INCREASING RELEVANCE OF OFFICIAL BUSINESS STATISTICS USING PROVEN BUSINESS APPROACHES

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THE CONTEXT

Current dynamic environment is bringing new challenges to the field of official statistics. The field has been experiencing increasing demand for information in the situation of budget cuts, and has been confronted with competitive data sources and restraints for cooperation among data providers. National statistical institutes (NSIs) have been responding with several initiatives: quality management, e-reporting, response burden reduction activities, development of various interactive tools using the latest ICT, a more structured view of the statistical production process etc. Not all stakeholders seem to be impressed by these efforts. Businesses seem to be particularly harsh, many still complaining about burden and many not using official statistics (Bavdaž 2011b), and NSIs cannot ignore it; businesses are especially valuable to NSIs because NSIs depend on business data. Given the obvious inefficiency of the legal mandate to collect accurate data from businesses in a timely manner (think of reminders, personal follow-up, fines in some countries, non-response, editing), NSIs have been considering alternative ways to motivate businesses for better co-operation with NSIs. Essentially, there appear to be two root causes of such situation: (a) excessive (perceived) response burden imposed on businesses and (b) insufficient (perceived) value of data reporting because of elusive uses of resulting official statistics. This paper will look into the latter cause and seek evidence of the insufficient (perceived) value and solutions for it.

THE ROOT CAUSE: ELUSIVE USE(R)S OF OFFICIAL STATISTICS

In the information age more data are published and publicly available than ever; more official statistics are published and publicly available than ever. The migration from printed publications to electronic dissemination has opened up the possibilities for widespread penetration of official statistics among the general public; but it was only the decision to grant full access to these data free of charge that truly realized this opportunity (OECD 2002; Snorrason and Gylfadóttir 2001). A recent review of dissemination practices in four European NSIs (the Netherlands, Norway, Slovenia, Sweden) confirmed that they all use the same or similar channels of dissemination to general public with the website as the main channel of dissemination (Bavdaž 2011b). New statistics are continuously published on the homepage (often with lengthy and complex metadata documentation). The websites also offer access to online databases, ICT-based tools, electronic versions of the printed publications, press releases etc. The dissemination is further complemented by media and customer support services. The situation appears to be the same or quite similar at (many) other NSIs.

In the pre-electronic/Internet times, the NSIs disseminated their results mainly through payable printed publications. Two characteristics are very interesting about this old dissemination approach:

- As the statistical publications had to be physically delivered, the NSIs had to know at least the address (if not the people receiving them) – and therefore also the user.
- As the statistical publications were payable, it can be assumed that for those ordering the publications official statistics represented a certain value.

The NSIs thus knew their customers much better and they could be relatively sure that the statistics offered at least some value to them. Of course, some customers learned about official statistics

through media that continue to represent an uncontrolled channel of dissemination from the NSIs' point of view. The key point is that a considerable part of NSIs' customers were clearly defined. Nowadays, this is not the case anymore. The number and variety of official statistics users has strongly increased and the producers of official statistics have been confronted with a wide range of users' needs with relatively rare direct contacts with users. Even direct contacts may not always allow the same quality of information; it is especially hard to establish the value of certain official statistics for any particular user if the statistics are to be offered free of charge. The prevailing logic seems to be that, in principle, every official statistics can be useful to every (kind of) user, which is true and should be supported. However, this logic also conceals the real problem of not knowing the customers, concrete uses or value attached to these uses.

With the transition from payable to free official statistics accessible to everybody, an important information channel was lost for the NSI and nothing appears to have substituted it. Even worse, the customers changed from being relatively few to being numerous. As the review of the four above mentioned NSIs showed, these NSIs have segmented their users into several groups for the purposes of recording customer support activities. However, numerous difficulties emerged in the course of our attempt to analyze the recorded data (though to a different extent across the NSIs): access problems, inability to identify businesses as a separate group, extraction problems, lack of or scarce documentation of some modes, and variety in quality and quantity of recorded data (Bavdaž 2011a). All this suggests that the NSIs have not been focused on businesses as users of official statistics.

BUSINESSES AS USERS OF OFFICIAL STATISTICS

At this point in time, it can be claimed that dissemination in official statistics is mainly oriented towards the general public. Some attention to certain user groups can be discerned, e.g. in offering teaching resources, various calculators etc. But it would be too ambitious to conclude that the channels of dissemination have been (completely) tailored to the needs or specifics of any user group; especially businesses. Businesses as users of official statistics are likely to have different needs and see different value in official statistics compared to other groups (having in mind that even businesses have diverse information needs). However, as the review of the studied NSIs showed the knowledge on the use of NSI statistics among businesses is *"scattered around the participating NSIs (from customer support service to subject-matter departments, field staff and staff of specialised units), tacit, fragmented, unsystematized and partial (mainly based on contacts initiated by business)"* (Bavdaž 2011b). This kind of knowledge does not seem to exist elsewhere or is again incomplete and incomprehensive (e.g. in academic world, at business associations etc.); this body of knowledge still has to be built.

To make the situation worse, official statistics data are often part of commercial products. For instance, Euromonitor International Ltd. annually offers relatively pricey *International* and *European Marketing Data and Statistics*, which is mainly based on publicly available official statistics. It promotes the publication as *"saving your research time"* because the data are *"hard-to-research"*. This is consistent with business comments that it might not be easy and straightforward to find relevant data in the statistical databases or elsewhere on the NSIs' websites (Bavdaž 2011b). It also indicates the need for products. Official statistics are not the only information provider that is confronted with the need to re-organize its content. Let's make a comparison of official statistics with *TED Talks*: both are online, freely accessible, and offering content of high quality. By now, the talks have become so numerous that it is difficult to choose which ones really deserve attention or are suitable for a particular purpose (e.g. for pedagogy at a certain educational level) despite some descriptors and indicators of popularity. Besides offering the search function and browsing options, the website has started to offer handpicked "guest curated" collections from the archive on a specific topic and created *TEDStudies* that combine a curated series of talks with educational support materials from Wiley. These actions suggest that "more is less and less is more" (Chernev 2003).

Given that business demand for data and information is evolving, new opportunities will also be emerging for NSIs. However, the NSIs have tough financial and human constraints to exploit them. In essence, if they wanted to offer more value to businesses, they would have to do it with fewer resources and in the presence of increasing competition.

LOOKING FOR A SOLUTION

In the past, official statistics got inspired by practices in the private sector that developed and tested many approaches to survive in the turbulent times, for example, the total quality management and the six sigma programmes. More recently, **lean thinking** has been applied to the public sector. The concept of lean production emerged in Japanese manufacturing, in particular from innovative Toyota production system, which was facing intense competition and scarce resources (Hines et al. 2004). Although there is no universal definition of lean production in the contemporary literature (Pettersen 2009), it is often associated with the reduction of waste and value creation (Hines et al. 2004) and considered as a broader, more strategic approach than the six sigma (e.g. Proudlove et al. 2009) even if it also offers a toolbox. The key principles are based on the process view of organizations and concern, among others, specification of customer value and identification of each product's value stream with reduction of waste within it (Womack and Jones 1996). The first applications of lean in public services lead to mixed opinions about whether this is *"panacea or paradox"* with the conclusion that more attention has to be paid to adequate implementation of the adapted approach (Radnor and Boaden 2009). Although this approach might represent a potential solution also for official statistics, it requires fundamental changes in an organization to be sustainable.

If we narrow our focus to product development, other approaches can be used such as the blue-ocean strategy (Kim and Mauborgne 1999, 2004, 2005), customer development (Blank 2003) and the lean start-up (Ries 2011). All these approaches share importance given to the value proposition for the customer. The **lean start-up** combines customer development with agile product development and is particularly suited when the both the problem and the solution are unknown. It can be claimed that this is also the current situation in official statistics: the NSIs do not know what problems businesses have so they do not know what solutions would be appropriate. Although the method primarily aims at increasing success rate of start-ups by shortening their product development cycle, it can be applied to any product development. It uses a combination of experimentation driven by business hypothesis and minimum viable product development with fast iterative product releases and validation. The key of the lean start-up philosophy is to increase validated learning through accelerated build-measure-learn feedback loop (Ries 2011), thus offering quick and efficient solutions.

The question is how to apply this approach to official statistics production that is organized according to traditional "waterfall model", which is also reflected in the Generic Statistical Business Process Model (GSBPM). Although the model allows any path through the matrix, skipping or iterating some sub-processes, it can be claimed that some (rather linear) paths are much more common than others. Also, the model does not offer support to product development: the linear path through the matrix (obviously) does not lead to products adequate for businesses and the model does not specify which other path through the matrix would be recommended. Given that the GSBPM is claimed to be used in more than 50 statistical organizations worldwide, we attempt to offer a layer on the GSBPM that highlights relevant steps for product development according to lean start-up philosophy.

Evaluation of GSBPM for Product Development according to Lean Start-up Philosophy

This section presents the evaluation of the GSBPM for the purpose of product development when product development follows the lean start-up philosophy. The presentation is organized around the key concepts of the lean start-up philosophy: customer discovery, minimum viable product development, business-hypothesis-driven experimentation and validated learning, and fast iterative product releases.

Customer Discovery

The goal of customer discovery is finding the right target group and discovering whether the problem you are trying to solve is important to them (Blank 2003). The GSBPM covers many relevant aspects of customer discovery in the first two phases, *1 Specify needs* and *2 Design*. None of the sub-processes, however, focuses on the search or definition of the target group. Although NSIs offer data to a broad spectrum of users, only a few target groups are defined (e.g. journalists, educators, Eurostat, international organizations) or – what mainly holds for businesses – the groups are too broadly defined to be able to create a compelling value proposition. But creating a new target group within businesses can lead to completely new value propositions and even creation of new industries ("blue oceans") or complete redefinition of existing ones (Kim and Mauborgne 2005).

Sub-processes of the phase *1 Specify needs* heavily rely on the NSIs' point of view. The sub-process *1.1 Determine needs for information* focuses on what their product characteristics should be ("*identification of what statistics are needed and what is needed of the statistics*") rather than on job-to-be-done (Christensen 2003) that the target group wants to complete and how NSIs can help accomplish that, i.e. what the user intends to do with these statistics. Similar can be concluded for the sub-process *1.2 Consult and confirm needs* exposes *"when, how, and, perhaps most importantly, why"*. As described above, understanding "why" businesses use official statistics is not often translated in practice.

Furthermore, phase *7 Disseminate* is regarded as a distinct phase from phase *1 Specifying needs*, which is not in line with basic marketing theory that talks about a marketing mix, where place or distribution or channel is an essential element.

The sub-process *1.1 Determine needs for information* mentions *"consideration of practice amongst other (national and international) statistical organizations producing similar data, and in particular the methods used by those organizations"*, which again shows the inward focus of the phase *1 Specify needs*.

Minimum Viable Product Development

New product development can be a lengthy and risky process. The bigger the project (resulting products), the longer it takes to create the product, more resources are needed and risks increase. This also delays market feedback necessary to steer the development and reduce the overall costs. The lean start-up focuses on shortening the development cycle and speeding up the validated learning by introducing the minimum viable product concept. A minimum viable product only offers those features that allow the product to be deployed to users and tested.

The phase *1 Specify needs* aims at creating the list of needs, which can be overwhelming but not all needs need to be covered by the minimum viable product.

Business-hypothesis-driven Experimentation and Validated Learning

The lean start-up approach breaks down the product into its components. For each part value hypothesis are formed. Every value hypothesis is then (experimentally) tested to see which parts of

the value proposition actually deliver value to the target group. By systematically and continuously measuring these value hypotheses we get to validated learning.

The GSBPM model includes phase *9 Evaluate*, which *"manages the evaluation of a specific instance of a statistical business process".* It states that at least in theory this evaluation should occur for each iteration. It is interesting that it does not specify what exactly should be evaluated, which is essential from the product perspective, but it prescribes that the evaluation should be synthesized in a report (sub-process *9.2 Conduct evaluation*).

The sub-process *1.1 Determine needs for information* includes *"the initial investigation and identification of what statistics are needed and what is needed of the statistics".* If needs are stated and evaluated as initially defined product characteristics rather than job-to-be-done, findings can be reliable but not valid. Namely, all the processes could deliver the correct results, while the outputs could still be of a limited or no use for the users because they would not solve their problems.

Fast Iterative Product Releases

The GSBPM acknowledges the need for a non-linear and iterative use of the sub-processes but this is insufficient from the lean start-up perspective. The lean start-up argues for an accelerated build-measure-learn feedback loop. The phases presented in the GSBPM are simply not designed to support such an accelerated feedback loop. The phases are, in principle, designed in a way where needs are mainly determined at the beginning; the product is then designed, built, disseminated and evaluated. This enables a few, but not many iterations, effectively reducing the opportunity for validated learning. It is not surprising for the lean start-up approach that is based on the minimum viable product that is gradually developed to count iterations in tens, even hundreds.

Recommendations

We propose adding some sub-processes that would enable the use of the GSBPM to support the lean start-up approach in the NSIs. It would be beneficial to include an additional sub-process in the phase *1 Specify needs*, namely *Determine potential new target groups*. The focus of this sub-process is on identification or creation of new target groups. By searching for new target groups already existing statistics could be used to provide more value to new target groups, thus creating more value from existing resources.

We also propose introduction of a sub-process *Definition of a Minimum Viable Product* with the aim of creating a shortened list of needs and features needed to satisfy target groups' needs. This would shorten the development cycle and lead to a reduction of unnecessary data and activities as only the valued functionalities and information would be included in the final product. The focus of this sub-process should be broad and consisting of information offered by the NSIs and also the way information is presented and disseminated. In this way some activities from Disseminate phase should be included in the Definition of a Minimum Viable Product.

Shift in focus is necessary for some of the sub-processes. As shown, the sub-processes *1.1 Determine needs for information* and *1.2 Consult and confirm needs* have a strong focus on NSIs' point of view where a job-to-be-done approach would be more appropriate to achieve a better problem-solution fit.

The shift is also required in the phase *9 Evaluate* where evaluation should be focused on clearly defined business-related hypotheses besides the quality assurance of existing data collection and processing activities.

CONCLUSION

Official statistics offers lots of data but very few products that would solve concrete problems in businesses. Creating such products is likely to be beneficial because of improved dissemination, visibility and image of official statistics, value created for businesses, and enhanced statistical literacy among businesses. Given the many unknowns and limited resources for product development, the lean start-up approach offers great potential because it does not necessarily argue for a new data collection but rather focuses on the (re)use of already collected data. The evaluation of the GSBPM from the lean start-up perspective identified essential shortcomings of the model for this purpose. The proposed changes should lead to a faster iterative product release with validated learning and a shorter product development cycle. In this way, more products could be introduced in a shorter period of time creating more value for all the stakeholders, at reduced costs with better addressed target groups' needs.

REFERENCES

Bavdaž, M. 2011a (ed.). Report on the business use of NSI statistics based on external sources (NSIs, publications, expert opinions). Deliverable 3.1 of the BLUE-ETS Project.

Bavdaž, M. 2011b (ed.). Final report integrating findings on business perspectives related to NSIs' statistics. Deliverable 3.2 of the BLUE-ETS Project.

Blank, S.G. 2003. The Four Steps to the Epiphany: Successful Strategies for Products that Win. Lulu Enterprises Inc., Raleigh.

Chernev, Al. 2003. When More Is Less and Less Is More: The Role of Ideal Point Availability and Assortment in Consumer Choice. Journal of Consumer Research 30, 170–183.

Christensen, C.M. 2003. The innovators solution: creating and sustaining successful growth. Harvard Business School Publishing Corporation, Boston.

GSBPM 2009. Generic Statistical Business Process Model; Version 4.0 – April 2009. Prepared by Steven Vale for the UNECE Secretariat. Joint UNECE, Eurostat, OECD Work Session on Statistical Metadata (METIS).

Hines, P., Holweg, M., and Rich, N. 2004. Learning to evolve: A review of contemporary lean thinking. International Journal of Operations and Production Management 24 (10), 994–1011.

Kim, C.W., and Mauborgne, R., 1999. Creating new market space. Harvard Business Review 77, 83–93.

Kim, C.W., and Mauborgne, R., 2004. Blue ocean strategy. Harvard Business Review 82, 76–85.

Kim, C.W., and Mauborgne, R., 2005. Blue Ocean Strategy. Harvard Business School Press, Boston.

OECD. 2002. 'The OECD Dissemination Policy for Statistics', STD/HLG(2002)6 (www.oecd.org/std/fin-stats/2754297.doc; accessed 31 May 2013).

Pettersen, J. 2009. Defining lean production: some conceptual and practical issues. The TQM Journal 21 (2), 127–142.

Proudlove, N., Moxham, C., and Boaden, R. 2008. Lessons for Lean in Healthcare from Using Six Sigma in the NHS. Public Money & Management 28(1), 27–34.

Radnor, Z., and Boaden, R. 2008. Does Lean Enhance Public Services? Editorial: Lean in Public Services – Panacea or Paradox? Public Money & Management 28(1), 3–7.

Ries, E. 2011. The Lean Start-up. Crown Business, New York.

Snorrason, H. and Þ. Gylfadóttir. 2001. Trends in the dissemination and pricing of official statistics. Paper presented at the 11th Nordic Conference on Information and Documentation, Reykjavík, Iceland (http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.45/2010/wp.20.e.pdf; accessed 31 May 2013).

Womack, J., and Jones, D. 1996. Lean Thinking. Simon and Schuster, New York.