**Quality management system in the Agency for statistics of Bosnia and Herzegovina – implementation of CAF model, experiences and future challenges**

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**Abstract:**

*Quality plays crucial role for production of official statistics by National Statistical Institutes (NSIs). Statistically speaking, production of high-quality data requires, in the first stage, use of systematic approach in setting up proper quality management system in NSIs. Modernisation of the processes, technologies and complexity of society are the major challenges for NSIs, in general, especially for NSIs of developing countries like Bosnia and Herzegovina (B&H). Based on adopted Strategy for Development of Statistics in B&H 2020, as first step in the systematic approach to quality management, Agency for statistics of Bosnia and Herzegovina (BHAS) implemented Common Assessment Framework (CAF) model of excellence in 2016 as a tool for Total Quality Management (TQM).*

*The aim of this paper is to present experiences in CAF implementation in BHAS, key activities defined, their implementation as well as effects of CAF implementation in BHAS on statistical system in B&H. This paper will also be focused on impact of CAF findings in implementation of the European Statistics Code of Practice (EU CoP) and other tools (user satisfaction surveys, staff satisfaction surveys, etc.) for quality management system in BHAS. As conclusion, the challenges and perspectives for future work on quality improvement in BHAS and entity statistical institutions, as parts of statistical system in B&H, will be presented.*

**Keywords:** Model of excellence, Quality, Official statistics, Quality management system

**1. Introduction**

Official statistics serves as one of the main data sources in the country and usually represents the basis for decision – making. Quality plays a very important role in statistics. Modernization of the processes in society is also reflected on the quality of the processes in official statistics. Technology development and the application of modern technological solutions in official statistics also lead to an increase of needs and expectations of data users. Contemporary development of statistics requires from official statistical institutions to focus on data users (a user-oriented approach) by providing accurate, timely and reliable statistics. For this purpose, the implementation of a systematic quality management requires standardization of the processes in statistics, respecting the official quality principles. As an imperative, the need for redesign of statistical processes is imposed (through the methods of their implementation, the implementation of detailed and systematic analysis and their monitoring). Quality management in official statistics means ensuring the quality of the processes in general, with a focus on statistical processes, commitment to improving the quality of statistical outputs (data) and the institutional environment.

This paper will describe the way of quality management in the Agency for statistics of B&H (BHAS), as well as the basic results on the example of Common Assessment Framework (CAF, 2013) implementation and Users’ Satisfaction Survey for B&H. The basics plans and recommendations for future work regarding the quality management in Agency for statistics B&H will be given at the end of this paper. Taking into account the complexity of statistical system in B&H, quality management in BHAS depends, to a large extent, on the quality management in the entity statistical institutions.

**2. Quality management in BHAS**

*2.1. Quality management policy in BHAS*

Implementation of a quality policies is a long-term process and requires coordinated approach between the actors within each process, with full engagement of all available resources. The Agency for statistics of B&H is the most important statistical institution within statistical system of B&H. Through defined mission, vision and values[[1]](#footnote-1), BHAS is dedicated to ensuring the quality of statistical processes and products in accordance with the principles of EU Code of Practice (EU CoP, 2011). Also, through defined main goals and strategic priorities, the focus is placed on production of high quality statistics. Implementation of quality principles from the EU CoP in the official statistics of B&H implies the systematic approach in quality management. In other words, pursuant to the *Law on Statistics of B&H* (“Official gazette of B&H“, No 26/2004 and 42/2004), *B&H Statistical Development Strategy 2020* (December, 2013), *Statistical Programme of B&H 2013-2016, 2016 – 2018 and 2018 - 2020[[2]](#footnote-2)*, as well as to other relevant documents, and relying on the *Declaration on the quality of European Statistical System*, *EU CoP,* the recommendations of *EUROSTAT The Leadership Expert Group (LEG)* that refer to system of quality management of processes (Lyberg, *et al*., 2001), *Eurostat’s Quality Assurance Framework (QAF, 2015)* and other documents on internationally accepted good practices, BHAS is committed to consistent esteem and implementation of the quality policy that is also based on the principles of Total Quality Management Model (TQM). In order to monitor the quality of statistical processes and products, BHAS is responsible for ensuring the application of unique methodologies, statistical standards, classifications and official quality principles in the production of statistical indicators. Maintaining the desired level of quality in processes and products for the B&H level by BHAS relies in part on the quality of processes and products at the entity level statistical institutions.

*2.2. Priorities and implementation of Quality management policy in BHAS*

BHAS quality policy is fully integrated in the European and international framework. Quality management policy is established in BHAS, in statistical system of B&H as well as at the levels of statistical processes and statistical products. Implementation of quality management in BHAS can be shown graphically as follows:

**Graph 1. Implementation of Quality Management in BHAS**

**Implementation in BHAS**

**Model and framework of quality management**

**Explanations**

**CAF**
Common Assesment Framework

**TQM – Total Quality Management**

a) Monitoring of statistical processes and products quality;

b) Users satisfaction with statistical data;

c) Strenghtening of cooperation with data providers (reducing respodents burden);

d) Rational usage of resourses available and

e) Professional orientation of personnel (education, motivation and satisfaction).

Process of self-ssessment identifies and monitors all organisation results, provides feedback on organisational capacity and results of policy and planning processes. Scoring tool: 9 criteria and 28 subcriteria.

**Institutional frameworks for quality**

General superstructures, but less holistic then TQM

Quality of institutional environment:

Quality of statistical process

Quality of statistical product

**CoP**

EU CoP

**Framework for ensuring the quality**

Detailed guidlines for ensuring the quality of key statistical products; focus on individual statististical domains, not on quality of statistical system in general.

Statistical product (Quality Report, indicators)

Production process (Description of process)

Users Perception (Satisfaction survey)

 **QAF**

Source: “Quality management policy in BHAS” (internal document)

According to adopted “Quality management policy in BHAS” in 2016, the main priorities defined with the purpose to establish efficient quality management system in BHAS are: implementation of EU CoP and EU Quality Assurance Framework (QAF), application of the quality management model according to principles of Total Quality Management (TQM), implementation of self-assessment according to EFQM principles and by using Common Assessment Framework (CAF) as an EFQM tool, development of mechanism for monitoring the quality, controls and management as well as implementation of quality reports for all statistical surveys and development of metadata system in BHAS. In 2011, the Global Assessment of the Statistical System in B&H[[3]](#footnote-3) was performed by Eurostat’s experts whose findings greatly contributed to the assessment of the quality levels in the B&H statistical system and future directions for their improvement. These findings have been used to determine future ways of quality management in BHAS and methodology harmonization with the aim of ensuring the quality of statistical products and processes. For the purpose of ensuring the implementation of a systematic approach to quality management in BHAS, a top-down approach was applied, which, following the principles of EFQM, led to the implementation of CAF in BHAS in 2016. Also, BHAS officially adopted the implementation of the EU CoP principles in 2012, and began with their implementation through statistical processes and products. BHAS provides outputs and services in compliance with EU CoP. Since 2016, Euro SDMX Metadata Structure (ESMS) has been applied, leading to the development of metadata files, their updating on the BHAS[[4]](#footnote-4) website and sending to Eurostat by using the ESS Metadata Handler. Since 2012, there has been a regular practice of preparing quality reports[[5]](#footnote-5) for approximately 20 statistical surveys which are being prepared/updated each year with the aim of presenting the quality of produced statistical products (indicators). In regular biannual periodicity, surveys on Users’ satisfaction[[6]](#footnote-6) and Employee satisfaction have been conducted, whose results are used to improve the quality of products and processes in BHAS. In addition, Eurostat conducted Sector review for Business statistics and LFS in BHAS, and preparations for the Peer Review are underway, whose implementation is expected in 2019. The next part of the paper will describe the experience in conducting the CAF in BHAS, the results achieved by CAF implementation, as well as the future plans for the CAF implementation. Considering that one of the 15 key activities defined through the CAF is "Preparation of a plan for improving the quality of BHAS products and services by using the results from the Users’ Satisfaction Survey", this paper will briefly describe the basic results of this research and their effects on quality in BHAS.

**3. Self-assessment based on EFQM – CAF implementation in BHAS**

*3.1. Process of introducing CAF in BHAS*

CAF is EFQM Excellence model which was implemented by BHAS during 2016, in cooperation with a number of public institutions in B&H, and with support of the Public Administration Reform Coordinator’s Office (PARCO) of B&H which is responsible for introduction of one of the TQM models. This is very significant step in systematic approach of quality management in BHAS. Due to specificity of official statistics, the CAF as EFQM tool is more dedicated to internal management process while the EU CoP is more dedicated to statistical production process. BHAS has made significant changes in the past few years and has improved the quality of processes. The objective of the CAF implementation is to achieve self-assessment of strengths and weaknesses through objective approach, as well as to detect areas in which further changes and improvements in organizational processes need to be made, improvement of knowledge and skills, as well as strengthening relations with users by providing complete, reliable and timely data, and maintaining constant communication and consultations with users. For the purpose of CAF implementation in BHAS, the director of BHAS decided to appoint a Working Group (WG), comprised of the president of the WG, the secretary and 6 members. During the selection process of the WG members, a high level of representation of the whole organisation was achieved with the involvement of representatives of all organizational units in BHAS, with different levels of responsibility, experience and gender. During the self-assessment process, the newly elected management of BHAS provided support in the implementation of the CAF, and the CAF report served to management as a good basis for better understanding of the situation and processes in BHAS. During May and June 2016, a self-assessment of all 9 criteria and 28 sub-criteria was successfully completed, while the prioritization seminar was completed in September 2016.

*3.2. CAF activities in BHAS*

During the process of CAF implementation, WG has identified 135 activities within 5 criteria related to *enablers*, as follows: leadership (25), strategy and planning (17), people (22), partnership and resources (25) and processes (9) as well as *results*: citizens/customer oriented results (14), people results (7), social responsibility results (5) and key performance results (11). Most of the suggested activities are related to adoption of appropriate internal acts and prescribing of procedures which will clearly define certain processes within BHAS, the role of each employee, communication between employees, as well as communication between employees and BHAS management. The lowest CAF scores are given to sub-criteria 1.3 - Motivate and support people in the organisation (score 25), sub-criteria 1.2 - Manage the organisation and 8.2 – Social responsibility (performance measurement) (score 30). The highest CAF scores, according to CAF model, are given to sub-criteria 2.1 and 4.3 related to needs on stakeholders and manage finances (score 65) and sub-criteria 2.2, 4.2, 4.5 and 5.2 (score 60), related to development of strategy and planning, partnership with customers, manage technology and development of customer-oriented products.

**Graph 2. Sub-criteria (SC) with lowest and highest CAF scores in BHAS**



Source: “CAF Self-assessment report in BHAS, 2016” (internal document)

15 *quick wins* and 16 *key activities* were chosen in the prioritization process. The highest number of *quick wins* (5), out of 15 as total, are related to leadership, followed by people/employment, resources, etc. Again, 4 *key activities*, out of 16, are related to leadership, followed by 3 activities on resources and processes, while the others are related to the rest of CAF criteria.

**Graph 3. Radar of CAF 2016 results in BHAS, by CAF criteria**

Source: “CAF Self-assessment report in BHAS, 2016” (internal document, Author’s own work)

To achieve most of the implementation of CAF improvement actions, WG chose a suitable and consistent approach that implied owner of defined activity, activity leader, team to carry out the activity, defined area for work improvement, specified limitations and human resources required (estimated working days), resources needed, product/service that will result from activity realization, start date and end date of activity realization. Implementation of CAF action plans facilitates the permanent use of management tools such as user and staff satisfaction surveys, performance management systems, etc. WG coordinator has constantly reported all BHAS employees and management on all phases of CAF implementation, responsible persons, deadlines for realisation, and activity status.

*3.3. CAF results achieved*

During 2017, most of the activities defined as quick wins or key activities were realised, or are in process of realisation, while the implementation of a small number of activities is planned during 2018. Implementation status of defined activities in BHAS at the end of 2017 is as follows: quick wins (9 fully realized i.e. 60%, 5 in progress i.e. 33.3% and 1 to be realized by the mid of 2018 i.e. 6.7%) while for the key activities (6 fully realized i.e. 37.5%, 5 in progress i.e. 31.25% and 5 to be realized in near future i.e. 31.25%). By realization of defined *quick wins* activities, the following results are achieved:

* a set of documents has been created which clearly defines certain procedures,
* accelerated processes of important documents approval,
* duties and responsibilities of staff are defined more precisely, communication between staff and management is improved,
* activities/work become more transparent,
* management meeting with staff are more frequently organized,
* the number of trainings of staff in BHAS is increased (internal and external),
* CAF activity is analysed and the realization plan is prepared.

Improvements in BHAS made on the basis of defined *key activities* are:

* defined some of important strategic documents (internal acts to prevent conflicts of interest, draft amendments to the Law on statistics prepared, access to some important administrative data sources realized (VAT database),
* developed the Strategy for risks management in BHAS,
* defined Procedures on Financial management and control, etc.

Regarding the compatibility of the EU CoP through CAF, BHAS has mapped all indicators of the EU CoP to the EFQM - CAF Excellence Model criteria and sub-criteria. This has greatly made easier answering the questions in Chapter 18 – Statistics, within the Questionnaire for accession of B&H to EU, as well as preparing the answers for the upcoming Peer Review. Activities defined through adopted Action plan for the establishment and development of Financial Management and Control in BHAS are, to a large extent, consistent with activities defined in Action plan in CAF.

*3.4. Users’ Satisfaction Survey in BHAS (USS)*

Users’ Satisfaction surveys contributes to measurement the quality of all statistics and surveys in specific statistical domains and they are usually carried out on the Internet (Baigorri, Junker, 2010). In sub-criteria 6.1, within the criteria 6 - Customer-oriented results, activity: „Preparation of a plan for improvement the quality of BHAS products and services by using the results from the Users’ Satisfaction Survey” has been defined as one of the 15 *quick win* activities in BHAS. Results of this survey provided improvements of data quality and quality of services offered by BHAS, in segments for which the users were least satisfied. Survey was conducted in 2017 and the questionnaire contained 17 questions which covered the following topics: usage and quality of statistical data, usage and satisfaction with BHAS website, satisfaction with the employees and the quality of services, quality assessment of statistical data and demographic characteristics of users. The basic benefits of implementation USS findings in BHAS are as follows: intensified communication with users of statistical data (dedication to users, meetings with key users), improved quality of service based on user's comments (BHAS created new website, availability of databases in appropriate formats on new web site, calendar of publication, data available via social networks, etc.), identified areas for improving the quality of statistics through timeliness, accessibility, accuracy and reliability, comparability and relevance to fulfil user needs (deadlines for publishing statistical results, changed the periodicity of producing some statistical indicators (from quarterly to monthly), publishing quality and metadata reports for all published indicators, modernization of data collection process, greater use of administrative data sources, i.e. VAT database on financial turnover, etc.).

**4. Challenges and perspectives for future work on quality improvement in BHAS**

BHAS is fully dedicated to improving the quality of statistical products and processes through all their aspects, in order to ensure stable development of statistics in B&H according to EU CoP and EU regulations. BHAS Quality policy represents a good basis for future development and improvement the quality of products and processes in BHAS. Organisational and statistical processes in BHAS are improved, and some progress has been made in communication with data users. However, the quality of products and processes is still not at an enviable level. It is necessary to work much more intensively in the following period on the improvement of quality in BHAS. The key *challenges* of the future improvement of the quality of products, processes and institutional environment in BHAS are as follows: complex administrative organisation of the statistical system in B&H, insufficient use of IT solutions with the aim to enhance the quality of production process and output, inadequate number of staff in all three statistical institutions, in particular qualified methodologists, statisticians and IT experts, insufficient awareness on the significance and role of statistics in B&H society, both by the statistics users and by the decisions makers, and implementation of Peer review in BHAS.

The future *perspectives* of the quality improvement in BHAS are as follows: involvement and contribution of the entity statistical institutions in the quality management of BHAS, ensuring the level of quality through standardisation or processes in BHAS through full implementation of the GSBPM model, implementation of Internal Quality Audit, continuation of conducting self-assessment by using CAF tools in the biannual period, as well as implementation of all activities defined by CAF 2016, strengthening cooperation with data users through continuing of conducting USS implementation in BHAS, and implementation of their recommendations, intensive use of administrative data sources in statistical purposes with aim to improve data quality and reduce response burden, improvement of IT system in BHAS (by using electronic data collection, use of statistical software, modernisation of data dissemination, etc).

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