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Value of official statistics – interim report

Note by the Task Force on the Value of Official Statistics

Summary

The document includes the interim report of the Task Force on the Value of Official Statistics. The Bureau of the Conference of European Statisticians (CES) established the Task Force on the Value of Official Statistics in March 2015 with the objective to define what users, stakeholders and society value in official statistics, and develop ways to measure this value for better understanding and communication of this value to society

Section VII of the report formulates eight interim recommendations on the way forward in national statistical offices and internationally. The Task Force will continue its work in 2016-2017 to develop the measurement framework and indicators on the value of official statistics, and create a wiki platform to share best practices in increasing, promoting and measuring the value of official statistics.

The document is submitted to the CES plenary session for discussion and advice concerning further work priorities.

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I. Introduction

1. Official statistics have been a success story over decades. In an information age, the provision of reliable and high quality data and information by national statistical offices (NSOs) around the world has been increasingly important to our economies and societies. But this very success creates a danger of complacency and of failing to recognize the implications of technological and other developments:

(a) NSOs are by no means the sole supplier of information. Indeed, the world is arguably awash with information;

(b) Tightening budgets and proper public accountability have increased the pressure on NSOs to demonstrate how effectively they use public funds to meet the needs for statistical information;

(c) Technological advances have powered the Digital and Data Revolutions. These raise legitimate questions about how effectively NSOs are using these new possibilities to expand the benefits they provide to our societies;

(d) The challenge in front of Big Data, as every day, 2.5 quintillion bytes of data are created – so much that 90 per cent of the data in the world today have been created in the last two years.[1] Correct analysis of the data is the key success factor in being able to make better decisions;[2]

(e) These same developments are available not just to NSOs but to all and often serve to increase the competition to NSOs from other information providers.

2. Under these conditions, in April 2014, the Conference of European Statisticians (CES) held a seminar "What is the value of official statistics and how do we communicate that value?" The Conference stated that the value of official statistics should be promoted as a global asset, and called for joint actions at the international level to develop a common language and terminology related to the value of official statistics and to measure the economic value of official statistics through collection of case studies.

3. To advance this agenda, the CES Bureau asked a group of interested countries and organizations to develop a road map to explore the key aspects to be covered in further work on the value of official statistics. Such a road map was prepared by a group composed of the United Kingdom (chair), Austria, Canada, Mexico, OECD and UNECE.

4. In consequence, the CES Bureau established a Task Force on the Value of Official Statistics in March 2015, composed of experts from the United Kingdom (chair), Mexico (vice chair), Canada, Ireland, New Zealand, Turkey, Eurostat and OECD. UNECE acts as the secretariat. By virtue of its terms of reference, the Task Force aims to define what users, stakeholders and society value in official statistics, and develop ways to measure this value for better understanding and communication to society.

5. In October 2015, the Task Force carried out a survey of NSOs, jointly with the UNECE High-Level Group (HLG) Modernisation Committee on Products and Sources, to collate good and innovative practices which improved the relevance of official statistics, measured their value or persuasively advocated the value of investing in official statistics. Where respondents were happy to have such information shared, this Interim Report reports such examples.

[1] www.ibm.com/smarterpl/us/en/business_analytics/article/it_businees_intelligence.html
[2] "Performance and Capacity Implications for Big Data", ibm.com/redbooks

6. The last section provides draft recommendations for discussion at the Conference in April 2016. The Task Force will continue its work based on the guidance and feedback.

II. The current position

A. What is value?

7. Value is a central but sometimes slippery concept for any business or service. The Oxford English Dictionary defines value as "the importance, worth, or usefulness of something". It may have a material or monetary dimension: how much could be charged for the particular output or service. But, for a public organization in particular, it is also likely to have a wider component – the value that the organization contributes to society, regardless of whether all of its contribution could or should be charged for.

8. There is also a dynamic element insofar as an output or service is rarely timelessly of intrinsic value. The value depends on changing circumstances and needs. Oil lamps lost value after the advent of gas and then electric lighting, as did steam power when more efficient means of propulsion came available. Putting this in another way, and in the context of official statistics, value has to be built continuously.

9. In less abstract terms, one of the strongest motivations for producing data and information is its usefulness in evidence based decision making. When resources are limited and choices need to be made as to how they should best be deployed to maximum effect, reliable evidence is at a premium. This applies whether it is a governmental decision at local, national or international level, a business decision or a personal decision that is at stake. Conversely, official statistics are arguably of little value in themselves unless they help the making of well based decisions. Or, in convenient summary:

10. Data are the lifeblood of decision-making and the raw material for accountability. Without high-quality data providing the right information on the right things at the right time; designing, monitoring and evaluating effective policies becomes almost impossible.[3]

B. What surveys show about the current position

11. Overall, official statistics currently retain pleasingly high appreciation. The Task Force received 49 replies[4] to its survey in October 2015. Two thirds of NSOs who responded reported that the citations of their statistics have an increasing trend, and only 3 offices record a decreasing trend. While user confidence is often already at a high level, more than half of NSOs nevertheless reported that the trend is rising further (the rest do not have the information available.) Two thirds reported that the importance of their statistics among users is increasing, while the other third does not have information on this parameter.

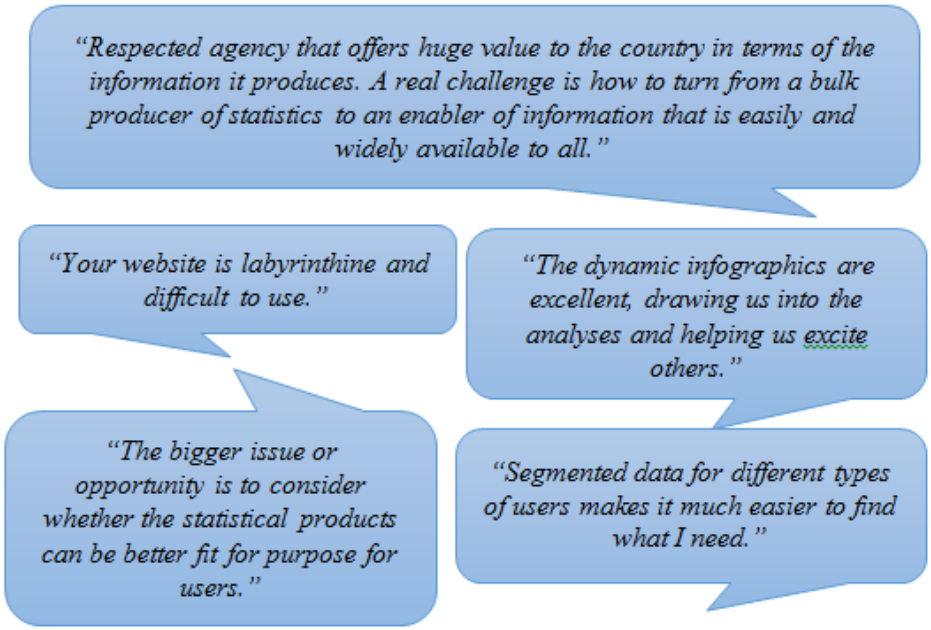
[3] A World that Counts: www.undatarevolution.org/report/

[4] The following countries and organizations responded: Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Canada, Chile, Colombia, Croatia, Estonia, Finland, Georgia, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Mexico, Moldova, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Turkey, Ukraine, United Kingdom, United States Energy Information Administration, United States Social Security Administration, United States Bureau of Labor Statistics and CIS-STAT, Eurostat and ESCAP.

12. This is, though, a story at aggregate level. Getting below the surface indicates further information: some positive, some neutral and some more doubtful. Based on individual countries' user surveys, on the credit side of the balance sheet:

- More frequent users seem to value statistics more highly. A gradual trend of an increasing proportion of less frequent and first time users can be seen.
- Users who trust official statistics most also seem to value them most highly. For example, in New Zealand 92 per cent of those who completely trust official statistics are satisfied, and 85 per cent of those who feel statistics are completely free of political interference are satisfied with official statistics, and in Mexico, 90 per cent of the population that have used official statistics in their activities believe it to be essential for sound decision making.

13. Some of these points are illustrated by various quotes within the feedback received:



14. All in all, the conclusion is that official statistics start from a good base and that the overall trends are still favourable. Nevertheless, there are warning signs that we would ignore at our peril.

C. Official statistics and decision making

15. The UNECE survey also asked NSOs about the value of official statistics for decision making. The responses showed a remarkably wide range of decisions that were assisted by official statistics. Calculations of minimum wage, fuel surcharges, policies and strategies to reduce poverty and unemployment, population and labour force forecasts, property prices and the rental market analysis, regional development and city planning, union negotiations, transport infrastructure, education infrastructure, subsidies, quotas, government representation and electoral boundaries, health services, immigration, trade, quality of life comparisons, interest rates, budgets and finance, local, national and international strategic planning and development, crisis management, and investment were some of the uses of official statistics for decision making.

16. Furthermore, the survey suggested that where NSOs monitored the use and value placed on their statistics, there were positive trends. There were improving trends both in media citations and also in feedback about the trust and usefulness of official statistics.

17. There were also many concrete examples as to where official statistics were supporting and enabling good decision making throughout societies. At the same time, there was considerable evidence of misuse, lack of use or misunderstanding of official statistics. The harmonized index of consumer prices (HICP) was misunderstood adjusting rent on property (Hungary), immigration statistics were misused in an election campaign (Switzerland), the public perception of immigration did not match with the information available (Italy) and the purported "vanishing advantage of a university degree" (Canada). All of these examples point to a lack of statistical literacy or at least a lack of knowledge as to what relevant and potentially useful statistics were available.[5]

18. At the least, this suggests that NSOs would be unwise to rest on their laurels. There is clearly more to do to improve public debate and decision-making and the contribution of data and official statistics to supporting them. One lesson may be to move increasingly beyond just producing statistics but also to set those statistics in context and to bring out the story that those statistics tell.

19. While we live in an information age where provision of information is at a premium, there is no pre-ordained reason why NSOs alone can provide that information. Potential users will take the information from *any* provider if it is perceived to have value in the terms described in previous sections. Certainly, official statisticians have considerable comparative advantages on which they can rely. But competing information providers have advantages, too. Sometimes, they will have resources available to them which dwarf those available to most NSOs.

III. Exploiting official statistics' comparative advantage

20. The exact ways in which official statistics are provided and their scope differs in some degree from country to country. But in particular, the Fundamental Principles of Official Statistics apply to everything we do. The principles were developed over 20 years ago by the CES to help define what constitutes a good system of official statistics and what role the statistical system should play in countries. Their message[6] in simple terms is:

- We are impartial: we publish relevant findings without fear or favour.
- We are professional: we have rigorous quality assurance practices.
- We are scientific: we facilitate a correct interpretation of data by using scientific standards.
- We are vocal: we provide information on the use of our statistics and interpretation of our statistics.
- We are flexible: we draw information from many sources.
- We protect confidentiality: we operate in secure physical and digital environments.
- We are transparent: we fully disclose our methods and standards.

[5] Janssen and Forbes (2014) "The Use of Official Statistics in Evidence Based Policy Making in New Zealand".

[6] Modernstats-HLG video on the Fundamental Principles: www.youtube.com/watch?v=uxb3iOnVr1Y. This generalized video was produced based on Statistics Canada's promotional video, published in 2013.

- We collaborate: we work with statistical agencies within our country to uphold a consistent and efficient statistical system.
- We promote efficiency: we continually review and update our methods, processes and systems.
- We are global: we cooperate with international partners to ensure best methods.

21. Adherence to these principles has given official statistics a number of major advantages:

(a) Official statistics have solid institutional and legal bases. Combined with competent and professionally independent production standards, NSOs generally have strong and respected reputations and images.

(b) NSOs usually have respected mandates to collect data, which might be more difficult for agencies which might be seen as having ulterior motives. By the same token, respondents are more likely to provide accurate information without fear of any consequences. Furthermore, the mandate given to NSOs ensures that data are collected and published consistently over long periods which allows for comparison of social and economic phenomena overtime.

(c) More generally, official statistics are seen as being produced with the sole aim of generating truthful and accurate information. NSOs have no additional special interests to forward, as might be perceived to be the case with some other information providers.

IV. Existing practices to measure and promote value

22. As discussed earlier, official statisticians should be able to learn not only from good and productive practices in other NSOs but also from other industries. While it is true NSOs generally have no "bottom line" to guide and motivate their approach, commercial concerns can generally also expect to make sustained profits only if they are perceived to add value. Generating value is therefore a common objective.

A. Current practices in statistical offices

1. Promoting value

23. Most NSOs – 94 per cent in our survey – took some action to explain and promote the value of the statistics to their stakeholders. In many cases, this was helped by the repeated use of key messages or phrases to embed the value of the official statistics in the public perception. Some NSOs also used a single phrase or slogan with most or all of their releases to emphasize their purpose and what they stood for.

24. NSOs are increasingly using new ways of presenting statistics, in order to reveal more clearly their value. Visualisations and infographics are increasingly used as experience of their use increases.

2. Measuring value

25. NSOs generally take steps to measure the perceived value of their outputs. Measuring and monitoring citations is a particularly widespread practice. Almost 90 per cent of responding NSOs monitor citations in the media to their office and to their statistics and services. Only 5 NSOs reported not doing this. Many offices have outsourced media monitoring to commercial entities. Two out of three offices report an increasing trend in citations, and only three offices report a decreasing trend.

26. Citations are used to review how statistics are used, perceived and that they are correctly interpreted. Some offices classify the citations into those that have either a positive, negative or neutral impact on the value and image of official statistics. Some offices reported peaks in citations around releases of statistics that are high on current political agenda of the country.

27. Since 2013, Statistics Lithuania has calculated a composite indicator, *an index of public interest in official statistics and services*. It covers changes in the number of unique visits on the Official Statistics Portal, and in the e-Statistics system, registered by hit counters, newly registered Portal users, individual enquiries, and cases of quotation in the monitored media, with the year 2013 taken as the base year.

28. In Mexico a report "INEGI in the Media" reflects the monthly institutional positioning of INEGI in the media, its impact and an estimated market value.

29. A further widespread practice (78 per cent of responding NSOs) is the monitoring of user confidence (or trust) in the NSO and/or its outputs. More than 50 per cent of offices reported an increasing trend of trust in official statistics, while most of the others report a stable position. Only one office reported a decreasing trend.

30. The questions in the user surveys measure confidence in the NSOs, whether users find the statistics objective or politically neutral, whether users trust official statistics, whether statistics are considered accurate or reliable and how users evaluate the image of the office. Some offices ask questions that relate directly to certain statistics such as "Do you have trust in statistics like unemployment, population, national accounts, foreign trade, industrial production which are produced by our Institution?" These surveys are typically carried out annually, or every second year or every third year.

31. The U.S. Bureau of Labor Statistics (BLS) has a daily trust survey that enables interesting analysis of the impact of different events or comments concerning official statistics on users' trust in statistics[7].

32. More than 80 per cent of NSOs measure the usefulness or importance of their statistical products and services to the users. Two offices out of three reported an increasing trend of perceived usefulness of official statistics, while the rest do not have information about the trend.

33. The United States Energy Information Administration reports as useful simple questions on *why users came to the website*. This provides interesting information on the use of statistics, such as for writing a report, making an investment, teaching a class, educating themselves or briefing a decision maker.

34. Statistics Canada and Spain mention that they monitor *media coverage of statistics* by statistical themes, including census, business, demography and labour, among others. The purpose is to collect information on the use of different statistics. For instance, Spain reported over 14 million accesses to the INE database in 2014, and more than 22,000 followers of their twitter account (@es_INE).

35. The Italian National Institute for Statistics (Istat) provides a possibility for *user feedback on each page* of the website. They ask users whether the content is useful and enable them to write comments.

36. Statistics Estonia uses a *recommendation index* as an indicator of customer satisfaction. On the rating scale 0–10, those who give 9–10 points are considered recommenders and those who give 0–6 points are considered non-recommenders. The

[7] www.unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.45/2015/BC53_Maintaining_Credibility_in_an_Increasingly_Skeptical_World_edited-_Levi.pdf

recommendation index is calculated as the share of non-recommenders subtracted from the share of recommenders.

37. Much less common have been attempts to quantify the monetary value of statistical products. In principle, cost-benefit analysis would be a powerful means of measuring and promoting value of statistics. In practice, the difficulties of realising such an approach have been substantial. Nevertheless, both the New Zealand and Spanish NSOs have carried out pioneering work.

38. Statistics New Zealand assesses the economic value of some of its statistics[8]:

- Population Census[9]: Despite difficult quantification, census delivers benefits well in excess of its costs (a net present value of close to $1 billion over the next 25 years). Every dollar invested in the census generates a net benefit of five dollars in the economy;
- Experimental work is ongoing on measuring the economic value of the Consumer Price Index (CPI) and tertiary education data in the Integrated Data Infrastructure (IDI) to develop a methodology for measuring the economic value of statistics;
- Customer Measurement Framework: a project to develop a framework and indicators to measure users' awareness, access, use and satisfaction with statistical products and services.

B. Practices in other industries

39. The previous sections make clear that NSOs can learn about good practices from each other. But the fundamental issue of generating value is no different from that faced by other industries, including those businesses in the commercial sector. It is therefore important to consider what can be learnt from this source.

40. The findings presented in this section are based on case studies of a selection of companies and industries. These were chosen to include a mix of different types of company/industry, and include both well-established, and newer and more innovative ones. The compilation of the case studies was based solely on internet research.

41. The following companies/industries were selected: Apple Inc, Amazon, BMW, Google, Meteorological services, UK Pharmaceuticals and JH Whittaker and Sons.

1. Generating value

42. Analysis of the case studies reveals several key themes in the way these businesses generate and promote value:

(a) Customer focus

43. Staying relevant to the customer is crucial to all of the businesses considered. Put simply, if a business doesn't produce products that provide value to its customers, then it will cease to exist. Understanding what customers do and do not value allows businesses to innovate products, services and capabilities to fit these needs, to the business's advantage.

[8] www.stats.govt.nz/methods/research-papers/topss/valuing-census.aspx

[9] "Valuing the Census", Statistics New Zealand, April 2013: www.stats.govt.nz/methods/research-papers/topss/valuing-census.aspx

(b) Good design

44. Design is also a recurring feature and allies naturally with customer focus. Having identified what it is potential customers want, the natural next step is to design products and services that fit the need.

45. The effective use of design is a valuable source of differentiation, and gives customers a reason for buying from a firm and not its competitors. Design also adds value to products and services and improves their accessibility to customers. Customers are often willing to pay more for well-designed products that can offer benefits such as greater usability, improved functionality and improved aesthetics.

(c) Determined innovation

46. Design may be critically important but it needs to have something to work on. For this reason, concentration on innovation is a further recurrent feature of the case studies in how the businesses generate value. Creativity and innovation can lead to new and more attractive products, more efficient and effective work processes and in consequence increased sales and increased customer satisfaction.

(d) Productive partnerships

47. The fourth recurrent theme from the case studies is the importance attached to formation of well-considered partnerships. **'**For generations companies built moats between themselves and their competitors. Today, the most successful companies build bridges'**.** Firms taking advantage of strategic partnerships can utilise the counterparty's strengths to make both firms stronger in the long run. Teaming up with others enables businesses to generate value and gain competitive advantage through access to a partner's resources, including markets, technologies, capital and people.

(e) Brand management and recognition

48. All of the businesses in the case studies place great weight on brand recognition as a means of delivering and communicating value. They see this as no less important than the goods and services they produce. Successful pursuit of brand recognition can generate major value for a company.

49. It is probably best taken, however, as being not an independent ingredient of success but rather something that builds on the potential value from customer focus, good design, innovation and from focused partnership working. A branding exercise based on purported reliability or user friendliness would be unlikely to be successful if the underlying product or service did not have such attributes. Brand promotion is rather about communicating and promoting these underlying ingredients of value. Different businesses have adopted varying approaches to this. Both Apple and Google have achieved brand success by courting media coverage. Being aggressively global has also been important to the success of these brands.

50. Each year many brands use these little winner badges on their packaging. As a consumer facing a shelf full of items, it is human nature to make comparisons and look for signals, so why not use the one with a little medal on it.

(f) Impact and outcomes

51. Ultimately, as discussed earlier in this report, organizations in both the public and private sectors generate value via their impact on social and economic outcomes. Whereas previously, most companies focused on assessing value in terms of the bottom line, there is now, for good commercial reasons, a stronger focus on demonstrating value in terms of impacts on society.

2. Measurement of value

52. Information on how industries and companies measure value is often not freely available because they see this as commercially sensitive information. However, from publicly available information, measurement is focused on the following dimensions:

(a) Financial metrics

53. Most of the industries and firms included in this study use a range of conventional financial measures to monitor their progress. These include metrics such as revenue, profitability, sales growth, return on invested capital, market share and shareholder value. Most of these metrics are published regularly in annual reports by companies such as Apple, Google, and Amazon.

(b) Customer satisfaction

54. Apple, Amazon and Google all use the American Customer Satisfaction Index (ACSI) customer rating to compare themselves to their competitors. ACSI is a cause and effect model with indices for drivers of satisfaction (customer expectations, perceived quality and perceived value), satisfaction (ACSI) and outcomes for satisfaction (customer complaints and customer loyalty, including customer retention and price tolerance).

55. Apple also uses the Net Promoter Score (NPS) to track customer satisfaction and loyalty. This is based on asking customers a simple question: **'**How likely are you to recommend our company, products or services to a friend or colleague'? and scaling the responses.

56. Amazon tracks its performance against about 500 measurable goals, nearly 80 per cent of which relate to customer objectives. Details of the full suite of customer-based measures are not readily available but include metrics such as percentage of orders from repeat customers and growth in the number of customer accounts.

57. BMW constantly measures product-based satisfaction and satisfaction with sales and services. A sample of services or new vehicle customers is surveyed for satisfaction with the dealer's performance after every visit to the dealership. In addition, the company runs regular market research studies to track customer satisfaction.

(c) Innovation

58. Apple, Google and Amazon all track the value generated by innovation, because of its importance to them. Measures used include percentage of revenue spent on research and development (R&D), percentage of revenue coming from new products, and R&D expenditure as a percentage of net sales.

(d) Economic impact

59. With increasing pressure for accountability for use of public funds, meteorological offices are increasingly seeking to quantify the impact of weather variability on the economy or different sectors of the economy, such as agriculture, retail sales, and aviation. For example, it has been estimated that weather variability accounts for as much as 3.4 per cent of GDP in the US, and that a third of economic activity is impacted in some way. The extent to which accurate forecasting can mitigate these effects is therefore an important measure of success.

60. The pharmaceutical industry has also sought to demonstrate its value through the use of measures that quantify the industry's contribution to the economy. Measures used include the contribution of the industry to GDP and national income, and its impact on the country's trade balance and employment.

C. Comparison of official statistics and other industries' approaches

61. NSOs conduct a range of approaches, both to measuring the value and impact of their outputs and to promoting that value. A more significant difference in emphasis as compared to other industry approaches, is the extent to which businesses have embedded value generation and promotion into their overall business model: Customer focus and brand recognition, being supported by emphasis on cultures and modes of operation likely to feed these, appear much more central to their operation.

62. Exactly how large such differences are is a question which can be reasonably debated. But what is undoubtedly true is that these other industry approaches are a fertile ground for NSOs' attention. We can learn from them, just as we can from each other.

63. As a high level summary, one might think of a paradigm for the generation and promotion of value in the following terms:

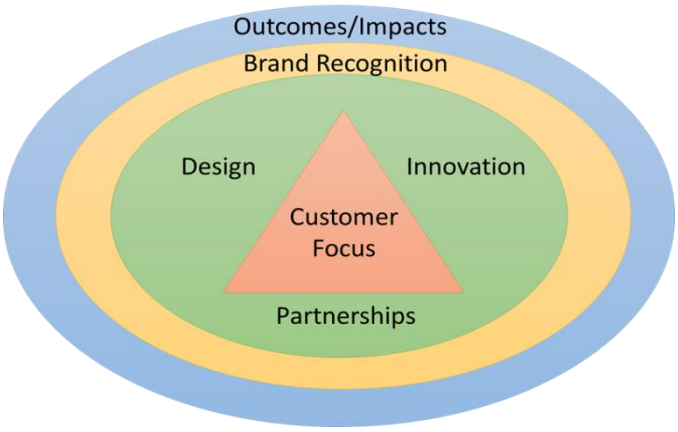
(a) Begin with a firm focus on the customer/user and his/her needs;

(b) Place stress on design of products and services to meet those needs, based on continuing innovation and on the fruits of well-chosen strategic partners;

(c) Invest in brand recognition and promotion so that those well designed and innovative services are well known and trusted;

(d) In this way, generate beneficial outcomes and impacts on society, which in turn are widely recognized as having added value, or, in terms of a diagrammatic representation of concentric circles.

Graph 1
Dimension of value



V. Building value through partnerships

64. Indeed, NSOs already engage in extensive partnerships of different kinds. In 2014, the High-Level Group for the Modernisation of Official Statistics carried out a survey which identified some 57 such partnerships in 25 different countries or organizations. The most common type of partnership is with a data provider, followed by analytical partners. A few partnerships are with data consumers, design partners and technology partners. This indicates that access to data is currently the main reason for engaging in partnerships. NSOs are able to use partnerships with the public and private sector, civil society organizations, academia, and other stakeholders to achieve broader and more accurate data collection:

(a) At an operational level, partnerships fill a range of needs: funding, knowledge sharing, advocacy, development of reference materials, outsourcing of services

as well as supporting the data production and access to data. Recently, to a degree, NSOs' business models have expanded to include Big Data and "crowdsourcing" as components of partnerships;

(b) Strong strategic partnerships also yield more visibility for statistical agencies. Collaborative outreach can be a powerful tool to encourage the use of official data and engage with specific audiences;

(c) By sharing successes and challenges in pursuing partnerships, agencies can work together to promote the value of official statistics and establish governance models while maintaining the independence and public trust that are central to the work of a statistical agency.

65. This discussion is based on the in-depth review[10] carried out by Statistics Canada for discussion at the CES Bureau in October 2015.

A. Partnerships with stakeholders

66. Partnerships with the public sector contribute to official statistics by supporting data acquisition, advancing statistical business processes, and developing information technology infrastructure, tools and software. These partnerships increase the value of statistics by supporting existing programs and addressing data gaps. Partnerships are also crucial for the coordination of national administrative data.

67. Internationally, data exchanges between statistical agencies are long standing. They can help triangulate, for example, information about trade or capital flows, or indeed in a globalised world, about international production sequences.

68. Partnerships with commercial organizations are likely to become more prevalent as statistical agencies venture into Big Data and crowdsourcing. One promising avenue is the use of private sector administrative data for the purposes of constructing official statistics – for example credit card company information or utility company records to yield information about residency or lifestyle. A number of NSOs have agreements with software companies to provide information technology services.

69. Other partnerships take the form of structured relationships with users. The NSO might offer advice and training in the use of its products. Conversely, users have the opportunity to provide feedback or, more actively, to help shape the development of products.

70. Partnerships with civil society foster better response rates from the business sector, which will translate into better quality data, thus increasing the value of official statistics. Moreover, the use of official data among key decision makers adds credibility and augments the public trust necessary for statistical agencies to function.

71. Partnerships with the academic and research communities are carried out to support fundamental and applied research, facilitate microdata access, promote the use of analytical tools, influence academic curricula, establish joint professorships and share knowledge. They contribute, among others, to substantially increase the availability of public-use data files and improve access to official statistics.

72. Several national statistical agencies have partnered with universities to extend their capabilities and improve their data-gathering practices. Other initiatives have aimed at

[10] www.unece.org/stats/ces/in-depth-reviews/partner.html

partnership with secondary schools to increase statistical awareness and literacy amongst the pupils.

B. Partnerships through engagement activities

73. Engagement activities help to accomplish various goals, such as encouraging respondent participation, gaining support from influential bodies, showcasing the value of official statistics and promoting their use by giving access to data and tools, and offering training and support.

74. Engagement is generally an ongoing relationship which can be more or less strong and more or less structured. It might, for example, embody ongoing partnership between a NSO and its respondents, aimed at securing required information in the least burdensome way. Also common are engagement mechanisms with users incorporating briefings, presentations and workshops aimed at ensuring maximum understanding and exploitation of the value of official statistics. An extension involving one particular class of users is joint events outside experts, with the goal of improving public debate and decision making regarding key issues.

C. Partnerships to leverage Big Data

75. The advent of Big Data, with its potential impact on the core business of statistical organizations, points up the potential of partnership arrangements to drive this agenda forward. Due to the uncertainty, complexity, velocity and size of Big Data, many NSOs may not have internal expertise in design, analysis, and technology that would be needed to exploit the opportunities in full. Partnership working to assemble the full portfolio of skills and experience that will be needed for using Big Data seems an obvious option. Candidates for such partners could be found amongst the academic sector research institutes, technology providers, data consumers, data privacy protectors and businesses.

76. Apart from other advantages, such partnership can also pay dividends in more intangible ways. These derive from the coming together of different backgrounds, cultures and skills of the various parties.

D. Crowdsourcing

77. While historical examples can be cited of crowdsourcing over several centuries, its modern use for assembling statistical information from a disseminated group of inputters is still in its infancy. In principle, however, it is a technique that could locate and assemble information, analyze existing information, seek help to find an empirical solution, and evaluate public taste or public support.

78. Its potential is as a low-cost partnership that produces timely and relevant data. It also potentially unites diverse resources and people, helping organizations to innovate and achieve better results.

79. There are currently only limited examples of such partnerships involving NSOs but it is an avenue that should be kept in mind.

E. An assessment and going forward

80. NSOs already engage in many partnerships, in diverse ways and with diverse counterparties. There is a rich quarry available for mutual learning amongst NSOs.

81. It is possible to discern areas where the potential for gain has not yet been fully exploited:

- Creating an internationally shared statistical infrastructure would be greatly assisted by the identification of effective models of collaborative development;
- Potential gains from shared development of common business architecture would be particularly useful, a fact that should be reflected in technical assistance programs;
- Stronger partnerships with other government organizations, other levels of government, businesses and non-government organizations will be needed to gain access to data and to adapt them to the needs of official statistics;
- There would seem substantial untapped potential for collaboration with the private and commercial sectors: (a) in developing and sourcing new types of information; (b) developing technologies for data collection, measurement and dissemination; and (c) creating new products.

VI. Towards better measurement of the value of official statistics

A. Towards a framework with a set of indicators

82. When it comes to measuring the value of official statistics, several questions need to be addressed. The first and perhaps most basic one relates to the choice between the various methodologies one could potentially apply:

(a) Observable "objective" indicators: indicators like the number of downloads, the number of citations by type of media, etc. that can be collected from existing sources are relevant for analysing the value of official statistics. Each of these indicators will provide information on a specific aspect of the value of official statistics, thus not being representative of the full value. Further, subjective choices in the selection of the vast array of possible indicators, need to be made in order not to drown in a plethora of them. As such, the representativeness of the indicators and the need to make an appropriate selection of a limited set of indicators are in tension;

(b) "Subjective" indicators derived from user satisfaction surveys**:** indispensable to assess the value of statistics in terms of the user confidence and trust in official statistics, the usefulness and accessibility of official statistics. Dedicated surveys could be done on a periodic, say annual, basis, or could be addressed to a sample of visitors of the website on a more continuous basis;

(c) Methodologies trying to value/monetise the value of statistics: being able to put a monetary value to official statistics would provide a very powerful and convincing tool for demonstrating its value. Some attempts have been made to apply such a monetary valuation but so far not with great success. A key issue to be addressed, in the absence of observable prices, is finding convincing ways of determining appropriate shadow prices to underpin the calculation of value. A further issue is avoiding missing part of the output or double-counting some output elements. Accordingly, the list of proposed indicators below does not contain any attempts to arrive at monetary values. However, (a) there would be value in sharing examples of experimental work in measuring the value of official statistics (such as estimating the economic value of census data, the consumer price index or the value of statistics in general), and (b) putting valuation techniques on the agenda for future research.

83. In the selection of indicators, the diagram in section IV is a good starting point. However, there are other dimensions or issues to take into account:

(a) While it is important that the brand of official statistics is recognized, it is not enough. People may know the name of the statistical office and its logo, but they still often do a Google search, if they need statistics on a certain phenomenon. In an event at a university in Ireland, when asked how many knew the statistical office, almost everyone did. But when asked how many had visited the website of the statistical office, only two hands out of 200 came up;

(b) Furthermore, we may think that we are very innovative in producing new tools and ideas to communicate statistics, if they are not recognised and used by the public, it has no value;

(c) The ultimate focus should be on what the users want: are the data they are looking for available, are they available at the right level of detail, sufficient quality and in the right format? How many users do we have? How do they use our statistics? How useful are our statistics for them? In this respect, design, innovation, partnerships and brand recognition are important intermediate stages in generating value from official statistics. But the value to be measured must be based on the actual use made of official statistics, their accessibility and their perceived quality and usefulness;

(d) Having indicators on the inputs (e.g. hours spent on development) may be useful as a management tool but these do not t tell us anything about the impact of statistics.

84. Furthermore, the measurability of the indicator is an important criterion. For the subjective indicators, this implies having available means to survey user satisfaction on a regular and reliable basis. It would also be desirable to arrive at a set of indicators that allow for international comparison. Although difference in the outcomes across countries may (heavily) depend on cultural differences, international comparison may provide useful information for mutual exchanges of experiences and best practice.

85. Finally, it is important to know more about potential users who presently are not using statistics. Why are they not using official statistics? Are they not aware of the statistics we offer? Are our statistics not useful to them? Are the statistics not in the right format or timely enough? The same holds for the need to improve our knowledge on what kind of statistics people are looking for, to have more knowledge of what it is that our users actually need and value.

86. Below, two concrete proposals are put forward:

(a) The first concerns the identification of key objective indicators. Themes for objective indicators were selected based on Task Force members' views on the 5 key things statistical offices would be doing if they were really successful in their work;

(b) Secondly, to arrive at a limited set of subjective indicators, an internationally harmonized minimum set of issues is proposed that need to be addressed in user surveys. As a next step, these questions could be further refined and developed into a survey tool with the UNECE HLG, and subsequently be used by statistical offices as an online survey tool.

B. Possible indicators

87. When looking at possible objective indicators, one would typically look for indicators that reflect the actual use of official statistics in the various domains (policy, research, media, general public, etc.). In addition, one could include indicators which reflect the adherence to the Fundamental Principles of Official Statistics.

1. Key themes for objective indicators

(a) Indicator(s) on the actual use of statistics

88. These include indicators such as the number of visits to the website and data downloads, by topic. These indicators would provide a fair reflection of the actual use of official statistics. They can also reflect the acquaintance of users with the statistical office. Obviously, one would like to have more information on the type of users, and whether or not the users could (easily) retrieve the relevant data, and whether or not they are satisfied with the results. Such information could be collected via the surveying of visitors on a sample basis (see also below, under the subjective indicators) or implementing a Customer Relationship Management System (CRM).

(b) Indicator(s) on the relevance of statistics

89. An important indicator is constituted by the number of citations in the main newspapers/news-websites, radio and television channels, for example related to press conferences, releases, and other specific communication channels. This indicator including the development over time provides a good indicator of the impact of statistical "news", its relevance for public debate, the branding of and the trust in official statistics. The number of citations in research and policy would provide a different cut on the degree of relevance and trust in official statistics, but now for more specific groups. An analysis of the alternative data sources used may provide additional information on what reasons users have not to use official statistics.

(c) Indicator(s) on the transparency of statistics

90. One indication of transparency would be the publication of an advance release calendar, and the publication of an indicator reflecting the adherence to this calendar. In addition, one could collect information on the quality framework in place, and make the results of reviews/audits publicly available. The latter may also be relevant for the indicator below.

(d) Indicator(s) on the quality of statistics

91. The most obvious summary would be the magnitude and direction of regular revisions in economic growth or a continually updated list of international best practices implemented by the NSO. As economic growth is based on a whole array of underlying data sources, it may also provide an indication of reliability beyond the remits of national accounts. Such indicators would have to be used with care, however, given for example differences in revisions policies between countries.

2. Key themes for subjective indicators

92. Indicators on more subjective perceptions could relate to the following topics and recommendations. Some of the questions are more generic in nature, and thus intended for all users. Other questions, such as the ones on innovation, may need to be more targeted at specific, better informed user groups. In parallel with obtaining information of these issues, it would be desirable to establish ways of generating more information on the users of official statistics (age, gender, level of education, etc.) and the use of official statistics (how often do they use official statistics; for what purpose do they use the statistics; and from where do they typically get data?)

(a) Satisfaction with products and services (relates to recommendation-1 of the next section)

93. First and foremost, one would like to know whether the user did manage to find an answer to his/her question(s), whether or not the relevant information was easy to find (e.g.

accessibility of databases), and to what extent the information needs were met. This analysis could be further deepened by asking questions on what the user considers the most important characteristics of official statistics or statistics more generally (e.g. timeliness, accuracy, trustworthiness, (inter)national comparability, etc.), and how he/she rates official statistics on each of these characteristics.

(b) User Support (recommendation-2)

94. Under this heading, questions could be asked in relation to the general perception of user on whether or not we are doing well, what the user thinks we could do better in serving users.

(c) Design, communication and metadata (recommendation-3)

95. Here, questions could be raised on the design of the website in general, and the statistical warehouse in particular: how easy/difficult it is to navigate and find the relevant information, how satisfied the user is about the visualization of official statistics (videos, infographics, maps, graphs, indicator sets), etc.

(d) Relevance, responsiveness and innovation (recommendation-4)

96. How effectively does the statistical office inform the public debate on current issues affecting our country, to what extent are we innovative in the way we work (e.g. using new technologies, methods and data sources), how important are official statistics in helping to understand societal developments.

(e) Awareness of brand and message (recommendation-6)

97. Under this heading, questions could be raised on the trust in official statistics, the perceived lack of political interference, and the overall satisfaction with the statistical office.

(f) Specific products and services (recommendation-7)

98. Have you heard of "xxx" statistics, how satisfied are you with the quality of the "xxx", have you used public use files or anonymized micro data and for which domains would you need them mostly, do you think there are benefits for you or your organization from increased sharing of anonymized data, etc.

99. In addition, it is useful to conduct or participate in occasional targeted surveys in addition to the main user survey, for instance:

- Government-wide surveys on how well people recognise different agencies, their logos and mandates, including the NSO;
- Online surveys that appear on the NSOs' website with a couple of targeted questions on the usefulness of the website and its functions;
- Key stakeholder surveys to find out about their specific needs. This would be a useful tool for developing effective partnerships (recommendation-5) and realigning the communication strategy.

VII. Recommendations

100. NSOs start from a position where usage of their outputs is generally increasing and where user confidence and trust is rising, often from already high levels. However, the official statistical community would be unwise in the extreme to regard this as a prescription for resting on its laurels. Changing needs and circumstances present numerous

challenges. The world is not short of information: on the contrary, it is awash with it. Many bodies would claim to generate useful information and official statisticians have no monopoly on that. Developments in technology are likely to underline rather than detract from this conclusion. The challenge for official statistics is to demonstrate that they nevertheless continue to add, and indeed add growing, unique value.

101. This leads to a number of more specific recommendations for the way forward. The first recommendation relates especially to the comparative advantage of official statistics, discussed in sections II and III.

A. Recommendation 1 - Exploit the comparative advantage of official statistics (the cornerstone)

102. Official statistics are produced in full professional independence based on scientific methods, rigorous quality criteria and the Fundamental Principles. It could be said that the value of official statistics, as compared to any other statistics or data, is "the difference induced by the Fundamental Principles", therefore:

- The quality assurance of official statistics is essential for the recognition of their value and competitiveness, compared to other data sources, as well as a key element to increase the user´s confidence in them;
- All NSOs should establish a Quality Assurance Framework, available to users, within their organizations, in order to ensure the quality of the statistics they produce and disseminate;
- The NSOs should make a clear and concise quality statement that summarizes how they implement the Fundamental Principles of Official Statistics, thus guaranteeing the reliability and quality of the products they produce, in distinction from other data providers that do not apply these principles rigorously.

103. Further recommendations relate to the generation and promotion of value, discussed in sections IV and V (see paragraph 63 and Graph 1).

B. Recommendation 2 - Put customers truly at the centre

104. We produce data and statistics as a service to users. We need to listen deeply to users and be user-centred in everything we do to unlock the benefits of our vast datasets. We need to understand and respond to the different needs of our users – some just want access to data and datasets, some want tailored analysis and some want tools to make the underlying data easier to understand, for instance:

- Data is not the whole story. We are best placed to provide the context to data by analysing our vast datasets to describe what is actually happening behind the statistical figure. We have what it takes to find fresh insights to data and reuse existing data sources in new ways;
- We need to redefine our products and services to move away from bulk data provision towards higher value products that correspond with what users truly need. Businesses are among the least satisfied users of statistics. We need to find out what kind of statistical services they really need. Decision makers use dashboards with headline indicators on a daily basis. They should have our apps providing the latest "headline statistics" ready for use;
- We cannot simply say "no" to new trends and demands. Ten years ago statisticians debated whether measuring sustainable development was part of our tasks or not.

Now the SDGs are here and we need to measure them and help others to do so. We need to look at how our data can be used for analysing climate change, reducing vulnerabilities and building resilience.

C. Recommendation 3 - Design statistics for everyday life

105. Many statistical offices already use distinctive design to give official statistics a look and feel of a branded product. Design is much more than logos, typography and graphics – it is about keeping customers engaged with our statistics and improving their usability, for instance:

- Data are everywhere, statistics are not. We should encourage open access to non-confidential statistics so that they can be used in various devices, apps and analytical tools by the private sector. We need to translate raw data into information and develop new kinds of products that people may use in their daily lives. Greater emphasis needs to be put on user-centred design and user friendly interfaces, and increasing the use of infographics, data visualization tools, stream of articles, social media posts and tweets. These services should be interactive to encourage feedback and development ideas from users;
- Encourage design innovation and engage users in developing new products and services. Use grants and competitions to create incentives for staff to come up with ideas for new designs to unlock the value of statistics. Set up catalyst projects to experiment with new thinking. Send your design innovations to open competitions to win awards from the media, the academia, the private sector or other stakeholders. Announce an award competition in statistics: statistical Olympics or "Hackathons" to invite programmers, software developers, graphic and interface designers and project managers to collaborate intensively on product development;
- Users look for data points to answer their specific questions. Too often statistics are presented in ways that are not easy to understand. Users no longer have the time to browse through massive data tables or printed publications. They are becoming impatient and are looking quick answers. We need to re-engineer access to statistical information, and consider, for example, creating "Stats engine" services to provide statistical figures as answers to users' questions and develop the use of geospatial tools. Statistics should be repackaged and disseminated by topic, population group or geographic area rather than by data source or collection.

D. Recommendation 4 - Innovate to remain valuable

106. Finding the best ways to measure the changing reality requires constantly innovating – to power and underpin the well-designed products by which we stand or fall. While we want to maintain our traditions, long time series and quality standards, we must innovate at a faster pace than ever before to maintain and increase our value to society, for instance:

- Take the time to stop and think what we are really aiming at. Statisticians are too busy with ongoing producing: collecting data, editing and compiling aggregates, creating tables and disseminating the results. Innovation is not only about technology, it is also about what we do and how we do it.
- Make the best use of technological opportunities stemming from the Data Revolution and Big Data. On one hand, we need to fully utilize the good methods and abilities that we already have, e.g. on nowcasting, assessing the accuracy, consistency and usefulness of the results produced from Big Data and incorporating the relevant digital data sources in statistical production to meet user demand, including the growing demand for real-time data. On the other hand, we should

recruit and train staff for data analytics and data science and in using new data sources, technologies and applications. We can offer challenging work to analyse the widest range of datasets together with digital data.

- Invest at least 10 per cent of working time in innovation and research. We can no longer just maintain the status quo; we need to search for new solutions, ask questions, collect ideas, test them and evaluate them. We should not settle for trite answers. While we safeguard our traditional values and image, we should be curious about how to unleash the potential of statistics to improve lives. This could entail hosting "stats hack" sessions that bring together a diverse range of staff and other experts to create ideas for new products or improvements to existing products.
- Consider and explore the evolving roles that NSOs should expect to fill. It will increasingly not be enough for NSOs just to produce statistics. They will need, for example, to move towards become "knowledge factories", if they are to be able to produce the information that decision makers need, combining statistics and other data sources and drawing out the implications. In another dimension, the reporting on SDGs, for one thing, will call for a strong coordinator of work, with NSOs reaching out to data producers they have not worked with before, and not just producing outputs on their own. In this sense, NSOs' role in quality control, accreditation, standard setting and methodological guidance will become more prominent than before. Some statistical offices have already gone further and started the transformation into a "statistical data hub" that will offer a data management platform with access to all open data in the country.

E. Recommendation 5 - Go further with strategic partners

107. We work in strong partnerships in the statistical community and engage with data providers. The combination of tight budgets and rapidly increasing data needs, especially for the reporting on SDGs, calls for seeking new partners to leverage expertise and add value. If we fail to team up with the right partners, somebody else will step in to deliver on our behalf, therefore:

- Partnerships with the private sector still represent a largely untapped source of innovation. They could open access to source data that may replace or complement traditional surveys. Partnerships may enable access to new tools and technologies, design knowledge, product ideas, dissemination channels and networks. We should make our data available for use in new products of private companies, thus, increasing the reach of statistics.
- Experiment with "Statslabs" and new models of international partnerships within and outside the statistical community. For example, set up "Statslabs" with experts from statistical and other offices to work in product and design development. This would help address resource constraints and spread new innovations by "copying and pasting", thus, increasing our capabilities.
- Look for, and make the most of, opportunities to influence stakeholders' work. For example, some statistical offices have worked with administrative data providers to adjust their data collection slightly to reduce direct business surveying or to modify their work in a manner that would allow the use of administrative data in a virtual population register to complement or replace the current head count census.
- Get at the centre of decision making, making a reality of strategic partnerships with such users, whether in the public sector with policy making or resource allocation, or in private sector decision making. We can do our jobs well only if we understand the issues facing decision makers and which the information we provide is intended to

inform. Such involvement is in no way inconsistent with our professional integrity – to the contrary, it is an important part of our professionalism.

F. Recommendation 6 - Build the official statistics brand and gain visibility

108. Excessive modesty about official statistics is dangerous. Like other industries, we need not only to generate value but to demonstrate and publicise that we are doing so. One element of this is relentless promotion of the comparative advantages of our adherence to the Fundamental Principles of Official Statistics characterized by high quality standards, professionalism, globally agreed methods, unwavering impartiality and credibility. More generally, brand recognition should be an explicit objective, based on the usefulness and quality of what we do and bolstered by concrete examples of the value of official statistics, therefore:

- Be more assertive about out adherence to the Fundamental Principles of Official Statistics and the value that this generates. This together with the reliability and quality that this endows in our products is a genuine comparative advantage that official statistics enjoys and we should exploit it as such;
- Promote and publicise how official statistics around the world has added value. As previous sections illustrate, there are many examples of where official statistics have generated value to societies and economies. Again, "hiding our light under a bushel" is not a virtue in this domain. Official statisticians should find means to publicise such successes, not least as a way of helping identify further instances of where official statistics could add value;
- All NSOs should formulate and implement explicit brand recognition and brand promotion strategies. While the general precepts apply across all official statistics, the circumstances and conditions facing individual NSOs will differ. There are many but varying means by which NSOs can achieve greater brand recognition and visibility and individual NSO strategies could draw on these, as appropriate to their particular context.

109. A further recommendation relates to the measurement of the value of official statistics, coming from the discussion in section VI.

G. Recommendation 7 – Measure outcomes to achieve greater impact

110. Statisticians measure almost everything except themselves. To have a greater impact on society and decision making, actions need to be taken along the lines of previous recommendations, but we will also need to measure our results and impact. Furthermore, this would itself help drive forward the agenda. If we measure ourselves, we will be better able to prove our worth, communicate with stakeholders and clarify our strategy, therefore:

- Take steps to improve our knowledge of what our statistics are used for, and the impact that they can have. Statistics should not just be produced for self-service. With the increasing supply of data available online, our users risk becoming less well known to us. If we do not know what we are needed for, we will fail in communicating our value. We should share examples which showcase how statistics are used in decision making and how they help people decide where to locate a business, what products to sell, where to build roads, schools and hospitals, and to know how families, women, men and children are doing, what is our quality of life, status of environment, economic conditions and performance. Why not write a series of articles on the uses of statistics, innovation, design and product development?

- Take steps to cater for a wider and probably less informed range of users. The range of users of official statistics is expanding, not just to include professional analysts, researchers and public officials but to embrace a wider range of citizens looking for data to inform their decisions. In itself, this is welcome but it also means the average user is liable to be less well informed. One consequence is that NSOs need to consider how to make their outputs and their implications more accessible – what was appropriate for expert users will not be so for less expert but nevertheless fully legitimate ones. Furthermore, NSOs should consider practicable steps, perhaps working with other agencies, to educate users in numeracy and statistical literacy.
- A dashboard with indicators on the value of official statistics would help us gain insights into where to invest to generate higher value. The metrics could include a mixture of measures of the economic value of official statistics and operational measures relating to user awareness, satisfaction, access to and use of official statistics. Stakeholder and partner surveys would be useful for identifying our weaknesses and strengths, and they could guide us towards partnerships that are more effective.

111. One final recommendation on international work stems from discussion in many parts of previous sections. There is great value in NSOs learning and applying best practices, both from other NSOs but also from other organizations. Indeed, part of the purpose of this report is to assemble such examples of good practice.

112. But the world does not stand still. The phenomena that compete with official statistics are active and constantly changing. The challenges that a statistical office faces in one country will not necessarily be the same as the challenges faced by another statistical office in another country. Analogously, strategies to address these challenges that are successfully implemented may not necessarily apply, or be successful, in another statistical office.

H. Recommendation 8 – Establish and maintain a plug-and play platform

113. The official statistics´ community needs an interactive and dynamic model to implement the practical applications of the recommendations listed in the previous sections, therefore:

- The Task Force on the Value of Official Statistics proposes, based on the Practical Guidance on Applying the New Working Methods by the High-Level Group for the Modernisation of Official Statistics the creation of an interactive "Best Practices Wiki". The Wiki would be a tool where the cornerstone comparative advantage and each of the milestones have a catalogue of best practices developed by NSOs or gleaned from other industries. This tool would allow interaction, permitting feedback and advice in real time. So NSOs would be able to pick up good practices to plug into the particular strategies relevant to their circumstances but would also be able to record their particular results and experiences for general use where appropriate.
- This "Best Practices Wiki" should be an interactive and collaborative web-based platform that would provide a communication channel in which information between NSOs could be exchanged and feedback received. A key feature would be recognition that other industries, besides statistical offices, have successful strategies that addresses similar challenges, from which we can all learn.
- A moderator should be appointed to review the best practices and examples that are shared on the Wiki in line with a structure as described in the below tables.

- The Wiki could be created on the UNECE platform which already hosts a number of statistical working spaces. The moderator should be advised and assisted by a small group of experts.

Best Practices from NSO´s	Examples from Other Industries
1. Short description. 2. Objective. 3. Resources needed for its implementation. 4. Description of the implementation process. 5. Results obtained.	1. Short description. 2. Objective. 3. Results obtained.

114. A simple model of the proposed logical structure of the Wiki would be as follows: