

Quality by design in official statistics

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Quality by design

Two extremes:

- Measure quality of the product *after*, when it is final
- Specify quality *before*, and produce according to specs (Quality by design)

- Practice is always a combination
 - but we should move more towards *Quality by design*

Contents

Reasons for quality by design:

1. Changing role of information in society
2. Trust in official statistics

How can we embed quality in our processes?

1. Quality and certification
2. Quality culture
3. Quality in statistical development



“A fact is just an opinion”

Changing role of information in society

Society is complex and dynamic:

1. Information is essential for society to function
2. Society is critical of quality of information
 - “A fact is just an opinion”
3. Explosion of information
 - Difficult to separate wheat from chaff
4. Production of information is complex
 - Especially: official statistics !

Trust in official statistics

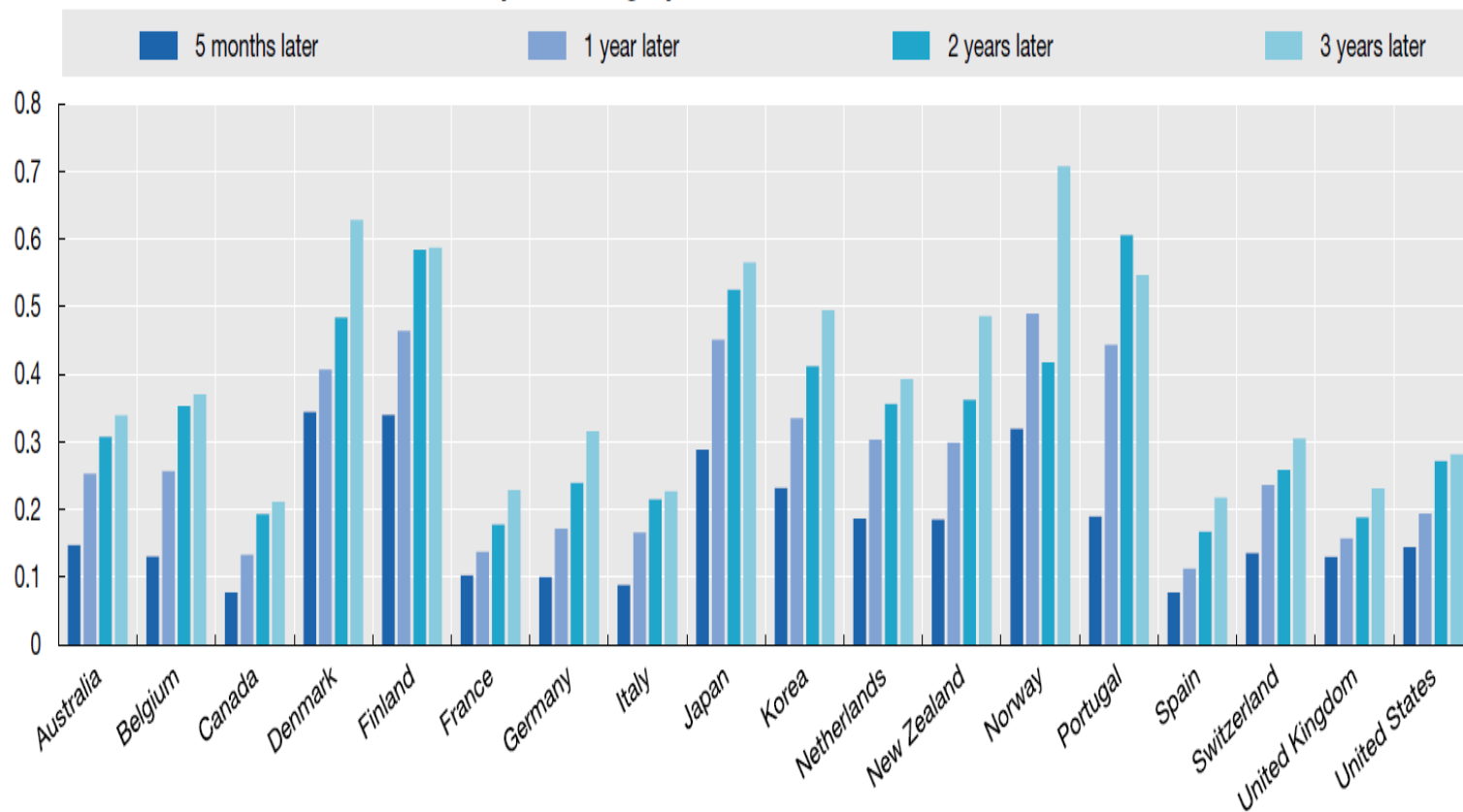
- About 50 percent does not trust in official statistics !
 - About 75 percent does not trust usage or presentation by government and media
 - Trust has fallen sharply in some EU member states
- So there is a problem !

How to convince users?

- Communication
 - Not only data, but
 - *Statistical stories*
- *Improvement of quality*
 - e.g. GNP
- *Corroboration of trust*
 - Statistical audits
 - Quality checks, e.g. Eurostat, IMF
 - Go beyond statisticians checking statisticians:
 - *Independent certification: ISO-9001 by 2019*

Quality of GNP data – OECD: mean revision

Figure 3. Mean absolute revision to first published estimates of QoQ quarterly GDP growth rates, percentage points, 1994Q4-2013Q4



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Quality culture

- We cannot have an auditor behind every statistician!
- So a *quality culture* (“way of life) is necessary
 1. Embodiment in management and guidelines
 - e.g. *PDCA, Lean Operational Management (LOM)*
 2. Improve quality:
 1. Redesigns: costly, prone to failure
 2. Day-to-day improvements
 - e.g. *Lean Six Sigma*
 - *quality sessions*

Quality in statistical development

- *PDCA* in statistical development
 - Embodiment of quality in statistical processes
- Corroboration of quality in process development
 - Transparency about methodology
 - Certification of R&D as a process, as an activity
 - ISO 9001
 - Professional assessments of research

Conclusion

Essential *improve* trust in official statistics:

- Improvement of quality, e.g. GNP
- Embodiment of quality in day-to-day work in NSIs:
 - Plan-do-check-act: way of working
 - Lean Operational Management: management
 - Lean Six Sigma: improve operations
- Convince users:
 - Statistical story telling: not only data, but information
 - Certification of all activities: *ISO-9001*

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