

## **Standardisation of statistics production at Statistics Sweden – approach, results and making use of international collaboration**

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Like many other National Statistical Institutes Statistics Sweden have a history of stove-pipe production where each survey had its own production system and with little coordination between them. To better ensure quality and to make the production more cost-efficient a major initiative was launched at the start of 2008 to drive the standardisation effort.

Statistics Sweden adopted a version of the Generic Statistical Business Process Model (GSBPM) – adapted to the organisations needs – as the structure for the change and appointed Process Owners within five sub-areas. The Process Owners have a responsibility for the “common toolbox”, including methods, work routines, templates and IT-tools, within their area. This includes identification of needs, driving development, providing support and training and evaluation of functionality and relevance of the standard approaches. Information about the standards as well as how they should be applied in different situations is available through a Process Support System available through the Intranet.

A large number of standards on different levels have been established and they are constantly being improved or added to, via further development. Major focus during the present time has been on Data collection and Dissemination but projects to establish or improve standards are being run within all sub-processes of the GSBPM.

The adoption of standard approaches into the actual survey processes are monitored and comprehensive implementation plans have been developed for prioritised tools.

Statistics Sweden has for a long time been an active partner in international statistical cooperation, both within the European Union and beyond. Some very good results have been achieved and these are now part of the statistical infrastructure within the organisation, but we have also experienced a lack of effectiveness in many cases. The formation of the Statistical network on the initiative of the Australian Bureau of Statistics provided a new kind of environment for this cooperation that has potential to deliver to a higher degree. Experiences so far are promising but have also highlighted the need for structures and commitment and for slightly new forms of working arrangements.

Key words: Common production environment, GSBPM, Process Owner, Statistical Network

### **1. Background**

In 2006 a major initiative was launched by the Director General to lay the groundwork for Statistics Sweden to be able to move from the stove-pipe production paradigm to one that was based on common approaches regarding methodology, IT-tools and work procedures. The initiative was launched following extensive discussions in the top-management team that had identified a number of problems with the existing approach:

- It was expensive and resource demanding to develop, maintain and document all the survey specific systems/tools and as a consequence it was not done well enough.

- It was difficult to implement new and improved methods and tools since they needed to be tailor made for each survey. Consequently new advances got very slow uptake.
- It was difficult to focus development of competence since needs varied according to each surveys process.
- The many different systems resulted in an unwanted variation in quality that was not possible to describe and control adequately (internally or externally).
- Changes in individual surveys were too often driven by the competence of the expert available at the production unit driven by subject matter needs. Common problems got solved in different ways in different stove pipes.

The initiative was organised in three major sections for:

- Development of common approaches
- Quality assurance and quality control
- Management and competence development

The third section was the key to facilitate the implementation and up-take of what was developed and established in the first two sections and provided a revised organisational structure with some new core functions.

## **2. Changes made**

The core of the change was the definition and introduction of a Business Process Model (BPM) for statistics production that would have actual operational usage and act as the framework to facilitate a higher degree of standardisation.

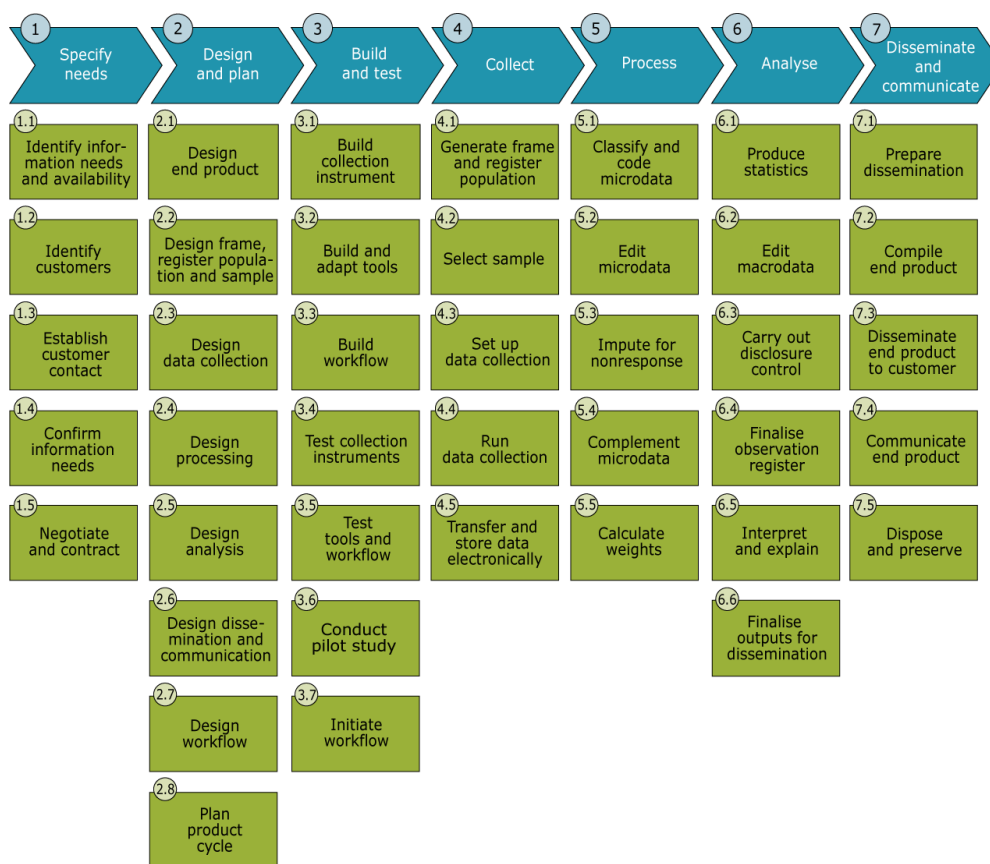
A new Department was established, The Process Department, centralising most of the methodology and IT staff as well as the forming of a totally new function; Process Owner connected to the structure of the BPM.

A group of Business Architects was established within the R&D Department to develop and improve the overall production framework and to facilitate long-term development initiatives.

A Project Management Group, chaired by the Deputy Director General, was formed to assure that development efforts were prioritised from a holistic view point and that local initiatives are in-line with the overall approach and can be applied across surveys where relevant.

### **2.1. The Business Process Model**

The Business Process Model (BPM) was developed by an internal team, during a fairly short period of time. The aim was to eliminate the clear danger of falling into too much discussion, with no value added, on details of how to define and label the “boxes” of the model. The now existing, international de-facto standard, GSBPM was not established at this time, but the Swedish version was heavily influenced by the BPM developed by Statistics New Zealand, which has also been the starting point for the GSBPM. Hence, they correspond and are compatible for all practical purposes. Here the model is shown on the 2-digit level. Additional areas are defined for Evaluate and feedback as well as for Infrastructure and support, making the BPM consist of 9 sub-processes on the top-level.



## 2.2. The Process Department

The core of implementing the BPM into practical use was to establish a Process Department with the primary objective to be:

“Responsible for ensuring that the appropriate statistical production processes are in use by providing the methods and tools, documentation, support and training for the processes as well as by continuously evaluating and improving them.”

A new role as *Process Owner* was defined within five areas connected to the BPM structure to put the primary objective into practice.

Hierarchically speaking the Process Owners are on the same level of mandate as Heads of Unit to have the necessary decision making power and to be able to relate to the survey organization on equal footing. Within each area the Process Owner is responsible for:

- The functionality of the statistical methods, tools and approaches (processes)
- Providing support and training
- Evaluating the functionality in relation to the needs of the surveys
- Prioritizing and initiating improvement and development activities
- Handle exceptions

It is important to note that the responsibility of the Process Owner is restricted to the common processes within the agency, and does not include each separate survey. That responsibility lies, as before, with the Survey manager who has to follow the agreed standards or to justify an exception.

The Process Owners are themselves highly qualified and experienced within their areas but they also have access to other high-level expertise through teams formed for certain sub-processes, for example sampling, seasonal adjustment, metadata and editing.

### **3. The Process Support System**

The Process Support System (PSS) is the main source of information about the common processes. It is available to all staff and is structured according to the BPM and in a hierarchical tree-structure. It is a clearly stated objective that the PSS will include all of the common methods, tools and approaches that have been agreed upon, but also that it will not contain information that is not clearly related to these. Alas, it is not a general information bank about statistics production, but instead an information bank about what should be applied within Statistics Sweden. The Process Owners are responsible for the information about their respective parts of the BPM.

The PSS started out as a “passive” information bank, but extensive development work is ongoing to transform it into an interactive production environment. In this environment the common methods, tools and approaches will be available as services through common interfaces where parameters set for each survey will determine which functionality is applied. The parameters (process data) will be stored as part of documentation and the processes will be possible to monitor through process information as well as through more formal process data. This functionality is now available for selected surveys for data collection and editing and will be expanded to other parts of the BPM where the common tools are advanced enough.

### **4. Priorities for future development**

The central development budget at Statistics Sweden is around 3M Euro annually. This budget is mainly used for projects to enhance the common processes. During the last couple of years focus has to a large extent been on the sub-processes Collect, Process and Disseminate & communicate. For 2013 five strategic areas for development efforts have been defined:

- Platform for statistics production and data warehousing
- Dissemination channels and accessibility
- Reduction of non-response
- Support for administrative processes
- EU-Essnet projects

The main focus is shifting from individual sub-processes/process areas to programs which facilitate the whole production process. These include Structured data warehouses and register coordination (above) and communication platforms that is built on information models (such as GSIM) and which makes it possible to link the different IT-tools together in an efficient manner. This will also target the current problem of replacing parts of existing production systems with common solutions and making the transition to a more standardised production environment easier.

### **5. International cooperation and the Statistical Network**

Statistics Sweden has a long history of being active in international cooperation work, in different partnerships and within different spheres. Above all, cooperation within the European Union has been active both before and since

joining the EU but cooperation has also been active within the Nordic area and under the UNECE. A special kind of cooperation has formed around the PC-Axis tool that was developed at Statistics Sweden and which has since been adopted by many organisations and where a consortium now is formed. However, there has to a large extent been something missing from the different cooperation approaches; the common business case with the expectation that results can be used directly in the production process. Most of the above listed efforts have been adding knowledge and/or developed a generic solution to be applicable across many NSIs (EU projects) and the time frame and/or costs to make use of the results have been extensive.

The Statistical Network (SN) initiated by the Australian Bureau of Statistics (ABS) brought with it a potential to alleviate this issue. Building on a small group of committed NSIs that had a lot of similarities in their current status as well as similar strategies for future development, the formation of common business cases, based on identified common needs and with no outside monitoring or review looked likely to be able to provide a much more focussed and successful forum for cooperative development. So how has it turned out so far?

A number of areas of common interest have been identified and teams have been put in place to establish forums with the task of determining specific business cases that would build on prioritised needs of the respective organisation. Note that not all members of the SN would necessarily take part in a specific team, in fact that would be an exception. A smaller number of business cases have emerged and actual development work has been initiated in a smaller number still. However, it is clear that the process of laying the groundwork for development is now much more established and streamlined and the lead times for later initiatives shorter. Finding structures and routines that facilitate cooperation in a global setting has not been easy and has taken considerable time. Among the factors to handle are: time differences as well as seasonal differences, technical issues of communication, adjustment to administrative routines, internal priority settings. Much improvement in these areas have been reached and the approach of development Sprints have been adopted from the GSIM work. One of the key results from all of the initiatives so far is the forming of expert networks, where the sharing of experiences and knowledge across organisations has been extensive. A number of already existing tools and solutions have also been shared within these networks, albeit not being the results of concrete cooperation in development. Some areas of note where Statistics Sweden has gained a lot in its standardisation efforts from these exchanges are Disclosure control, Information Modelling and Plug and Play architecture. There is a clear need to be able to bring the cooperation within the initiatives to the next level though, and the foundation that has been laid should be a strong facilitator for this.

## **6. Experiences so far**

There are a number of important experiences made and lessons learned from the work that has been done so far to transform the production environment at Statistics Sweden. Some highlights are:

Commitment from top management is essential and is needed for a long-term perspective. For many statistical organisations moving in this direction is somewhat of a “controlled revolution” requiring changes to the mindset of the staff. Such changes cannot happen without continued support, priority of resources and input from top management and down.

Middle-management is also a key group; they are responsible for survey operations and are in contact with the survey staff on a daily basis and thus in a unique position to give information and guidance about the approach. Although changes like this are always supported by centralised information and communication, nothing can replace the daily contacts. In light of this a lot of care needs to be given to prepare the middle-management so they can live up to this responsibility and it is clear that we did not do enough in this area, clearly slowing down the adoption of the approach.

Changes of this magnitude take time. Both to develop the approaches and the tools to be applied in the production process, but to an even larger extent to change how the staff look at the process of their survey and actually getting the common toolbox into practice, replacing the existing legacy systems.

It is important not to overemphasize the BPM as such, but instead to focus on the activities to be supported. A model is just a representation of reality that will vary from organisation to organisation as well as from survey to survey. Finding a representation that captures the majority of the activity as well as using terminology that is familiar is essential to acceptance and buy-in. The most important aspect is to establish a model that the organisation can rely on to be stable and that will be the common frame of reference, rather than getting stuck searching for the “perfect fit”.

It is important to have an extensive and well developed toolbox, but it is just as important to have a holistic framework where to apply the different tools. The BPM provides such a framework, but to facilitate practical usage, a business architecture building on information models and support for its implementation is needed.

Some form of support organisation needs to be in place that represents the organisational view of the BPM and which takes ownership of the common toolbox, its development and maintenance. Statistics Sweden established the role of Process owner, and although there has been some discussion of the responsibilities in relation to other roles/functions, it is widely considered a key part of the success of the approach.

## **7. Way forward**

Statistics Sweden is committed to standardise its production environment and will continue to expand and improve its common toolbox based on the needs of the surveys we carry out. In order to reap the benefits envisioned at the start of the change process, focus will change towards a more holistic view of the production process based on the BPM as a framework. How information will flow and be transformed through the different stages of the BPM will be the main focus for development the coming years. This will place great demand on the data to be well defined and structured and for terminology to be standardised.