Broad Organizational Review Standards

The review process exists to protect respondents, improve product quality, and ensure products meet the needs of data users.

Quality information products will have these characteristics:

- **Utility**: the information is useful to the intended users.

- **Objectivity**: the information is accurate, reliable, unbiased, and presented in an accurate, clear, and complete manner.

- **Integrity**: the information is protected from compromise through corruption or falsification.

Remember to consider the review standards of your whole organizational structure.

OMB Evaluating Quality of Information Products

Purpose and Scope of NSO Statistical Quality Standards

Purpose

Information products released **receive the appropriate reviews required to ensure they are of high quality and do not disclose protected information** or administratively restricted information.

This standard also ensures that plans to participate at public events are reviewed and approved.
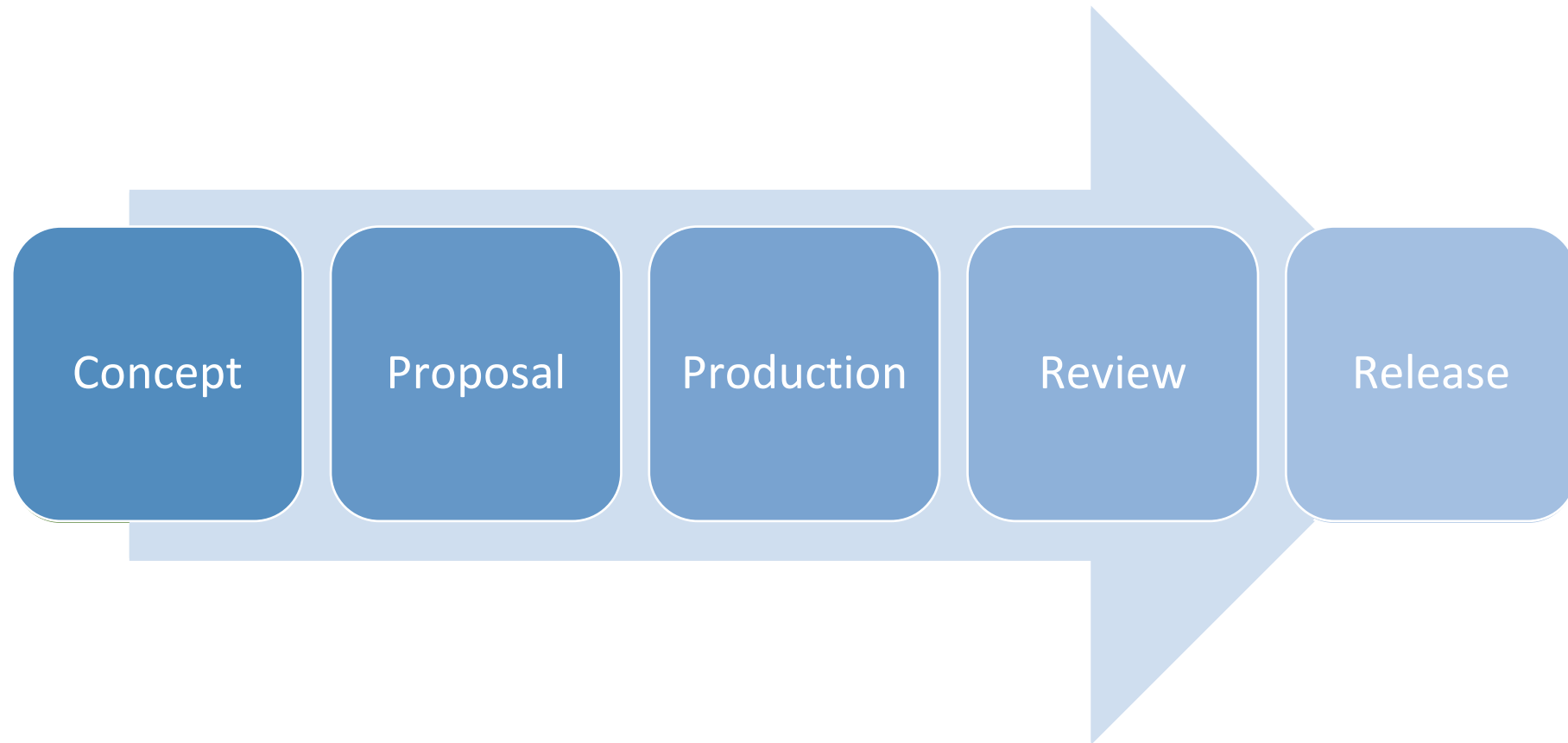
Scope

Statistical quality standards **apply to all information products and the activities that generate those products**, including products released to the public, sponsors, joint partners, or other customers.
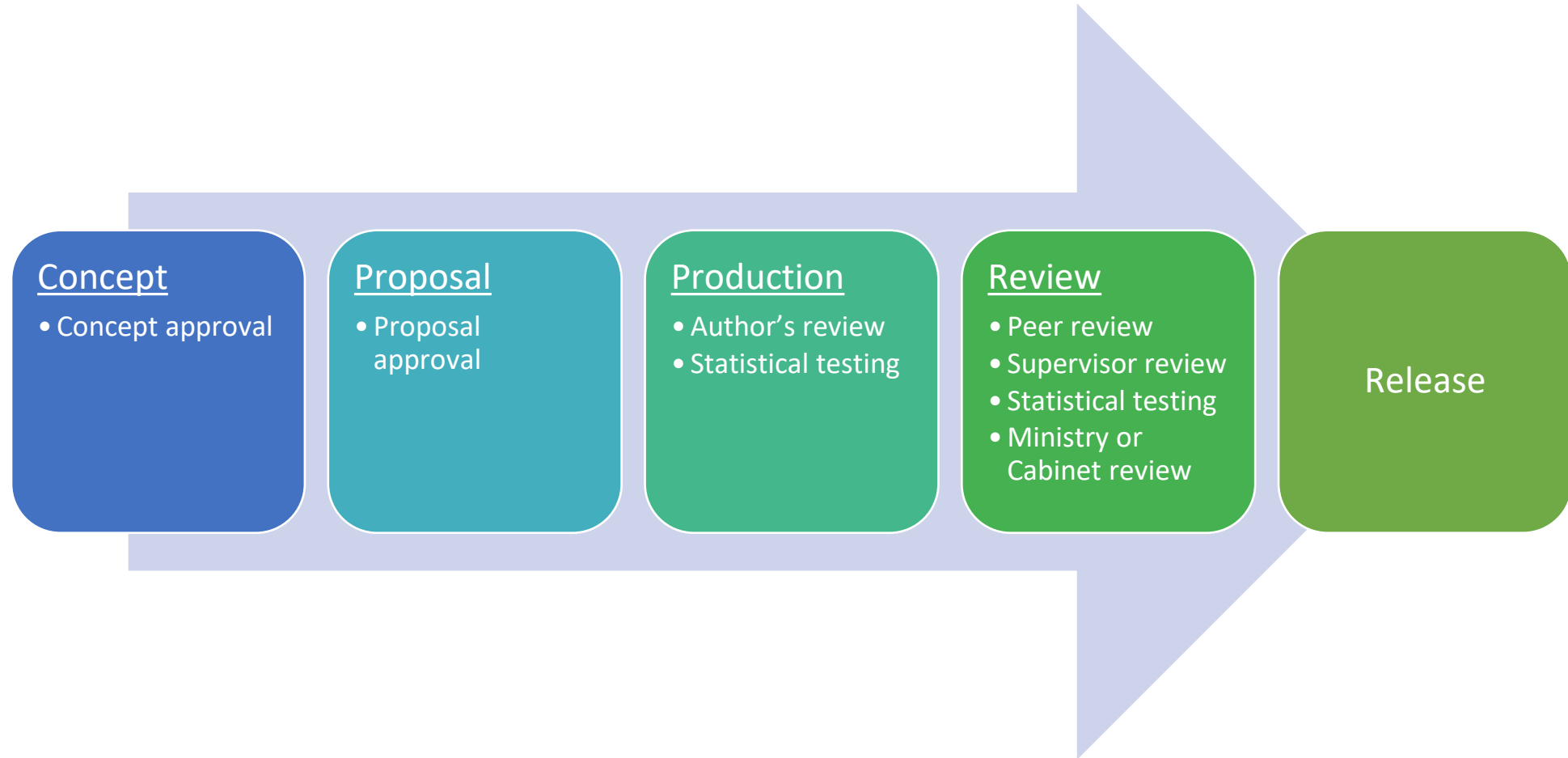
All employees must comply with these standards; this includes contractors and other individuals who receive funding to develop and release information products.

Statistical Quality Standards (census.gov)

Creating a Review Process

Step of Review

Concept
- Concept approval

Proposal
- Proposal approval

Production
- Author's review
- Statistical testing

Review
- Peer review
- Supervisor review
- Statistical testing
- Ministry or Cabinet review

Release

Types of Review

6 Types of Review:

- Supervisory review

- Content and subject matter review

- Statistical review

- Data visualization review

- Methodological review (if necessary)

- Policy and sensitivity review

Review applies to:

- News releases

- Tweets

- Core Statistical Products

- Experimental Statistical Products

- Working papers, Professional papers, and Abstracts

- Research reports guiding decisions about USCB programs

- Presentations and handouts at public events, such as seminars or conferences

- Data sets and their associated documentation.

- Tabulations, including custom tabulations, estimates, and their associated documentation

- Statistical graphs, Infographics, figures, and thematic maps

- Interactive data visualizations

Supervisory Review

In the review process, the supervisor is in the best position to ensure that all required reviews have been properly conducted, and to make the ultimate decision regarding the information product's conformance with these standards.

Requirements:
- Content is technically and factually correct
- Disclosure avoidance procedures followed
- Provisions for reviewing and releasing information products in any data-use agreements have been followed
- Product complies with the statistical quality standards
- If the information product is a draft to be released for limited circulation, it must include a disclaimer that states the draft is still under review and is not for distribution.

Additional requirements for text products:
- No policy views are expressed
- No personal views are expressed
- Only personal views on statistical, methodological, technical, or operational issues are expressed
- A disclaimer is included on the title page that indicates that any views expressed are those of the author and not necessarily those of the NSO.
- Information is presented logically, and any results follow from the data and the analysis.
- Any anomalous findings are addressed appropriately
- Correct grammar is used
- Presentation slides use the required PowerPoint template

Content and Subject-Matter Review

A good practice for this is to require that the reviewer must either **approve** the information product or provide the author with **specific written instructions** on issues to be revised.

Content/subject matter reviewer requirements:

- The content of the information product is technically and factually correct.

- The information is presented logically, and any conclusions follow from the data and the analysis.

- Any anomalous findings are addressed appropriately.

- Subject-matter literature is referenced in the information product, as appropriate.

- Graphics/visualizations are clear and appropriate.

[USCB Data Visualization Standards (xdgov.github.io)](xdgov.github.io)

Statistical Review

A good practice for this is to require that the reviewer must either **approve** the information product or provide the author with **specific written instructions** on issues to be revised.

Statistical reviewer requirements:

- Discussion of assumptions and limitations is accurate and appropriate.
- Description of the reliability of the data is accurate and complete.
- Statistical testing is performed correctly to support any comparison statements.
- Calculations and equations are accurate and statistically sound.
- Content, conclusions, and any recommendations on technical, statistical, or operational issues are supported by the methodology used and the data presented.
- A source statement is included in the information product.
- Statistical uncertainty is appropriately conveyed.
- Comparison statements, such as historical comparisons, are appropriate.

Data Visualization Review

A good practice for this is to require that the reviewer must either **approve** the information product or provide the author with **specific written instructions** on issues to be revised.

Type of visualization	Data visualization reviewers	Basis of expectations for review
Existing visualization types addressed in the standards	Program area that produced the source data as part of a supervisory review.	Requirements defined for the specific visualization.
Interactive visualizations that use programs like Tableau	A Data Visualization Committee before final supervisory review.	
New visualization not defined in the standards	Data visualization experts.	Principles and practices for data visualizations.

Methodological Review

All information products involving methodologies **other than statistical methodologies** must undergo a methodological review and receive approval.

Methodological reviewer requirements:

- Review must be conducted by individuals with expertise in the methodologies used in the information product (e.g., cognitive psychology, economics, demographic analysis, geographic information systems, or any other specialized methodology)

- Methodological reviewer must either approve the information product or provide the author with specific written instructions on issues to be revised

- Methodological reviewer must review the information product again after the author addresses any recommended revisions. If the reviewer and the author disagree on how the comments are addressed, they must inform their supervisors so that a resolution can be reached

Policy and Sensitivity Review

All information products may undergo a policy and sensitivity review. Because of the topics, this review should not be delegated to non-managerial staff.

General guidelines:

- avoid making statements that could be viewed as:

    - politically motivated, or

    - explicit policy recommendations.

- Statistical organizations must be politically neutral to maintain the trust of the public and data users.

Policy Statements Discussion

"The act of identifying a problem is as much a normative judgment as it is an objective statement of fact; thus, if analysis proceeds from the identification of a problem, and the problem is normatively defined, then one cannot say that any subsequent analysis is strictly neutral."

- "An Introduction to the Policy Process: Theories, Concepts, and Models of…", By Thomas Birkland

How do these actions differ in degree of neutrality?

1. Analyzing data and highlighting findings for policy makers.

2. Identifying something as a problem.

3. Suggesting action be taken.

4. Recommending a specific policy.

What are the guidelines for maintaining neutrality in your NSO?

Additional Review Guidelines

Rehearsals

- Presentations delivered by staff at public meetings and conferences should undergo a rehearsal.

- A senior manager should attend the rehearsal.

- All reviewers should be invited.

- Authors should provide copies of their presentations and any other relevant materials to everyone invited, in advance of the dry run.

Standardization and Branding

- Standardization and branding can occur at the beginning of the development process.

- Some developers may find it simpler to create a product without constraints and then later apply product standards and branding.

- People in the review chain should know the standardization and branding guidelines and ensure products adhere to them.

Review Documentation

- Document and retain information about the review and approval of products.

- Approval forms, emails, etc.

Citations and References

- Use citations to note data, methods, and ideas taken from other sources.

- Be consistent with the format of citations.

- Include a list of references at the end of reports.

Discussion

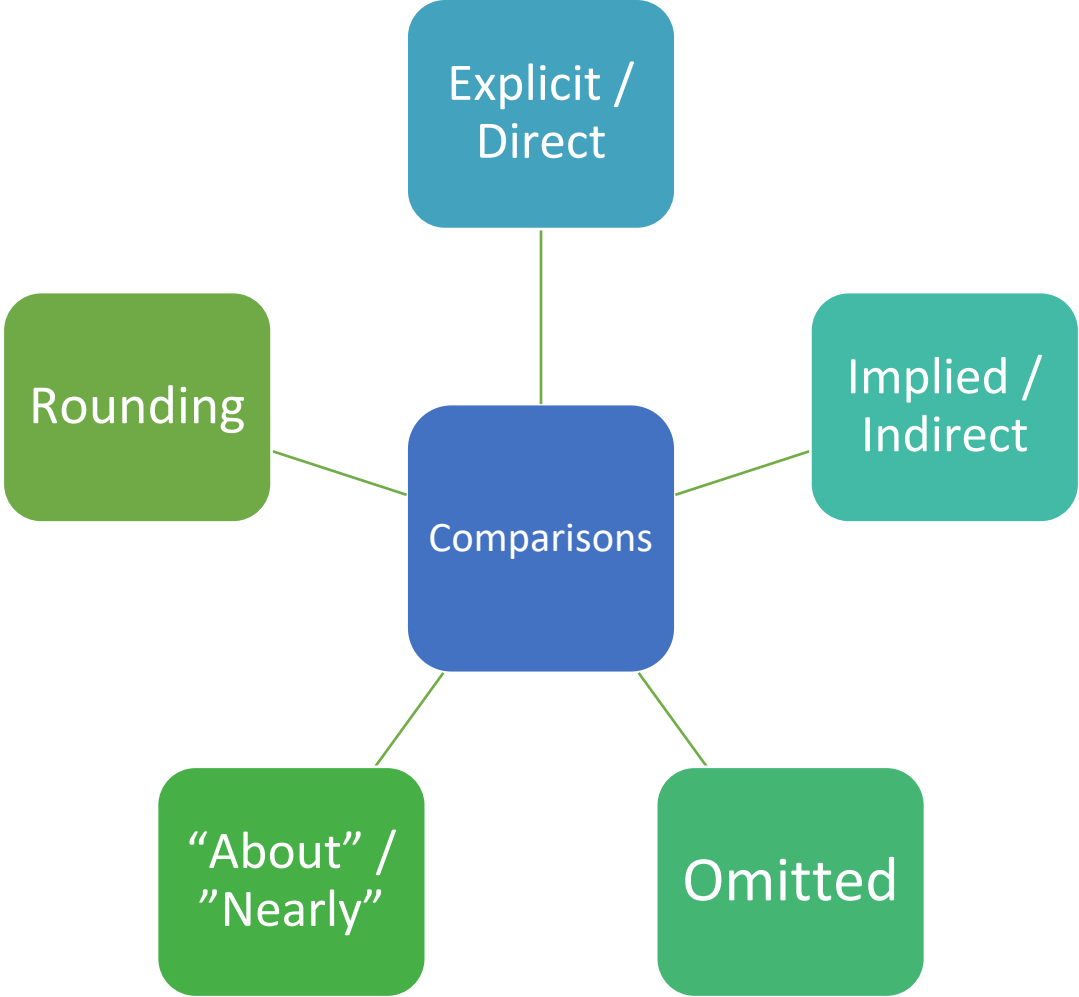What does your review process look like?

In what ways are they similar or different from what we've described?

Statistical Testing

Statistical testing ensures that dissemination products provide **understandable**, **unbiased** presentations of results and conclusions, and that conclusions are **supported by the data**.

Comparisons in Statistical Testing

Explicit or Direct Comparisons

All inferences and comparisons of estimates based on sample data should include **appropriate measures of statistical uncertainty**, such as margins of error, confidence intervals, or p-values for hypothesis tests.

Comparisons that are NOT statistically significant should include a statement saying so.

The **same** significance or confidence **level** should be used **throughout** an information product and this level should be explicitly stated in the product.

Key Comparison Words	
Different from	**Not different from**
Most	Least
More	Less
Greatest/Greater	Least/Lesser
Highest	Lowest
Most likely/More likely	Least likely/Less likely
Best	Worst
Majority	Minority
Over	Under
Close to	Far from
Approaching	Diverging from
Usually	Rarely

Implied or Indirect Comparisons

Implied comparisons are comparisons that are not explicitly stated and may not be intended.

Example:
1. "a is greater than b for group x"
2. "a is greater than b for group y"

Therefore:
1. Is a_x the same as a_y?
2. Is b_x the same as b_y?

We should test a_x and b_x, a_y and b_y, a_x and a_y, and b_x and b_y to see which are significant.

Blanket statement:
"All comparative statements in this report have undergone statistical testing, and, unless otherwise noted, all comparisons are statistically significant at the 10 percent significance level."

Specifically, call out non-significant relationships as they come up in the report.

Omitted Comparisons

Omitted comparisons are comparisons that are omitted from discussion in the product.

Example:
1. "a is greater than b and c for group x"
2. "a and c are less than b for group y"
3. "a is equal to b for group z"

Therefore:
1. Is c less than b for group z?
2. Was there not enough data?
3. Why is c not included for group z?

Note the reason for any omissions in the data product.

"About" and "Nearly" Comparisons

Beware of wordings that could change the statistical meaning of your product and introduce unintended comparisons – which require statistical testing.

No testing required	Statistically significant testing	Words to Avoid
"About"	"Nearly"	"Similar"
"Approximately"	"Almost"	"Same"
	"Close to"	"About the Same"
	"Less than"	
	"More than"	
	"Over"	
	"Usually"	
	"Approaching"	

Rounding

Rounding of numbers and percentages should be reasonable and consistent.

Any statistical testing should be done with the **original**, **unrounded** values.

Explicit Comparison with Rounding

1. 72% rate is rounded to 70% rate for population A.
2. 73% rate is rounded to 75% rate for population B.
3. Population A has a lower rate than population B.

Implicit Comparison with Rounding

1. 72% rate is rounded to 70% rate for population A.
2. 68% rate is rounded to 70% rate for population B.

Discussion

Do you have a standard process for statistical testing of your data products, or is it left to the authors of a product?

At what point in the process does statistical testing happen? After the first draft of a product or just before publication?

Creating a Review Process Exercise

1. Choose one of the data products that you plan on producing, such as:

- Set of public use microdata files from the census

- Visualization/infographic with a small summary, charts, and a thematic map

- Short report using census data about a household characteristic of a sub-population.

- Research paper by a university collaborator using data that is stored in a data enclave.

2. Write down at least one data quality standards for each of the following dimensions of data quality:

- Relevance

- Timeliness and Punctuality

- Accuracy and Reliability

- Accessibility and Clarity

- Coherence and Comparability

3. Incorporate those data quality standards into the steps of review:

- Concept approval

- Author's review

- Statistical review/testing

- Peer review

- Manager review

- Ministry or Cabinet review, if required