# Quality Reporting Improvement Depending on the Generic Statistical Business Process Model (GSBPM): PCBS Experience

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## Abstract

Palestinian Central Bureau of Statistics (PCBS) has been working on preparing reports about data quality of its statistical surveys, aiming at creating a general perspective regarding the extent of applying the quality indicators in statistical surveys. The contribution of this paper is to address three parts of quality report based on the Palestinian experience at PCBS contribution:

The **first** part focuses on the historical overview of the Quality Department in the preparation of quality reports for statistical surveys. Starting with quality reports, they are prepared after the completion of the statistical survey and then we have developed and improved "operations and data quality reports" to control the quality during survey implementation, which contains many indicators associated with data quality in line with the GSBPM standard, and it covers many processes and sub-processes in each phase (specifying needs, designs, building, collection, processes, analysis, dissemination, and evaluations in all phases), these reports help us to decrease the non-sampling errors. **Secondly**, this paper also focuses on operations and data quality reports and their contribution in solving the problems that may face the project management, as well as reducing non-sampling errors; leading to the improvement of the data quality of statistical surveys. In addition, the possibility to evaluate the quality of the survey during its different phases and it helps in determining the most important strengths and opportunities for improvement of each phase, through drafting recommendations to improve quality during the current or the next survey cycle, and documenting the results of monitoring data quality during the project cycle. **Finally**, we are looking to improve the quality report by utilizing measurable indicators of quality dimensions depending on GSBPM.

**Key Words: GSBPM, Non-Sampling Errors, Data Quality, Quality Indicator.**

## Introduction

Quality in general, refers to the degree of fulfillment of a group of correlative particularities of specific requirements. Thus, statistical data quality refers to all fields

related to statistics that may meet users' requirements, and its reflection to their expectations regarding content, form and presentation method. Data quality was measured through a group of overlapping and interrelated dimensions (elements) namely: relevance, accuracy, timeliness and punctuality, accessibility and clarity, comparability, coherence and completeness, and achieving an appropriate level of quality in all dimensions is required.

We should assess the quality of the statistics produced continuously and systematically, which allows the statistical institution to monitor and evaluate all the components of statistical operations and outputs in various phases, thus supporting the institution in producing statistical data with high quality and gaining the trust of users.

PCBS follows various methods and techniques for assessing the quality of the statistics, including the preparation of quality data reports of the carried out statistical surveys , aiming mainly at providing users with objective information about the quality of the data and the application of the quality dimensions and indicators to assess their suitability for use to meet their needs, where the beginning was in 2011 through the preparation of quality reports linked to the quality dimensions and indicators, and during the year 2015 quality reports were developed and updated in accordance with the GSBPM for follow-up on the quality of data and statistical surveys during implementation, and in 2018 they were linked here with the dimensions of quality.

**Previous Quality Reports**

PCBS has previously worked on the preparation of quality reports, which highlight a general perspective regarding the extent of applying the dimensions (elements) of quality and its indicators in statistical surveys. These reports are prepared after the completion of the statistical survey. The report contains a series of chapters that give a comprehensive picture of the data quality, discusses the most significant scientific methods (methodology) adopted in the survey including survey objectives, questionnaire, sampling frame, mechanism for fieldwork, in addition to data processing, the dimensions and indicators of data quality, and the reflection of such dimensions on the survey, as well as the mechanisms to compute the most important survey indicators, and finally the most important recommendations that have been

reached and that is put forward to to be improved during the next survey cycle. PCBS prepared a number of these reports for a several of surveys. The extent to which the seven quality dimensions are achieved is assessed through a set of indicators, which are:

***Relevance***:
the extent of which data would meet real users' needs

- Main objective of the survey, Identification of terms, indicators and classifications
- Frequency, modernity of sampling frame, appropriate sample size and sample design, processing of outliers, calculation of weighting
- Extent of satisfaction of survey data to user needs, identification of strength points and limitations

***Accuracy***:
the extent of matching between the data and reality of the surveyed phenomenon it was designed to measure

- Calculation of sampling errors
- Procedures were applied to reduce non sampling errors
- Calculating the response rates
- Examining the raw data file

***Timeliness:***
refers to length of time between data availability and the event or phenomenon they describe

***Punctuality:***
refers to the time lag between the actual and planned dates

- Determining the reference-time reflected by data
- The lapse of time between publication and the period to which the date refer
- The time lag between the actual and planned dates of publication

***Accessibility and clarity***:
ease of getting statistical data, easy to use and appropriate form and content

- Easy access to data
- Availability of different ways of Publishing statistical data
- Availability of metadata

***Comparability***:
possibility to make comparisons of the statistical data according to time series, geographical distribution and different partials of study population

- Comparing the survey indicators as a time series, the geographical distribution of the study population or by different partials of study population.
- Comparing survey data to similar data from different related surveys

***Coherence***:
the extent of comparable methodologies leads to similar results in terms of measurements in different corners of the statistical system including the primary and secondary data sources

- Comparing the survey indicators with the same indicators from administrative records or census data.

***Completeness***:
It is the completion of the statistics in terms of coverage of indicators, geographical coverage, time coverage and coverage in terms of target groups and other related matters

- Availability of indicators covering the survey
- Coverage of all geographic regions in the study sample

**Operations and Data Quality Reports**

As PCBS is constantly striving to devlop and improve performance, and applybest practices and practical tools to improve the quality of statistical outputs. During the year 2015; development was done in controlling and monitoring mechanisms of the quality of data and processes in a direct, efficient and reliable manner during the survey implementation along with GSBPM standard as one of the improvement projects qualified us to get the European Excellence Certificate Comitted to Excellence (C2E), where the processes and indicators to be examined, monitored and evaluated cover all phases of the GSBPM standard.

Working process is based on the preparation of four partial reports including the eight phases of GSBPM, and the ninth phase (associated with the assessment) is overlapped with all other phases. The project management is provided with the most important points of strengths and opportunities for improvement emanating from the survey, notes and recommendations during the survey work to enable them to take appropriate action to improve the quality of operations during the current session of the survey towards improving the quality of the survey data. With the completion of the project, a final report will be prepared documenting all notes and recommendations related to the survey, which will enable us to provide documented reports on the quality of the surveys to be used during future sessions.

Since 2015 till now, cooperation between the Quality Department and the Project Manager and the Technical Committee to follow up the major statistical surveys in various fields, such as the Economic Surveys Series, Transport Survey, Labor Force Survey, Finance and Insurance Survey and other surveys.

In 2018, these reports were developed and linked to quality dimensions, which help in explaining the characteristics of the statistical processes, the description of the quality and the extent to which they are achieved within the different phases, which will be documented in the descriptive data file of the survey. An explanation of the indicators that are evaluated and follow-up within the phases of GSBPM in linkage with the dimensions is shown below:

*The first report:*

Includes the main phases related to the specified needs, design and build, and this report ensures that the project management is committed to prepare the preparatory file including the methodologies used in the implementation of the survey.

| Phases | Operations | Indicators | Dimensions |
|---|---|---|---|
| **Specified needs** | Preparing an approved and standard preparatory file | Adopting of terms, indicators and classifications | Relevance |
| | | Adopting the survey methodology | Relevance |
| | | Availability of approved and standard questionnaire | Relevance |
| | | Availability of automated and office editing rules | Relevance |
| | | Availability of training manual | Relevance |
| | | Availability of an approved time schedule | Relevance |
| | | Finalization of the data entry program | Accuracy |
| | | Adoption of the list of trainers | Relevance |
| **Design** | Designing methodology for data collection | Ensuring the accuracy and validity of the methodologies used in cooperation with the concerned departments and project management | Relevance Accuracy Completeness |
| | | Determining the appropriate sampling frame | Accuracy |
| | Designing methodology for data processing | Determining the method of cleaning data in consultation with relevant parties | Accuracy |
| | | Determining the method of calculation of derivative indicators | Accuracy Completeness |
| | | Ensuring the development of mechanisms to deal with missing and outliers data | Accuracy |
| | | Determining a method to examine the consistency of data for repeated samples | Accuracy |
| **Build** | Application of a Pilot to measure the survey tools | Ensuring the design and implementation of the pilot and preparing a comprehensive report of the results | Accuracy |
| | | Ensuring that the results of the pilot are used to improve the main survey | Accuracy |
| | Examining the quality and effectiveness of training | Availability of appropriate tools and environment for training | Accuracy |
| | | Commitment of accredited trainers | Accuracy |
| | | Evaluation of the fieldworkers training | Accuracy |
| | | Method of fieldworkers assessment | Accuracy |

*Second report:*

Includes the main phase of data collection, and ensures compliance with the instructions for the data collection phase highlighted in fieldwork manuals.

| Phases | Operations | Indicators | Dimensions |
|---|---|---|---|
| **Data Collection** | Field visits | Availability of field visits schedules | Relevance |
| | | Distribution of visits to all regions | Relevance |
| | | Approval of field visits and cancellation of visits | Accuracy |
| | Actual data collection | Field Team Performance (fieldworkers / Supervisor / Fieldwork Coordinator) | Accuracy |
| | Control field procedures through field visits | Reports of field visits | Accuracy |
| | | Fieldworkers commitment to the fieldwork instructions as representatives of PCBS | Accuracy |
| | | Fieldworkers commitment to the methodology of access to the respondents | Accuracy |
| | | Assessment of the respondent and the interview environment | Accuracy |
| | | Assessment of the observations and recommendations highlighted in the field visit reports | Accuracy |
| | Daily achievement of the researcher | Weekly / daily reports that are sent to the Fieldwork Coordinator | Accuracy |
| | Field follow-up | Extent of application of recommendations resulting from field visit reports | Accuracy |
| | | Extent of response to inquiries from the field | Accuracy |
| | | Field treatment for non-response cases | Accuracy |
| | | Implementation of the re-interview | Accuracy |

*Third Report:*

Includes the main phases related to data processing and analysis. In this report, it is necessary to ensure that methodologies developed during the design and build phases are applicable to examine, process and extract results.

| Phases | Operations | Indicators | Dimensions |
|---|---|---|---|
| **Processing** | Ensuring and verifying of statistical processing | Ensuring that the data are cleaned according to the methodology | Accuracy |
| | | Extent of conformity to the selected indicators according to the adopted methodological re-interview | Accuracy Completeness |
| | | Ensuring the method of calculating derived indicators as stated in the methodology | Accuracy |
| | | Ensuring the examination and processing of missing data | Accuracy |
| | | Ensuring the examination and processing of outliers | Accuracy |
| | | Examining the consistency of data for repeated samples, as described in the methodology | Coherence |
| | | Calculation of weights | Accuracy |
| | | Calculation of variance | Accuracy |
| **Analysis** | Extracting results | Validating the output of the data file | Accessibility and Clarity |
| | | Reviewing the statistical report | Accessibility |

| Phases | Operations | Indicators | Dimensions |
|---|---|---|---|
| | | | and Clarity Comparability |

*Fourth Report:*

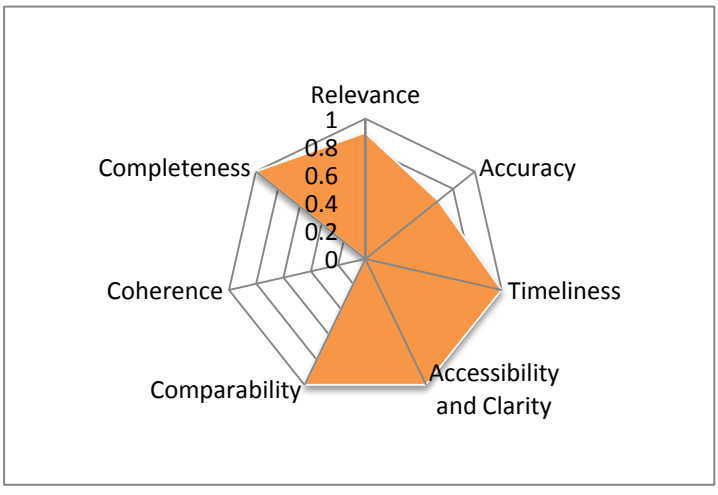
It includes the main phases of Dissemination and archiving, where it ensures the timeliness of publication of the statistical reports, preparation of the public use file and processing the metadata.

| Phases | Operations | Indicators | Dimensions |
|---|---|---|---|
| **Dissemination** | Posting on binding dates | Ensuring compliance with the timeliness of publication of the press release | Timeliness |
| | | Ensuring compliance with the timeliness of publication of the statistical report | Timeliness |
| **Archiving** | Archiving and scanning | Ensuring that documentation forms are met | Accessibility and Clarity |
| | | Ensuring adherence to the criterion of timeliness in documentation | Timeliness |
| | | The conformity of the documented copy with the version from which the results were extracted | Clarity |
| | Save metadata | Commitment to the timeliness of processing metadata | Timeliness Accessibility and Clarity |

The commitment rate for quality indicators is calculated in each phase during the survey implementation, by calculating the percentage of indicators that have been completely done, partially and which have not achieved in the survey, after excluding indicators that do not apply to the survey.

During the 2018, we will work on calculating the percentage of achieving the dimensions of quality in statistical surveys, that would help in creating a general perspective regarding the extent of applying the elements/ dimensions of quality and its indicators in statistical surveys.

The radar chart will be used to demonstrate the commitment to achieve quality dimensions, as shown, it represents the commitment to the quality dimensions of one of the statistical surveys carried out by PCBS.




[1] We will use the idea of the radar chart that used in the Development of a Self Assessment Programme (DESAP).

**Recommendations**

- Documenting all important strengths and opportunities for improvement for each phase contained in the project quality reports as part of the survey metadata.
- Publishing a "quality release" for statistical surveys in order to inform users with the quality of these surveys, in which it discusses the extent to which quality elements are achieved, and identifies future strengths and improvement points to draw a perspective for users on the quality and data of the survey.
- Work as much as possible to implement improvement points and notes resulting from quality reports to improve the quality of the survey during the current cycle.
- Ducumenting all the improvement points and notes contained in the project quality reports as a part of learning points in the preparatory phase of the next project cycle.

**Challenges**

- Potential change resistance by project managers, because it Requires more effort and time.
- Difficulty in getting quantitative measurments for some indicators or methods of measurment of other indicators.

**Future Work**

- Deriving more indicators to measure the Timeliness, Accessibility and Clarity, Comparability, Coherence and Completeness dimensions.
- Monitoring and evaluation of all statistical activities carried out by PCBS.

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