-Stat and six GCC countries, their specific statistical domains and IT infrastructure • Organization of assessment missions of statistics subject matter experts **GCC-Stat:** • Provide the necessary documentary inputs • Provide all necessary support in obtaining visas for assessment team
Activities	• Collect all necessary information for the preparation of feasibility study framework • Preparation of an assessment report and its presentation to the executive steering committee
Timing	1M-2M
Experts involved	Project leader Experts on statistics quality Statistics subject matter experts
Deliverables	Assessment report

3.1.2. Activity 2: Ex-ante analysis of end-to-end solution

The team of experts will analyze current GCC-Stat and other statistics centers of GCC countries workflows in statistical production and will map it with following phases from GSBPM, relevant for an international statistical office:

- Data collection from GCC countries
- Data processing
- Analysis of data
- Data dissemination

In order to develop the current workflow processes an in-depth analysis will be needed to identify incompatibilities, gaps and bottlenecks between current and future workflows. This might lead to the further in-depth analysis of statistics center in each GCC country and collecting information on detailed process maps of workflows, identification of tools countries use and when.

The forgoing review and assessment of the current statistical processes and ICT system will bring to the light the overall and specific needs to be addressed by the project team at the operational (sub-system) level of the ICT system. Experience demonstrates that when overall convergence of system is limited, the sub-systems are at different levels of completion and consequently every ICT supported application has different specifications and requirements to the other. In addition, the relationship between an existing and a new system is characterized by interdependences and correlations, which lead to gaps and redundancies in the ICT system specifications. The needs and demands of users are constantly changing and there is need to address this by improving the quality and by developing of new products and services.

Systems are being developed in accordance with changing needs and this is a gradual process over long period of time. While ICT systems emerge in different statistical domains and aim to cover statistical data lifecycle this leads to un-homogenous environment of ICT systems which in turn requires human – intensive input to transform data among different systems or heavy usage of ETL procedures are in place. This significantly raises complexity of overall statistical data processing ecosystem and requires specific particular problem area knowledge to operate which is a risk during staff turnover.

To address the above and to ensure appropriate planning in the overall efforts towards the upgrading of the ICT system, the project team will, in close cooperation with beneficiaries undertake the elaboration of a feasibility study for the introduction of improvements to the system. The purpose of the study will be to:

- Provide an overview of the present system and discuss in detail the existing problems;
- Identify the needs of users against existing problems and propose a set of solutions;
- Define a set of criteria for the evaluation of solutions;
- Set out the main priority actions to be taken, as well as the sequencing of efforts;

- Review and identify the necessary financial and human resources.

Regarding the methodology to be followed, the feasibility study will have as a starting point the review/assessment conducted under the previous activity and be based on a SWOT analysis.

Overall, the recommendations will be developed will place particular emphasis on Feasibility study results.

Feasibility study process	
Feasibility study process and methods	Description of methodology and content
Feasibility study members	Project team Experts involved from Consultant and Beneficiary side
Solution options	Options agreed to analysed
Options evaluation criteria	Description of agreed set of evaluation criteria
Option – 1 Technical description and expected costs	Solution Description involving: Technical description and expected costs; Organization structure Changes in ICT Sector; Evaluation of experienced staff availability and training necessity; Evaluation of expected time for implementation.
Option – 2 Technical description and expected costs	
Option – n Technical description and expected costs	
Feasibility analysis for Option – 1	Evaluation of: Benefits; Costs; Risks Listed Assumptions
Feasibility analysis for Option – 2	
Feasibility analysis for Option – n	
Feasibility results	
Options ratings	All options feasibility results in one table will clearly show the most feasible option for description in the Activity 3.
Conclusions, recommendations	Summary of the work done and recommendations listed.

Responsibility:	**The project team:** • Evaluate end-to-end solutions available on the market • Draft evaluation report **GCC-Stat:** • Provide the necessary information input
Activities	Collection of information on other end-to-end solutions
Timing	End of 1M – beginning of 2M
Experts involved	Leaders, IT and subject matter experts
Deliverables	Evaluation report

3.1.3. Activity 3: Analysis of needs to implement an integrated end-to-end solution

Results of the previous activity will be the core information and basis for Activity 3.

Experience demonstrates that the introduction of a new ICT system is not an easy process. The changes embedded in the new system will most certainly provoke the reaction of existing staff and management, as changes will have an impact on existing positions and roles. In reality, therefore, the introduction of a new ICT system can entail considerable uncertainty and complexity. This, in combination with the lack of support from senior management has led many similar projects in other countries to failure.

To address this, the project team will embark on a detail explanation of the results of the project for GCC-Stat participants of the Final sign-off meeting.

Therefore clear and detailed description determined requirements of the integrated end-to-end statistical solution that will be chosen during the evaluation phase will be of great importance.

This description will consist of two important parts:

1. Business software system description
2. ICT infrastructures upgrade requirements description.

Business software system detail description will consist of:

- System full functionality description comparing to GSBPM
- System architecture detail description
- User interface detail description
- Description the system from secure data processing point of view
- System administration and maintenance requirements description
- System performance description
- Set of requirements to ICT infrastructure ensuring system stable and sustainable running.

ICT Infrastructure necessary upgrades will depend on the current state of art of the ICT infrastructure as well as from Business software system requirements. All that data we shall be able to get from previous activities implemented. Description of ICT infrastructure will consist of:

- Overall technical infrastructure description. Overall composition of servers, storage facilities and networking. Infrastructure management layer. User management (active directory), server management, storage management.
- Networking layer. Topology descriptions, network protocols, networking equipment.
- Server and storage layer. Composition of necessary servers and storages (SAN).
- Application layer. Software to operate servers, storage, back-end, middle tie and desktop levels. This does not include applications required to statistical data processing, except standard software.

- Database management system layer. Software to be installed on server – storage infrastructure for statistical data processing and storage.
- Security layer. Encryption requirements at networking, server and storage, application layers level. Perimeter, communication level, servers – storage and desktop level protection requirements.
- Fault tolerance layer. Will be included in other layers as requirements for redundancy and fault tolerance. Backup solutions for all infrastructures.

All the cost estimates of hardware and software will be available from the evaluation phase. Necessary hardware and software specifications will be provided.

Responsibility:	The project team: • Analysis of needs to implement integrated end-to-end solution
Activities	• Preparation of the description determining requirements for integrated end-to-end solution • Preparation of business software description
Timing	Second half of 2M
Experts involved	Project leader and IT team
Deliverables	List of requirements for an integrated end-to-end solution

3.1.4. Activity 4: Gap analysis

A gap analysis is an analytical process used to help an institution understand and quantify the gaps that exist between its present and ideal expected future state. By analyzing these gaps, the management can create specific action plans to move the institution forward towards its goals and close the gaps identified in this exercise.

A gap analysis applied to GCC-Stat requires the identification of statistical processes and ICT infrastructure supporting those processes. These will be analyzed within Activity 1 reflecting GCC-Stat's specific needs. Comparison will be done on the levels of conformity of the existing data production system and the proposed one. This comparison should be done for each of nine steps of the GSBPM. Other parameters for comparison of the existing system described in the assessment report and the new one chosen within the evaluation phase will be agreed on the working meetings with GCC-Stat. In addition, gap analysis will be performed based on GSIM and international recommendations related to the dissemination of data.

Figure 5: Preparation of gap analysis
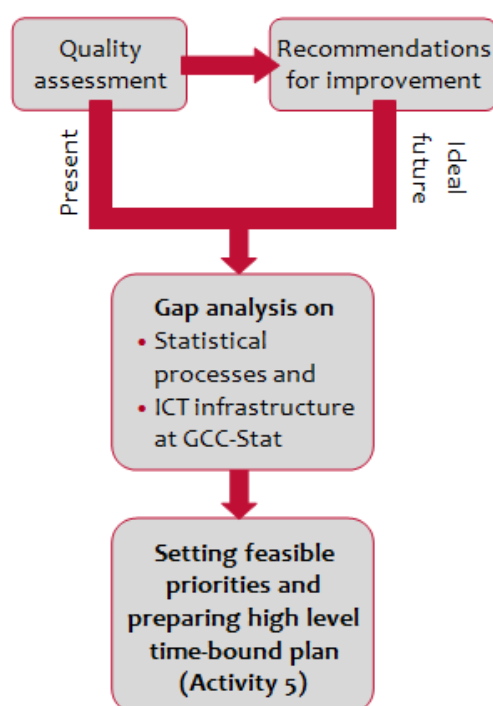
The gap analysis of IT infrastructure will be twofold, IT infrastructure strategy gap analysis and Operational capability gap analysis.

IT infrastructure strategy gap analysis – is an analysis of the GCC-Stat requirements against the existing IT Infrastructure strategies and forecast capabilities. This analysis will help to identify any existing areas of misalignment, and forecasts if the existing IT Infrastructure strategy will be capable of keeping pace, or fail to meet forecast requirements.

Operational Capability Gap Analysis – an analysis that considers the existing demonstrated capability and operational effectiveness compared to the current organizational requirements. In case of a gap between the existing capability and current requirements, or the forecast requirements and the expected future capability, remediation requirements will be considered to scale capabilities in a manner congruent with the business direction.

Responsibility:	**The project team:** • Preparation of gap analysis **GCC-Stat:** • Clear input on the future / expected infrastructure system supporting statistical processes
Activities	• Consolidating gap analysis based on the outcomes of the assessment of existing arrangements and expectations of GCC-Stat • Research on the most feasible infrastructure supporting statistical processes
Timing	2M
Experts involved	Project leader, Statistical Quality experts and IT team
Deliverables	Gap analysis

3.1.5. Activity 5: Time-bound plan

Based on the outcomes of the feasibility study, on the assessment of current arrangements between GCC-Stat and six GCC countries, statistical processes and ICT infrastructure, project leader and leader of IT team will consolidate the received information and will draft a high level time-bound, so called roadmap plan. The plan will articulate the proposed overall development plan underlining what GCC-Stat has to take into account for future development. The plan will present the necessary improvements or changes in the six national statistics centers, proposed timeframes and estimated costs that might be involved.

Project leader in collaboration with subject matter and IT experts will draft a strategic plan with instructions for its management which will be presented to General Directors and responsible staff of GCC-Stat. Furthermore, the project team will ensure a distance support to GCC-Stat even after the contract expiry date in order to maintain the successful implementation of the time-bound plan.

Responsibility:	**The project team:** • Preparation of the time bound-plan **GCC-Stat:** • Regular communication with project team to clearly define expectations
Activities	• Drafting a high level time-bound plan
Timing	3M
Experts involved	Project leader and IT team
Deliverables	High level time-bound plan

3.1.6. Activity 6: Final report

The final report will be compiled and the hand-over of project results and deliverables will be prepared. The final report will contain all reports drafted for each above mentioned activity will be submitted by the project manager and team leader to the Director General of GCC-Stat. The report will include all project activities, technical advice provided in various areas of statistics, results achieved, conclusions drawn and recommendation future actions made. A final hand-over meeting with the team leader and IT expert and GCC-Stat team to present the results of the project implementation will be organized at the end of the contract duration.

Responsibility:	**The project team:** • Closing the project **GCC-Stat:** • Provision of comments to the final report
Activities	• Presentation of activities implemented and results achieved • Drafting future recommendations • Compilation of the final report
Timing	4M
Experts involved	Project leader and IT team
Deliverables	Consolidated final report with the outcomes of the assessment and future recommendations

3.2. Staffing arrangements

The constitution of the pool of experts and institutional setup has been following three guiding principles: professional excellence, previous common working experience and complementarities and synergies. Indeed, DevStat has previous successful working experience with GLOBCOM through a common cooperation project as well as with all proposed experts.

Table 2: Proposed expert team

Position	Expert name	Experience and qualifications
Project leader	Mr Bouazza Bouchkhar	More than 17 years of experience in the Statistical Office of Morocco, out of that 12 years of experience working as head of unit of transport and ICT unit Current experience working as a head of administrative data unit
Leader of IT team	Mr Karlis Zeila	14 years of experience as Vice President of the Central Statistical Bureau of Latvia More than 20 years of experience working in the area of statistical information systems and development of IT infrastructure
Experts in Statistical Quality Assessment	Dr Jose Vila	More than 20 years of experience in assessment of survey data of various worldwide surveys Diagnosis of information needs of stakeholders Methodological design
	Ms Florabela Carausu	Experience in assessment of survey processes of various worldwide surveys Knowledge of quality assurance frameworks in statistics
ICT team	Mr Norberts Talers Senior ICT expert	7 years of experience as Vice President of the Central Statistical Bureau of Latvia 14 years of experience in official statistics, particularly in implementing data processing solutions and infrastructure in organization to support whole statistical data lifecycle
	Mr Mohith Shakir Senior IT expert	More than 16 years' experience on IT Infrastructure Services, ITIL Expert Certified. Expert in Consulting, Design and Implementation on of IT Infrastructure at Larger Scale.
	Mr Muhammad	Having around 10 years' experience on IT

Position	Expert name	Experience and qualifications
	Arsalan IT Systems expert	Systems, expertise on Active Directory, Doman, VM Wares, Exchange, Server Technologies, Lync, Backup and Recovery. Extensive experience on Infrastructure Consolidation and rollouts.
	Mr Naresh Kumar Network expert	Having Around 8 years' experience on Network Infrastructure, Network Design, Firewalls Selection and Implementation, Routers, Switches, VPNs, Access Control, Firewall Migration, Network Architecture, Project Planning, Network Security Consulting, Juniper / Cisco.

Project leader, **Mr Bouazza Bouchkhar,** is a statistician with more than 17 years of experience working in the Statistical Office of Morocco and as consultant to international organizations (UNCTAD, ITU, AFDB, SESRIC…). He has a strong background in economic, social and environmental sectors (regulatory, institutional and organizational issues). His experience comprises the work in Arab, African and Mediterranean regions and he is familiar with their statistical information systems (information sources, data exchange protocols, methods of collecting and compiling of data, data reliability, method of processing and storage). Mr Bouchkhar has in depth knowledge and understanding of European and international practices in the compilation of statistics and related metadata in the economic, social and environmental sectors. He worked as head of Transport and ICT statistics Unit for more than 12 years. Since 2015, he works as a head of administrative data unit where he is responsible for the collection of administrative statistics for different sector, data processing and analysis and continuous development of sectoral statistics. In addition to his project leader's position, **Mr Bouchkhar will conduct assessment of specific statistical domains such as economic, transport, tourism and agriculture statistics**.

Leader of IT team, Mr Karlis Zeila, is a freelance consultant in the area of statistical information systems, having experience in official statistics more than 20 years in both governmental (13 years) and private institutions (7 years). Working on different positions (from engineer to vice president) in scientific research and management area in Institutes of Academy of Sciences of Latvia he got an excellent experience in the research field and IT usage for the automation of research processes. As Vice President of the Central Statistical Bureau of Latvia (13 years) he managed a large number of projects in IT infrastructure and information systems development area thus developing the first Metadata Driven Integrated Statistical Data Management System (2002) based on the Metadata Theory elaborated by Bo Sundgren (Professor University of Sweden). He has great experience of management (from set up until complete implementation) of the IT and information systems development projects in different areas particularly in statistics. He is fully acquainted with the methodological issues related to statistics production in different statistical domains as well as in statistical processes ensuring full statistical life cycle according to GSBPM elaborated by UNECE and adopted internationally. Mr Zeila

participated in working groups of Eurostat (Statistical Office of European Union) and UNECE Statistics Division thus gaining an experience of international activities and international cooperation in official statistics field. **Mr Zeila will be leading the whole IT system and will be responsible for the assessment of Business Software System in GCC-Stat, and together with project leader preparing gap analysis, time-bound plan and consolidated final report.**

Experts in Statistical Quality Assessment

Dr Jose Vila, scientific director of DevStat and professor at the University of Valencia, is an international consultant in Business and Policy Intelligence (BPI) and Statistics, with 20 years of experience in governmental and private institutions including all the different phases of statistical production, dissemination and planning.

His professional experience includes managerial and technical participation in statistical consulting projects focused in methodological development, implementation, dissemination and quality assessment of statistical operations, within and without the European Statistical System – as well a statistical capacity building activities and including training – in Argentina, Austria, Belgium, Bolivia, Bulgaria, China, Chile, Colombia, Ecuador, France, Luxembourg, Mexico, Nigeria, Peru, Portugal, Romania, Spain, Thailand, USA and Venezuela. He has been a consultant for a number of public organizations (Andean Community Secretariat, European Commission, Eurostat, Romanian Ministry for SMEs, United Nations agencies, Universities in Argentina, Chile, China, Lebanon, Mexico, Spain and USA, World Bank, etc.) and private companies.

Dr. Vila is also a research fellow of the Centre for Research in Social and Economic Behaviour (ERICES) at the University of Valencia and director of its Laboratory for Research in Experimental Economics (LINEEX). His research agenda covers quantitative models for strategic decision-making, behavioural economics and statistical methods. He has authored publications in top academic journals such as Econometrica, Games and Economic Behavior or Management Decision.

Ms Florabela Carausu, joined the International Projects Unit of DevStat in February 2009. Currently, she is actively involved in the business development process acting as Procurement and Quality Manager. Her daily tasks within the company cover all parts of business development: identification of project opportunities, business intelligence and networking, writing of (successful) tender proposals, negotiations and coordination of financial proposals.

Ms Carausu also performs technical and managerial roles in the contracts awarded to the company. Her project-based managerial experience includes follow-up of projects' implementation, regular budget control, reporting and representation of the company in dealings with the clients. Her technical roles in international projects include positions such as: Expert in Statistical Quality Assessment, Evaluator, Expert in Local Statistics or Expert in Local Development. Working as an external expert for Eurostat, Ms Carausu gained excellent knowledge of European official statistics (incl. methodology, legal base, strategies and forward planning) and of the Quality Assurance Framework (QAF).

Quality assessment experts will be responsible for the assessment of the data provided provided to GCC-Stat by six GCC NSCs.

IT team

Senior IT expert, Mr Norberts Talers, vice president of Central Statistical Bureau of Latvia has 14 years of experience in official statistics, particularly in implementing data processing solutions and infrastructure in organization to support whole statistical data lifecycle. As a vice president of Central Statistical Bureau of Latvia, and IT department director before, he has significant experience in providing data management and processing solutions within the organization. In addition to that, during his work ICT infrastructure has been completely redesigned and implemented under his supervision and involvement. Particularly significant experience has been gained in metadata driven, programming free environments system implementation. He is actively involved in ICT projects starting from identification of needs, requirements preparation up to implementation of the systems in production. Mr Talers has international experience in several projects in Moldova and Egypt in the field of official statistics covering statistical data processing solutions. He has gained experience in EU affairs during Latvian presidency of European Council acting as a co – chair of Working Party of Statistics. **Mr Talers will be supporting responsible for the assessment of Business Software System in GCC-Stat**

GLOBCOM IT Team

Mr Mohith Shakir is a Senior IT expert with more than 16 years of experience in IT Infrastructure Services, ITIL Expert Certified. He is also an expert in Consulting, Design and Implementation on of IT Infrastructure at Larger Scale.

Mr Arsalan is an IT System expert having around 10 years of experience in IT Systems, expertise on Active Directory, Doman, VM Wares, Exchange, Server Technologies, Lync, Backup and Recovery. Mr Arsalan has an extensive experience on Infrastructure Consolidation and rollouts.

Mr Naresh Kumar is a Network expert with around 8 years of experience in Network Infrastructure, Network Design, Firewalls Selection and Implementation, Routers, Switches, VPNs, Access Control, Firewall Migration, Network Architecture, Project Planning, Network Security Consulting, Juniper / Cisco.

GLOBCOM team will be responsible for the assessment of ICT Infrastructure and will propose the upgrade and further development of an Integrated End-to-End Statistical Solution.

Assessment team of specific statistical domains

The team of experts for assessment of specific statistical domains is proposed and their fields of expertise are presented in the table below.

Table 3: Proposed subject matter experts team

	Economic statistics	Price statistics	National accounts	Energy and environment statistics	Population and housing census	Foreign trade statistics	Monetary, financial and BoP	Tourism statistics	Social statistics	Labor statistics	Agriculture statistics	Transport statistics	Science & technology
Mohammed Achemlal	✓	✓	✓										
Leonidas Akritidis			✓				✓						
Giorgio D'Amore				✓									
Maarten Boon						✓							
Bouazza Bouchkhar	✓			✓				✓			✓	✓	
Jean-Michel Durr					✓				✓				
José Cervera													✓
Etienne Caruana								✓	✓	✓			

To implement this project a team of experts is proposed that possess all the necessary skills and know-how to successfully deliver the project.

3.3. Meetings and reporting

3.3.1. Meetings

As per the invitation to tender, the project requires kick-off and three progress meetings with the purpose to monitor and discuss the progress on the feasibility study and on the deliverables produced so far. The final, sign-off meeting will be organized to present project activities, findings and future recommendations. These meetings will take place in Muscat, in the GCC-Stat's premises. Any additional meetings will be held using video conferencing facilities.

Before each meeting the project team will prepare and send GCC-Stat all the necessary documentation 1 week prior the meeting and one week after the meeting will provide minutes of each meeting. The brief overview of the meetings is presented in the figure below.

Figure 6: Overview of project meetings
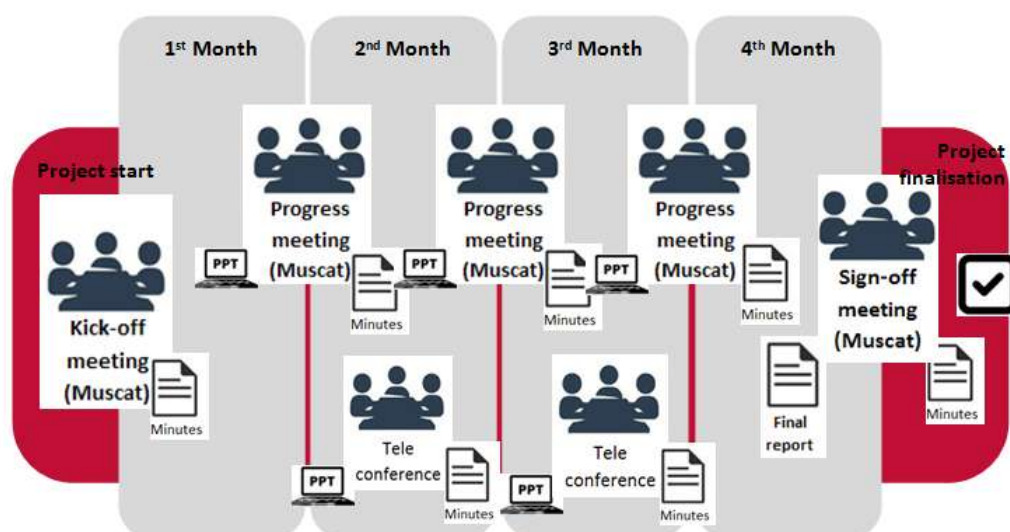
Table 4: Overview of project meetings

Meeting	Content of the meeting / Means / Outcomes	Timing*
Kick-off meeting	Presentation of the team and methodological approach, discussion with GCC-Stat on the feasibility study plan Minutes provided 1 week after the meeting	T + 2 weeks
Progress meetings	Discussions with GCC-Stat on the progress of the feasibility study Minutes provided 1 week after the meeting	T + 1M, 2M, 3M
Final / sign-off meeting	Presentation of project results and future recommendations Minutes provided 1 week after the meeting	T + 4M
Video conferences	Discussions on the progress of the feasibility study as well as	Whenever necessary

* T – refers to the commencement day of the contract

3.3.2. Reporting / milestones

As per the invitation to tender reports as part of milestones of each activity are foreseen. All reports will be written in English, and if necessary translated into Arabic, and will be available to GCC-Stat in electronic format and on paper, as requested 12 copies. The brief overview and description of the content of each report is presented in the table below.

Table 5: Summary of reports to be prepared

Milestone	Milestone content	Timing
Assessment report (Activity 1)	• Assessment of current arrangements between GCC-Stat and six national statistical centers • Comparison of arrangements with other international and supranational agencies • Assessment against SWOT analysis covering statistical processes and ICT infrastructure	Beginning of 4M
Report on evaluation of the end-to-end solutions (Activity 2)	• Findings of the evaluation of end-to-end solutions which are available at national and international level • Evaluation and analysis of several / relevant options	
Requirements for Integrated end-to-end solution (Activity 3)	• Proposal for statistical business processes and recommendations for the IT systems, software tools, ICT infrastructure components. • Presentation of IT aspects • Detailed architecture of the proposed solution • Cost estimates	
Gap analysis (Activity 4)	• Analysis based on outcomes of the assessment of existing arrangements and expected future infrastructure • Suggestions how to fill in those gaps • Proposal of most feasible solution meeting GCC-Stat's needs	
Final report (Activity 5)	• Consolidated report on all findings, outcomes and proposals mentioned in previous reports • Recommendations for future and next steps	Mid of 4M

3.4. Time schedule

Tasks and activities	June 2016				July 2016				August 2016				September 2016			
	5-9	12-16	19-23	26-30	3-7	10-14	17-21	24-28	31-4	7-11	14-18	21-25	28-1	4-8	11-15	18-22
Kick-off meeting / start of the contract	👪✎															
Assessment		〰	〰	〰	〰											
Evaluation of ETES				〰	〰											
Determination of requirements ETES				📄	📄	📄	📄									
Gap analysis						📄	📄	📄	📄							
Time-bound plan								📄	📄	📄	📄	📄				
Draft final report and presentation													📄💻			
Comments of final report from GCC-Stat														📄		
Submission of final report with all the findings															📄✔	
Progress meetings				👪				👪				👪				
Final / sign-off meeting																👪

4. Management arrangements

This chapter describes the management arrangements that the Consortium proposes for a successful implementation of the project. It covers the following:

- How the Consultant is organized and what are the responsibilities and involvements of each party;
- The project management team;
- What are the management activities that should be considered for the project;
- Which are the meetings and reports to be prepared during the lifetime of this project;
- Which are the mechanisms of monitoring and evaluation put in place by the Consortium.

As such, quality assurance is a management activity, but given its relevance it is described separately. Therefore, Section 4 complements this one, describing how quality is ensured throughout the project cycle.

4.1. Organization of all stakeholders

The Consortium has precisely defined the responsibilities for each participant in the project. This should allow all parties involved to have the best overview of the project activities from many different angles and to provide easy monitoring and evaluation of the project. The parties involved in the project are:

- GCC-Stat: the Client and direct beneficiary, and contact point between the wider beneficiaries and the Consultant;
- The Consortium led by DevStat: the Contractor providing the services requested, responsible for carrying out all planned activities;

DevStat, as leader, is responsible for the strategic and operative project management, including:

- Regular contact with GCC-Stat;
- Participation in kick-off, progress and sign-off meetings with GCC-Stat;
- Coordination of GlobCom, project leaders, IT and assessment experts;
- Supervision of deliverables (technical, methodological and management reports, presentations, minutes of meetings, etc.) to guarantee the quality of the documentation (including documentation management);
- Monitoring the implementation of the project;
- Financial management of the project;
- Logistic back-office support to experts.

The other members of the Consortium (GlobCom) on its side will be responsible of:

- Regular communication with DevStat;

- Supervision of the deliverables prepared by its experts;

- Assisting and supporting DevStat in the preparation of technical and progress reports;

- Participation in the meetings with GCC-Stat, if necessary or requested.

In terms of the involvement of resources of GCC-Stat, we will try to keep it at the minimum workload, but at the same time offering full openness and transparency of our progress.

In order to avoid any misunderstandings and failures, the Consortium and GCC-Stat will agree on its involvement during the kick-off meeting and will be in regular contact through the whole execution of the project.

4.2. Project management team

A basic guideline of the Consortium's working philosophy is the continuous support and monitoring of any expert participating in the project, not only in logistic but also in technical and relational issues. Hence, the **Project Manager**:

- Validates any document produced by the experts;

- Ensures the liaison with the client for a well-coordinated and effective implementation of all project activities;

- Provides strategic guidance to experts;

- Cooperates with the team to solve potential problems with sufficient lead-time to avoid crises.

- Validates the internal project administration (reimbursement, invoices);

- Regular budget control and reporting (resource usage, resource usage projections, etc.).

Contract manager, Mr Jose Cervera, director of DevStat, is an international consultant in official statistics, with 23 years of experience in governmental and private institutions. In the field of international statistics, Mr Cervera has been involved in methodological support projects for Eurostat (FWC on research and methodology, tender specifications reference number 2008/S 200-264715/EN). He served as Scientific Director of the evaluation of the European Statistical Programme 2008-2012 and Team Leader of the evaluation of EU Member States' compliance with the EU Data Collection framework in Fishery Statistics. He has actively participated in other regional projects, such as:

- Spanish delegate to the Statistical Conference of the Americas and manager of the project on statistical cooperation EU-Mercosur (while Director of International Relations of the Spanish National Statistical Institute)

- Expert on Statistical Training for the Andean Community;

- Team Leader of the EU-Mediterranean regional statistical programme (MEDSTAT 3) including Arab Mediterranean countries;

- Trainer for regional courses in Latin America, French-speaking African countries, Arab countries, Asia-Pacific countries for ITU and UNCTAD;

- Advisor to the Eurasian Economic Commission on the establishment of a regional statistical system.

At the national level, he has managed large EU-funded projects in Eastern European countries (Romania, Moldova). **Mr Cervera will liaise with GCC-Stat as often as needed to advise on regional issues.**

Ms Dovile Minkeviciute – DevStat' in-house staff – will act as a **Project Manager** on behalf of the Consortium. Ms Minkeviciute has more than 11 years of working experience in the fields of statistics, is familiar with National Statistical Systems and has 7 years of experience in management of international statistical projects.

The Project Manager will be supported by the Consortium's backstopping, which is designed to suit efficiently and promptly any specific needs that may arise during the project implementation. As a minimum, Consortium's backstopping includes the following services:

- Managing all operational aspects of project deliverables;
- Logistical services including transport and accommodation for the project staff.

The core management team will be supported by other units of the Consortium:

- Travel unit: an in-house travel unit will provide the project team experts with the flight, accommodation and other travel arrangements.
- Human resources unit: will be responsible for contracting the experts once they have been identified and approved.
- Book-keeping unit: This unit will take care of financial matters like preparation of invoices, accountability, etc.

4.3. Management activities

The project will have a tailored project management, which is based on the experience of the Consortium in the successful implementation of projects for international organizations. The following elements of project management are considered for the implementation of the project:

- Overall management
- Management of inputs
- Management of processes
- Management of outputs
- Management of network of experts

A summary of project management issues is described in the table below:

Table 6: Summary description of management task and procedures

Management tasks	Description	Procedures
Overall management	Management of inputs (technical, human and financial resources), processes and outputs (project deliverables)	The Project Manager and the Contract and Quality Manager set up a project management toolset (work plans, control file of activities and deliverables, project calendar, budget control, reports, etc.).
Management of inputs	Documentary database	A dedicated documentary database (including documentation received from the Client, bibliographical references, etc.) will be set up.
	Client's input	The communication with the Client will be the responsibility of the Project Manager and/or of the Project Director (depending on the issues to be discussed).
	Team members' input	Each team member reports to the Project Manager
Management of processes	Calendar management (deadlines and milestones) Work-plans	A project calendar will be set up and updated during the project. In every meeting with the Client the Project Director and Project Leader as well as Leader of the IT team will present the updated work-plans with indicators of achievement to serve as monitoring and evaluation system.
Management of outputs	Control of partial and final deliverables	All deliverables will be sent by the Project Manager with a cover letter to the assigned GCC-Stat officer. Whenever necessary, a formal approval by GCC-Stat of deliverables will be asked for.

4.4. Monitoring and evaluation

The overall objective of monitoring and evaluation (M&E) system is the measurement and assessment of performance. Within this global objective, the foreseen specific objectives are linked together in a continuous process (as shown in the figure below), in order to manage effectively the outcomes and outputs known as development results.

Figure 7: Objectives of M&E
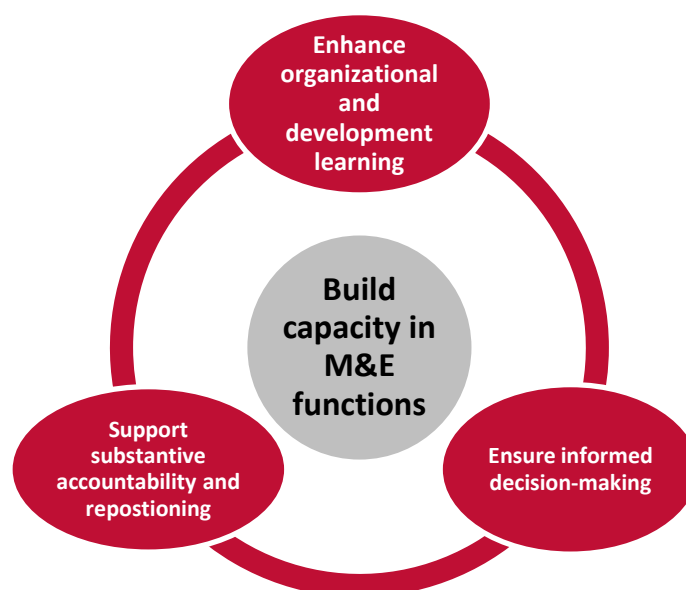
The internal monitoring and evaluation (M&E) of the project will be based on the working plan and an evaluation questionnaire. The "Internal Progress logbook", based on the working plan, measures the status of implementation:

- The working plan indicates the deadlines for the completion of each task, the logical precedence of tasks and the milestones (critical points) of the project implementation.
- The "Internal Progress logbook" shows when the different activities have been initiated, how they progress and when they are completed (see figure below).

Figure 8: Internal progress logbook (template)

	Tasks	Deliverables	Deadline	Main responsible	Comments	Status	Delivered to Eurostat on	Comments
			Technical Tasks					
Task 1		D.1:	T+N	EX1, EX2		Ongoing		
Sub-task 1.1						Done	mm/dd/yy	
Sub-task 1.2						Ongoing		
Task 2		D.2:	T+N	EX1, EX3		Not yet started		
Sub-task 2.1						Not yet started		
Sub-task 2.2						Not yet started		
			Project management tasks					
Task 0	Project Management		Continuous			Ongoing		
	Sub-task 0.1 Project monitoring	Doc Progress logbook		PD		Ongoing		
	Sub-task 0.2 Maintenance of a documentary database	D02: Documentary database		APM		Ongoing		
	Participation in kick off meeting	Agenda	T-6	PD, PM		Done	mm/dd/yy	
	Minutes of the kick off meeting	Minutes	T+1	PM		Done	mm/dd/yy	

The system for monitoring and evaluation implemented by the Consortium will clearly define the expected results, indicators, as well as required data and information during the kick-off meeting. Based on the evaluation, the system will allow for recommendations for the improvement of activities where and when necessary, as visualized below.

Figure 9: M&E System

5. Quality arrangements

Based on consortium's long lasting experience with various clients our priority will be to offer the best quality of management and assistance in order to achieve project's goals.

5.1. Quality factors

Quality management is a continuous process that starts and ends with the project. The Consultant's approach is more about preventing and avoiding than measuring and fixing poor quality outputs. Thus, the Consultant's quality assurance implies that the project and its various phases are continually tracked to ensure that the project will meet GCC-Stat's needs and expectation.

Our experience in managing and implementing GCC-Stat projects is that a small number of factors account for the success of the implementation. These are:

- The know-how and experience of the project team and its management, including the strategy for complementarity and replacement;
- A detailed preparation, just after the signature of the contract, during the so-called inception phase;
- The continuous availability, accessibility and usability of reference and project documents;
- The effective communication with the client;
- Effective and timely delivery of outputs;
- A correct monitoring and evaluation.

The actions to prevent and avoid problems during implementation are described below (see figure below). In addition, Table 6.1 details the actions for quality assurance related to these specific quality factors and is a guide for the implementation of the Consultant's internal Quality Assurance system.

Figure 10: Cause effect diagram for successful project implementation

Table 7: Quality factors and quality actions during the project implementation

Quality Factors	Quality Actions	Action by	
		GCC-Stat	Consortium
Know-how and experience of the Consultant and of the pool of experts	Ensure that all staff proposed has the adequate skills for the implementation of the project		•
	Define clearly the roles and tasks of each of the team members and assign specific individual objectives		•
	Manage the human resources of the team to ensure complementarity and replacement strategy		•
	Provide continuous backstopping support to experts		•
Detailed preparation/ inception phase	Realistic planning of the activities of the project (avoiding excessive workload or overlapping of tasks for the experts)		•
	Assign the necessary (financial and human) resources necessary for the implementation of the project		•
	Discuss project plan and team members' responsibility		•
	Approve project planning	•	•
	Test any specific tools required for the concrete project implementation		•
Availability, Quality and Use of Project documents	Prepare a checklist differentiating between essential reference and optional information (documents and datasets), indicating their availability and quality		•
	Make project documentation timely available to all team members	•	•
Effective communication with the client	Communication is established and the channels of communication are designated. An internal management team is assigned for all communication between GCC-Stat and the Consultant and *vice versa.*	•	•
Effective and timely provision and approval of deliverables	Ensure timely provision of deliverables. Ensure timely follow-up of the recommendations / comments received from GCC-Stat		•
	Ensure timely revision and/or approval or feedback on the deliverables	•	
	Ensure continuous work flows, by avoiding any time breaks in the implementation of the project	•	•
	Ensure that all deliverables are quality checked prior to the submission (the Consortium) and after the submission (GCC-Stat)	•	•
	Encourage the feedback from the contracting authority and other stakeholders	•	•
Effectiveness of the monitoring and evaluation activities	Prepare and update regularly reports and other supporting documents (work-plans, etc.) and discuss them with GCC-Stat	•	•

Quality Factors	Quality Actions	Action by	
		GCC-Stat	Consortium
	Timely inform the team members and/or the contracting authority of any project deviations (in terms of calendar, new actions commonly agreed with GCC-Stat, etc.)		•
	Ensure that key observations are identified for discussions during the meetings with GCC-Stat		•
	Ensure continuous process improvement by formulating conclusions and recommendations		•
	Collect feedback from GCC-Stat for the evaluation of the implementation	•	•

Specific arrangements for the communication management

Communications management concerns the protocols, modes, and channels to be used for exchanging project information and stating various types of requests. Depending on the importance and contractual relevance of the issue, the main means of communication will either be: *administrative reports, project meetings, telephone (including telephone conference), e-mail, or standard mail.*

One of the Consultant's general procedures that target quality is establishing the **designation of clear roles in the communication with GCC-Stat:**

Communication protocols	Contacts with the Client will be done only through DevStat's in-house management team as described in Section 4. This way it is ensured that the communication will be effective, and that it won't suffer any subjective bias and will be transmitted efficiently to the project team. Exceptionally, experts who participate in a mission may be requested to address some specific issue directly with GCC-Stat staff, especially at the request of the latter.

In order for the Consultant to maintain and foster the internal quality assurance system, it is crucial that the communication includes regular **feedback from the contracting authority**.

Feedback from the client	Quality should therefore be a recurrent topic on the agenda of the meetings between the Consultant and GCC-Stat.

To assure an efficient communication with the Client, the following **means** will be considered:

	• Reports / documentation that will be prepared during the implementation of the project with the aim to respond to specific operational requests from GCC-Stat (*e.g. minutes of Kick-off, progress and final meetings with GCC-Stat*)
	• Standard mail (delivered via courier) is to be used in all cases of formal confirmations or requests which directly concern contractual obligations, for example for requesting or approving a contract amendment, in accordance with the relevant terms and conditions of the contract.
Communication means	• Telephone / e-mail: issues which concern the implementation of a task rather than the substance of the contract itself will normally be dealt by e-mail or on the telephone.
	• Telephone conferences (or video-conferences) involving different parties can easily be arranged any time upon request. Arrangements made on the project work will always be agreed upon by mail, also if agreements are reached upon by telephone first. DevStat strongly supports video-conferences to minimize the environmental impact of the travel missions.

Specific arrangements for quality in Human Resources Management

The Consultant will put in place a dedicated team composed by in-house staff, management team from the consortium partners and external experts mobilized specifically for the project. The HR management is a key component of the successful implementation of a project, in particular where high-level expertise has to be combined with project-management skills. It implies deploying a team with the common goal of meeting the project objectives, being therefore able to offer high quality services to the Client.

Our actions to assure quality in managing the HR of a project are the following:

- **Shared vision**: all team members share and support a common vision that the team is working towards, one that inspires team members to extraordinary efforts when such efforts are required. Developing an inspiring vision is an essential first step to achieving high performance. This is achieved through a thorough **initial briefing** on the objectives and activities of the project, and **constant monitoring** of experts performance, difficulties and technical questions.

- **Deadline oriented**: the team operates under **specific internal deadlines** for achieving results.

- **Full communication**: the team makes efforts to make certain that everyone in the team understands the plan and progress towards its completion and has access to the relevant references.

- **Performance reviews**: the team stops at appropriate times to check the quality of its work. This is done to determine where the process could be improved and what learning can be shared with other team members.

- **Self-Directed**: high performance team members are self-directed. Management focuses the team on "what" needs to be achieved rather than how it will be achieved.

There are three particular issues of HR management to which DevStat, as leader of the consortium, pays careful attention: backstopping the experts, replacing personnel and ensuring confidentiality.

Backstopping the experts	The in-house team includes *backstopping staff* who can assist the experts in tasks such as bibliographical search, compilation and synthesis of documents, formatting documents, etc.
Replacing personnel	The Consortium has a substantial number of staff with relevant skills. The key issue in HR management is the risk of need to replace staff due to illness, changes of jobs of team members or other unforeseen causes of *force majeure*. In case of a need to replace a member of staff, he/she will normally be replaced by another expert who is equally qualified to carry out the respective tasks envisaged under the contract. The Consortium also holds a close network of experts besides their own employees. The planned replacement of a team member will be proposed in writing to GCC-Stat, explaining the reasons for replacement and detailing the suitability of the proposed replacement candidate. A formal client approval will be sought for any replacement. In case the proposed candidate is deemed not acceptable, alternatives will be suggested. The replacing personnel (expert or in-house) is briefed on the objectives and activities of the project, the status of implementation and his/her particular obligations.
Ensuring confidentiality	The Consultant warrants that confidential information will not be made public and that the reports themselves will not be made public unless GCC-Stat explicitly permits this. Experts and other team members are equally bound to confidentiality by their contracts with DevStat.

5.2. Assurance of the quality of the deliverables

In this section we discuss both the measures to ensure the quality of the deliverables and the mechanisms for ensuring linguistic and style quality requirements.

The quality aspects of a deliverable to which we give more importance are:

- Compliance with technical requirements
- Completeness
- Timeliness
- Editorial quality: readability, linguistic correctness, visibility and disclaimers

The quality of deliverables is the shared responsibility of all the staff involved in the project, and is based on updated and good quality documents of the project.

The quality control tools and procedures put-in-place are intended to ensure that all the deliverables reach the _same high level of quality_. The quality of the deliverables will be assured as described below.

Mechanisms for ensuring compliance of deliverables with technical requirements

The technical soundness of a document is mainly guaranteed by the expertise of the team. However, a quality assurance system is put in place through a double-checking of the (by the project managers and the project director). While the project director is responsible for checking and approving the quality of the technical contents of the deliverables, the project managers are more oriented in checking the quality of the deliverables in terms of general project management approach: e.g. adherence to the ToR requirements, responsiveness to other GCC-Stat's requirements, follow-up of the recommendations of other stakeholders, measures of improvements, etc.

Mechanisms for ensuring timeliness and punctuality of deliverables

Ensuring the punctuality of the deliverables is an essential issue for the success of the project. DevStat will use the following tools in order to ensure the punctuality of deliverables:

- The work plan discussed during the kick-off meeting, and
- The time schedule, as presented in Section 3.4.

Mechanisms for ensuring editorial quality

In order to ensure publication of deliverables which are user-friendly, understandable, concise and fit-for-use along the lines of GCC-Stat editorial style, while also providing fast updates, a review and validation process must be set up. This process will be applied to:

- Minutes of progress meetings;
- Milestones;
- Final report.

The Consortium will assign the edition and proof reading of all the reports to in-house personnel, native English speaker. Editing and proofreading will be performed according to the English style guide[4] before submitting the deliverables to GCC-Stat.

The English Reviser will edit the material into clear and engaging English, in order to improve readability and for high impact with the reader. The edition of the reports will also consider maintaining a consistent style among the study. For this, several principles will be considered:

- **Homogeneity**: uniformity of structure, of style and terminology will be maintained in all the reports. This principle is particularly important for ensuring comprehension of the overall contents.

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[4] http://ec.europa.eu/translation/english/guidelines/documents/styleguide_english_dgt_en.pdf

- **Consistency**: relates to (1) standardized terminology, (2) quantities, units and their symbols, (3) abbreviated terms; (4) bibliographical references; (5) numbering of tables and graphs; (6) template use for tables and graphs; (7) graphical symbols.

- **Accuracy and continuity**: Continuity will not only be checked for text, breaks and sections, but also for cross-references.

The linguistic revision will improve the flow of the text, for making it interesting, fluent and understandable for English and non-English speakers alike. All changes made by the proof-reader will be tracked and forwarded to the authors. The major changes will be justified and alternative suggestions will also be proposed. The authors of the texts will discuss with the linguistic reviser before finalizing a particular content.

6. Risk management

Risk management has the primary goal of identifying and responding to potential problems with sufficient lead-time to avoid crises, so that is possible for the project management to achieve its goal. In Section 1.2, the main risks associated to this project have been described, based on the experience of the Consortium.

Risk management needs a systematic planning at the beginning of the project and constant review and readjustment during the evolution of the project. The following generic steps are needed:

- Risk identification / Analysis
- Risk mitigation planning
- Risk tracking and control

The potential risks are measured after an analysis follows to assess the likelihood (low, medium or high), and impact (low, medium, high).

Risk mitigation plans include:

- Summarizing the technical and schedule implementation impacts for each alternative considered;
- Identifying the personnel responsible to manage the risk;
- Specifying criteria for closure of the specific risk activities;
- Outline recommended backup or contingency plans.

Risk monitoring and control are part of the daily execution of the project and therefore it is treated like any other management activity by being subject to reviews of assessments with the regular reporting.

6.1. Risks and assumptions

The following assumptions are made for the intervention logic of the project:

Assumption 1: GCC-Stat provides the overall support for the consultant in getting visa to enter the country.

Assumption 2: GCC-Stat supports the project team in assessing the current arrangements of GCC-Stat with six GCC countries by providing the necessary contacts in the later.

Assumption 3: GCC-Stat supports the project team in providing all necessary documentation in either English or Arabic.

Assumption 4: GCC member countries' statistical centers provide the relevant information at the national level.

The fulfillment of assumptions will be checked continuously during the project implementation, so that any remedial actions can be taken in a timely manner through consultation with GCC-Stat.

The table below summarizes the identified risks. Each risk is assessed through a likelihood (based on prior information) and an evaluation of impact. Both likelihood and impact are measured on a qualitative scale (L= Low, M= Medium, H= High).

Table 8: Risk and means to minimize them

Risks	Likelihood	Impact	Means to minimize
Carriers in getting visa for the project team members	M	H	Lobbying of the issue by GCC-Stat Public promotion of the project
GCC-Stat staff to some extent resist to changes and prefer to follow with the current arrangements	L	H	During the kick-off meeting the methodological approach will be discussed, feasibility study framework prepared and the work plan as well as time schedule updated based on the actual situation. Contact persons at GCC-Stat will be identified.
Poor information available on the current situation of the statistical system of GCC- Stat	M	H	The GCC-Stat will be asked to assist provision of necessary and relevant information and to cooperate closely. Experts will have adequate time to collect and prepare relevant information from different sources. If necessary, interviews with key staff should be held to complement the available information. On-site visits facilitated if necessary.
Competent persons of the top management are not available or are not willing to participate in the assessments / reviews	L	H	Starting to draft agendas in time and mobilizing the right discussion partners. Main project leader from the GCC-Stat to be early identified.
Delayed provision of final versions of reports due to delayed delivery of comments from GCC- Stat	L	H	All reports will be sent out for comments at the earliest stage of draft versions.
GCC member countries' statistical offices do not support change in procedures related to GCC statistics	M	H	Having 6 different countries with different stages of statistical development can hinder the adoption of common standards

7. Presentation of the consortium

7.1. DevStat

DevStat was established in 2003 and is an independent, private consultancy company located in Valencia, Spain. DevStat is focused on the implementation of international technical assistance projects in the field of statistics, statistical methodology support and processing of quantitative information where statistics intersect institutional strengthening and development, in a twofold aspect:

- Development of Statistics: strengthening statistical systems through technical assistance and capacity building
- Statistics for Development: producing high value-added statistical information, relevant for policy designs and socio-economic decision-making.

DevStat has participated in projects financed by multilateral entities and organisations such as Eurostat, and other European Commission directorates and agencies, the World Bank, the Inter-American Development Bank with public and private beneficiaries in various regions including GCC countries (State of Qatar, Sultanate of Oman). DevStat took part in the evaluation of the Community Statistical Programme 2008-2012, financed by Eurostat and currently the company is running the on-going round of assessments within the frame of the contract on "*Assessment of the statistical systems and selected statistical areas of the Enlargement and ENP countries*".

DevStat has provided consultancy services for EU member states, in Central and Eastern Europe, in Asia, North African countries, Latin American countries and some ACP countries as well as Middle East countries.

DevStat's team is composed of senior and junior statisticians and economists, including experienced project managers responsible for the implementation and backstopping of national and international projects. They are also qualified to provide short-term expertise. Apart from in-house staff, DevStat counts on a wide network of senior and junior free-lance experts; many of them with experience in National Statistical Offices and international organizations, covering all main areas of official statistics, such as macroeconomic statistics, social statistics, environment statistics, development statistics, demography, surveys and census implementation, business statistics, agriculture and fishery statistics, etc. DevStat cooperates with various partners, private and public, for specific projects.

The diversified experience within the field of statistics, along with the competence DevStat can count on from its network of experts and the good reputation, gained through the high quality services supplied, provide a crucial basis for the successful implementation of future projects.

The main assets of DevStat that qualify it for the implementation of the assignment in the project are capacities in providing the following services:

- Statistical Project Cycle Management (design, implementation, analysis and evaluation) of statistical surveys and other data collection operations;
- Statistical methodology development and methodological support for data analysis, interpretation, visualization and dissemination;
- Transfer of scientific knowledge to improve the performance of statistical systems in areas such as: statistic methodology, quality control, marketing, economics and econometrics, etc.;
- Design, implementation and evaluation of statistical training programmes: statistical techniques and models, legal framework, dissemination and visualization techniques, statistical disclosure control, marketing of statistical services, data analysis, use of statistical information for decision-making, etc.;
- Consultancy and design of national, regional or sectoral statistical programmes (Strategic and Operational plans);
- Assessment of the production capacity of National Statistical Systems, following the European Statistical System standards, IMF's GDDS and SDDS, etc.;
- Consultancy and design of marketing for statistical dissemination services.

List of successfully implemented and on-going projects

Project title	Client	Date (from-to)	Brief description
Project reference 1			
The provision of global assessments, sector reviews and light peer reviews for enlargement and ENP countries	European Commission, Eurostat	01/2015-12/2017 (on-going)	Conduction of 1 global assessment (assessing national statistical system (NSS) of Azerbaijan), 2 light peer reviews (reviewing countries' NSS against EU Code of Practice and international standards), 5 sector reviews (reviewing specific statistics domains of Palestine, Belarus, Tunisia) and preparation of 3 follow-up reports for previous implemented global assessments and peer reviews assessing implementation of recommendations
Project reference 2			
Improvement of regional statistics in the Republic of Moldova	EU Delegation to the Republic of Moldova	12/2014-10/2016 (ongoing)	Supporting Moldova in advancing its economic, social and territorial cohesion by providing technical assistance in development of systems to collect, process and make available regional statistics; in development of user-friendly

Project title	Client	Date (from-to)	Brief description
			applications for using and analyzing data; organization of study visits of staff of NSI Moldova to Eurostat, DG Regio and ESPON
Project reference 3			
Assessment of the statistical systems and selected statistical areas for enlargement and ENP countries	European Commission, Eurostat	01/2014-07/2016 (ongoing)	Conduction of 1 global assessment (assessing national statistical system (NSS) of Ukraine), 2 light peer reviews (reviewing countries' NSS against EU Code of Practice and international standards – Albania and Turkey), 8 sector reviews (reviewing specific statistics domains of Serbia, Montenegro, Albania, BiH, Armenia, Jordan, Belarus, Moldova) and preparation of 3 follow-up reports for previous implemented global assessments and peer reviews assessing implementation of recommendations
Project reference 4			
ICT statistics rolling reviews	ICT Qatar	02/2015-02/2016	Conduction of sector statistics reviews in the field of ICT statistics – IT, Telecommunications, Digital Media, Postal and e-commerce services. Gap assessment of ICT indicators Elaboration of recommendations on the improvement of statistical information of the mentioned sectors; on optimizing surveys, research instruments
Project reference 5			
Third European Company Survey "External data quality assessment"	Eurofound	07/2013-04/2014	Assessment of the quality of the survey against five ESS quality components (relevance, accuracy, timeliness and punctuality, accessibility and clarity, coherence and compatibility) in close observation of their specification in the ECS Quality Assurance Framework. Assessment of the quality covering the whole survey process – survey design, preparation of fieldwork, data collection and

Project title	Client	Date (from-to)	Brief description
			data processing.
Project reference 6			
Scientific data storage and transmission	European Commission, DG MARE	7/2013-9/2015	Presentation of the clear picture on the DCF data collection and their current usage and storage Development of scenarios for the future data storage and transmission setup reaching the general policy objectives aiming at improving the response to users' needs and providing easy, accessible, timely, complete, reliable and interconnected data.
Project reference 7			
Assistance for the monitoring of the implementation of national programmes for the collection, management and use of data in the fisheries sector	European Commission, DG MARE	8/2010-9/2014	Monitoring the implementation of national programmes for the collection, management and use of data. Further development of verification of data storage and access; verification of data completeness and quality; analysis of data transmission efficiency; and analysis of data processing quality
Project reference 8			
Analysis of ICT Usage in Business Survey	Information Technology Authority of the Sultanate of Oman	7-10/2012	Analysis of the data collected by the Information Technology Authority of the Sultanate of Oman on a sample of about 1,800 companies on the use of ICT by: evaluating the ICT status in the business sector; compiling ICT core indicators and determing the ICT Access gaps and identifying barriers to ICT access

Contacts for reference checking

Reference 1	
Organization Name and Location	Eurostat, European Commission, Luxembourg
Type of business	Provision of statistical services
Please provide the name, title, email address and phone number for the reference. This person should be able to speak to the relative success of your services on the Company/Organization	Ms Claudia Junker, Head of Unit, Contract manager, claudia.Junker@ec.europa.e, Unit A6 BECH B3/472 Jean Monnet Building Rue Alcide de Gasperi L-2920 LUXEMBOURG (Kirchberg)

Reference 2	
Organization Name and Location	GFA (consortium leader), Hamburg
Type of business	Provision of statistical services
Please provide the name, title, email address and phone number for the reference. This person should be able to speak to the relative success of your services on the Company/Organization	Ms Clarissa Harre, Contract manager, clarissa.harre@gfa-group.de, GFA Consulting Group GmbH Eulenkrugstrasse 82, 22359 Hamburg

Reference 3	
Organization Name and Location	Eurostat, European Commission, Luxembourg
Type of business	Public. Provision of statistical services
Please provide the name, title, email address and phone number for the reference. This person should be able to speak to the relative success of your services on the Company/Organization	Ms Claudia Junker, Head of Unit, Contract manager, claudia.Junker@ec.europa.e, Unit A6 BECH B3/472 Jean Monnet Building Rue Alcide de Gasperi L-2920 LUXEMBOURG (Kirchberg)

Reference 4	
Organization Name and Location	The Ministry of Information and Communications Technology (ictQATAR), Doha
Type of business	Public. Provision of statistical services
Please provide the name, title, email address and phone number for the reference. This person should be able to speak to the relative success of your services on the Company/Organization	Mr Sarath KT, Programme manager, skt@ict.gov.qa, +974 4499 4223

Reference 5	
Organization Name and Location	Eurofound, Dublin
Type of business	Public. Provision of statistical services
Please provide the name, title, email address and phone number for the reference. This person should be able to speak to the relative success of your services on the Company/Organization	Gijs van Houten Gijs.VanHouten@eurofound.europa.eu Telephone +353 1 204 3138 Eurofound, Wyattville Road, Loughlinstown, Dublin 18, Ireland.

Reference 6	
Organization Name and Location	DG-MARE, European Commission, Brussels
Type of business	Provision of statistical services
Please provide the name, title, email address and phone number for the	Ms Amelie Knapp, Science and policy officer, EC Directorate-General for Maritime Affaires and Fisheries

reference. This person should be able to speak to the relative success of your services on the Company/Organization	Unit MARE C-3 amelie.knapp@ec.europa.eu, +3222978727
Reference 7	
Organization Name and Location	DG-MARE, European Commission, Brussels
Type of business	Provision of statistical services
Please provide the name, title, email address and phone number for the reference. This person should be able to speak to the relative success of your services on the Company/Organization	Ms Amelie Knapp, Science and policy officer, EC Directorate-General for Maritime Affaires and Fisheries Unit MARE C-3 amelie.knapp@ec.europa.eu, +3222978727
Reference 8	
Organization Name and Location	Information Technology Authority of the Sultanate of Oman, Muscat
Type of business	Public. Provision of statistical services
Please provide the name, title, email address and phone number for the reference. This person should be able to speak to the relative success of your services on the Company/Organization	Mr Shariffa Mohammed Al Meskary, Director of International Relations and Information, nformation Technology Authority, shariffa.almeskary@ita.gov.om, +968 241 666 00

7.2. GlobCom

Established in 1998, Global Computers Services, in short GLOBCOM, has grown steadily to be a major IT Service Provider in the Sultanate of Oman, a fully Omani-owned company with a long history of the local business environment in general and the IT space. It has an aggressive Omanization policy which is evidenced by its over 52% Omanization rate.

GLOBCOM is ISO 9001:2008 certified on Sales, Provision of Infrastructure, Project Management & Consultancy services on IT Sector. Our services are powered by a unique Global Delivery Model that ensures the availability of talent and prompt responsiveness when addressing client needs. We combine deep industry knowledge and technical expertise to gain significant Return on Investment (ROI). Our experience in IT Consultancy and Services arena fully complements and strengthens our service spectrum and allows us to operate as an Enterprise-Class Solution Delivery Company.

GLOBCOM aims at providing high value services in IT Consulting (Software and Hardware), System Integration, Software Development, Software Support and Maintenance, IT Infrastructure Management Services, managing and enabling IT applications.

Infrastructure Management

Application Services

Consulting Services

Integration Services

GLOBCOM's IT Infrastructure Service Portfolio
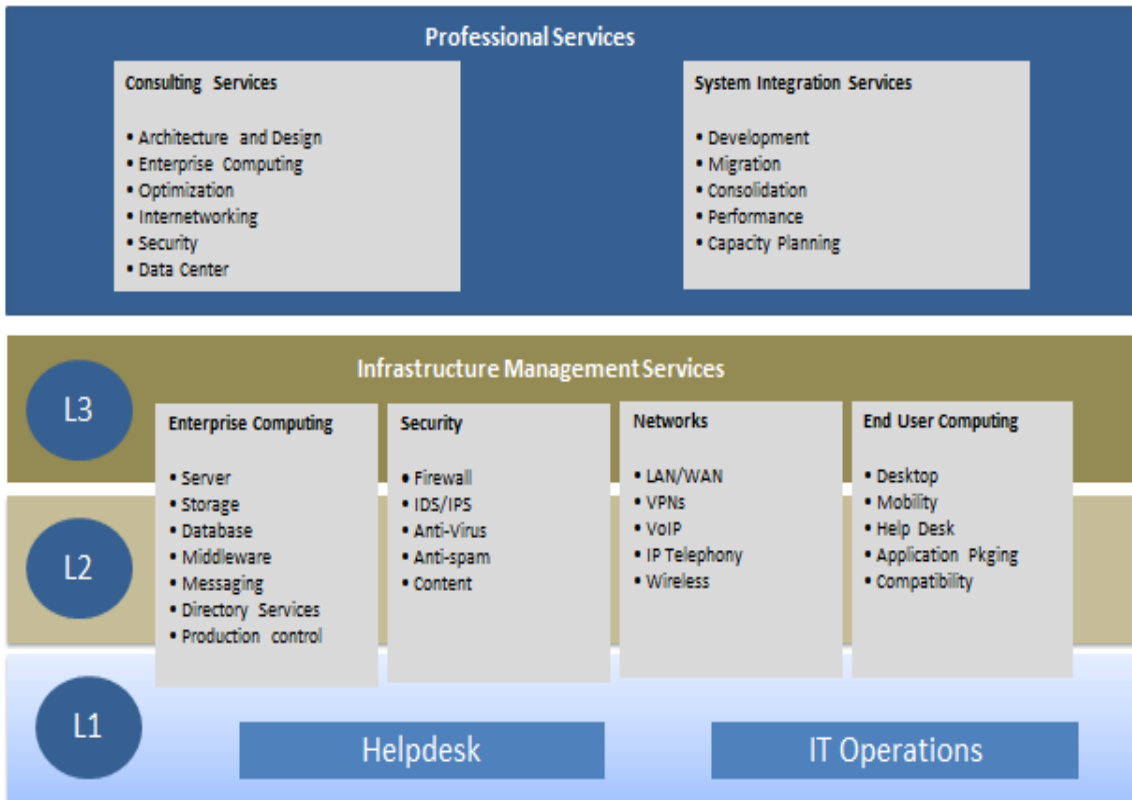
GLOBCOM has built business-critical systems for clients in a broad spectrum of industries. We specialize in developing reliable, high-performance applications that solve unique business problems. GLOBCOM works with clients that wish to enhance and upgrade existing custom applications due to the changes in the business processes or new needs, modifications or enhancements to the existing applications is required.

GLOBCOM offers a comprehensive set of Integration Services geared toward minimizing client's IT cost of ownership while providing seamless integration to your existing enterprise IT environment. GLOBCOM's Integration Services help to assess different technology strategies and align them with business processes. The Integration Services focus on IT technology and process consulting, the configuration and integration of new elements in the existing infrastructure to meet business goals.

GLOBCOM provides business solutions for distinguished clients within both the private and public sectors. Through careful research and analysis, we uncover the key pain points and develop custom solutions to address critical infrastructure challenges of our clients.

List of successfully implemented projects

Project title	Client	Date (from-to)	Brief description
Project reference 1			
IT Infrastructure Support	Oman Housing Bank	01/2016-01/2017 (ongoing)	> Domain Migration – Windows 2008 to Windows 2012 o Infrastructure Assessment and Consolidation > Exchange Migration – 2003 to 2016
Project reference 2			

IT Infrastructure Consolidation – Windows 8.1 Migration	Oman Air	07/2014-04/2016	Scope of Work:-
			> Group Policy Object Re-structuring
			  o Overview the exiting Group Policy
			  o Provide GAP analysis based on best industry practices
			  o Review Active Directory, Network, Security and IT requirements
			> SCCM Migration 2007 to 2012
			> Application Compatibility Testing & Hardware Compatibility Assessment.
			  o Setup ACT Environment
			  o Conduct Hardware and Software assessment
			  o Report Hardware compatibility report and recommendations
			  o Hardware Compatibility Assessment
			> AppV Setup and Application packaging & distribution
			> VDI Setup and deployment
			> Image Building
			> Windows 8 Migration

Project reference 3			
ICT Survey for ITA	ITA, Sultanate of Oman	04/2013-12/2013	Survey on "Access to, and Use of Information and Communication Technology (ICT) by Households and Individuals" in Oman. > Developed Mobile Application for collection of data & Field Survey data encoding & Data Analysis

Contacts for reference checking

Reference 1	
Organization Name and Location	Oman Housing Bank
Type of business	IT Support Services
Please provide the name, title, email address and phone number for the reference. This person should be able to speak to the relative success of your services on the Company/Organization	Ibrahim Al Khussibi, Deputy Manager (IT), Ibrahim@ohb.co.om, Oman Housing Bank, Sultanate of Oman

Reference 2	
Organization Name and Location	Oman Air, Sultanate of Oman
Type of business	Airlines
Please provide the name, title, email address and phone number for the reference. This person should be able to speak to the relative success of your services on the Company/Organization	Mr. Maqbool Al Maimani, Sr. Manager, IT Infrastructure Services, Maqbool.Almaimani@omanair.com, Oman Air Head Quarters, SEEB, Muscat, Sultanate of Oman
Reference 3	
Organization Name and Location	Information Technology Authority
Type of business	IT
Please provide the name, title, email address and phone number for the reference. This person should be able to speak to the relative success of your services on the Company/Organization	Shariffa AL Meskary, Director of International Relations & Information, Information Technology Authority (ITA), KOM 4, Sultanate of Oman.