

## **Risk Management in the quality assurance framework: strengths and weaknesses of the errors revision policy**

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### **Introduction**

One of the strategic objectives of the National Statistical Institute is to improve the quality of statistical products and services.

National Institute of Statistics from Romania (NIS-Romania) is deeply involved in the quality improvement of the statistical data, to provide qualitative statistical products and services for all data users' needs. The Risk Management System is in connection with the internal managerial control system and the quality assurance framework, due to the quality principles of the European Statistics Code of Practice, mainly the relevance, accuracy, punctuality, which are key factors in the establish of strategic risks of NIS-Romania, i.e. trust and image of the NIS-Romania.

NIS-Romania is responsible for informing data users on revision and error correction practices by public presentation of the Statistical Data Revision Policy (which comprises as a component the Errors Treatment Policy) that aims to promote user confidence in the accuracy of data provided by official statistics producers. The Statistical Data Revision Policy of the NIS-Romania is based on the good practices of Czech Statistical Office, German Federal Statistical Office, Hellenic Statistical Authority, Statistics Lithuania, and Statistik Austria. The Statistical Data Revision Policy of the NIS-Romania is based on the European Statistics Code of Practice and complies with the ESS Guidelines on the Revision Policy of the Principal European Economic Indicators in force, as well as with the Quality Guidelines for Romanian Official Statistics issued by NIS-Romania in 2009. The Revision Policy of NIS-Romania and the schedule of statistical data revisions are components of the National Annual Statistical Programme and applies to each statistical domain characterized by specified data and surveys, as well as by constraints arising from various existing legislative acts.

The Errors Treatment Policy complies with the European Statistics Code of Practice, which, under Principle 6 (Impartiality and objectivity), states that “statistical authorities develop, produce and disseminate European Statistics respecting scientific independence and in an objective, professional and transparent manner in which all users are treated equitably” and, under Principle 8 (Appropriate statistical procedures), states that “appropriate statistical procedures, implemented from data collection to data validation, underpin quality statistics”. Under Principle 6, Indicator 6.3 sets out that “errors discovered in published statistics are corrected at the earliest possible date and publicised”, and Indicator 6.6 states that “advance notice is given on major revisions or changes in methodologies”. In addition, under Principle 8, Indicator 8.6, it is noted that “revisions follow standard, well-established and transparent procedures”.

In terms of the revision policy, “revisions” means any change in a statistical indicator available to users in both printed and electronic formats. Revisions or corrections are broadly defined as any change in the statistical data made available to the public. In general, the data are revised in order to incorporate new improved information and hence the revisions are inherent to statistical production. For example, the reporting of provisional or preliminary data, when data about a certain phenomenon are requested, will be improved with relevant information, available only after a certain period of time.

Under The Errors Treatment Policy, “the errors” represent incorrect statistical data and information caused by the erroneous processing of data, which have not been detected before their publication and which could have been corrected, if they had been found in due time. The **error** is defined as the dissemination of incorrect statistical data and information to the users due to the bad management of data processing procedures or the erroneous data entries or the lack of data in the processing process. Errors can be identified in the recently published statistical data (recent data) as well as in the previously disseminated statistical data (past data). The publication of statistical data that has taken place in breach of statistical confidentiality or the release of data that are under embargo is also considered an error.

An error in the disseminated statistical data, which needs to be corrected in accordance with this error correction policy, will trigger an unplanned revision of statistical data because, in most cases, the correction of errors cannot be announced in advance.

In the context of increasing the quality of statistical data, revisions should be seen as a normal phenomenon. Confidence in the provided statistics is maintained and reinforced if statistical data users find that revisions take place within a general policy and in accordance with a well-established timetable, announced in advance.

Revisions may appear either when new observations occur (monthly or quarterly) and some of the data already published changes or when the published data are changed to improve quality. In general, the purpose of reviewing statistical data is to include new, improved information, or to comply with new European or international standards adopted and new emerging methodologies superior to previous ones.

It is essential that, when errors are discovered, NIS-Romania informs the public as soon as possible and provides relevant and professional explanations to assure the statistical data users that it is only about random errors, as a way of distinguishing between honest and premeditated mistakes.

### **The Statistical Data Revision Policy including the Errors Treatment Policy**

An error can be identified within any NIS' organisational entity or by external users of statistical data and information. Regardless of the manner in which the identified error becomes known, the head of the department/division where the error was generated is informed through the usual channels of communication. If the head of department/division cannot be contacted, the superior is informed.

In order to ensure a reasonable reaction to the published errors, they are divided into the following types of errors:

1) *Errors with an insignificant impact/unimportant*: incorrect data that do not modify the published data and information (“mistake”) - for example: errors of grammar, expression or spelling, incomplete/out-of-date links, which do not affect the interpretation of the trend by the users.

2) *Errors with a minor impact*: incorrect table, text or graph data - whose importance is so small that the content of the information remains unchanged (regardless of the level of aggregation) *or* that occur at any aggregation level and whose importance is great enough to change the content of the information, but which are not of interest to the public.

3) *Errors with a major degree of impact/critical*: incorrect table, text or graph data - occur at any aggregation level, whose importance is great enough to change the content of the information and which are of interest to the public *or* have significant economic consequences or represent a breach of data protection and confidentiality.

Depending of the category of identified errors, there are different degrees of responsibility, namely:

1) *The head of department/division* – is responsible for the publication of statistical data and information and, consequently, for the correction of the published errors. In the absence of the head of department/division, his/her tasks are performed by the person assigned to these duties.

2) *The director of a directorate that produces statistics/the director-general* – is responsible for the strategic issues related to publication and, consequently, for the strategic issues related to the correction of the published errors. In their absence, their tasks are performed by the persons assigned to these duties.

3) *The director responsible for dissemination/publications/communication* – is in charge of the errors that occur in these directorates. Through the directorate co-ordinated by him/her, he/she provides support to the directorates in the compilation of various forms of dissemination.

In case of error identification, the head of the directorate where the error was generated informs the heads of the dissemination and communication departments, so that they are aware of the issues aroused and able to cope with the users' comments.

The head of department/division, together with the director of the department and with the person responsible with the work, determines the type of error.

In every printed publication it is mentioned, preferably on cover II, that in case of error detection, an erratum will be published on the NIS-Romania' website.

Errors with an insignificant impact/unimportant are corrected without any mention in press releases, publications, online databases or on the website. In case of this type of errors, no internal information and centralized documentation of errors is needed. Excepting the systematic errors, documentation within the responsible department is sufficient. There is no action of active notification for the known users.

*In case of press releases*, the error will be corrected as soon as possible and the corrected version will be published on the NIS-Romania' website.

*In case of data published in online databases*, the wrong data sets are replaced by the correct ones as soon as possible.

*In case of data and information published on the website*, the error will be usually corrected at the next revision of the respective page.

*In case of printed and electronic publications*, the error will be corrected and introduced in the next edition of the publication.

Errors with minor degree of importance are corrected in the press releases, in the electronic version of the publications, in the online databases and on the website.

*In case of press releases*, a note on the correction will be included below the title, such as "Corrected version of ... (the indicator is mentioned)", the corrected data will be written in bold and a footnote states that the data in bold represents a correction of previously published data, mentioning the number and the date of the press release. The new press release will be posted on the site and will replace the previous one.

*In case of data published in online databases*, the wrong data sets will be replaced by the corrected ones and the space devoted to notifications will include a note on the corrected data.

*In case of data and information published on the website*, the errors will be corrected and the respective page will be replaced as soon as possible.

*In case of printed publications*, no new corrected edition will be printed, but an erratum will be published on the NIS-Romania' website.

*In case of electronic publications*, the incorrect version will be replaced as soon as possible, including the attached Excel files. A note on the data and / or corrected information in the

electronic version will be included on the first page. In case the publication, according to the catalogue of publications, is issued both in electronic and printed format, the note will also refer to the errors in the printed publication.

In case of *errors with major degree of impact/critical*, the publications and press releases are withdrawn from the website and corrected as soon as possible. Serious errors of content that were detected in a form of dissemination whose relevance has decreased significantly due to the time lag compared to the reference period are excepted from this rule. These later errors are subject to correction criteria of errors with a degree of minor importance.

In case of errors with major degree of impact/critical, the following persons will be notified: the head of the general department in question, the coordinating vice-president and the president of NIS-Romania. The responsible unit urgently produces a corrected version of the press release and / or publication and compiles the following:

- a document that will be published on the NIS-Romania' website, with reference to the detected error, its cause, the mode of correction and the products that will be corrected (press releases, electronic and printed publication, data bases, etc.);
- an internal report showing the cause of the error, the way of solving it, the date of the correction and the measures to prevent future occurrence of similar errors.

The Directorate of Communication, with the support of the Directorate of Statistical data Dissemination, posts the document mentioned above on the NIS-Romania' website. The correction mentioning must be visible, preferably on the home page of the NIS-Romania' website.

The Directorate of Communication notifies the important users/subscribers on the error.

Aside from these general rules, depending on the type of product published, a series of specific rules apply.

*In case of press releases*, a note on the correction will be included below the title, such as "Corrected version of ... (the indicator is mentioned)", the corrected data will be written in bold and a footnote will state that the data in bold represents a correction of previously published data, mentioning the number and the date of the press release. The new press release will be posted on the site and will replace the previous one, being transmitted to the beneficiaries via the same channel as the wrong one.

*In case of data published in the online databases*, the wrong data sets will be replaced by the corrected ones and the space devoted to notifications will include, if necessary, a note on the corrected data.

*In case of data and information published on the website*, the errors will be corrected and the respective page will be replaced within maximum 2 days from the detection of the error. Depending on the technical solutions, a note on the corrected data/information will be included and, if necessary, the causes of the error.

*In case of printed publications*, if the publication is reprinted, the error is corrected and is accompanied by a note on the correction placed in a relevant place, usually on the same page where the error was corrected. If the publication is not reprinted, an erratum will be added to the copies not yet distributed and the erratum will be published on the website. The decision for reprinting will be based on a cost-benefit analysis.

*In case of electronic publications*, the incorrect version is replaced as soon as possible, usually in the same day, the attached Excel files included. A note on the data and / or corrected information in the electronic version will be included on the first page and, if necessary, the cause of error. The summarised description of the electronic publication on the website will include a reference to the error, the correction and the date of correction. In case the publication, according to the catalogue of publications, is issued both in electronic and printed format, but the publication is not reprinted, the note will also refer to the errors in the printed publication.

Errors which are a violation of data protection and confidentiality are considered major errors with high impact / critical. Both the correction and the communication of such errors are decided in accordance with the law in force, especially with Law no. 226 / 2009 on the organization and functioning of official statistics in Romania, as amended and further supplemented, as well as with other specific legislative documents on data protection and confidentiality. The involvement of the head of department/division, of the director of the responsible directorate, of the general director, of the coordinating vice-president / president of NIS-Romania and of the Committee for Statistical Confidentiality is necessary in managing this kind of errors.

All the categories of errors, except for those with a low degree of impact /insignificant and not regular, are documented and analyzed in accordance with the rules of the management and archiving of errors, taking measures to prevent similar future errors.

The directorate responsible with the dissemination creates and manages a registration and archiving system of errors. Errors must be notified by the directorates or divisions where the errors have been corrected to the directorate responsible with dissemination, together with the following information: date of detection, date of correction, category or degree of importance, description, cause, the action and measures taken to prevent the future occurrence of similar errors, in accordance with a system formalized procedure. The documents produced by applying the procedure are posted on the website of the NIS-Romania.

An analysis of errors is presented annually as part of the activity report of the NIS-Romania with the purpose to prevent the occurrence of errors and to reduce their number.

**The Revision Policy** covers the following main aspects:

- The Revision Policy in the European Statistical System;
- Key factors determining the revision process;
- Types of revision
  - o Planned revisions
    - Current revisions
    - Major revisions
  - o Unplanned revisions
- Rules of the Revision Policy of NIS-Romania - must include the frequency and timing of the revisions, the reasons for their revisions, their complexity and scale, the affected data series, the communication of revisions to the users of statistical data.

The review policy is considered to be of major importance in good governance in statistics, which is an essential feature of transparency in public sector activity.

#### ***The key factors determining the review process***

Typically, statistics are subject of revisions. The factors that trigger a review process are generally the following:

A. A quality dimension in statistics is the opportunity, in terms of timely access of users to statistical data. In order to produce the statistical results in a timely manner, the process of their elaboration must be carried out in a short enough period. In this respect, there are situations in which it is not possible to publish the data sufficiently quickly and consequently they are disseminated on a provisional basis, which means that they are reviewed at least once, which is often done in the statistical production process.

B. Updating / completing data by respondents to correct the initial reports containing errors or missing data;

c. Inclusion of additional observations;

- d. Changing the base or reference year of statistics, which, together with new weighting systems, can change the time series;
- e. Conceptual changes (e.g. new definitions, new classifications, etc.). These situations are quite seldom but, in this case, the review is mandatory;
- f. The emergence of new methodologies and / or the improvement of existing methodologies used to produce statistics;
- g. Modification of data sources (e.g. availability of new data sources, replacement of statistical data with administrative data etc.);
- h. Errors in calculating statistics for purely technical reasons, which require revisions of published statistical results;
- i. Changes that can be determined by a combination of factors listed above;
- j. Amendment of European Union Regulations requiring revisions of published statistical data.

### ***Types of revisions***

Given the diversity of factors that require data review and the periodicity of producing statistical data, revisions are classified into: planned revisions and unplanned revisions.

#### ***a. Planned revisions***

Planned (scheduled) revisions may be routine or of major importance.

- **Routine revisions** refer to changes in published statistical data that are related to their production process (for example, estimated missing values are replaced by reported values). Typically, routine revisions follow the review policy and are published in accordance with the review timetable (for example, when each new statistical data is published, revised revisions of the previous month are also published). The revision of the statistical data is updated annually.

### **REVISION TIMETABLE 2017**

<b>Indicator code TEMPO- online</b>	<b>No.</b>	<b>Indicator name</b>	<b>Periodicity M - Mon Q - Quar A - Ann</b>	<b>Dissemination term</b>	<b>Review term</b>
AGR208A	1	Economic accounts for agriculture, current prices	A	December of the reference year, Annual	Annual + 2 months; Annual + 10 months; Annual + 22 months; Annual + 34 months
AGR208B	2	Economic accounts for agriculture, prices for the preceding year	A	December of the reference year, Annual	Annual + 2 months; Annual + 10 months; Annual + 22 months; Annual + 34 months
AGR209A	3	Unit value statistics, basic prices	A	Annual + 10 months	Annual + 22 months; Annual + 34 months
AGR209B	4	Unit value statistics, producer prices	A	Annual + 10 months	Annual + 22 months; Annual + 34 months
AGR209C	5	Unit value statistics - quantities	A	Annual + 10 months	Annual + 22 months; Annual + 34 months
AGR210A	6	Volume of agricultural labour input	A	December of the reference year, Annual	Annual + 2 months; Annual + 10 months; Annual + 22 months; Annual + 34 months
AMG130 M	7	AMIGO - ILO un-employed, unadjusted series, by age group and by sex	M	provisionally Monthly + 30 days	Monthly + 120 days for months: January, April, July, October Monthly + 90 days for

					months: February, May, August, November Monthly + 60 days for months: March, June, September, December
AMG130 N	8	AMIGO - ILO unemployed, seasonally adjusted series, by age group and by sex	M	provisionally Monthly + 30 days	Monthly + 120 days for months: January, April, July, October Monthly + 90 days for months: February, May, August, November Monthly + 60 days for months: March, June, September, December
AMG130 O	9	AMIGO - ILO unemployed, trend, by age group and by sex	M	provisionally Monthly + 30 days	Monthly + 120 days for months: January, April, July, October Monthly + 90 days for months: February, May, August, November Monthly + 60 days for months: March, June, September, December
AMG157 G	10	AMIGO - ILO unemployment rate, unadjusted series, by age group and sex	M	provisionally Monthly + 30 days	Monthly + 120 days for months: January, April, July, October Monthly + 90 days for months: February, May, August, November Monthly + 60 days for months: March, June, September, December
.....					

• Revisions of major importance are substantial changes in published data due to some of the following:

- the availability of new structural data that are collected at long intervals (usually from 5 to 10 years) with major implications for the derived indicators, calculated on the basis of the structural data concerned;
- updating the base year weights of a series of indices, which is usually done every 5 years;
- changing the concepts, definitions and / or classifications used to produce the data series (adoption of a new classification, changes in international statistical standards etc.);
- the entry into force of a new legislative act.

Typically, producers of statistical data take advantage of the opportunity of a major future revision to introduce new methodologies and / or improve existing methodologies. This is considered a good practice because it leads to the elimination of too frequent revision processes. It is therefore obvious that major revisions are not determined by a single cause, but by a combination of several causes.

### *b. Unplanned revisions*

Being occasionally, unplanned revisions are not announced in advance because they occur either as a result of unforeseen events, such as errors with various causes (technical, human, etc.) or delays in scheduled procedures.

The errors correction operations are part of the unplanned revisions specified in the Statistical Data Revision Policy that are not announced in advance as they are the result of unpredictable events. The term “unplanned” refers to the times at which error revisions are performed, which are neither set out in the timetable of annual revisions nor reflected in dissemination plans.

In the case of unplanned revisions, it is necessary to determine the amplitude and impact on the statistical data series at the time of detection of the error, using previous practical knowledge.

If the error found does not substantially affect the interpretation of the published data, it may be corrected at the next publication or the first scheduled review.

The revision policy gives explanations on changes in statistical data in general. Customary revisions are usually reported in NIS-Romania' publications and in the tables published on the NIS-Romania' website. In contrast, errors can create confusion for the users and require special processing and information.

The errors treatment policy provides a common framework on the management of errors in all statistical production areas, with a view to continuously improving the quality of statistical processes, products and services, as well as the image of the NIS-Romania.

The implementation of the errors treatment policy is supported by NIS-Romania' internal procedures, which include internal and external communication mechanisms, as well as tools for correcting errors and reporting models.

The errors treatment policy focuses on treating the errors contained in the statistical data and information already disseminated.

NIS-Romania is regularly undertaking revision processes, applying the best statistical practices recognised at European and/or international level, depending on the statistical product.

The revisions effect upon the statistical results, seen by NIS-Romania as priorities, are subject to monitoring, in view to improve the quality of final results disseminated towards all user categories.

## **Instead of conclusions**

### **Strengths of the errors revision policy**

- NIS-Romania applies the Revision Policy, based on the European Statistics Code of Practice and complying with the ESS Guidelines on the Revision Policy of the Principal European Economic Indicators in force;
- The Revision Policy is published on the NIS-Romania' website;
- The Revision Policy of NIS-Romania and the schedule of statistical data revisions are components of the National Annual Statistical Programme;
- NIS-Romania periodically organises consultation meetings with statistical data users in order to obtain points of view on the revision processes (practices);
- Promptly informing the statistical data users on the significant errors identified in published statistics, which lead to the need for unplanned revisions. The revised results are promptly transmitted and published in an open and transparent manner, mentioning the reasons for their occurrence;
- NIS-Romania acknowledges the statistical data users, in due time, on the significant methodological changes, so that the interpretation of statistical data resulting as consequence of applying the newly implemented methodologies would not entail a false perception of the presented phenomenon;



- The planned revisions and their implementation timetable are communicated in advance, by posting all the necessary documents on the NIS-Romania' website;
- Both the planned and the unplanned revisions are published together with relevant documents and with the updated data, if available. Information on these revisions are also published on the NIS-Romania' website;
- NIS-Romania is regularly undertaking revision processes, applying the best statistical practices recognised at European and/or international level, depending on the statistical product;
- The revisions effect upon the statistical results, seen by NIS-Romania as priorities, are subject to monitoring, in view to improve the quality of final results disseminated towards all user categories.

### **Weaknesses of the errors revision policy**

- Does not set strict rules for staff;
- The error review policy is not popular enough;
- The revision policy for statistical data should include more information about the frequency and timing of revisions, the reasons for their revisions, their complexity and magnitude, the affected data series, the communication of revisions to statistical data users;
- Errors can create confusion for users and require special processing and information;
- The errors revision flow should be part of different formalized procedures relating to the statistical production processes.

### **References:**

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