

Reducing costs and raising quality through standardised processes and tools at Statistics Sweden

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1. Background

Statistics Sweden is a very decentralised organisation in the way that survey managers for individual surveys are to a large extent expected to make decisions within a given budget on which priorities to make, which methods and which tools to use for the production of the statistics. The rationale for this is that they know best which level of quality that should be achieved in different respects, based on knowledge of the users' needs, as well as the specific situation where the methods and tools should work. Of course, a number of guidelines and recommendations exist to support the survey managers in their decisions and they also have access to expertise in statistical methodology and IT, but only very few issues have strict rules for their operation. This leads to a large degree of variation in the process. This has been the situation for a long time during which it has been considered that the positives outweigh the negatives. However, the world is constantly changing and new demands on quality in statistics, reduction of cost, reduction of response burden, a different staff structure and need for quality assurance across the organisation means that this conclusion does not have the same validity anymore.

An internal review in 2003 led to a successive reorganisation with some new units for specific purposes, where data collection was gradually centralised. Further changes towards the end of 2005, where the subject matter areas were also reorganised, has led to the present organisation with two departments for data collection, four subject matter departments, an R&D department and additional departments for staff, finance etc. The approach was to gather similar activities within the same organisational unit to stimulate standardisation of approaches, methods and tools and at the same time strengthen the subject matter view point. Although several "new" problems have been created, there are generally speaking positive effects of the changes.

However, standardisation has not come into effect nearly as quickly and well as had been envisioned. This is largely due to the ever present conflict between regular day-to-day work and work to improve the processes. The short-term day-to-day work almost always tends to take over. In early fall of 2006 a major development project was put in place to achieve standardisation across the production process and to tackle the accompanying managerial and competence issues.

Although it was quite clear that Statistics Sweden used a large number of different tools to carry out the same or very similar tasks across surveys and which incorporated variants of a smaller number of statistical methods, it was decided to gather information from the surveys to get a better understanding of the current situation. A short form was developed focusing on the production process and its stages and distributed to all regular surveys at Statistics Sweden asking them to complete the information within two weeks. The information was mainly about the use of IT-tools within the survey but for some steps of the process information on the statistical method applied was collected. All in all more than 200 surveys provided the information, while less than 10 failed to do so.

It was clear from the results that the variation was extremely large, not surprising since Statistics Sweden has applied a decentralised approach for a long time for its production of statistics. Still in many cases the situation seemed even worse than had been anticipated. Some of the more prominent findings were:

- Almost 70 % of the surveys use tools for data collection that are unique to that survey.
- Only 1/3 of mail questionnaires are scanned.
- Only 40 % use the well-known, recommended in-house tool (CLAN) for estimation.

In an ideal situation, tailoring the solutions to the specific conditions will provide the best possible quality for the customers and the best possible working environment for the staff. However, this also requires access to the necessary expertise and financing to carry this out across the organisation. This is not the case at Statistics Sweden, and presumably not in any NSI (National Statistical Institute) today, where we are united in facing pressure to reduce costs and where recruiting expertise in key areas are becoming increasingly difficult. We therefore wind up with the following effects:

- It is expensive to develop, maintain, and document many different systems.
- It is difficult to implement new and improved methods, and it is difficult to focus the competence development.
- Many systems result in variable quality.
- Improvement work tends to be guided by the available competence in the various units at the relevant time.
- The collective resources within the organisation are not fully utilised.

2. Goal and organisation of the project

After thorough discussions in the senior management team the overall objective was defined as:

“Effective methods and common tools developed for all stages in the production process and used by all statistical products.

Responsibility for the methods and tools retained centrally as well as responsibility for supporting and promoting use of these. This responsibility includes continually improving methods and tools to achieve quality improvements and reduction in costs for Statistics Sweden and, thereby, for our customers and for data providers.

Development work initiated and prioritised on the basis of all the needs of the production process, based on our customers' needs and wishes.”

Achieving such an objective is a huge undertaking given the decentralised situation at Statistics Sweden and it was clear that special approaches needed to be utilised. The basic condition was to ensure the factual and visible commitment from the Top Management (Director General), which was accomplished through the establishment of the Senior management team as the steering group with a more executive sub-committee chaired by the Director General which also included the Deputy Director General, two internal Professors and additional key staff. A Coordination Group was established under which three umbrella projects work within their respective areas:

1. Development of standardised processes and common tools
2. Quality assurance, quality control and evaluation
3. Competence development and management issues

Under these umbrella projects a large number of sub-projects work with specified issues related to the overall needs of the process. The project organisation has the schematic layout shown below in Figure 1.

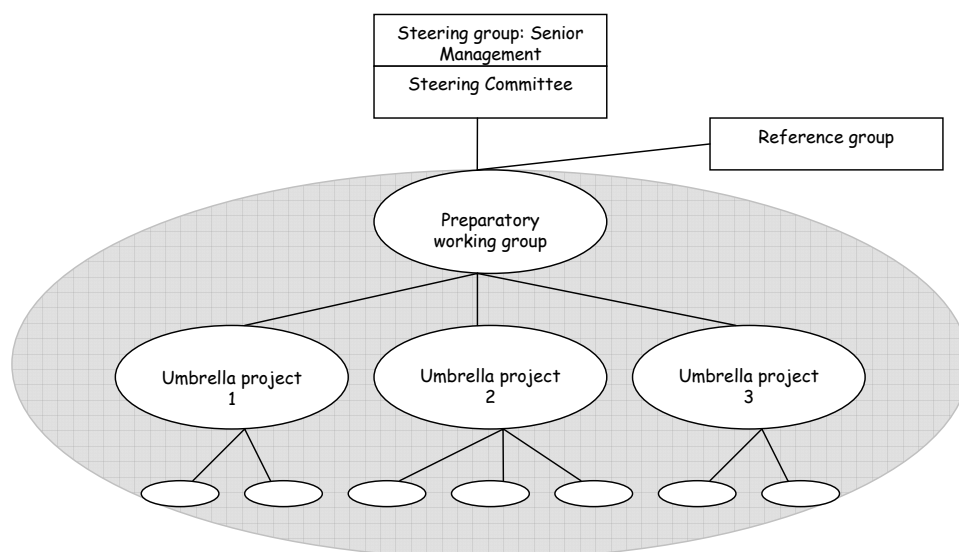


Figure 1 Project organisation

To further enhance and strengthen the approach several decisions were made. There is a principle of concentrated sub-projects, normally completed within three months. To ensure that the proper resources and competence are available it was clearly stated that the full resources and expertise of Statistics Sweden are at the project's disposal with priority. In practice this implies that producing statistics according to schedule is priority 1, but then the needs of the project supersedes almost all other activities.

3. Communication and involvement

In all major changes it is important to involve those that are affected to make use of their knowledge and expertise, and also to facilitate the implementation of the change as such. This is also in line with one of the core values of Statistics Sweden, and it is an approach that has proven extremely successful in the past. To this end there have been and are lots of activities to inform, communicate, and involve the staff in the project work; also in the Coordination group there is a trained Communicator. To reach out to the staff in general we have employed, among others, the following approaches:

- Extensive information through the intranet under a unique logo.
- A mailbox where the staff can send questions – about 30 have been received and replied to.
- A package of presentation material (regularly updated) to be used by the managers.
- Discussions on the unit level supported by a document with a set of questions; the written replies have been analysed.
- Discussions on the unit level supported by members of the project.
- Additional meetings of the managers for successive information and to discuss particular issues.
- Always on the agenda of the meetings of the top-managers.
- A conscious effort to include “new” staff from across the organisation in sub-projects.

The last point might be particularly interesting: to broaden the participation in the projects beyond the regular staff involved in R&D activities there is a conscious effort to recruit other staff and especially fairly newly employed people to make use of their outside perspective and to strengthen their competence and experience. A list of people that would be suitable to participate based on several sources has been created, among others: internal auditors, members of the youth council, and participants in management training programmes as well as persons that have been recommended by their respective managers. All in all, this list includes some 250 persons and it is a very useful base from which to select the members of projects.

It was also important to achieve a good overall balance between the two geographical offices of Statistics Sweden and between genders. A follow-up at the end of 2006 proved that this had been achieved to a large extent with the following examples:

- 45 % of participants in projects were from the Stockholm office and 55 % from Örebro, which well reflect the overall proportions.
- 51 % of participants were men and 49 % were women.
- All departments were represented with participants in the project organisation and the departments with the most central processes have the highest participation. There was a large and natural participation of R&D staff, but close to 50 % were other kinds of staff.

4. Some current areas for umbrella projects 1-2

Umbrella project 1 for standardised processes and common tools and umbrella project 2 for quality assurance, quality control and evaluation have, of course, much in common. Some sub-projects are joint activities, but formally each sub-project is put under one umbrella for its budget and follow-up.

Given the great task and the short period for the project, some strategic decisions are important. There are some low hanging fruits – to which extent should they be picked as they are and to what extent should a framework be created first? Where in the production process can gains in terms of raised quality and/or reduced costs be expected? What order of sub-projects is wise? Where are the bottlenecks? How ambitious should each sub-project be – what is good enough? These questions are constantly being discussed in the project organisation, often in the executive sub-committee, in relation to specific issues. However, it is clear that the projects need to be flexible and adaptive to the particular situation and leave many options open.

To facilitate getting projects in place and coordination across similar projects the umbrella projects have set up sub-committees for important areas, e.g. architecture, data collection, editing, and metadata. Routines for handling sub-project reports have been developed to recognise the results and the conclusions and to handle the suggestions for the future.

Some areas and projects are mentioned below. They reflect the broadness of the approach, not an order of priority.

- Study of an IT-system of the type SOA: Service-Oriented Architecture. This architecture is such that it should fit well together with the general process-orientation. The IT architecture is obviously fundamental, and principles should be decided as soon as possible. At the same time the architecture chosen has to make it possible to include current basic tools. This sub-project will also directly support other sub-projects.
- Structured data warehouses considering input and output data warehouses, and also content coordination. There are several sub-projects including practical tests, e.g. regarding dwellings.
- Expanding the functionality of the metadata system MetaPlus, where microdata are documented, e.g. object classes, populations, variables and value domains including classifications. There is support for re-using information – and, hence, for standardisation in a longer run. There are further, related, sub-projects dealing with connections between MetaPlus and archiving, and with search facilities on the web page.
- Standardised component-based system for construction and use of questionnaires. This includes some, but not full, integration of the current two systems for interviewing of individuals and for electronic data collection from businesses.
- Editing has high priority, and there will be a series of activities. Currently a study of nine important surveys is carried out. Preliminary results for some of these surveys indicate that they will be able to reduce in the order of 30 to 50% of the editing cost with the resulting quality at least as high as previously. On the other hand, at least one of the studied surveys should increase its amount of editing. There is a clear ambition to get a common tool for editing in place.

- Guidelines for questionnaire design and standardised layout for business surveys is a sub-project that has reported a condensed first phase with both results and further suggestions. The availability in the enterprises' financial systems of the information required is also included in the study. The sub-project has used the same nine business surveys as the sub-project for editing does. Here the surveys are used as a starting point and as illustrations from the measurement perspective. The project has worked with standards and tools for construction and evaluation of questions and questionnaires. There are also preliminary suggestions for process data.
- Coding with emphasis on quality, where occupation was a first field of study. The occupation coding for the Labour Force Survey was changed recently. Now an evaluation study has been made using an additional question to the panel and by involving two separate groups of coding staff. The sub-project has resulted in the evaluation, documentation, and experience for future studies.
- How to utilise process data for quality assurance and improvement. After an initial study, there is a sub-project on the delivery from the data collection departments to the subject matter units. Further activities will follow.
- Communication of quality with the users/customers. A first sub-project has made internal interviews with several staff categories, and it has made studies of other countries: web pages and presentations to users. The need for a stronger user-orientation and for several sets of quality reports with different degrees of detail for different user groups is stressed in the project report.

5. Umbrella project 3

This project has two major parts, and the work is performed both separately and jointly; also together with umbrella projects 1-2 and the activities on communication and involvement. Several benchmarking studies and activities have been carried out, especially towards other Swedish authorities.

Competence provision, some ongoing activities

As mentioned, there is in the short run much emphasis on internal communication and involvement. All 60 organisational units will be visited within a few months to get input for the work, with an emphasis on involvement, but also to raise the general knowledge of the staff. New organisational roles will be studied. What competence will be needed as the sub-projects are finalised, implementation begins, and the new standardised way of working is a fact?

It is clearly stated in the mission of the project that strengthening the competence provision at Statistics Sweden is a major task. A strategy will be developed that will focus on the agency-wide perspective and the needs of the organisation as a whole. Having methods and tools that are common for the organisation will also require that we have access to the necessary competence to use them and to improve them over time. Changing the way we work, which is at the core of the total project, will require that all key-personnel have the necessary knowledge, and indeed insight, to work in such a system and to achieve its potential. Therefore major competence developing activities will take place already during 2007. These will be directed mainly towards managers on different levels, since they in turn will be able to reach out to their staff, but the rest of the staff will also be included in these efforts.

The aim is to have a long-term perspective on competence provision that includes many different approaches; internal and external training, conferences, cooperation with universities, projects for students, exchange of staff etc. However, already now we have identified some shortcomings that we need to address immediately. There is a major shortage of IT-staff with expertise in IT-architecture and systems design and also expertise regarding questionnaire testing and cognitive issues. These shortcomings will be addressed already during the project through various means.

Management some ongoing activities

There is considerable focus on 'ansvar', a single word in Swedish that here corresponds to several English words; at least responsibility, authority, and accountability. At present several types of 'ansvar' exist within Statistics Sweden. Not all of these are clearly defined and there are still issues that need to be sorted

out in relation to the new roles that will be introduced to facilitate the process orientation. Major efforts have been made to define these roles and their relationships and the discussions have been very active. No decision has been taken, but there seems to be some consensus that the system we introduce need to be quite different from the present. Mainly of course because major changes are needed to tackle the problems we have created with the present system, but also to clearly communicate to the organisation that we can not continue as before. Everyone needs to adapt to a new situation.

The way of working and the internal culture become extremely important here, as well as they do in other parts of the project, e.g. competence, communication, and involvement.

Some of the roles and tasks currently discussed are:

- process-owner and process-user
- processes and product
- management, development, and implementation.

The system for process management and development that will be introduced is shown below in Figure 2. The figure has become known as “the circle”. It shows not a single circle but several important circles of communication and relationships. It emphasises the importance of the PLG (Process Leadership Group), which is in the centre. Initiatives and priorities are handled there. The majority of the work is performed in the left part: process management and statistics production through using the successive sub-processes.

The third, inward, dimension of the figure is indeed important. There is a set of process-owners and a considerable set of process-users. There is communication between these two sets, the owners and the users: provision of the sub-processes with a description and feedback on the capability and functionality.

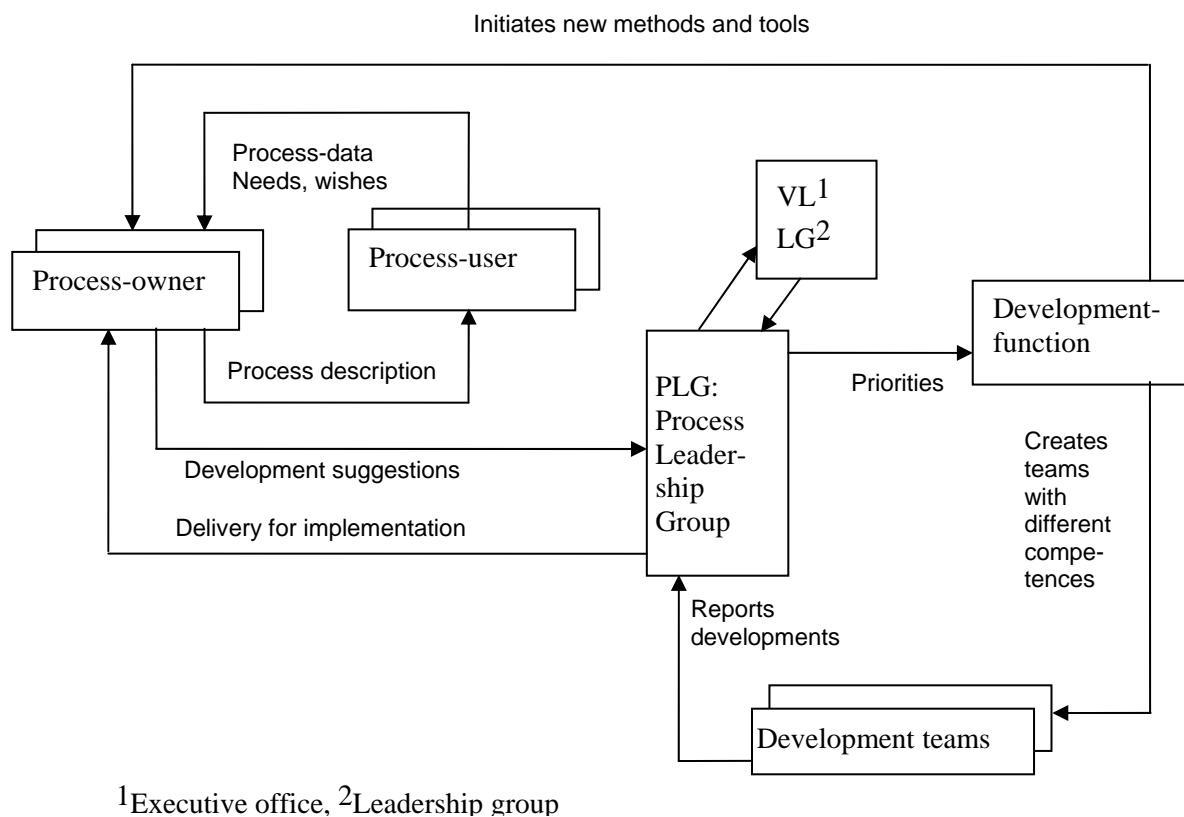


Figure 2 Process management and development

Development is initiated from several places: the development function, the process-users, and the process-owners. The latter coordinate and summarise the suggestions, and prepare them for discussion and prioritisation in the PLG. This group, which is on a high level and has access to expert-level competence, makes the priorities and gives the development task to the development function. The development teams are composed of persons from the development function, process-owners, process-users, and possibly further types of experts.

6. Some remarks on experiences so far

Although still in the initial stages some experiences have already been made:

- There is general support of the approach and the goals, but many feel they don't know enough about the work and its implications.
- Balancing the very tight time schedule with long-term developments is tricky.
- It is quite difficult to free staff of their normal duties to work in the project, in spite of the high priority.
- More efforts are needed to move "the normal duties" from project participants to other persons and also to reconsider the importance of these normal tasks; some are not to be done now.
- There has been some competition for expertise. Normally these have been handled smoothly, but there have been a couple of occasions where the Director General has had to intervene.
- There is a clear shortage of expertise in some areas, especially IT-architecture/design.
- Top management support is absolutely necessary (and present).
- Many methods and tools already exist within the organisation; they need not be developed from scratch.
- The new approach with short projects (three months) that are concentrated in time, the priority on resources, and deciding on projects based on the needs of the total process, has so far been effective.
- Some formal routines to handle upcoming problems have had to be established; competition for resources, assessment of suggested improvements, formal decisions on standards etc.
- The strategy of involving staff in a broad sense in the sub-projects has been successful. At present some 240 individual persons have been taking part in some project or group. In general these people have a more positive view on the whole approach, which clearly supports the fact that involvement matters.
- The project will be able to deliver a production process supported by methods and tools in all its major steps. Several surveys will be able to use these methods and tools almost exclusively. However, this is only the first step. The real test comes when the project hands over to the organisation to take the approach further. Many methods and tools still need to be developed and it is vital to achieve continuous improvements of the methods and tools that will be in place.

ABSTRACT

The intensive work at Statistics Sweden to standardise processes and tools is described. The background is a decentralised organisation with some recent changes in the direction of standardisation. The speed has increased considerably together with a more clear direction towards standardisation and process orientation. There are both short-term and long-term goals. The overall goal is to reduce costs and raise quality; some such possibilities are already in view, and more will come. There are many challenges in the current phase ending in 2007, e.g. to cover the production process broadly while also evaluating and building methods and tools for sub-processes.