

IMPLEMENTATION OF THE TOTAL QUALITY MANAGEMENT MODEL IN THE CROATIAN BUREAU OF STATISTICS

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FOREWORD

The Croatian Bureau of Statistics (hereinafter referred to as: the CBS) has been committed to the quality of statistical processes, products and services. In an effort to continuously improve their operations and at the initiative of Eurostat, since 2010, the CBS has been more intensively involved in EU working groups dedicated to quality. At that time, the first expert review of the Croatian statistical system was conducted, the so-called Light Peer Review, which referred to the first six principles and the fifteenth principle of the European Statistics Code of Practice 2010, meaning that out of a total of fifteen principles of the former version of the European Statistics Code of Practice, seven principles were reviewed. After the expert review, the expert commission for the Peer Review submitted recommendations, based on the analysis, on what needs to be improved in the statistical system of the Republic of Croatia in the next five-year period.

During the time when the Republic of Croatia was an EU candidate country, the CBS, through the implementation of the IPA 2009 project: Quality Management System and Documentation of the Quality of Statistical Surveys – component “compiling documentation on data quality”, began to systematically organise the quality management of statistical processes, products and services. Thanks to the successful realisation of the project, the Total Quality Management model was established, as the conducted analyses showed that this model will work best in practice and that it is the closest to the well-established operations of the CBS.

Since quality has taken priority in European statistics, the CBS has fully focused all its activities on the application of European recommendations and prescribed quality standards of the European Statistical System. In order to get a general picture of the quality in official statistics, several continuous activities of the CBS are highlighted, as follows:

- establishing the Generic Statistical Business Process Model (hereinafter referred to as: the GSBPM) for the purpose of organising the entire documentation of statistical surveys in one place
- improving the functionality of the POMI central quality database for preparing and reporting on the quality of statistical processes and products
- creating a special section on the CBS website dedicated to quality.

In the end, it can be concluded that the quality of statistical products and services is extremely important for the production of official statistics and a permanent commitment of the CBS, which will be continuously worked on and improved.

DIRECTOR GENERAL

Lidija Brković

ABBREVIATIONS

CoP	European Statistics Code of Practice
CBS	Croatian Bureau of Statistics
ESS	European Statistical System
ESSC	European Statistical System Committee
ESTP	European Statistical Training Programme
EU	European Union
GPP	Annual Implementation Plan of Statistical Activities of the Republic of Croatia
GSBPM	Generic Statistical Business Process Model
IPA	Instrument for Pre-Accession Assistance
IT	Information technologies
ISIS	Integrated Statistical Information System
MS	Microsoft
NKD	National Classification of Activities
PDCA	P lan – D o – C ontrol – A ct cycle
TQM	Total Quality Management
SAS	Statistical Analysis System
SCB	Statistics Sweden
SIDA	Swedish International Development Cooperation Agency
SSPP	Project Implementation Department
TQM	Total Quality Management
UN	United Nations

INTRODUCTION

The activities of the CBS related to quality improvement are focused on all qualitative aspects of statistical processes and statistical products that are continuously developed in accordance with the recommendations of the European Union (hereinafter referred to as: EU).

The availability of high-quality and timely statistical data is necessary for the development of economic and social policy measures related to the fulfilment of the set objectives and monitoring the effects of individual policy measures. After joining the EU, in addition to the national development goals, the Republic of Croatia has continuously invested efforts in achieving the EU common strategic goals, which is an additional challenge in terms of the quality and structural characteristics of statistical data.

The CBS also undertook to provide an optimal level of operations, to apply statistical methods in accordance with internationally recognised principles and standards, and to continuously conduct analyses to improve the quality of statistical processes and statistical products. When implementing the European Statistics Code of Practice, the CBS, as well as other national statistical institutes of EU Member States, adheres to the principles and standards for the production and distribution of quality statistical data.

Internal organisation of the CBS

Regulation on the Internal Organisation of the Croatian Bureau of Statistics (NN, No. 97/20) created preconditions for a successful realisation of strategic goals of official statistics defined by the Development Strategy of Official Statistics of the Republic of Croatia 2021 – 2030 (NN, No. 29/22), the Programme of Statistical Activities of the Republic of Croatia 2021 – 2027 and the Annual Implementation Plan (hereinafter referred to as: the GPP), which are regularly adopted in the prescribed dynamics on the basis of the Official Statistics Act (NN, No. 25/20).

The establishment of nine directorates¹, together with the Strategic Development of Statistical System Department, ensured a smooth flow of information across all organisational units, for the purpose of improving the quality of the CBS operations, which is based on five TQM pillars. In addition, for the purpose of strengthening the quality of the CBS operations, within the Quality, Statistical Standards and Geoinformation System Development Department, a business segment was established that deals with the management and quality of statistical products and processes using the POMI Quality Database as a basic tool for quality monitoring. The POMI database contains all surveys from the GPP; therefore, the Quality, Statistical Standards and Geoinformation System Development Department, in cooperation with other organisational units responsible for statistical data production, applies a quality management model in the CBS that is focused on the quality of statistical products and optimisation of statistical processes. The standards of the European Statistical System for quality management of statistical products and processes as well as the principles of the European Statistics Code of Practice are also monitored and applied at the CBS level.

¹ [Organisation chart of the CBS](#)

Mission

The statistical system of the Republic of Croatia produces unbiased statistical data on social and economic processes, thus providing a factual framework for observing and analysing the situation in the society and economy and for directing the policies related to the development of the policies of the European Union.

Vision

Relevant, contemporary and innovative statistics that credibly show the state of social and economic phenomena.

The Croatian statistical system provides access to a wide range of internationally comparable and standardised information on socio-economic trends in the Republic of Croatia by applying the best international practices in terms of data collection, processing and publication, as well as the principles of efficiency, user orientation and continuous investment in the development and improvement of human resources.

Official statistics

The CBS is the central authority, the main producer, disseminator and coordinator of the official statistical system of the Republic of Croatia and as the main representative of the national statistical system before the European and international bodies competent for statistics.

Official statistics are developed, produced and disseminated on the basis of fundamental statistical principles defined by Regulation (EC) No 223/2009 of the European Parliament and of the Council of 11 March 2009 on European Statistics. The fundamental principles of official statistics are the following:

- (a) **professional independence** – official statistics are developed, produced and disseminated independently of political or interest groups, especially in connection with the selection of techniques, definitions, methodologies and data sources as well as the arrangement and content of all forms of dissemination.
- (b) **impartiality** – official statistics are transparently developed, produced and disseminated so that all users are approached in the same way.
- (c) **objectivity** – official statistics are developed, produced and disseminated on a systematic, reliable and impartial basis, while applying professional and ethical standards.
- (d) **reliability** – official statistics reflect observed phenomena as faithfully, accurately and consistently as possible, whereby scientific criteria are applied to the selection of sources, methods and procedures.
- (e) **statistical confidentiality** – confidential data collected directly for statistical purposes or indirectly from administrative or other sources are protected and the use of collected statistical data for non-statistical purposes and their illegal handling is prohibited.
- (f) **cost effectiveness** – the costs of official statistics production must be proportionate to the importance of the target result and benefits, resources must be used optimally, and the burden on reporting units must be minimised. Whenever possible, the requested data should be produced based on already existing data sources.

Official statistics refer to quantitative and qualitative, aggregate and representative data and information that describe phenomena in the observed population in accordance with valid regulations governing official statistics in the Republic of Croatia. Official statistics provide impartial statistical data to the government, economy and the public on economic, demographic, social, health and environmental status of a country, the activities or events that can be measured by statistical methods, and ensure that the international obligations of the Republic of Croatia relating to the production and dissemination of official statistics are met. Its purpose is the continuous production and dissemination of quality statistical data and the development of the official statistics system in accordance with the fundamental principles of official statistics established by regulations in the field of statistics, the Fundamental Principles of Official Statistics adopted by the United Nations and the European Statistics Code of Practice.

The Official Statistics Act regulates the organisation and coordination of the official statistics system, the competence and management of the CBS, the development and planning of the implementation of the activities of official statistics in the Republic of Croatia, the collection of data, the processing and storage of statistical material, the organisation and management of statistical registers, the dissemination and use of statistical data, the protection of confidential data collected for the production of official statistics, international statistical cooperation and other issues important for official statistics.

Values

In order to achieve the planned mission and vision, the statistical system starts from two fundamental values, as follows:

- production and publishing of high-quality, objective and timely statistical data
- continuous cooperation of all producers of official statistics in the country and abroad for the purpose of achieving the best possible results.

European Statistics Code of Practice

The European Statistics Code of Practice (hereinafter referred to as: CoP) is a key element of the quality framework and sets standards for the development, production and dissemination of European statistics. It defines a total of 16 principles covering the institutional environment, in which European and national statistical authorities operate, as well as statistical processes and statistical outputs.

The CoP aims to ensure that statistics produced within the European Statistical System (hereinafter referred to as: the ESS) are relevant, timely and accurate, and that they comply with the principles of professional independence, impartiality and objectivity. A set of indicators of best practices and standards for each of the principles provides guidance and reference for reviewing the implementation of the CoP.

The CBS has accepted the CoP, which is fully aligned with the UN Fundamental Principles of Official Statistics² and with national and European legislation.

² Accessed via: https://unstats.un.org/unsd/dnss/hb/E-fundamental%20principles_A4-WEB.pdf (on 9 March 2022)

1 Total Quality Management – TQM

The application of the TQM model since 2015 has proven to be a good choice in the statistical environment because it implies a focus on users and continuous improvement of the quality of statistical products, processes and services. All employees of the CBS in all organisational units are engaged in the application of this model.

The aim of the TQM is to constantly work on improving the quality of statistical products, services and processes for users.

The main advantage of the TQM is in observing the entire statistical system as a series of intertwined processes and sub-processes, where quality plays the most important role. By establishing this model in the organisational system of the CBS, greater user satisfaction and a better perception of statistics in the society was achieved.

In order to establish the highest level of quality, the CBS has established a management model in accordance with the principles of the TQM. This comprehensive quality document deals with quality through the entire organisational structure.

The principles and main goals of the CBS according to the TQM are the following:

- 1) quality of statistical processes, products and services
- 2) satisfied statistical data users
- 3) reduced burden on respondents (establishment of good communication with respondents)
- 4) effectiveness of statistical processes (internal productivity)
- 5) vocational guidance of employees (training, motivation and satisfaction).

The established TQM model is continuously developed depending on feedback and practical results with the aim of continuous improvement. In order to be able to monitor the development component through the generic design of projects, measures to achieve the goals were defined for each area of the TQM. The CBS prepared standardised documentation in accordance with Eurostat's recommendations.

Following the adapted national structure of the generic statistical business process model, detailed documentation for internal needs is continuously prepared in Croatian language, while the information provided to users are available in Croatian and English, namely information on the concepts, definitions and applied methods, as well as the level of quality of statistical data (metainformation) in a standardised format.

Applying the European quality principles, such as relevance, accuracy, timeliness and punctuality, coherence and comparability, and accessibility and clarity, a framework was established for continuous quality assessment of statistical processes, statistical products and services both within the CBS as an expert authority and towards the producers of official statistics and external participants of the statistical system, whether they are reporting units or users of statistical data.

The total quality management framework in the CBS is focused on the five main quality pillars.

The basis of these pillars are the organisational values of the CBS, since the pillars are supported by these values. These values are transparency, commitment to user satisfaction with statistical products and services, and commitment to creating an environment in which employees can dedicate themselves to the institution they work for.

These quality pillars point to the continuous improvement of the quality culture that exists in the CBS.

The three basic elements for maintaining the five quality pillars of the CBS are as follows:

- There is a clear understanding of what is working well and what can be improved. As a result, the pillars become the centre of activities in the work of every employee.
- There is an awareness of the direction in which the organisation wants to go. The CBS has a vision for the future. The vision of the CBS is a kind of a lighthouse that directs all business processes and sub-processes.
- There are planning documents in the form of a set of guidelines that regulate progress in the entire implementation process. In order for this document to enable the implementation of quality principles in practice, and in order to meet the needs of the organisation that are driven by a changing environment, this document is regularly controlled, updated and amended.

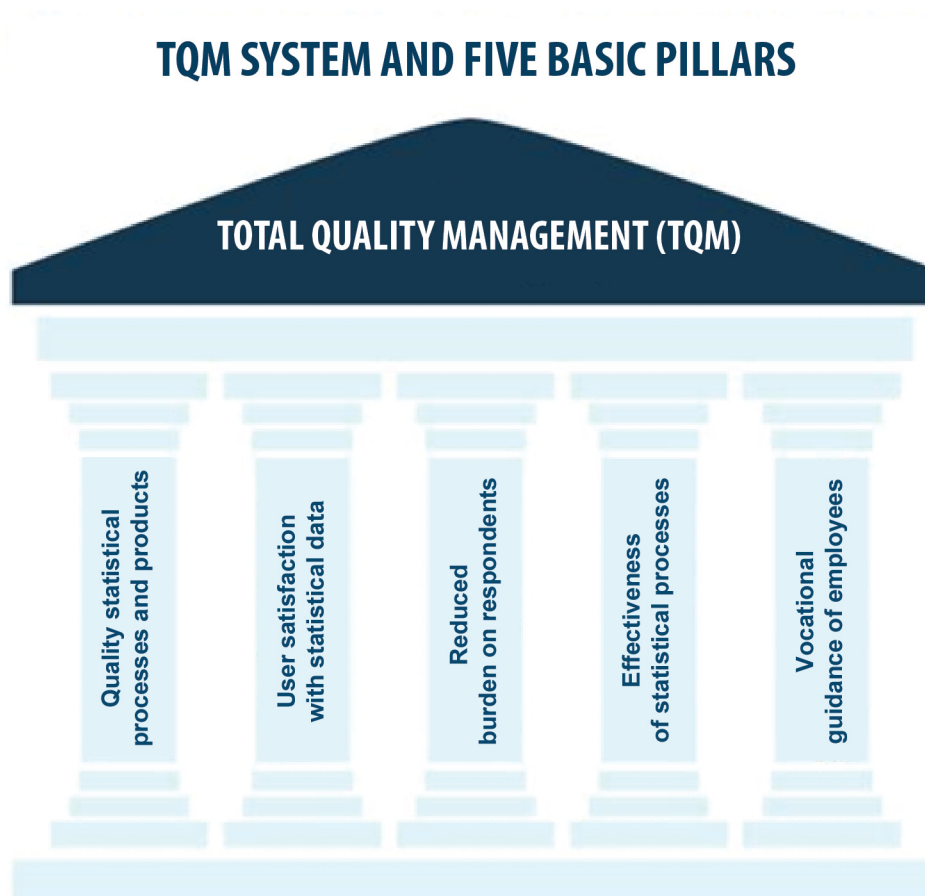


Figure 1 Five basic pillars of the TQM

The TQM requires continuous monitoring of activities and suggestions for improvements. Dealing with quality in the CBS is a constant challenge in which all employees are involved. The TQM is a continuous task that consists of planning project activities, their implementation, control and acting.

It is the³ *Plan – Do – Control – Act* (PDCA) cycle, which was popularised by W. Edwards Deming, the father of modern quality control. The CBS has been applying this cycle for years.

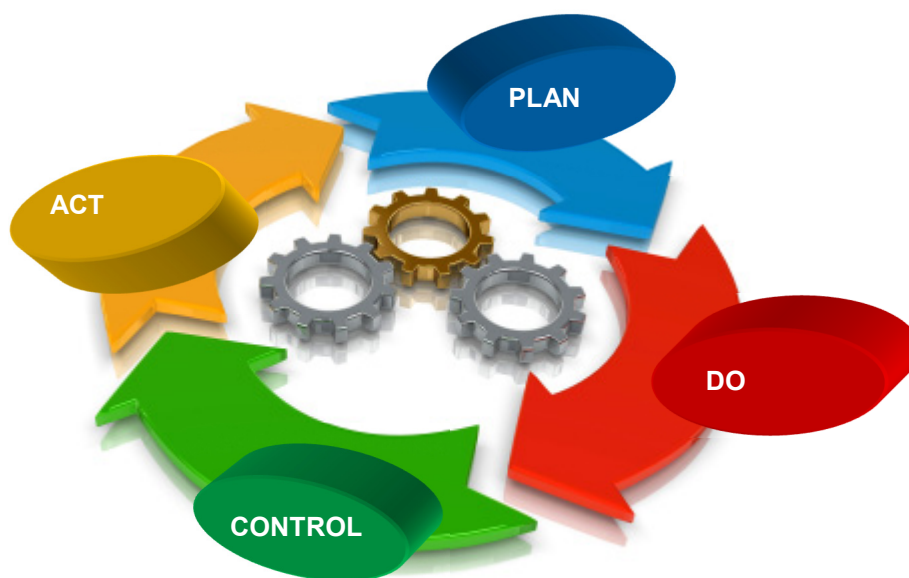


Figure 2 PDCA cycle

The chosen PDCA cycle works well in all business environments, including the CBS. It is used to improve any business process within the CBS, its products or services, by breaking it down into smaller sub-processes or stages of development with the aim of exploring ways to improve each of them.

As the PDCA cycle is a continuous loop of planning, doing, controlling and acting, it provides a simple and effective approach to solving constant challenges in change management.

The CBS has been applying this model for more than two decades because it is useful for verifying the established improvement measures.

This cycle of activities in the CBS includes the adoption of the following acts in accordance with the Official Statistics Act (NN, No. 25/20)⁴:

- Development Strategy of Official Statistics of the Republic of Croatia

³ The PDCA cycle was designed by Dr. W. Edwards Deming (14 October 1900 – 20 December 1993), American engineer, statistician, professor, author, lecturer and management consultant.

⁴ Accessed via: https://narodne-novine.nn.hr/clanci/sluzbeni/2020_03_25_598.html (on 13 March 2022)

- Programme of Statistical Activities of the Republic of Croatia
- Annual Implementation Plan
- Report on the Realisation of the Annual Implementation Plan

The Development Strategy of Official Statistics of the Republic of Croatia is a strategic planning act that, in accordance with the basic principles for the production of objective, reliable and timely official statistical data, defines the mission, vision, and general and individual goals aimed at the development of the system of official statistics of the Republic of Croatia in a multi-year period.

The Programme of Statistical Activities of the Republic of Croatia is a strategic planning act that defines statistical activities for a multi-annual period in accordance with the Official Statistics Act, national needs and obligations arising from the membership of the Republic of Croatia in the European Union.

The Annual Implementation Plan of Statistical Activities of the Republic of Croatia is a strategic planning act, which is the legal basis for the collection of data necessary for the implementation of statistical surveys and, for the purpose of executing the Programme of Statistical Activities of the Republic of Croatia, is adopted for each year to which the Program of Statistical Activities of the Republic of Croatia refers.

Report on the Realisation of the Annual Implementation Plan is adopted by the Croatian Parliament based on the Official Statistics Act (NN, No 25/20).

Furthermore, pursuant to Article 20 of the Official Statistics Act (Official Gazette, No. 25/20), the Statistical Council of the Republic of Croatia is established at the Croatian Bureau of Statistics. The Council is an advisory and expert body that deals with strategic issues of official statistics, which has been established to ensure the influence of users, science and the general public on the activities of official statistics.

The figure below shows the activities and indicators for different areas of the TQM.



Figure 3 1st TQM pillar – Quality statistical processes and products

2 Quality statistical processes, products and services

In the statistical processes used by the official statistics system in the development, production and dissemination of statistical data, it is necessary to apply the established methodologies, standards, guidelines and good practices while striving for innovation and improvement, taking into account cost efficiency. Statistical processes defined in such a way ensure the credibility of statistical data and the reputation of the statistical system, which is gained through good management and efficiency.

Constant improvement of statistical processes is aimed at modernisation, increasing the efficiency and quality of statistical products and reducing data processing costs.

Available statistical data must be of satisfactory quality and meet the needs of various users (Government of the Republic of Croatia, units of local and regional self-government, research institutions, the economy and the general public).⁵

2.1 Improving quality in statistics

Achieving and maintaining the optimal quality of statistical processes, products and services is certainly one of the goals in the application of the TQM model, primarily because statistical products and services are tangible results of the work of the CBS. Furthermore, the CBS wants to achieve greater user satisfaction and better efficiency in production processes that support the quality of statistical products and services.

Although the quality of statistical products and services has been monitored for years in the CBS, the TQM model helps to observe the entire organisation as a series of intertwined processes and sub-processes, whereby quality plays the most important role as follows:

- the TQM in statistics does not only the statistical data evaluation criteria, but it is also used to consider user requests and inform about when and how statistical data can be made available to users
- the TQM includes criteria such as coherence and comparability, which emphasise the need to establish a harmonised system
- quality system criteria and indicators are described in manuals that are used as an instrument of continuous quality control
- the system of quality indicators provides users with relevant metadata.

The EU practice has shown that, for systematic monitoring of quality in statistics, it is necessary to establish an independent organisational unit (department) at the level of a national statistical institute, which would centrally, systematically and exclusively deal with the quality management of statistical processes, products and services. The Regulation on the Internal Organisation of the CBS⁶ (NN, No. 97/20) established the Quality, Statistical Standards and Geoinformation System Development Department, which, among other things, deals with the activities relating to the quality of the principal activity of the CBS.

⁵ Development Strategy of Official Statistics of the Republic of Croatia 2021 – 2030

⁶ Regulation on the Internal Organisation of the Croatian Bureau of Statistics

Constant improvement of statistical processes is aimed at modernisation, increasing the efficiency and quality of statistical products and reducing data processing costs.

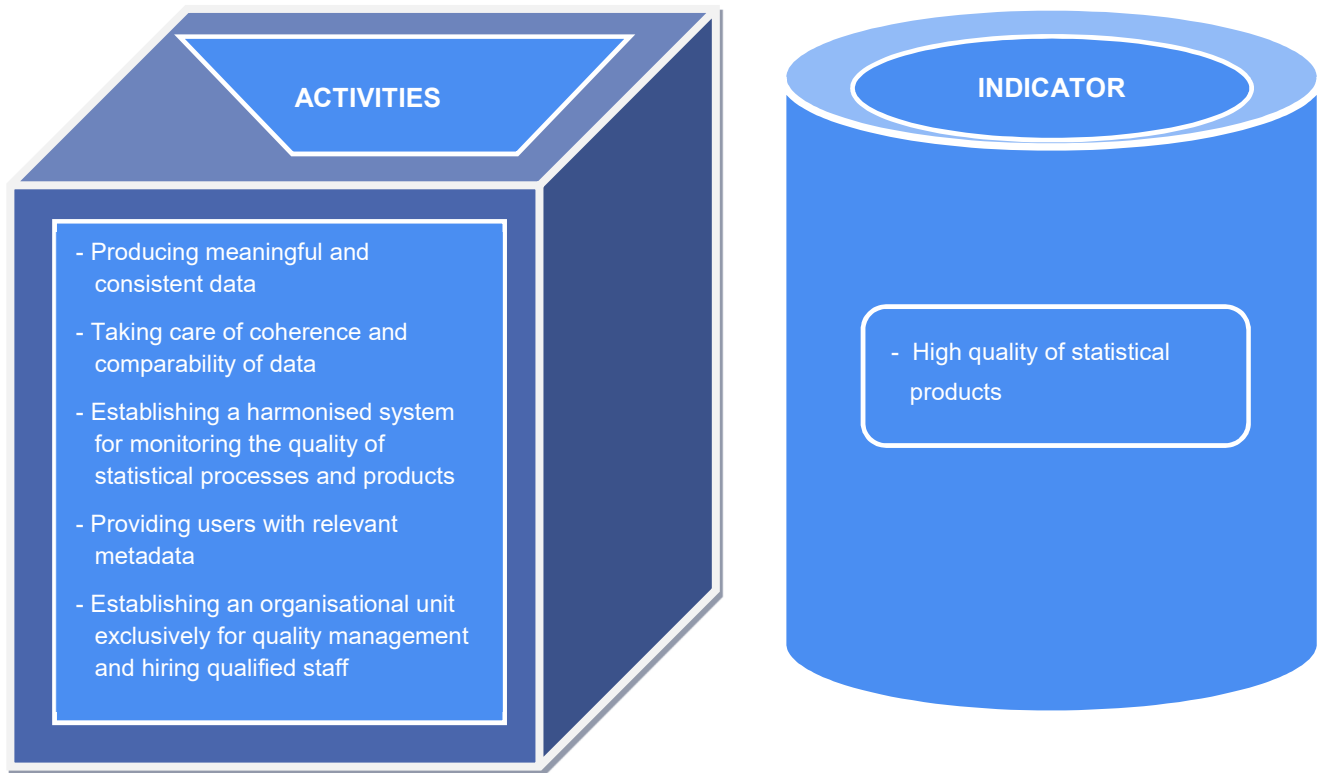


Figure 4 Activities and indicators of the 1st TQM pillar – Improving quality in statistics

2.2 Quality reporting

The structure for the preparation of quality reports prescribed by Eurostat is an instrument that serves to monitor a relevant set of quality indicators over a certain period. It also serves to determine the items of the report that need to be improved, and thus the quality of the statistical product. The principles of quality that need to be continuously applied, depending on the type of statistical survey, are the following:

- Relevance of statistical concepts
- Accuracy of estimates
- Timeliness and punctuality
- Coherence and comparability of statistical data
- Accessibility and clarity of data.

The Croatian statistical system is working intensively on statistical improvements and accordingly develops the necessary methodologies and determines which other areas are not covered by this concept. Statistical processes, statistical products and services are continuously evaluated. Efforts are made to establish standardisation wherever possible.

The need to prepare detailed quality reports based on the European legal framework is increasing year by year; therefore; it is necessary to prepare reports in accordance with the prescribed European structures. Furthermore, for certain statistical areas, there is a legal obligation to prepare quality reports.

Quality reports are continuously prepared and published on the CBS website. User can thus see the improvements that have been achieved within a particular statistical survey and compare the quality of the survey of one statistical area with another. In addition, it is necessary to systematically and actively work on the establishment of quality monitoring guidelines.



2.3 Review of quality reports

The preparation and review of quality reports is a very demanding task, which shows how well the statistical processes and products are organised and what can be possibly improved.

A regular procedure for preparing quality reports has been established for a large number of statistics. The content of quality reports differs depending on the type of statistical survey. Therefore, it is not possible to make comparisons of surveys that are based on data compilation and administrative sources with surveys in which data are collected on a sample basis.

By introducing a central quality reporting system using the established POMI quality database, it is possible to monitor the quality of statistical products and services defined by the Annual Implementation Plan in one place.

The POMI quality database and application enables the generation of quality reports according to the ESMS, ESQRS and SIMS structures, in accordance with the European Statistical System handbook for quality and metadata reports⁷, as well as the possibility of generating quality reports for publishing on the CBS website by statistical domains <https://dzs.gov.hr/highlighted-themes/quality/quality-reporting/quality-reports-by-statistical-domains/892>, and the delivery of data to Eurostat's ESS Metadata Handler.

Furthermore, a software solution for entering data according to the GSBPM was created in the POMI database and quality application. It is a model that allows to enter a description for each statistical survey defined by the Annual Implementation Plan according to eight basic processes and within each process the corresponding sub-processes. This IT solution brought together the entire operation for each individual statistical survey in one place, from collection, processing, dissemination to data archiving.

The benefits of such IT solution for statistical purposes are multiple:

- Statisticians have all information related to quality gathered in one place.
- Quality reports can be generated from the quality database according to the ESMS, ESQRS, SIMS reporting structures for publishing on the CBS website and the delivery of data to the ESS Metadata Handler.
- A statistician can analyse the quality of statistical survey using POMI's basic and advanced numerical indicator tools. With these tools, it is possible to analyse one statistical survey for certain variables and a certain period, or to make comparison with other surveys that are conducted in approximately the same way.
- Descriptions for each statistical survey according to the GSBPM enable not only the monitoring of the development of a statistical survey over a certain period, but also the availability of practical and theoretical information in one place in case of a longer absence of the statistician.

POMI was created according to the principle that the information once entered in the database and application can be used multiple times, and therefore, the plan is to further improve its functionality.

⁷ [ESS handbook for quality and metadata reports](#)

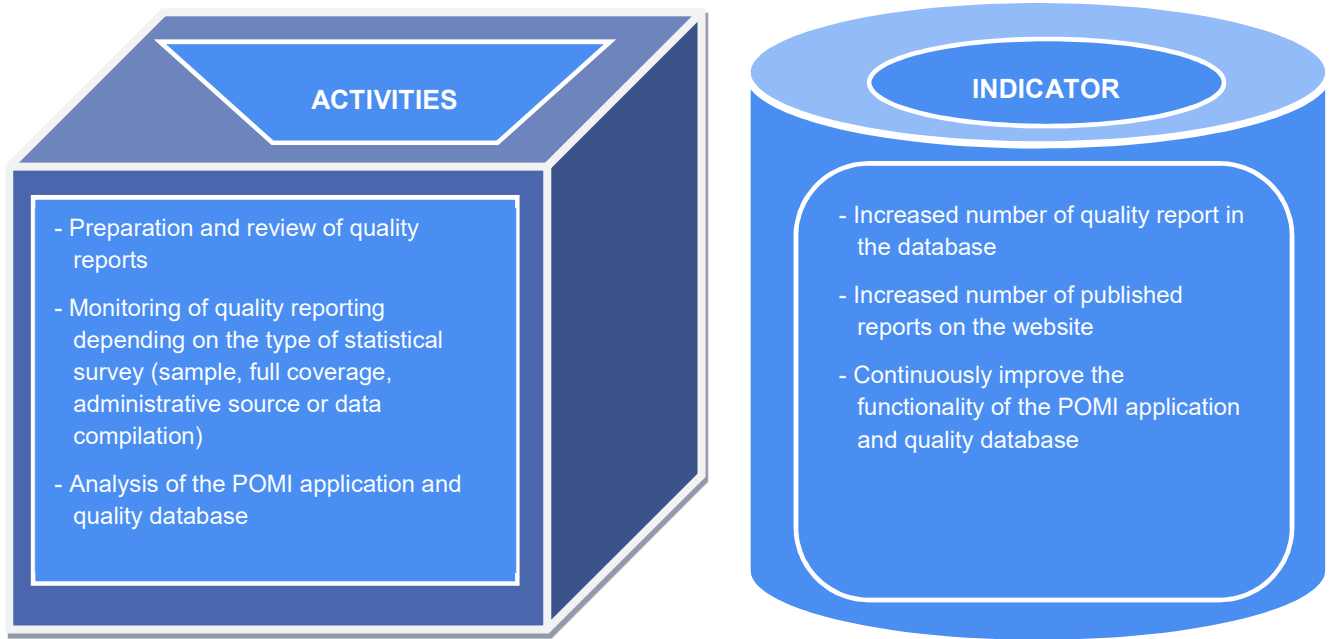


Figure 5 Activities and indicators of the 1st TQM pillar – Review of quality reports

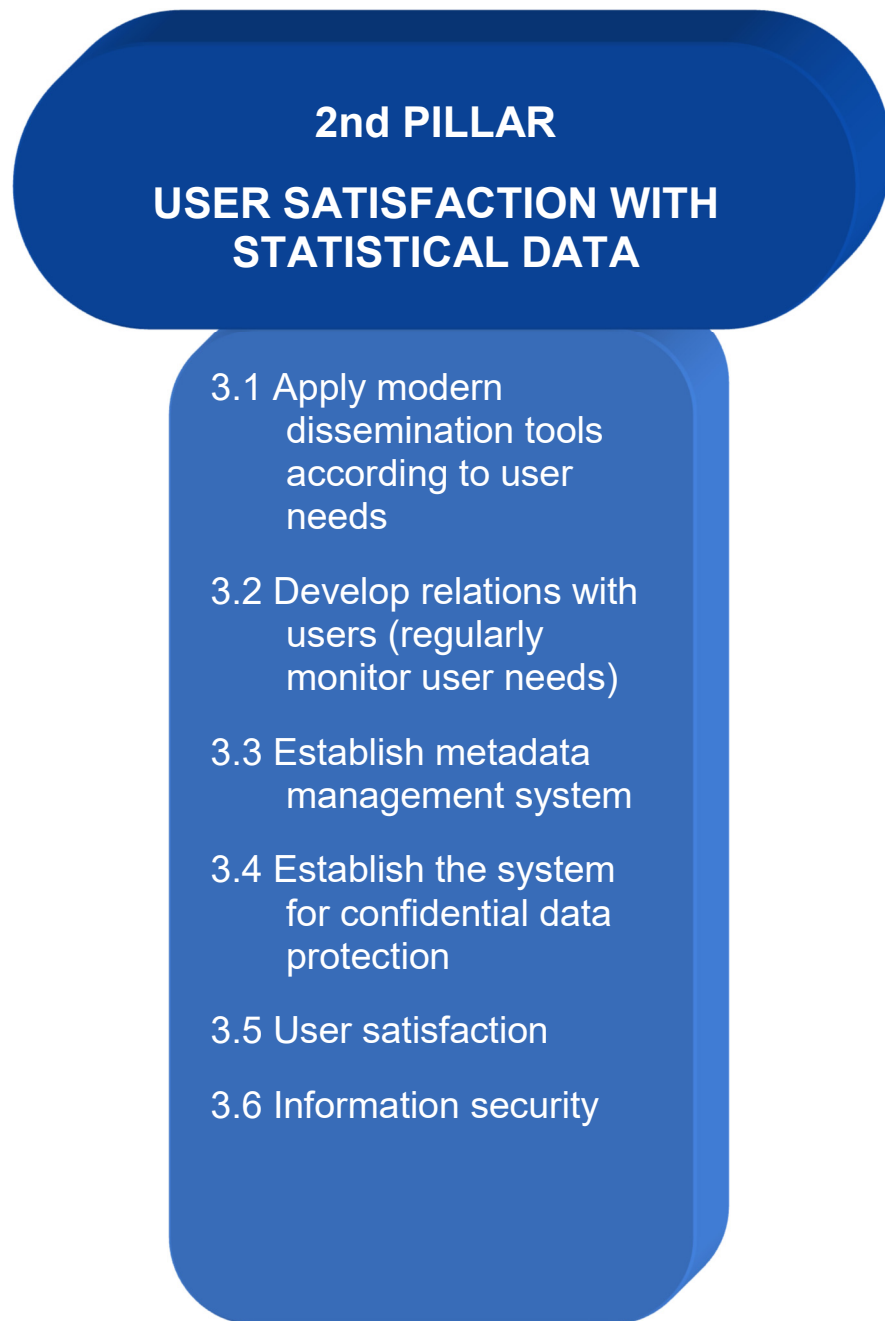


Figure 6 2nd PILLAR – User satisfaction with statistical data

3 User satisfaction with statistical data

One of the main tasks of the CBS is the efficient and timely preparation and dissemination of quality statistical indicators that provide users with reliable sources for decision-making and adjusting their attitudes based on facts. Present and future users are the reason and purpose of the existence and development of the statistical system.

Since the user needs are the most important for further development of the system, the CBS activities must be aimed at meeting those needs. Satisfying the user needs is achieved by mutual agreement between the users and the producers of official statistics and the development of relations with users.

Improving the dissemination and quality of relations with users covers a wide range of possibilities used in EU countries. In order to get closer to the good practice of EU countries in the foreseeable future, it is necessary to create good foundations with the possibility of systematic upgrading. Those goals can be achieved by developing a system for monitoring the use of official statistics by conducting research and monitoring the results obtained. This will provide data on user characteristics, the intensity/frequency of use of certain statistics, the quality of services provided to users and their satisfaction with the services.

A quality relationship with users can also be built through their education, which will increase the presence of the CBS in the media. As a result, prerequisites will be created for capital projects in the future, such as the introduction of the Customer Relationship Management System (CRM), in order to maintain better relations with customers and constantly improve them.

3.1 Apply modern dissemination tools according to user needs

In addition to media releases that regularly present the results of statistical surveys, the CBS is developing an interactive way of displaying the results of statistical surveys, which will provide users with tools to select and display exactly the data they need. By applying new ways of displaying statistical information, the data should be easily accessible, attractive and interactive (i.e. users select the parameters for data display).

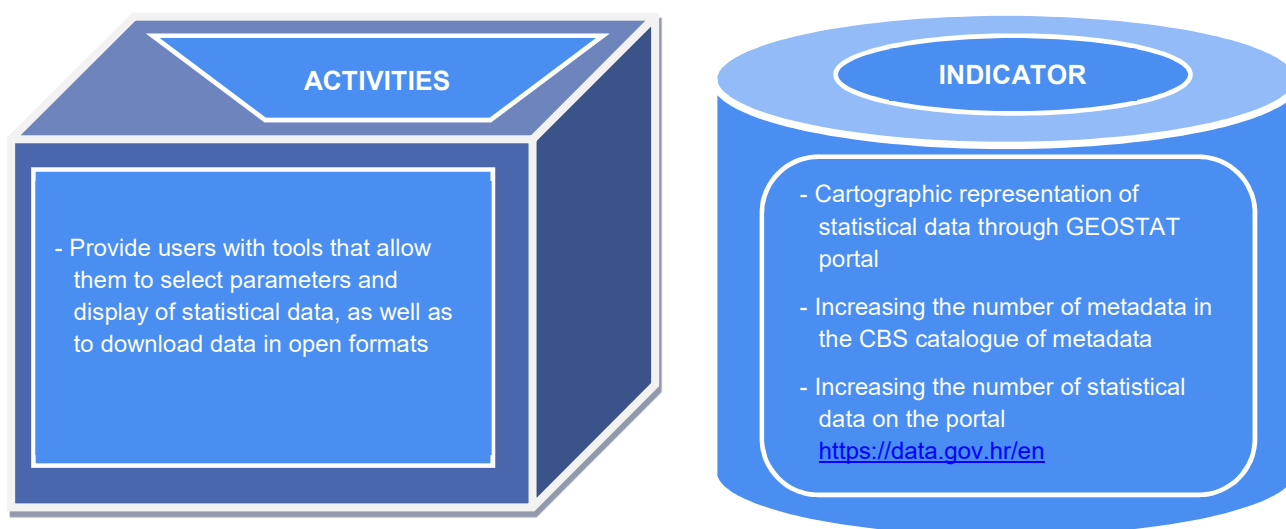


Figure 7 Activities and indicators of the 2nd TQM pillar – Apply modern dissemination tools according to user needs

3.2 Develop relations with users (regularly monitor user needs)

In parallel with monitoring the use of statistical data and user satisfaction, user education will be carried out continuously, which has not been systematically implemented so far. The education will be aimed at target groups of users and will be conducted through seminars, workshops and Open Days. By establishing an interactive relationship between the CBS and data users, an additional instrument for the control and development of the system will be established. Indirectly, a better use and interpretation of official statistics will be achieved.

Considering that press conferences are recognised as an effective channel in communication with the media, holding press conferences in the CBS will present the CBS as an objective and independent provider of official statistical data. Regular holding of press conferences, the purpose of which is to provide objective and complete information on a certain statistical subject and to report on the most important statistical activities in a simple and comprehensible way, for the CBS means alignment with the good practice of domestic and European institutions.

The active use of social networks as an important communication channel for the dissemination of statistical data (Facebook, Twitter, Instagram, YouTube) enables proactive communication with existing and future users and brings statistical data closer to users through infographics in a simple and visually more attractive way.

In order to bring the CBS even closer to users of various profiles, statistics will be systematically promoted. A good example of promoting statistical literacy and cooperation with the educational and academic community is the development of the educational portal *Stedy*. *Stedy* was developed as part of the Eurostat project *Support for Statistical Literacy actions in the area of a competition, gamification and e-learning*. Statistical literacy is also promoted by organising the national phase of the European Statistics Competition, which is intended for secondary school students.

In addition, systematic work will be done to establish a regular user satisfaction survey for users of different profiles in order to get the best possible insight into their needs for different statistical products and to achieve greater efficiency of the statistical system.

The CBS will regularly conduct surveys on user satisfaction through User Satisfaction Survey and Survey on Public Opinions and Attitudes. The results of these surveys will certainly contribute to further and better development of relations with users and greater awareness of information. All implementation activities that will contribute to the achievement of a special goal will result in a more positive image of the CBS. The public should thus perceive the CBS as a modern institution that follows the trends of the business environment in a timely manner.

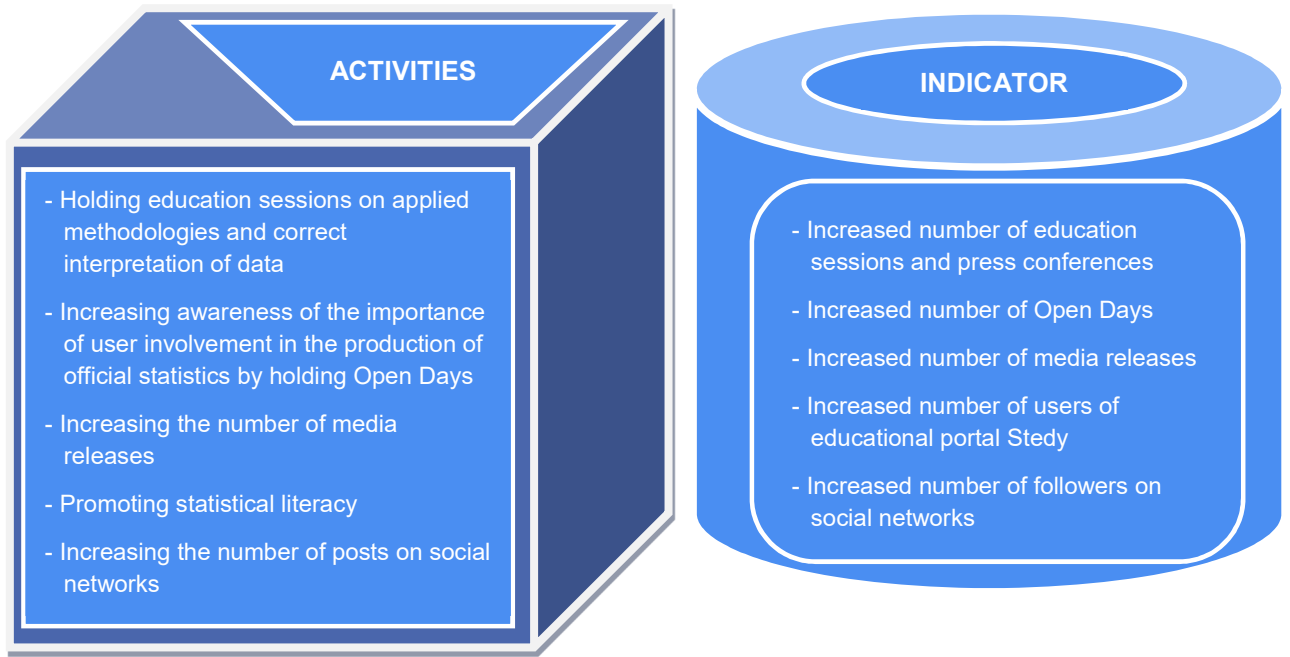


Figure 8 Activities and indicators of the 2nd TQM pillar – Develop relations with users (regularly monitor user needs)

3.3 Establish metadata management system

CROMETA, the Central Metadata Database, is the core of the system for processing statistical surveys, the so-called Integrated Statistical Information System. It was named after the model that was created in cooperation between the CBS and Statistics Sweden (SCB) and the Swedish International Development Agency (SIDA). The first version of the model was designed in 2005, and it has been continuously developed depending on the needs. The CROMETA model has been designed according to the so-called reference model that was designed as part of the Eurostat's Metanet project (2000 – 2003). The reference model unites different types of metadata that describe statistical data and processes.

Within the CROMETA model, there are different types of metadata according to purpose. Some metadata serve for a declarative description of the content of statistical surveys and data, while other are process-oriented and describe methods of data collection and processing. In addition to these, there are global concepts and methodologies that are applied independently of statistical surveys, as well as general metadata describing the organisational structure, authorisation and access rights.

As an upgrade of the central metadata base, several applications have been developed for different purposes. The applications important for users – statisticians include Metadata Manager, Survey Processor, GPP, KLASUS, NKD search engine and POMI quality database.

The Metadata Manager application was created for users who are in charge of metadata content, including administrators of the entire CROMETA database and users from expert departments for certain types of metadata. Appropriate administrator rights should be obtained for the work in this application.

Survey Processor, or popularly called Generator, is a survey processing application that is dynamically connected to the central metadata database, from which information about statistical surveys, persons performing processing, procedures included in processing, data, etc. are loaded. This application is intended primarily for statisticians who can independently perform certain stages of processing, but also for IT employees who deal with processing. Appropriate rights should be obtained for the work in this application, which include access to a particular set of surveys and processing procedures that correspond to individual phases. The link to the user manual provides a detailed description of all the modules and functions of the application.

The Annual Implementation Plan is adopted for each calendar year. The thematic structure of the Eurostat document *Statistical Requirements Compendium* is applied in it, as well as the Programme of Statistical Activities of the Republic of Croatia. All statistical activities carried out in the Republic of Croatia, which are performed by the CBS and other administrative organisations and institutions, are described in the Annual Implementation Plan. On the basis of the Annual Implementation Plan, metadata about statistical surveys are entered into the CROMETA database and supplemented with contact information and various other metadata. In order to review these metadata on statistical surveys, a web application was created.

Metadata on statistical surveys are the starting point of navigation in other applications developed as part of ISIS, and their purpose is to process survey data. For easier entry of these metadata, a web application was developed from which a draft of the proposal of the Annual Implementation Plan is generated, and it is available only to authorised persons who, based on previous years, update metadata on statistical activities for the next period. In statistical surveys and other activities, classifications are applied according to national and international standards. Classifications, their versions and levels are an important area of metadata and are included in the CROMETA database.

The metadata database is used, among other things, for keeping and managing classifications. All classifications and code books used in the CBS have been collected and prepared in the appropriate form (format) to be stored in KLASUS. The database also stores national and international statistical classifications, code books and correspondence tables that have been prepared for users in electronic form. Databases for classifications can be accessed by statisticians regardless of whether they work on statistical surveys, registers or classifications. The intention was to enable statisticians to quickly and efficiently code the survey, that is, to find the appropriate code for any feature of the statistical survey.

The application is based on the Neuchâtel terminology developed by the Neuchâtel group in an effort to reach a common language and common vision of the structure of classifications and the connections between them. The application defines key terms that are relevant to structuring classification metadata and offers a conceptual framework for creating a classification file. The Neuchâtel model has a two-level structure.

On the first level, it consists of the types of objects in the file (e.g. classification, classification version, classification element) and on the other, of the attributes of each object. Each type of object and its attributes are accompanied by their textual description.

The overview of classifications starts from different families of classifications, the classifications that belong to the families, to the levels of classifications and their elements. The application enables advanced search of elements by name and code, as well as download of classifications in multiple formats with all levels and classification elements.

The entire metadata management system is developed according to available resources and is a continuous challenge.

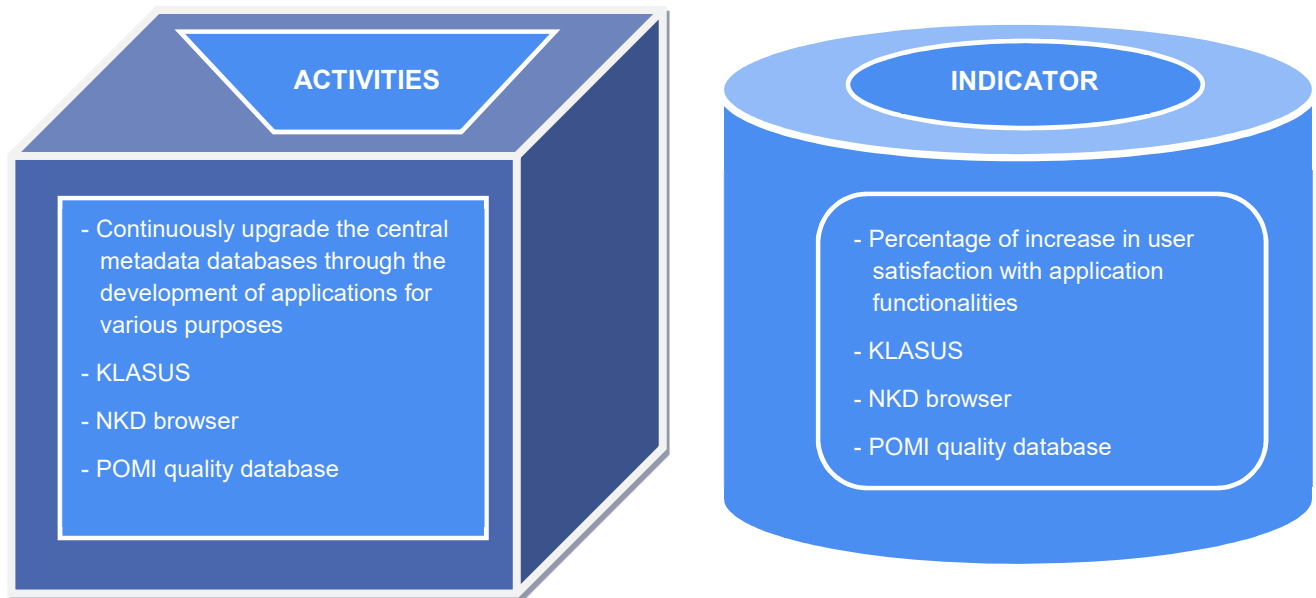


Figure 9 Activities and indicators of the 2nd TQM pillar – Establish metadata management system

3.4 Establish a system for confidential data protection

The protection of confidential data is regulated in the CBS as follows.

According to the Official Statistics Act (NN, No. 25/20), statistical confidentiality means the protection of confidential data related to single statistical units which are obtained directly for statistical purposes or indirectly from administrative or other sources and implying the prohibition of use for non-statistical purposes of the data obtained and of their unlawful disclosure.

The Instruction on the Rules and Methods of Protection in the Dissemination of Official Statistical Data of the Croatian Bureau of Statistics (NN, No. 78/21) regulates the rules and methods that ensure the dissemination of official statistical data from the scope of the CBS in a form and in a way that protects statistical unit against direct or indirect identification.

Instruction on the Protection of Confidential Statistical Data of the Croatian Bureau of Statistics (NN, No. 78/21) regulates the procedures and methods of applying physical, technical and organisational measures that ensure the physical, technical and logical protection of confidential statistical data against unauthorised access, changes, loss, removal or destruction and other issues important for the security and protection of confidential statistical data collected for the production of official statistics from the scope of CBS.

Ordinance on Access to Confidential Statistical Data of the Croatian Bureau of Statistics within the Official Statistics System (NN, No. 59/21) establishes the conditions and method of providing access to confidential data of the CBS, collected for the purposes of implementing official statistics activities within the scope of the CBS, to other producers of official statistics of the Republic of Croatia, and the method of implementing measures for the protection of confidential data that were provided to the CBS by other producers of official statistics of the Republic of Croatia.

Ordinance on Conditions and Manner of Using Confidential Statistical Data for Scientific Purposes (NN, No 137/13) defines the conditions and manner under which the use of confidential data of the CBS can be allowed for scientific purposes.

In order to address requests for access to confidential statistical data for scientific purposes in a timely manner, the Committee for Statistical Confidentiality was established, which considers the requests taking into account the risk of identification of the statistical unit and the consequences of the identification of the statistical unit on the statistical unit itself and on the CBS, and proposes to the Director General to make a decision on the acceptance or rejection of the request.

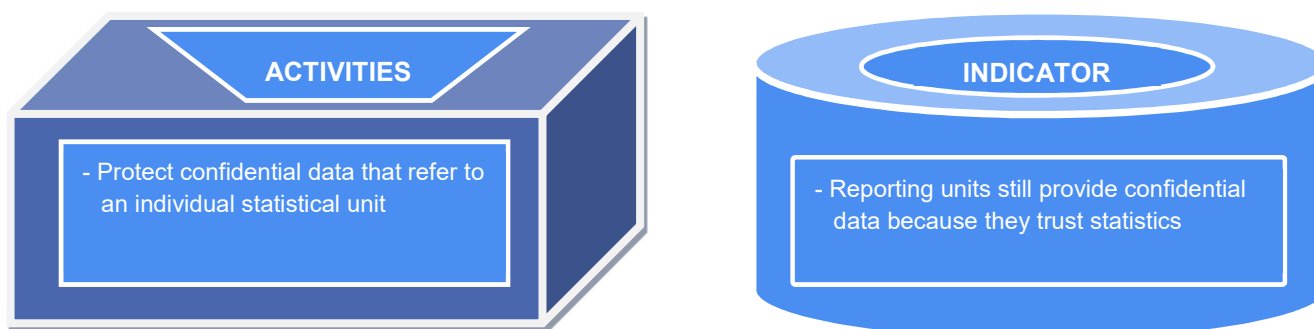


Figure 10 Activities and indicators of the 2nd TQM pillar – Establish the system for confidential data protection

3.5 User satisfaction with statistical data

The scope of promoting the use of statistics refers to improving the usability of statistical products and services, encouraging knowledge about them in the public as well as strengthening skills in the field of statistical literacy and the application of statistics.

The aim of promoting the use of statistics is to ensure the effective use of statistical data in the public and the society. In order to achieve that, statistics should be easily accessible and applicable. The availability of statistics is improved by general targeted communication and marketing of a statistical product, so that products and services can be easily found and accessed.

Information on the availability of products and services released into public are promoted by increasing awareness of the availability of statistical products and services and by helping end users to find and interpret the necessary information.



An example of good practice is the Geostat⁸ campaign on Facebook, as 60 thousand users saw Geostat-related posts. During the campaign, the posts collected 360 likes, had 17 comments and were shared 11 times. Even some journalists heard about our small campaign, who wrote a short text about the portal. Statistics related to the Geostat campaign on Instagram and Twitter by days had the following results.

FEED	STORY
Post of 13 May – reach: 858 persons	18 May – reach: 409 persons
Post of 31 May – reach: 192 persons	21 May – reach: 355 persons
	26 May – reach: 400 persons
Total number of persons who saw the campaign on Instagram	2 214 persons

Figure 10 Post reach on Instagram

Guided by this example, the same way of promotion was applied to the NKD Browser⁹, which makes it much easier for business entities to choose their main activity during registration.

As for the posts related to the NKD Browser on the CBS Instagram profile, there were two posts on the profile wall and two posts as stories on the profile.

⁸ The CBS has developed the GeoSTAT^{RH} portal, thanks to which users can use the CBS data in an interactive way. This application enables the cartographic presentation of statistical data, by combining the selected spatial level with the selected statistical data to the smallest detail.

⁹ NKD Browser is a tool that enables a simple and quick search of the National Classification of Activities, 2007 version (NKD 2007.) and finding the correct activity code based on one or more keywords and vice versa – based on a known activity code, it is possible to find a description of the required activity class. As a basis for the search, the NKD Browser uses the list of activities, that is, the products that are produced and the services that are provided, classified into the appropriate NKD 2007. activity class.

FEED	STORY
Post of 4 September – reach: 284 persons	Post of 7 September – reach: 371 persons
Post of 16 September – reach: 24 persons	Post of 28 September – reach: 413 persons
Total number of persons who saw the campaign on Instagram	1 092 persons

Figure 11 Post reach on Instagram

As for the Facebook campaign, the post reach was 18.6 thousand persons, of which the post had 183 likes, 1 comment and 5 shares.

Considering the increasing focus of users on social networks, continuous work will be done to further improve the usefulness and usability of social networks for statistical purposes.

Back to Basics Statistics¹⁰ is a project of the CBS aimed at popularising statistics, presenting it in a fun and simple way, and arousing interest in this extremely interesting, but often perceived by the public as difficult, scientific branch. <https://www.youtube.com/playlist?list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr>.

STEDy – statistical educational portal that will explain in only a few steps the statistical concepts that sometimes seem so complicated. On the other hand, if you have always been a fan of statistics, it is just what you need to expand, renew or test your knowledge!

Having in mind the importance of promoting statistical literacy and cooperation with the educational and academic community, the CBS has decided, as part of Eurostat's project Support for Statistical Literacy actions in the area of a competition, gamification and e-learning, to launch a unique statistical educational portal.

Whether statistics is part of your everyday life and a smart basis for making fact-based decisions or just an obstacle to overcome, STEDy proved to be a great assistant in statistical adventures.

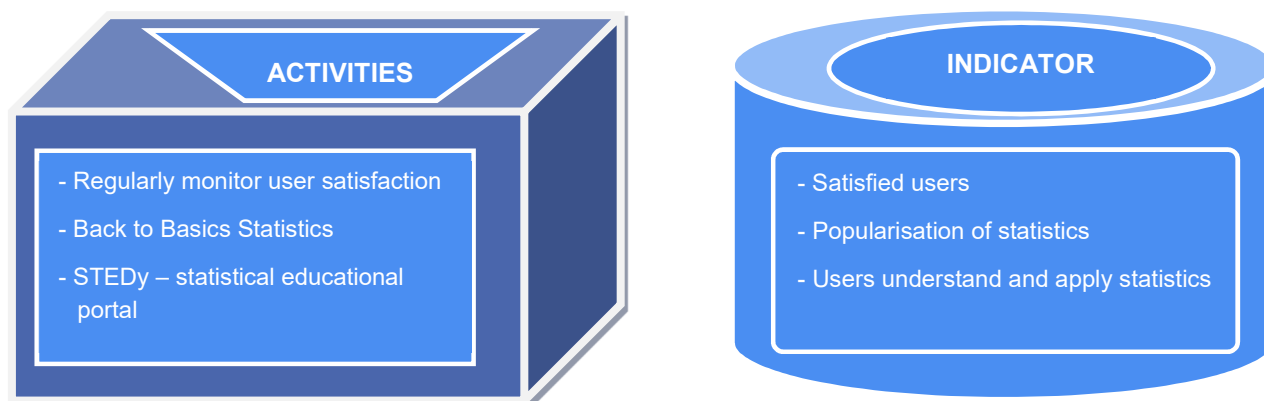


Figure 12 Activities and indicators of the 2nd TQM pillar – User satisfaction with statistical data

¹⁰ [Annex 2 Links to Back to Basics Statistics](#)

3.6 Information security

Information security is the state of confidentiality, completeness and availability of data, which is achieved by applying the prescribed information security measures and standards and organising support for planning, implementation, verification and amendment of measures and standards. Information security includes measures aimed at preventing unauthorised access, use, disclosure, interference, modification, review, recording or destruction of information. Information or data can be in any form, e.g. electronic or physical.

Information security refers not only to technical protection measures, but also to administrative and physical measures. In order for the operations of the CBS to be competent and comparable with other National Statistical Institutes and the European Statistical System as a whole, the Information Security Management System (ISMS) was introduced. The system is defined by the General Information Security Policy, which is published on the CBS website, as well as by more detailed procedures described in related documents. The system protects:

- **Confidentiality** (information is protected against unauthorised access)
- **Integrity** (the accuracy and completeness of information is protected)
- **Availability** (provides availability of information to authorised users when required)
- **Authenticity** (ensures that one's identity is the one that was claimed)
- **Non-repudiation** (guarantees one's inability to deny the performed activity or the receipt of information/data)
- **Traceability** (ensures that activity of the sole subject can be monitored)
- **Reliability** (consistent, expected behaviour and results).

The assessment of information security as part of Eurostat's project the Certification ESS IT Security Framework was carried out by PricewaterhouseCoopers (PwC) in 2018 and 2019 and accepted by Eurostat in October 2019.

The revision of information security, which should meet the ISO 27001 security standard, began in September 2022.

Information security is a constant process, a guarantee of business success, a way of thinking and the responsibility of every employee.

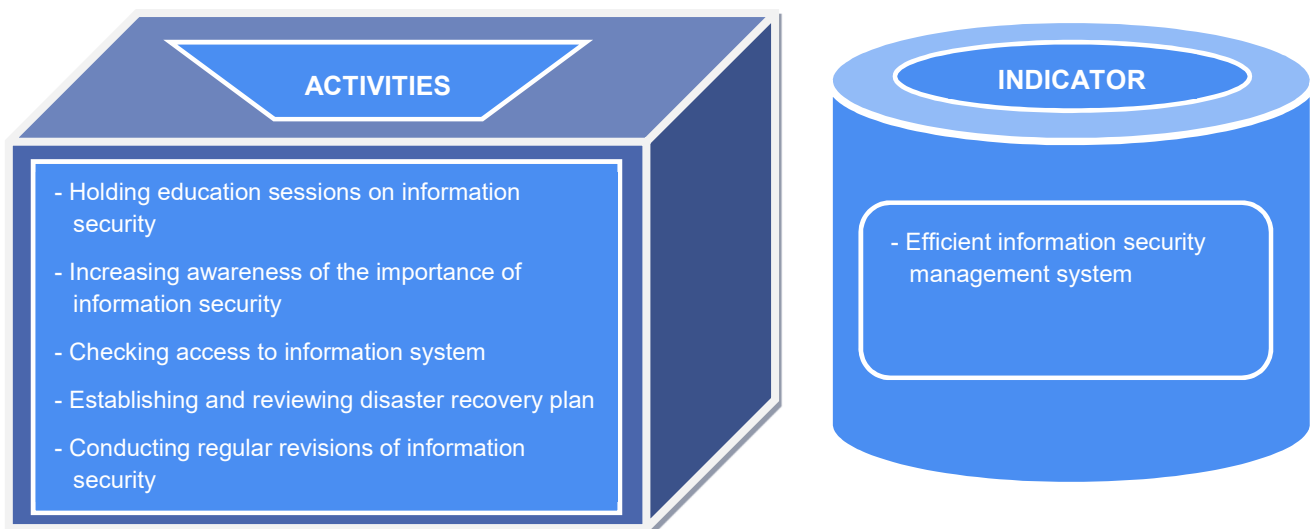


Figure 13 Activities and indicators of the 2nd TQM pillar – Information security

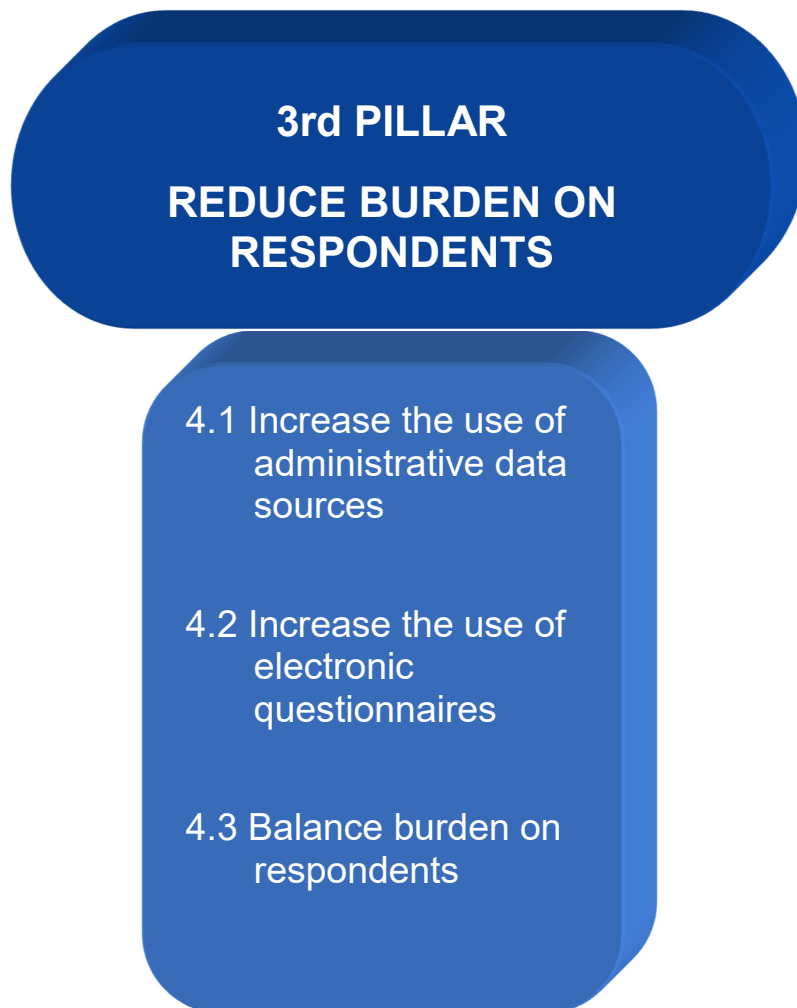


Figure 14 3rd TQM pillar – Reduce burden on respondents

4 Reduce burden on respondents

As in all national statistical institutes of the EU, one of the leading priorities in the statistical operations of the CBS is reducing the burden on respondents. The CBS currently uses a limited number of administrative data sources compared to the existing sources, mainly due to difficulties in obtaining them in a timely and regular manner and the resources required for their processing for statistical purposes.

4.1 Increase the use of administrative data sources

The use of administrative data sources for statistical purposes will reduce the costs of producing statistical data and the burden on respondents, and improve the quality of produced statistical products in terms of their reliability and accuracy.

The CBS is continuously working on the process of detecting and analysing new administrative sources in order to increase the use of administrative data for statistical purposes and to increase the share of statistical surveys based on administrative sources.

After analysing the data collected by statistical surveys and examining the content and structure of individual administrative sources, the acquisition of administrative data will be organised instead of collecting the data by statistical surveys, or they will be used for estimates and imputations. Administrative data will be processed using statistical methods into a standardised statistical product. This will reduce the burden on business entities and households for the purpose of collecting statistical data with a more rational use of budget funds for official statistics.

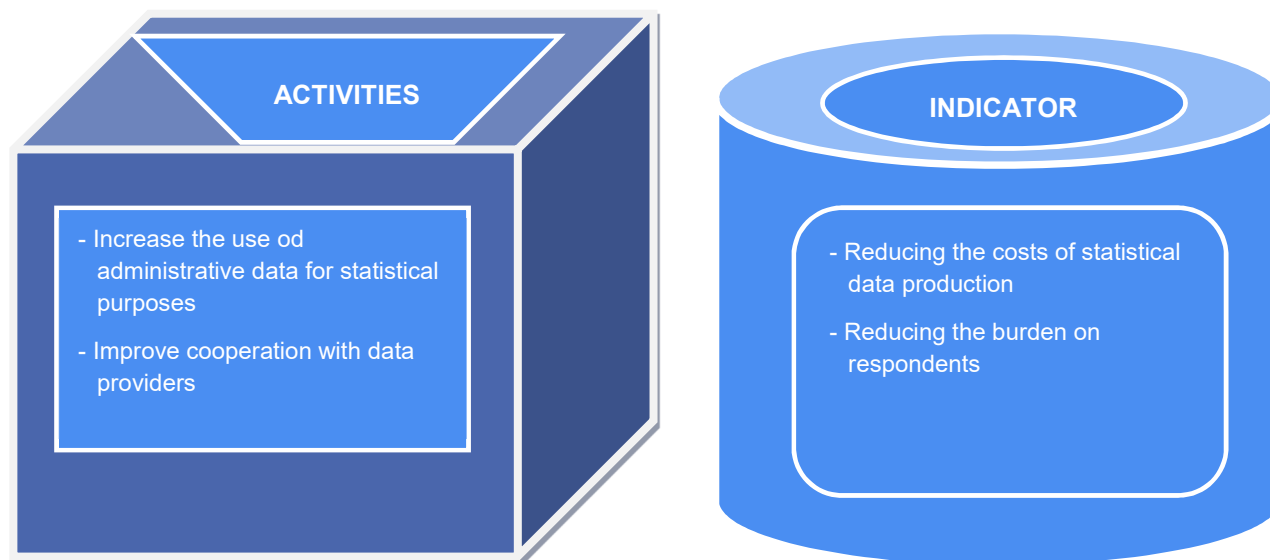


Figure 15 Activities and indicators of the 3rd TQM pillar – Increase the use of administrative data sources

4.2 Increase the use of electronic questionnaires

The CBS is developing a new electronic data collection system for survey forms that are sent to reporting units – legal entities and craftsmen – in the Republic of Croatia. These electronic forms will provide reporting units with an alternative way of submitting the information requested from them, in contrast to the current system, which is based on filling out classic forms in paper form that are usually delivered by post.

The new way of submitting data proved to be simple and acceptable for use by the reporting units. Therefore, it is believed that it will become the chosen way in which the reporting units – legal entities and craftsmen – will submit their statistical data to the CBS in the future.

The CBS intends to conduct all new statistical surveys using electronic questionnaires, as the reporting units accepted the new method of collecting statistical data very well.

Electronic questionnaires for surveys in the field of business and social statistics are currently in use, and further improvements are continuously being made.

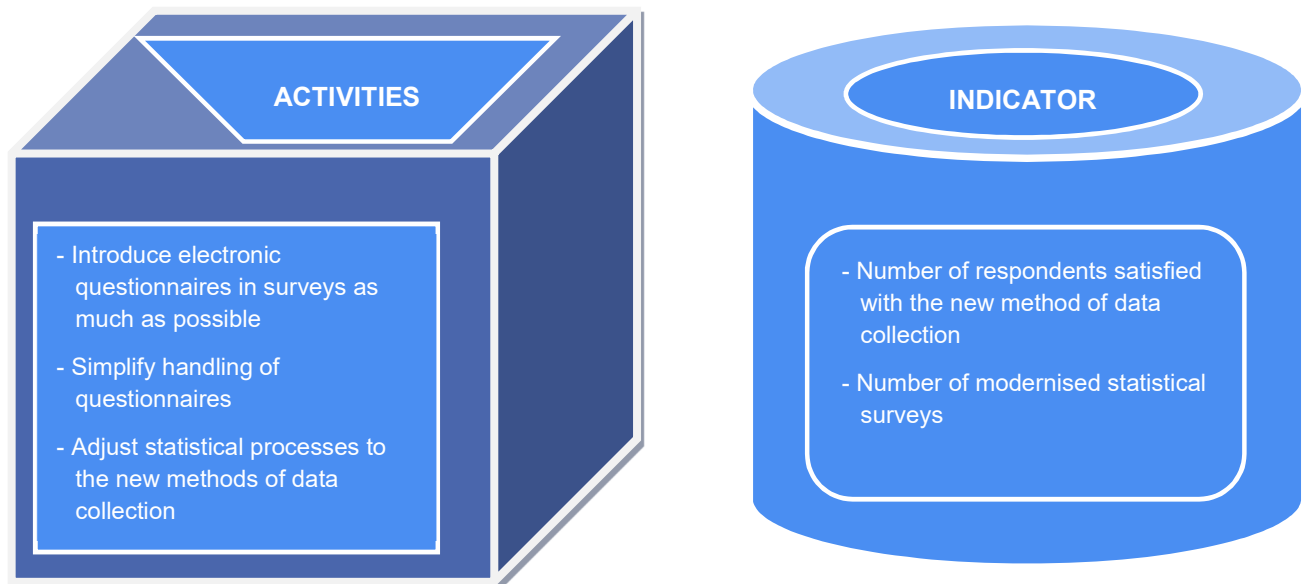


Figure 16 Activities and indicators of the 3rd TQM pillar – Increase the use of electronic questionnaires

4.3 Balance burden on respondents

In order to achieve a better quality of statistical data, the CBS will take care of establishing quality communication with respondents and their balanced burden during the year, as the satisfaction of respondents when conducting statistical surveys is an important element of the quality of statistical processes and products.

For surveys in the field of business statistics, the analysis of the possibility of introducing coordinated sampling is planned. The coordinated sampling system is based on an overall sample frame from which samples are selected for all business statistics surveys. This system increases the efficiency and quality of surveys, by reducing the burden on respondents, joint monitoring and evaluation of the data collection process, and using information from other surveys.

With the aim of reducing the burden on respondents, the tendency is to obtain administrative data whenever possible. For example, in surveys with non-response on a particular variable, it is possible to impute missing values from an administrative source (e.g. JOPPD form).

A register of samples from social statistics surveys was also established, so that the units that were selected in the sample for a specific survey would not be re-selected in the sample in a certain period of time and/or in the sample for another survey.

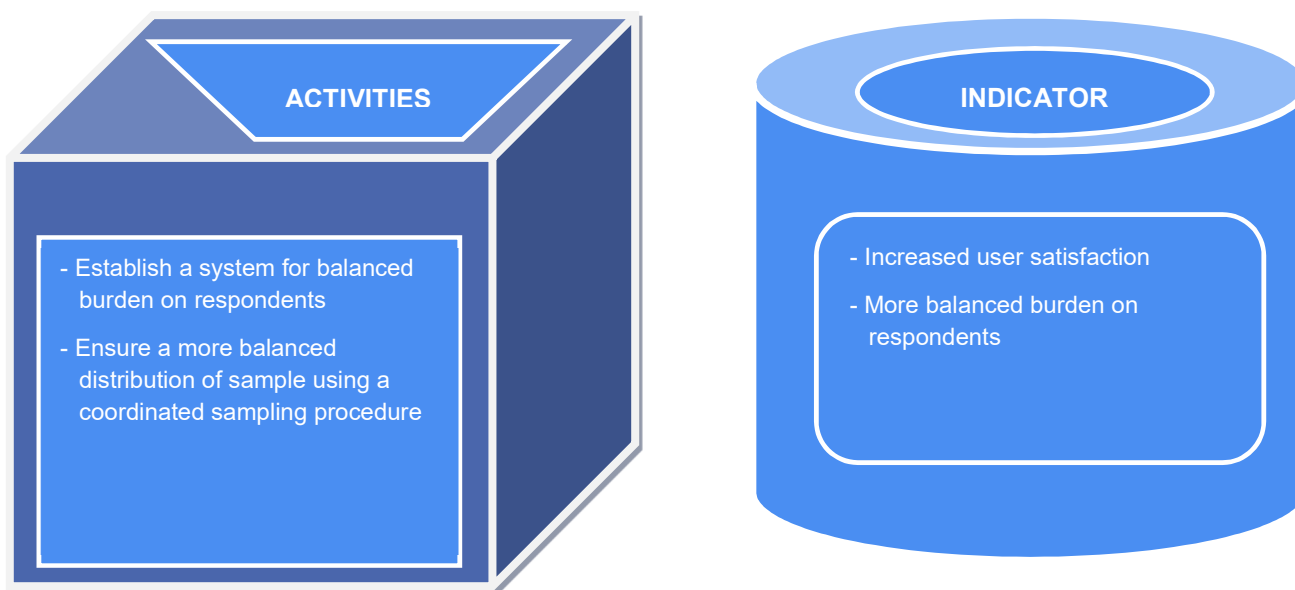


Figure 17 Activities and indicators of the 3rd TQM pillar – Balance burden on respondents

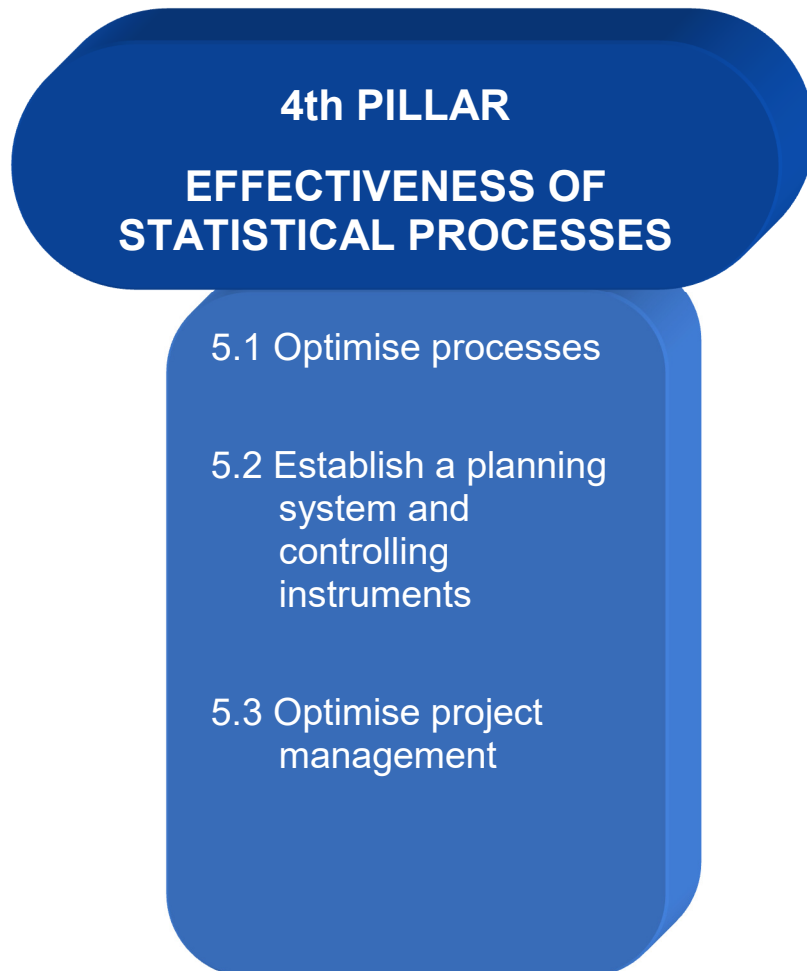


Figure 18 4th TQM pillar – Effectiveness of statistical processes

5 Effectiveness of statistical processes

5.1 Optimise processes

In order to optimise all statistical processes within the CBS, a template for describing and documenting processes according to the Generic Statistical Business Process Model (GSBPM) was created.

The prepared model will be applied to describe and document any statistical survey and determine the level of quality. The template was created according to the above-mentioned model – GSBPM – and is intended for all activities carried out by the producers of official statistics at the national and international level. The GSBPM is adapted to the needs of the Croatian statistical system, it is designed as a model independent of the data source, so that it can be applied to describe and evaluate the quality of processes based on surveys, censuses, administrative records and other non-statistical or combined data sources.

In addition, as part of the POMI application and quality database, a software solution was developed that enables data entry according to all GSBPM processes and sub-processes for statistical surveys that are an integral part of the Annual Implementation Plan and are continuously conducted by the CBS.

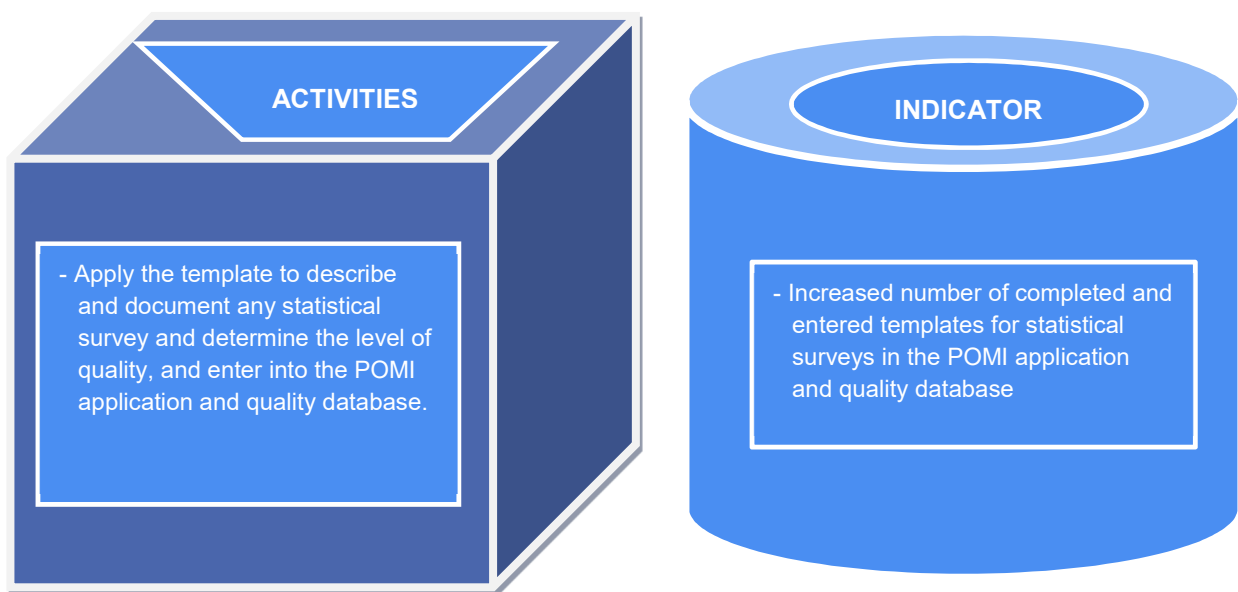


Figure 20: Activities and indicators of the 4th TQM pillar – Optimise processes

5.2 Establish a planning system and audit instruments

Effective management implies comprehensive, realistic and accurate instruments for planning processes and projects. In line with that, the following documents have been prepared: Development Strategy of Official Statistics of the Republic of Croatia 2021 – 2030¹¹; Programme of Statistical Activities of the Republic of Croatia (PSA) 2021 – 2027¹²; Implementation Plan of the Croatian Bureau of Statistics 2021 – 2024¹³.

A risk register has also been defined in which data on identified risks and risk coordinators by organisational units are recorded.

As an important basis for effective planning and audit, a comprehensive process-oriented system for the registration of human resources (working hours) in all statistical projects/areas, as well as a new financial and accounting system, has been introduced. The annual budget and four-year medium-term planning are an integral part of quarterly and annual reports.

The Internal Audit Department carries out internal audits in the CBS, provides expert opinions and has an advisory role for the purpose of improving the operations of the CBS. It evaluates systems, processes and internal audit systems based on risk management. It carries out internal audits in accordance with the best professional practice and internal audit standards, in line with the International Standards for the Professional Practice of Internal Auditing and the Code of Ethics of Internal Auditors. It tests, analyses and evaluates all business functions within the competence of the CBS. It carries out audits of statistical production processes in accordance with the European Statistics Code of Practice and gives recommendations for improving the quality of statistical products and processes. It conducts individual internal audits and gives recommendations to the Director General in order to achieve greater efficiency and effectiveness of the system. It prepares strategic and operational audit plans; performs special audits on the request of the Director General or as needed. It monitors the implementation of the recommendations specified in the reports of previous audits. It prepares periodic and annual work reports and submits them to competent institutions and persons in accordance with regulations. It cooperates with the Central Harmonisation Unit of the Ministry of Finance, which includes the obligation to submit strategic and annual plans and annual reports to the competent organisational unit of the Ministry of Finance. It monitors and proposes continuous education of internal auditors in accordance with International Standards for the Professional Practice of Internal Auditing. It evaluates the monitoring of the implementation of the recommendations of the State Audit Office and performs other tasks within the scope of the Directorate. It ensures that every expenditure is justified by the real need and confirmed with the previous audit.

¹¹ [DEVELOPMENT STRATEGY OF OFFICIAL STATISTICS OF THE REPUBLIC OF CROATIA 2021 – 2030](#)

¹² [Programme of Statistical Activities of the Republic of Croatia 2021 – 2027](#)

¹³ [IMPLEMENTATION PLAN OF THE CROATIAN BUREAU OF STATISTICS 2021 – 2024](#)

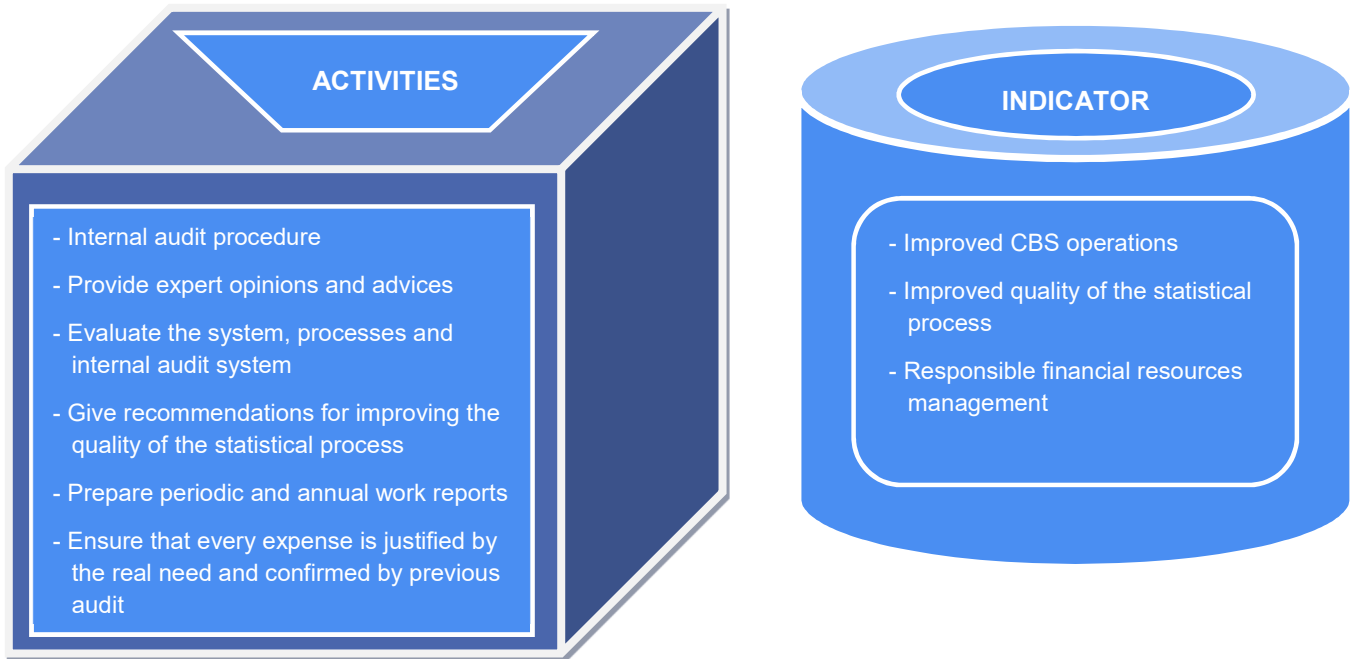


Figure 21 Activities and indicators of the 4th TQM pillar – Establish a planning system and audit instruments

5.3 Optimise project management

A project is a temporary undertaking, which results in a unique product, service or result¹⁴. A project must have a clearly defined goal, it must be implemented in a given period and with various resources. High-quality project management in the CBS is necessary in order to implement a large and diverse number of projects.

A systematic and comprehensive application of project management in the CBS has been established, as well as the development of awareness of the importance of project management within the entire organisation.

Projects are implemented in the CBS in the following phases – 1 Starting the project, 2 Planning, 3 Implementation, 4 Project supervision, and 5 Project closure.

Given that a large part of the projects implemented by the CBS is financed by EU sources, the Project Implementation Department (hereinafter: SSPP) was established within the CBS.

The SSPP performs tasks related to the preparation, coordination of implementation and monitoring of projects financed by EU funds and other foreign sources in cooperation with organisational units of the CBS and other bodies involved in the project implementation and monitoring of the project implementation. It coordinates business activities connected with the preparation and creation of project documentation and planning of income and expenditure of EU projects in accordance with the planned dynamics. It performs tasks related to administrative and financial monitoring of the project implementation and receives, manages and keeps all the documentation related to activities.

¹⁴ Project Management Institute (2010): Vodič kroz znanje o upravljanju projektima, Mate d.o.o., Zagreb, fourth edition, p. 5

The projects financed by EU sources are implemented as follows. After analysing the financing options (direct or public tenders), the SSPP informs the board of directors about these options. The SSPP also finds the sources of financing for project ideas. Directors (and other CBS employees) start the project in agreement with the Director General. The Director General appoints a project manager who is responsible for the preparation and implementation of the project. The SSPP provides the prescribed methodology and forms for planning and project application. Planning is carried out by the project manager in cooperation with expert departments and the SSPP. After signing the grant (or the corresponding document), the implementation of the project begins. It is initiated by the decision on the appointment of the project team (project manager, deputy project manager, members of the project team). The project team, with the financial and administrative support of the SSPP, implements the project. The project manager and the SSPP are in charge of supervising the project. The SSPP conducts supervision using financial reports on spending and quarterly reports on project implementation (executed/planned). The financial/administrative closure of the project is carried out by the SSPP, and expert (putting it into regular production, if necessary) by the superior director.

The activities of the project are prescribed by the grant. The success of the project is ultimately monitored by the achievement of the results stipulated in the grant and the acceptance of the results by the grantor.

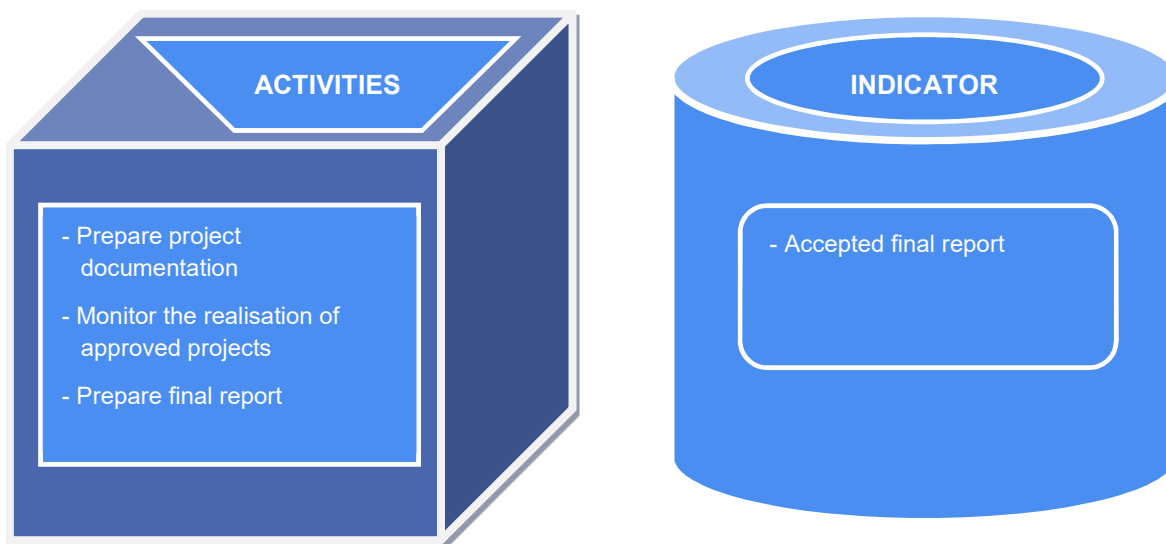


Figure 19 Activities and indicators of the 4th TQM pillar – Optimise project management

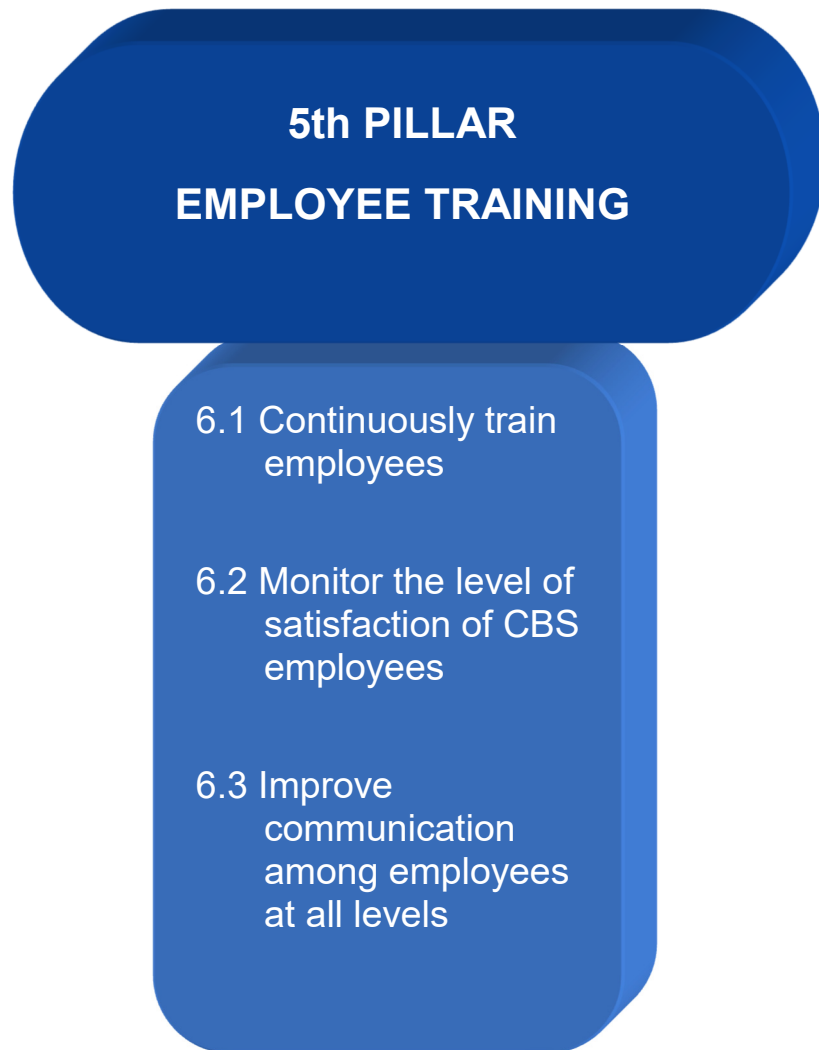


Figure 20 5th TQM pillar – Employee training

6 Employee training

6.1. Continuously train employees

All civil servants, including statisticians, are obliged to continuously improve their professional abilities and skills. By acquiring new knowledge and skills and their constant improvement in order to perform work tasks as efficiently and as good as possible in accordance with new policy requirements, greater satisfaction in the performance of work and ultimately greater organisational efficiency is achieved.

Pursuant to Article 4 of the Regulation on Forms, Methods and Conditions for Training of Civil Servants (NN, No. 10/07), the Ministry of Justice and Public Administration performs the assessment of the need for training of civil servants. All government bodies submit to the Ministry of Justice and Public Administration their proposals for training programs for civil servants in accordance with the prescribed deadline.

Therefore, the CBS continuously invests in employee education because qualified and motivated employees are the main participants in statistical production processes. Competent CBS employees participate in meetings and conferences and represent the opinion of the Republic of Croatia on certain statistical topics.

The CBS employees attend the European Statistical Training Programme (ESTP courses) and courses organised by the National School for Public Administration. In addition, within the scope of their work, the CBS employees participate in international and national work meetings and conferences.

ESTP courses are a great challenge and the only way to establish comparable statistics at the European and international level. The courses are focused on the harmonised European concept and legislation, as well as on practical application at the national level. The ESTP courses aim at providing European statisticians with the opportunity to participate in international training courses, workshops and seminars at postgraduate level.

Regarding the training organised by the National School for Public Administration, it should be noted that the School's activity is the professional training and development of civil servants, as well as elected officials and civil servants in local and regional self-government bodies in cooperation with the national association of local and regional self-government bodies, and in legal entities with public authorities, in order to permanently raise the level and quality of their knowledge, skills and abilities to shape a professional, effective and efficient public sector that will provide timely and high-quality public services, in accordance with the best generally accepted standards.

In addition to the existing training programmes, some courses are organised within the CBS if necessary. This is considered particularly important because certain statistical skills can only be acquired within that institution and nowhere else.

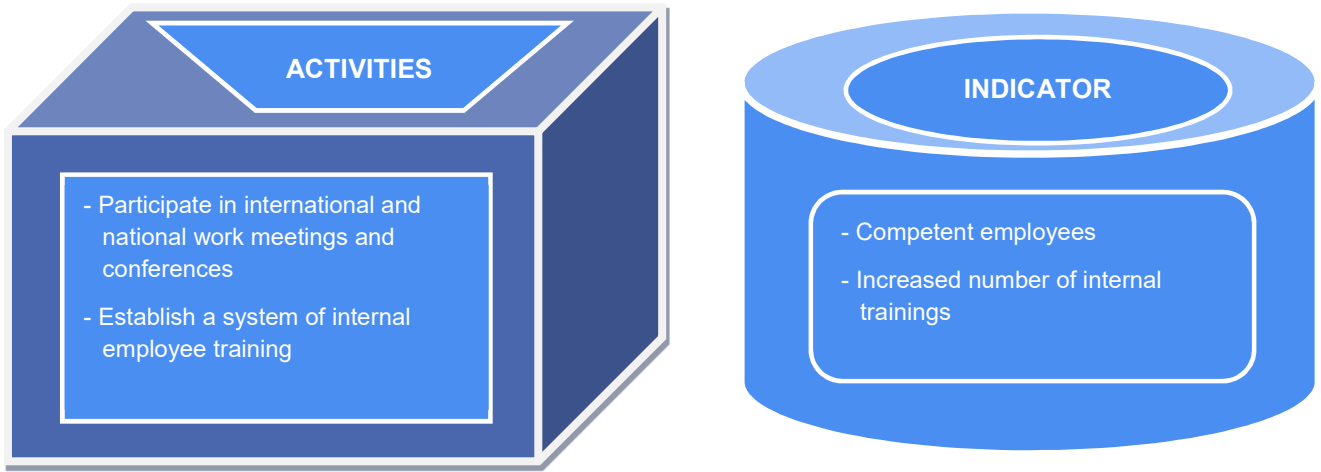


Figure 21 Activities and indicators of the 5th TQM pillar – Continuously train employees

6.2 Monitor the level of satisfaction of CBS employees

In order to increase the motivation and satisfaction of employees, the opinions and problems of employees should be considered and investigated at regular intervals.

How to increase job satisfaction

In the CBS, there is an awareness that the feeling of job satisfaction and happiness is something that each individual defines differently. It is widely believed that a prerequisite for job satisfaction is the amount of an individual's salary, but it is also known that the salary is not a crucial factor of satisfaction.

In order to influence employee motivation, the CBS should take the causes of its decline into account and remove them as much as possible, or at least mitigate their effect. These are primarily the lack of communication within and between the organisational units of the CBS, hopeless atmosphere, negative attitude, exhaustion, work fatigue and stress.

The ways to increase job satisfaction can be as follows.

- **Communication should be open**

In the CBS, we work together every day to improve communication skills among employees. All employees are aware that every task needs to be approached professionally and impartially and to work on the motto that there is no such thing as a bad day because all CBS employees are professionals.

- **Democratic management style**

A good selection of managers is certainly a key element of the CBS business success. A system that enables quality and smooth operations has been established.

- **Good interpersonal relations and cooperation**

Daily informal gatherings during breaks have a favourable effect on the creation of unity among employees, and this is particularly important in the CBS, where teamwork is nurtured. Employees will connect and relax through informal gatherings, and thus their communication and cooperation will be more successful and better.

- **Clear expectations from employees**

Expectations should be clear, and goals specific, achievable and well-defined in terms of measurability, deadlines and assignments, in order to be challenging for employees, and employees should receive clear feedback on their work.

- **Recognition of employees' performance**

The managers of the CBS should praise employees who deserve praise, at least verbally, and when they have the opportunity, they should reward them with additional training in the country or abroad.

- **Demonstration of trust**

The CBS managers should take care that employees are assigned tasks that are below their capabilities only when this is unavoidable. They will make ensure that the abilities of employees are not underestimated, because otherwise employees will work less or will be forced to look for a more stimulating work environment. The CBS should take into account that all employees are given an opportunity for learning and advancement.

If the job matches the skills and qualifications of employees and they can be proud of it, they will certainly be satisfied. On the other hand, there is no such salary that would make employees satisfied if they are not sure what is expected of them and if there is no feedback on the work done, be it good or bad. Doing the same job for years without the possibility of promotion or further development in terms of learning new technologies and business practices is at least un motivating and certainly not the right way to keep quality and motivated employees.

The CBS tries to increase employee satisfaction and engagement in various ways. Dissatisfied employees will want to leave the job and, in that case, all the resources previously invested in those employees will be irrationally used. Therefore, in order for the CBS to function optimally, it is necessary to control and maintain the satisfaction of employees, because the working performance as a whole rests on the effective use of human resources.

For that purpose, user satisfaction survey is carried out from time to time.

The collected feedback on employee satisfaction is useful for the introduction of further quality improvements in the CBS.

The following webinars organised by the National School for Public Administration are useful for that purpose, in order to strengthen the motivation of human resources:

- **Workplace well-being: six elements for a satisfied team**

For example, by attending this webinar, employees will understand the importance of the well-being of their team members; understand the impact of well-being on performance and motivation; become aware of the

benefits of workplace satisfaction and well-being; learn six elements that, according to the science of positive psychology, significantly affect workplace well-being; recognise which of these elements are the strengths and weaknesses of their team; master practical tools that can improve all six elements; get new ideas, motivation and actively think about how to support employees to strengthen their own well-being.

- Time management

this webinar enables participants to: analyse how they use their time, how much they control it and whether they are satisfied with it; define reasons for productive and unproductive use of time; be able to analyse the advantages and disadvantages of working from home, which, from their own experience, are the strengths and disadvantages of private and business time; become aware of the choices available to them and the challenges associated with them; achieve a higher level of productivity by setting goals, tasks and deadlines; gain insight into time management techniques; understand the importance of planning and effective management of meetings.

- Psychological resilience – ONLINE WORKSHOP

In stressful times, it is useful to know how to achieve psychological resilience; therefore, this webinar is organised for participants to raise awareness of the importance of psychological resilience; get to know how psychological resilience works; understand which 10 factors make up psychological resilience; think about their own strengths and weaknesses in psychological resilience; become aware of how to strengthen each of the individual 10 factors of psychological resilience; learn practical tools for strengthening psychological resilience in yourself and in others.

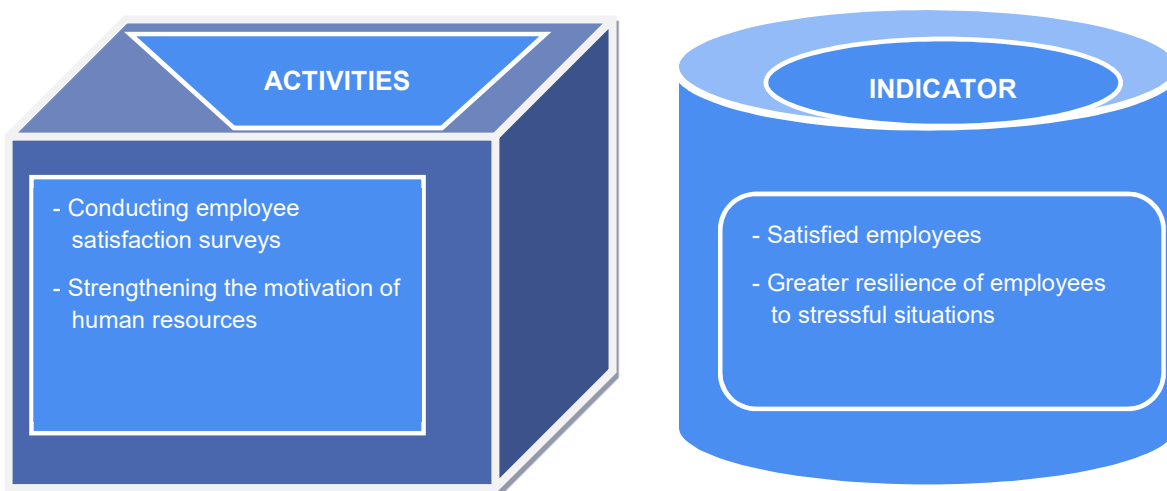


Figure 22 Activities and indicators of the 5th TQM pillar – Monitor the level of satisfaction of CBS employees

6.3 Improve communication among employees at all levels

Communication is one of the main functions of the CBS and its importance cannot be emphasised enough. It is a process of transferring information, ideas, opinions, attitudes and plans between different units, looking horizontally and vertically. Relations between employees are not possible without communication, therefore, good and effective communication is an integral part of human relationships and of the successful development of statistical processes within the CBS.

The most important thing for the managers of the CBS is good communication with their employees, because most of the problems in management arise from a lack of proper communication. The possibility of miscommunication and misrepresentation can be minimised with good communication skills.

Communication is the basic tool for motivation that can improve the morale of the CBS employees. Inadequate or inappropriate communication both among the employees and between the employees and the managers of the CBS can be the main cause of conflict and low morale, but also of lack of motivation to work. Therefore, it is necessary to act in such a way that conflicts are resolved through compromises, that is, through good communication – listening, accepting different opinions, thinking about a possible different solution before the conflict escalates and not allowing conflicts to affect our ability to understand and think to such an extent that we are not able to see things clearly.

In cases when communication is not clear enough or information are insufficient, untimely or wrong, when the attitudes of individuals are completely different, conflicts or disagreements usually occur.

When a system of compromise solutions and mutual respect is established, it is not only the success of an individual, but also of the system in which a statistician works.

Therefore, a system in which employees feel comfortable should be established, that is, a system in which they know what is expected of them and that they will receive timely feedback on how well they perform their tasks.

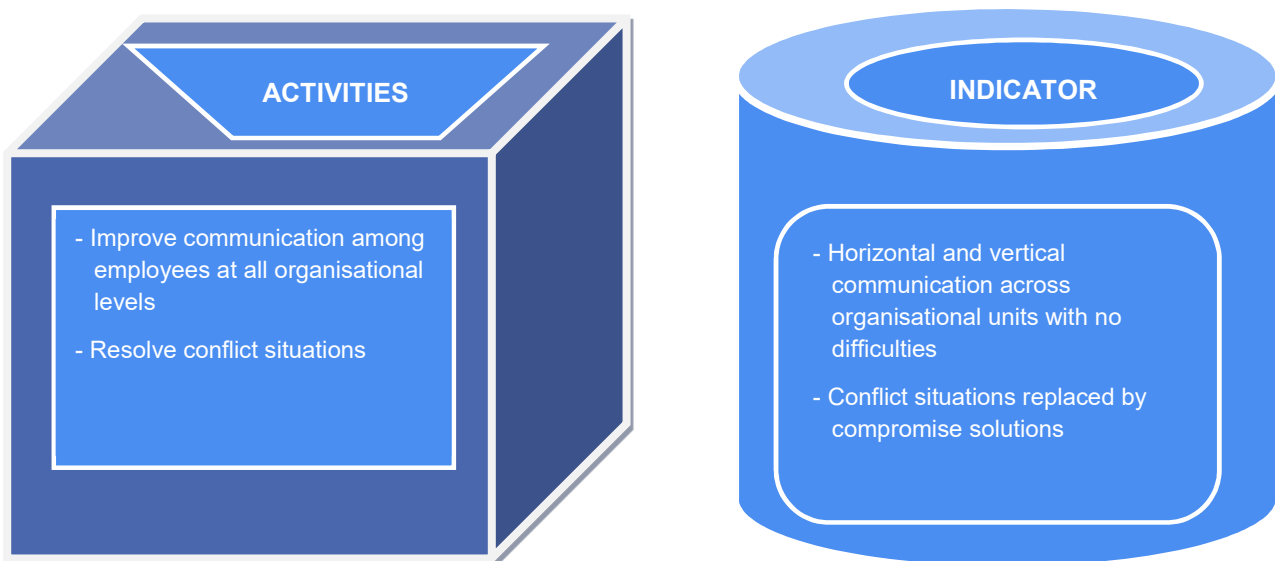


Figure 23 Activities and indicators of the 5th TQM pillar – Improve communication among employees at all levels

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- 21 Ministry of Justice and Public Administration
<https://mpu.gov.hr/strucno-osposobljavanje-i-usavrsavanje-24389/24389>
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Annex 1 TQM activities, indicators and deadlines

TOTAL QUALITY MANAGEMENT (TQM) ACTIVITIES, INDICATORS AND DEADLINES

No.	TOPIC	ACTIVITY	INDICATOR	DEADLINE
1.1	Monitoring quality in statistics	<ul style="list-style-type: none"> Producing meaningful and consistent data Taking care of coherence and comparability of data Establishing a harmonised system for monitoring the quality of statistical processes and products Providing users with relevant metadata Establishing an organisational unit exclusively for quality management and hiring qualified staff 	<ul style="list-style-type: none"> High quality of statistical products 	<ul style="list-style-type: none"> Continuously Continuously Continuously Continuously Continuously
1.2	Quality reporting	<ul style="list-style-type: none"> Preparing quality reports in compliance with quality principles Preparing quality guidelines 	<ul style="list-style-type: none"> Quality reports Quality guidelines 	<ul style="list-style-type: none"> Continuously June 2022
1.3	Review of quality reports	<ul style="list-style-type: none"> Preparation and review of quality reports Monitoring of quality reporting depending on the type of statistical survey (sample, full coverage, administrative source or data compilation) Analysis of the POMI application and quality database 	<ul style="list-style-type: none"> Increased number of quality reports in the database Increased number of published reports on the website New functionalities of the POMI application and quality database 	<ul style="list-style-type: none"> Continuously Continuously Continuously
2.1	Apply modern dissemination tools according to user needs	<ul style="list-style-type: none"> Provide users with tools that allow them to select parameters and display of statistical data, as well as to download data in open formats 	<ul style="list-style-type: none"> Cartographic representation of statistical data through GEOSTAT portal Increasing the number of metadata in the CBS catalogue of metadata 	<ul style="list-style-type: none"> Continuously Continuously

No.	TOPIC	ACTIVITY	INDICATOR	DEADLINE
			<ul style="list-style-type: none"> Increasing the number of statistical data on the portal https://data.gov.hr/en 	<ul style="list-style-type: none"> Continuously
2.2	Develop relations with users (regularly monitor user needs)	<ul style="list-style-type: none"> Holding education sessions on applied methodologies and correct interpretation of data Increasing awareness of the importance of user involvement in the production of official statistics by holding Open Days Increasing the number of media releases Promoting statistical literacy Increasing the number of posts on social networks 	<ul style="list-style-type: none"> Increased number of education sessions and press conferences Increased number of Open Days Increased number of media releases Increased number of users of educational portal Stedy 	<ul style="list-style-type: none"> Continuously Continuously Continuously Continuously
2.5	User satisfaction with statistical data	<ul style="list-style-type: none"> Regularly monitor user satisfaction Back to Basics Statistics STEDy – statistical educational portal 	<ul style="list-style-type: none"> Satisfied users Popularisation of statistics Users understand and apply statistics 	<ul style="list-style-type: none"> Continuously
2.6	Information security	<ul style="list-style-type: none"> Holding education sessions on information security Increasing awareness of the importance of information security Checking access to information system Establishing and reviewing disaster recovery plan Conducting regular revisions of information security 	<ul style="list-style-type: none"> Efficient information security management system 	<ul style="list-style-type: none"> Continuously
3.1	Increase the use of administrative data sources	<ul style="list-style-type: none"> Increasing the use of administrative data for statistical purposes Improving cooperation with data providers 	<ul style="list-style-type: none"> Reducing the costs of statistical data production Reducing the burden on respondents 	<ul style="list-style-type: none"> Continuously Continuously
3.2	Increase the use of electronic questionnaires	<ul style="list-style-type: none"> Introducing electronic questionnaires in surveys as much as possible Simplify handling of questionnaires 	<ul style="list-style-type: none"> Number of respondents satisfied with the new method of data collection 	<ul style="list-style-type: none"> Continuously

No.	TOPIC	ACTIVITY	INDICATOR	DEADLINE
		<ul style="list-style-type: none"> Adjusting statistical processes to the new methods of data collection 	<ul style="list-style-type: none"> Number of modernised statistical surveys 	
3.3	Balance burden on respondents	<ul style="list-style-type: none"> Establishing a system for balanced burden on respondents Ensuring a more balanced distribution of sample using a coordinated sampling procedure 	<ul style="list-style-type: none"> Increased user satisfaction More balanced burden on respondents 	<ul style="list-style-type: none"> Continuously Continuously
4.1	Optimise business processes	<ul style="list-style-type: none"> Apply the template to describe and document any statistical survey and determine the level of quality, and enter into the POMI application and quality database 	<ul style="list-style-type: none"> Increased number of completed and entered templates for statistical surveys in the POMI application and quality database 	<ul style="list-style-type: none"> Continuously
4.2	Establish a planning system and audit instruments	<ul style="list-style-type: none"> Internal audit procedure Provide expert opinions and advices Evaluate the system, processes and internal audit system Give recommendations for improving the quality of the statistical process Prepare periodic and annual work reports Ensure that every expense is justified by the real need and confirmed by previous audit 	<ul style="list-style-type: none"> Improved CBS operations Improved quality of the statistical process Responsible financial resources management 	<ul style="list-style-type: none"> Continuously
4.3	Optimise project management	<ul style="list-style-type: none"> Prepare project documentation Monitor the realisation of selected projects Prepare final report 	<ul style="list-style-type: none"> Accepted final report 	<ul style="list-style-type: none"> Continuously Continuously
5.1	Continuously train employees	<ul style="list-style-type: none"> Participating in international and national work meetings and conferences Establishing a system of internal employee training 	<ul style="list-style-type: none"> Competent employees Increased number of internal trainings 	<ul style="list-style-type: none"> Continuously Continuously
5.2	Monitor the level of satisfaction of CBS employees	<ul style="list-style-type: none"> Conducting employee satisfaction surveys Strengthening the motivation of human resources 	<ul style="list-style-type: none"> Satisfied employees Greater resilience of employees to stressful situations 	<ul style="list-style-type: none"> Continuously Continuously

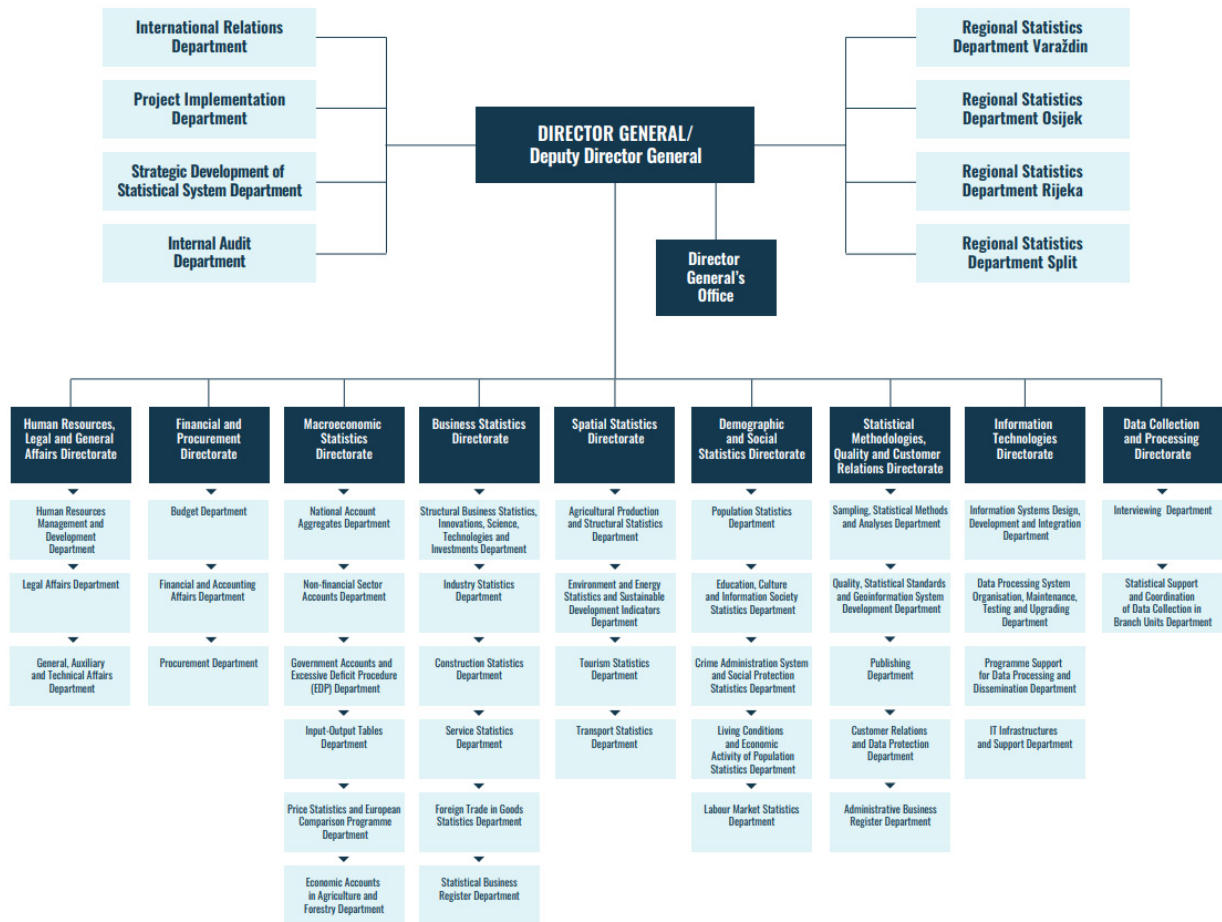
No.	TOPIC	ACTIVITY	INDICATOR	DEADLINE
5.3	Improve communication among employees at all levels	<ul style="list-style-type: none"> • Improving communication among employees at all organisational levels • Resolving conflict situations 	<ul style="list-style-type: none"> • Horizontal and vertical communication across organisational units with no difficulties • Conflict situations replaced by compromise solutions 	<ul style="list-style-type: none"> • Continuously

Annex 2 Links to Back to Basics Statistics

No.	STATISTICAL TOPIC	LINK
1	Percentage	https://www.youtube.com/watch?v=Xp-9hhC6Gk4&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=1
2	Census of Population, Households and Dwellings	https://www.youtube.com/watch?v=bZqSbUtdL8g&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=2
3	Population Estimate	https://www.youtube.com/watch?v=wod0vD405E0&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=3
4	Metadata	https://www.youtube.com/watch?v=0xucl0ik3N8&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=4
5	At-Risk-of-Poverty Threshold	https://www.youtube.com/watch?v=Vz9zLTZFGDo&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=5
6	Median and Average	https://www.youtube.com/watch?v=W1mgpktz8Ho&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=6
7	Seasonal Adjustment	https://www.youtube.com/watch?v=cT4Ny1BlpOY&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=7
8	Sample	https://www.youtube.com/watch?v=RQe9VBuhHDo&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=8
9	Standard Error	https://www.youtube.com/watch?v=GoSMG7huXNk&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=9
10	Indices	https://www.youtube.com/watch?v=y50S-sh6hOw&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=10
11	Household Budget Survey	https://www.youtube.com/watch?v=H9Bqv6bAF50&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=11
12	LFS vs Registered Employment/Unemployment	https://www.youtube.com/watch?v=fWFQFIsawRQ&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=12
13	Fertility Indicators	https://www.youtube.com/watch?v=vg_wm9_f-LI&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=13
14	Tourist Arrivals and Nights	https://www.youtube.com/watch?v=xVieYAnC4Eo&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=14
15	Consumer Price Index	https://www.youtube.com/watch?v=hfMMO59_Hk&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=15
16	Traffic Habits Survey	https://www.youtube.com/watch?v=Vjr55O1OWfI&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=16
17	Data Collection, Processing and Protection	https://www.youtube.com/watch?v=g0Cq5PLuabE&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=17

No.	STATISTICAL TOPIC	LINK
18	Business Demography	https://www.youtube.com/watch?v=0JsRjDF_8Vs&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=18
19	Probability	https://www.youtube.com/watch?v=L_puy9DknbQ&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=19
20	Basic Probability Rules – Part 1	https://www.youtube.com/watch?v=724d-9eses0&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=20
21	Basic Probability Rules – Part 2	https://www.youtube.com/watch?v=HkaAWGU5D1c&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=21
22	Basic Probability Rules – Part 3	https://www.youtube.com/watch?v=BUttW1ryBbw&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=22
23	Basic Probability Rules – Part 4	https://www.youtube.com/watch?v=SEqCwjsxv_E&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=23
24	Basic Probability Rules – Part 5	https://www.youtube.com/watch?v=k3BS4SjnPQw&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=24
25	Crop Production Statistics	https://www.youtube.com/watch?v=wjS0IM6n1BQ&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=25
26	Census of Population, Households and Dwellings	https://www.youtube.com/watch?v=0UH_X4bQE-w&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=26
27	Holydays	https://www.youtube.com/watch?v=VuN7tC6Scms&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=27
28	Migration	https://www.youtube.com/watch?v=eJ3YIMJy8XM&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=28
29	Quasi-Transit	https://www.youtube.com/watch?v=pYEVxmQr-Ro&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=29
30	Full-Time Equivalent	https://www.youtube.com/watch?v=5DuJQ_ckaig&list=PL-gBpcJPjbnrgWz6tLF-0YcpLheO-kRSr&index=30

Annex 3 Organisation Chart of the CBS



Annex 4 Hundred ways to improve quality

