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Kommunikasjonen av resultat og kvalitet til brukeren (Statistiske produkter)

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## Statistical storytelling and quality in the age of open data

*Abstract:* Socio-economic and environmental changes are more profound and complex than ever. Furthermore, statistics today achieve a central role as a tool of knowledge-based governance. The practices of statistics cannot be separated from related political, administrative, professional and social processes. Therefore, there is an ever-greater demand for understanding, interpreting and communicating statistics. Along with the global trend of open knowledge and data there is also an ever growing and substantial, in general positive, interest towards data visualisation (infographics) and data journalism.

These significant ongoing changes challenge the NSIs to strengthen and sharpen their role, not only as experts of official statistics, but also as skilled interpreters and communicators of official statistics. The quality of statistical storytelling is seen as a key issue. It is not only the quality of official data that matters – the quality of the interpretation and analysis of statistical data is also crucial.

This paper highlights how sharing (disseminating) official statistical data is not enough. In addition, we need to combine the interpretation of statistics in the form of print or web articles written by experts with the use of dynamic visualisation tools. We also need to stress the importance of communicating the relevant key messages to the audiences.

The ongoing changes have brought positive pressure to develop the concepts and roles of our print magazines, publications and web publishing. We have recently improved the concept and content of our web articles and made more use of the tools of dynamic visual storytelling (eXplorer) and social media (a blog as a pilot project; Facebook) to meet different user needs and to communicate and engage in dialogue with our readers.

Consequently, we have a good chance of enhancing and strengthening the role and brand of Statistics Finland as a professional, competent and reliable information provider.

## Introduction: Changes in the operating environment

Economic globalisation, international integration, structural changes in society, and problems and crisis related to the economy, social issues and the environment have affected how social phenomena have been viewed through new concepts in recent years. An important perspective in conceptualisation is how to fit the viewpoints of the economy, the environment and well-being together.

We are dealing with a particularly complex and challenging phenomenon that requires a cross-statistical approach. The changes have been reflected in the compilation of statistics and in the requirements to revise it to better correspond with the changed circumstances and new data needs. (OECD 2008, 2011; Stiglitz & Sen & Fitoussi 2009; Giovannini 2009; European Commission 2009, 2011; European Statistical System Committee 2011).

### *Evidence-based decision-making*

EU regulation in the statistical domain has increased and EU policy is largely evidence-based. The newest example is the Europe 2020 strategy and the indicators created based on it (European Commission 2010). Increased use of indicators in politics has meant increased politicisation of statistics (Radermacher et al. 2010). Statistical data, and the indicators created based on them, are based on institutional practices and are not neutral in this sense (Sverdrup 2005). Therefore, indicators are not simply a data reserve that is utilised in policy-making but they have a crucial role when building a common understanding of a joint social scope within the EU area and of the related problems and solutions they require (Desrosières 2000, 179).

Through EU, the evidence-based approach has expanded to national policy-making as well. The challenge for national statistical institutes is to combine international and national needs in their data production. The macro level indicators intended for EU policy do not necessarily serve national and local decision-making (e.g. Ahlqvist & Okkonen 2011; Okkonen & Sauli 2013).

Recently, a lot of research has been made on the dual nature of statistical knowledge: how it both describes reality and shapes it (e.g. Desrosières 1998; Ahlqvist 2010; Sætnan et al. 2011; Simpura & Melkas 2013). The practices of statistics cannot be separated from related political, administrative, professional, and social processes (Sætnan et.al 2011, 11). Therefore, there is an ever-greater demand for understanding, interpreting and communicating statistics. In addition to communicating statistical findings, evidence-based decision-making also requires turning data into information and knowledge (Australian Bureau of Statistics. ABS).

### *Social media and networks – effects on statistical institutes*

The world of Web 2.0 and social media are changing the way people communicate and connect with others on-line. It transforms the "consumer" of some particular information provided via the Internet into a "prosumer" – a person who is simultaneously a consumer and a producer of the information. "This change has deep implications for the world of official statistics, which is becoming more aware of the need to exploit the opportunities offered by web 2.0" (Giovannini

2010). Therefore, social media forms both a challenge and a great opportunity for National Statistical Institutes (Giovannini 2010).

Although it is impossible to control social media, it should – when used sensibly and efficiently – be planned and monitored effectively. One must also ensure sufficient resources and knowledge, as the survey on the use of social media tools in the NSIs, conducted in 2010, showed (Vesterinen 2011).

Social media has also constituted a new arena in which amateur and expert information meet. A substantial question is, which source of information users trust?

#### *Open data, data journalism and visualisation*

A recent major issue affecting the statistical world is the increase of open knowledge and open data. Continuous increase in open data and data in general and its effects on producers of official statistics are considerable. This challenges statistical institutes to better familiarise themselves with the phenomenon and take it into consideration in their activities, in particular in dissemination of statistics and in communicating it (e.g. Mikkilä 2013).

New types of data sources or Big Data, and methodological development to integrate them as part of official statistics bring particular challenges, but at the same time also possibilities, for producers of official statistics (Radermacher 2013). The main benefit of Big Data is its timeliness. It has, for instance, been suggested that in an era of accelerating technological development and the Internet, official statistics has little alternative but to either ignore the existence of Big Data or boldly explore its opportunities and combine it with official statistics (Groves 2013).

Simultaneously, data visualisation and journalism are emerging and getting more popular. The data journalism concept is, however, multidimensional and used quite incoherently. The Data Journalism Handbook is an excellent introduction to the concept, the phenomenon itself and its background (Gray, J. et al. 2012). Furthermore, this open-source reference book offers a lot of practical examples and tools for reporters and anyone working with open data.

Along with the data visualisation trend, some NSIs (e.g. Netherlands, Australia, Italy) and international organisations (e.g. the OECD, The World Bank) have for some time been active in data visualisation creating infographics and new animated and interactive applications for visual storytelling and making statistics more appealing and understandable for a larger audience.

Overall, the development has meant increased competition on the information markets, and that the data available varies a lot in terms of quality. The risk is that data, which has been incorrectly combined or interpreted, will appear and live on in networks. Researchers and experts should become more active as producers and criticisers of different types of data content and as cooperation partners of journalists (Melkas 2011). In addition to pressure, the changes have created new possibilities for statistical institutes to develop their products, statistical dissemination and communication.

Statistical institutes have reacted to the changes by digitising and opening their databases. In practice, this has meant a strong increase of data available online in table and news format. A lot of attention has also been given to developing quality standards (e.g. ESS practices), producing metadata and quality description of data (Eurostat, European Statistical System 2011). The problem is that data and the metadata that describe them are separate. The data users must be active in order to be able to assess the suitability of available data for their intended use based on the metadata. All these factors highlight the significance of the quality in disseminating and communicating official statistics. Therefore, there is an ever-growing need for meaningful and accurate interpretation and analysis of statistical results.

The problem is the limited scope of the quality concept. The focus in describing the quality of statistical data lies nearly solely on statistical measurement and issues of quantification. Little attention has been paid to the relevance of statistics and content issues in assessing and describing quality. No attention has been paid to the quality of print and digital publishing or its assessment.

### **Focus shifts from dissemination to communication**

A basic principle of compilation of statistics is that statistical results are public and equally available to everyone. However, the view of how results should be published has been less self-evident and varied from one time to another. The requirement of objectivity and independence of statistics has at times been interpreted so that mere publication of statistical figures is enough. In this case, the responsibility to interpret has been left to the data user.

Recently, the responsibility of producers of statistics to interpret the figures they publish has also become emphasised. The justification has been that statistical information is never self-evident. “The more statistical production is based on complex methodology the more it is necessary to explain the results” (Commission of the European Communities 2009). Data users have also voiced their need for analytical publishing of statistical results that explain the reasons behind social phenomena, separate actual changes from fictitious ones, questions easy explanations, and gives methodological criticism (reader survey of Hyvinvointikatsaus – Social Statistics Review).

The publishing of statistical institutes has many objectives. It helps the institutes to communicate with the surrounding society. In addition to publishing statistical figures, the objective is communication on the basics, objectives and methods of statistics.

Statistical institutes should sharpen their own role as a producer of information and knowledge on society. There are several political, conceptual and methodological choices in the background of statistical production that affect the conclusions and interpretations. Only those who compile statistics can point out the consequences and reservations of these choices. This is an area where statistical institutes are at their best.

Justified knowledge in statistical communication means that, in addition to presenting the data and results, their meaning is discussed and well-founded conclusions are presented based on them. Apart from presentation of statistical data and methodology, the interpretation should also be based on the contextual aspects of statistical production, and it should find its credibility from interaction with the surrounding society. Richard Alldritt (2012), separates “*descriptive text* which sets out the relevant facts about the statistics such as time periods, geography, methods, definitions, etc. and *narrative text* drawing out the main messages from statistics, explaining the relevance of statistics in terms of the policy context, starting assumptions about the use that will be made of the statistics and highlighting their strengths and limitations in those contexts”.

*High quality and communicative publishing activity requires the following from statistical institutes:*

- seeing publishing activity as a crucial part of all activities and as an objective
- identification and monitoring of different user groups and data needs
- versatile publication selection and alternative user interfaces for different user groups
- improving of the analytical approach and quality in publications
- increasing interaction and cooperation with experts and with data users
- development of diversified knowledge (phenomenon and methodological knowledge, communication knowledge, knowledge of content provision and new tools)
- development and use of new presentation tools (e.g. dynamic animations, interactive applications)
- utilisation of cooperation possibilities (e.g. in the field of data journalism)

## What are we doing now?

Statistics Finland has recently paid special attention to communication of statistics (see appendix). In Statistics Finland's publishing and communication policy plan for 2012-2015 compiled a couple of years ago, the line was taken that publishing activities forms an appropriate entity and meets the needs of different types of data users. The use of statistics is promoted by increasing, for instance, multi-statistical and analytical publishing. The best possible publishing media is found for each publication. Statistics Finland publishes two periodicals, *Hyvinvointikatsaus* (Social Statistics Review) based on social statistics and the *Tieto&trendit* periodical that focuses on the economy and environment. The well-received renewal of the *Tieto&trendit* periodical's website and starting of a related blog has increased data accessibility and created interaction and dialogue with the audience. The editors of publications arrange training for their writers at so-called article workshops. The workshops also function as a tool for developing cross-statistical knowledge and understanding.

Web publishing has also been increased by establishing thematic pages on different topics (e.g. Population census and Environmental accounts), which utilise the latest data visualisation tools. Findicator, a databank of indicators on social progress, has been developed in cooperation with the Council of State.

Regular seminars and courses are organised to increase interaction and cooperation. These provide the experts of statistical institutes with an opportunity to present their research results and discuss issues related to the topic and data production with other experts.

This summer Statistics Finland also participates in the World Conference of Science Journalists by producing a workshop on data journalism in practice (<http://wcsj2013.org/data-journalism-open-data-exploring-interpreting-presenting-open-data/>).

## What lies ahead of us?

- more and more emphasis is put on quality instead of quantity
- strengthening of analytical publishing that interpret data and of storytelling (we have the data, but who will tell the stories?)
- recognising topical phenomena that are important for our time (usually requiring cross-statistical examination)
- controlled implementation of web publishing, quality cannot suffer
- development of diversified knowledge and creative networking
- more innovative in-house cooperation emphasise in future (e.g. diversified teams, innovation workshops, more efficient development work)
- in addition to traditional cooperation forms, new and more agile forms of cooperation with our partners
- our relationship to increasing open data and data journalism is assessed and positioned

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## Appendix.

### Examples of publication products and web services that are under development



**Tieto&trendit** (*Facts and Trends*) periodical – Print version, published seven times per year since 2005, focuses primarily on economic and environmental issues and is targeted to business life, media, the public sector, organisations and academics. Occasionally contains thematic contents on topical economic issues and links to expert seminars (e.g. Seminar on Globalisation organised by Statistics Finland on 17 April 2013).



The new *website* of Tieto&trendit (<http://tietotrendit.stat.fi/mag/index/>) was launched in February 2013. The new site, with an user-friendly structure and new design, was created for publishing topical issues, shorter stories and so called “in-between” articles. The bottom line of the renewal is the shift towards an interactive communication and active dialogue with the readers as providing them with the possibility to comment the stories or easily share them via social media.

More up-to-date web writing and editing skills are required for the maintenance of the new website.



**Tieto&trendit -blog** (<http://tietotrenditblogi.stat.fi/>) – The key idea behind the blog, also launched in February 2013, is to generate open and versatile discussions with the aim to attract readers and the wider public to an active dialogue on statistics and their utilisation in society. It provides statisticians and other experts with an agile tool to react quickly and easily to any discussions related to their domain of statistics in the media and elsewhere on the web.

Keeping the so far well-received blog alive surely require active presence from the editorial team.



## Hyvinvointikatsaus (Social Statistics Review)

(<http://tilastokeskus.fi/tup/hyvinvointikatsaus/index.html>) represents thematic publications within social statistics in Statistics Finland's collection of publications. The review that is published four times per year in print and partially on the web focuses on social, economic and demographic changes that affect the lives of citizens. In addition to statistical data and research results, the review discusses topics related to statistical policy and the concepts and methods of statistics. The review is aimed at a specialised readership such as researchers, experts, teachers, students and media. In

future, the aim is to increase web publication in order to improve data accessibility and interaction.

In order to promote interaction between experts, the Social Statistics Review organises one *expert seminar* per year related to one of its thematic issues. The themes of the seminars have so far been measuring of wellbeing, relationships between generations, and the latest, European living conditions and the financial crisis (11 March 2013). The seminar offers the experts of Statistics Finland the chance to present their research results and discuss issues related to the topic and data production with other experts.



## Findicator (<http://www.findikaattori.fi/en>), is a

comprehensive *databank*, which includes approximately 100 up-to-date and relevant indicators of social progress. The service (launched October 2009) features a user-friendly design and high quality statistical graphics along with charts, tables, analyses and links to background information. Social media services such as Twitter, Facebook and Wikipedia are used to share content and communicate with the users.

The Findicator team is constantly improving the site's content and user interface. New features, such as the calendar of updates and social media options, are added at a regular pace, while the indicator collection is revised and expanded. Work is also done to enhance Findicator's public recognition and search engine visibility.

**Working Papers** series – A new series founded in 2013, where reports and research papers related to statistical concepts, classifications and methods, seminar reports, conference speeches and initiatives are published. The series is directed at the Finnish and international research community, expert users of statistical data and other producers of statistical data.