

Future statisticians in Statistics Norway – competence profile and training needs

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1. Human resource management and NSIs – some general issues and challenges

Modern statistics needs new profile of statistician. Knowledge of statistics (concepts and methods) must be accompanied by flexibility, invention, communicative and language abilities, capacities in team co-operation. We need more staff with managerial skills, understanding its own work in relation to other activities of the institution¹

(Mr. Jan Fischer at the UNSC High level forum in 2008).

Statistical institutes are facing rather large opportunities and challenges in relation to human resource management. The challenges are both related to internal and external factors. On the external side we have to take into consideration the changing labour market, the more heterogeneous educational background of new staff and higher expectations in relation to carrier development and job content. On the internal side we have to consider changing technology and business processes as well as the prospect of losing a high number of highly skilled staff in the next few years due to old age pension. Based on this, there can be increasing challenges to recruit, develop and keep competent staff.

For several years, statistical offices have focused on programmes to standardise working processes in order to become more efficient and adaptable. These projects are assumed to have major impacts on the future needs for man power, competencies required and on internal organisation. It is for instance assumed that due to standardisation across the organisation, staff can more easily change positions. At the same time, increased internal rotation might be a requirement in order to contribute to standardisation of working methods and to develop a common culture. It is further assumed that these projects will lead to less routine work, more challenging tasks and more time for analysis and follow up of users.

All of these changes in the working situation will influence the situation for the employees. Can it be said that these changes require a different employee than earlier? Does staff today need other competencies and skills? Are the young people graduating today different and require different work methods?

In this paper we examine some of the HR challenges we are facing, both at present and in coming years, and measures we believe to be relevant addressing these challenges. Issues that will be focused on are:

- Future challenges in Statistics Norway linked to:
 - Retirement of senior staff (in SSB)
 - Changing technological and organisational environment
 - The profile of future employees
 - The role of management
- Training programmes for present and future staff
- A framework for competence description

Finally, we ask the question of who the future statisticians are?

¹ Jan Fischer: Relevance, Integrity, Innovation; Are Official Statistics Measuring up? Prepared for 2008 UNSC High Level Forum on Official Statistics 25 February 2008

2. Future Human Resource challenges in Statistics Norway

In today's rapidly changing world, it's difficult to predict what might happen next year, let alone several years in the future. But we must try to anticipate new developments and develop the strategies necessary to succeed. In 2007 Statistics Norway decided upon a strategy for human resources as a sub strategy of the overall strategy document "Strategy 2007". The main headlines of this strategy are:

- Forward-looking and transparent management
- Sharing knowledge
- High-quality on-the-job training
- An attractive employer
- Expertise development – a joint responsibility

This strategy is being implemented through different concrete actions in the annual work programmes, and is a backdrop for our work. In the following we will present some of the challenges Statistics Norway is facing in the field of human resource management:

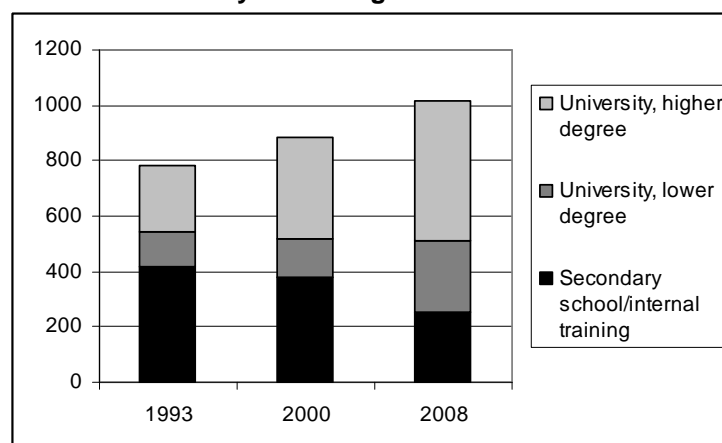
Demographic changes, particularly the aging of the workforce, present significant challenges. Recruiting, developing and retaining the best employees can also be a challenge. We also have to take into consideration changing and more efficient work processes and technology, influencing the need for training and staff development. The role of management is closely linked to all this, and also their changing competencies and need for development must be taken into account when trying to prepare for the future.

2.1. Present composition of staff

Statistics Norway had about 1000 employees at the end of 2008, with around 600 located in Oslo and 400 in Kongsvinger, some 90 kilometres East of Oslo.

At present about 50 per cent of the staff have a higher academic university degree (Graph 1). In 1993 this percentage was only 31 per cent, increasing to 42 per cent in 2000. The number of staff with no academic degree has been gradually decreasing. There are several reasons for this, among other factors changing methods for data collection and entry and new and more efficient technology. A majority of those being recruited the last years have had a higher academic degree, in 2008 for instance 70 persons out of 91.

Graph 1 The staff of Statistics Norway according to educational level. 1993 - 2008



It is also worth noting that the specialist background of staff has become more and more diversified. Some years ago the majority of staff with a master degree within the subject matter and research departments had a socio-economic study background (in 1991 around 50 per cent). Now around 27 per cent have a master degree in social sciences, which could mean different directions of specialisation such as economics, geography, sociology or political science. Another 22 per cent have

a master degree in socio-economics. The rest has quite varied background, including for instance business economy, mathematics, engineering and agricultural economy.

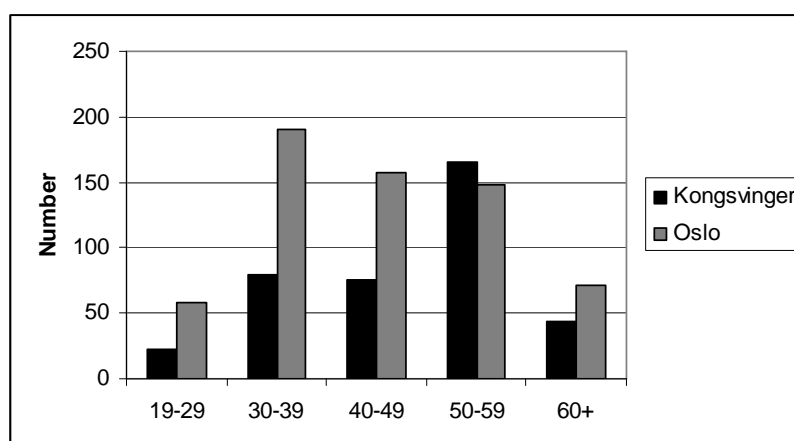
After 2000 the expansion of Statistics Norway continued in response to new national and European requirements, by recruiting academics with higher and lower degree. At the same time the number of non-academics was reduced to around 25 per cent, mainly by replacing non-academics with staff with academic background.

The trend is evident; academics are gradually replacing non-academics in our institution. Will this be preferable also in the future?

2.2. Age profile and future retirement

In Norway the normal pension age for public employees is 67 years with the possibility to continue until 70. However, one might also retire from the age of 62 with reasonably good retirement benefits, if one has been working more than 30 years. At what age staff will choose to retire, and who those leaving are, are important questions when planning future recruitment.

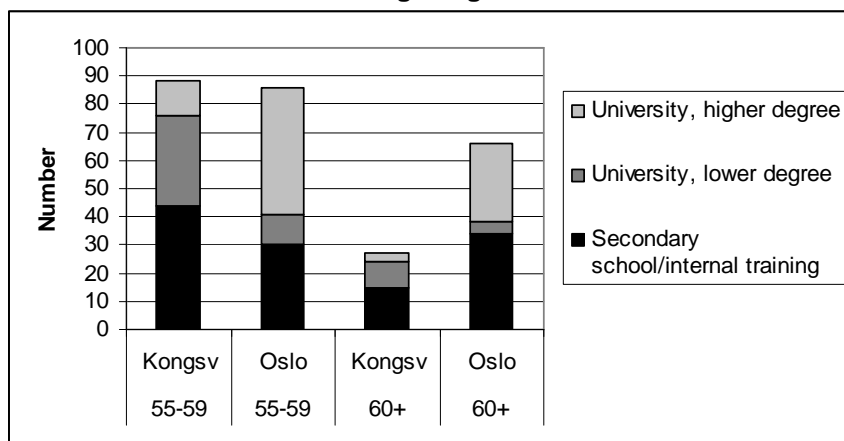
Graph 2 Age distribution. Oslo/Kongsvinger 31.12.2008



At present, around 54 per cent of the staff in the Kongsvinger office is more than 50 years of age. The situation in Oslo is somewhat more balanced, with around 35 per cent in this group and with relatively many in age 30 – 39 years.

When breaking down the staff on smaller age groups and by educational level, one can observe that a relatively large part of those approaching retirement in Kongsvinger has secondary school as their highest diploma and possibly systematic internal training courses. Especially in Kongsvinger there will be a gradual increase in the number being retired.

Graph 3 Age and educational level. Oslo/Kongsvinger 31.12.2008



Experiences from the last years and an internal survey, indicates that a relatively large part will retire at 62 or at a later stage, before the age of 67. This is especially the case for non-academics, and it seems likely that, especially in Kongsvinger, the loss of capacity and knowledge as employees retire will be quite noticeable. To be prepared, it can be necessary to mobilise external educational solutions. Many of those retiring have been in Statistics Norway all their working life and are very competent in running the day to day operations in different areas. An issue to be further clarified is to what extent these employees should be replaced by young academics.

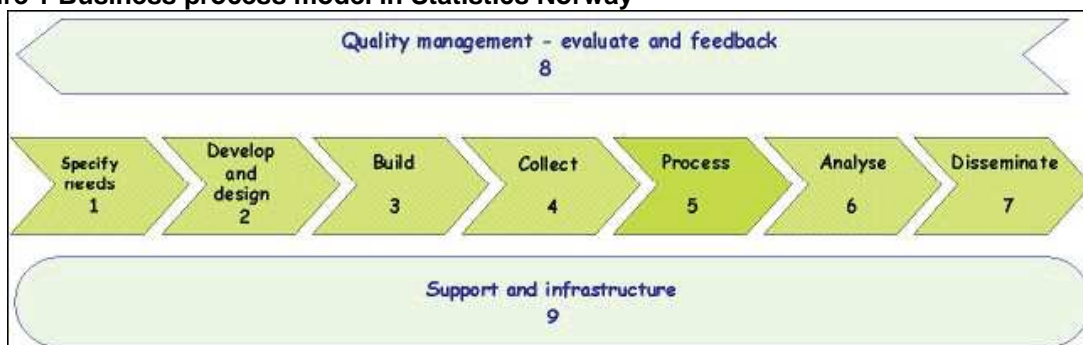
2.3. Changes in the production of statistics- a new business process model

Not only changes in staff will be of great importance, but also changes in technology and work methods. Statistics Norway started early 2008 a programme for improving and standardisation of the statistical production system ('FOSS'). The program focused on developments in the following areas:

- Development of standardised work processes, methods and IT systems
- Development of systematic quality measures and control
- Development of the organisation and competencies within the organisation in accordance with the previous two areas

A key deliverable of this programme has been to specify, based on similar approaches in some other countries (such as Statistics New Zealand and Statistics Sweden), a detailed business process model of which the main processes are the following:

Figure 1 Business process model in Statistics Norway



The model consists of 7 phases of the statistical business process and 2 over-arching processes (Support & Infrastructure and Quality Management). It describes the business processes in the statistical production on three levels. Level 1 provides a general description of the main elements in establishing a new statistic, from the need for the statistic arises until the statistical product has been disseminated to the users.

This model is intended to provide a basis for assessing the possibilities and the need for standardisation and improvement of processes within Statistics Norway. The model will be an important tool in planning new statistics, in activities to improve existing work processes in statistical production, and for training purposes. It is estimated that the positive impacts of using the model primarily pertain to reduction of risk, better documentation of the production processes, e.g. through common terminology, and easier training, integration and rotation of staff.

One important element of the programme has been to assess available competencies in order to perform the planned new tasks and operations and to evaluate the future needs in relation to staff recruitment and training.

As several of the planned projects for standardisation are yet not finished or implemented in a real production environment it is too early to report on the effects in relation to staff requirements and training. There are, however, some provisional conclusions:

- The business process model is based on a process oriented way of thinking which might require specific competencies and training and not least corporate culture and organisational adaptations. We are still in the process of getting a common understanding of what this means, and in what direction the work should continue. For instance, it is possible to develop domain specific models, or to go in the direction of introducing total quality systems (EFQM or ISO9000).
- Some of the projects, and especially one developing and implementing an integrated system for editing and estimation (ISEE), has already documented some effects by reducing the volume of manual work needed, improving documentation of processes and changed the needs for training. Some new training activity has already been planned.
- In general it is assumed that better and standardised working methods will reduce the needs for future staff without academic background. However, it is estimated that much as 50 – 80 per cent of the present non-academic staff should be replaced by staff having similar practical and methodological qualifications in order to run the day to day operations, data editing, documentation etc. This means staff with an adapted education up till bachelor degree. Thus, hiring academics with higher degree diploma to replace the ones leaving is perhaps too simple of a solution without further analysis.

2.4. Who are the future employees?

Another issue to take into consideration when dealing with the future statistician is that there are those who suggest that the young persons recruited today are different from earlier generations, not just in academic degree. Trend analysts have since the end of the nineties been talking about generation Y or Millennials. These are the ones born after 1980, and who are the majority of our new employees. Can it be said that these are fundamentally different than older employees? Experts² say 'yes', and although opinions differ on this, it is interesting to look at this generation compared to the preceding generation X, and consider whether the role as an employer is a different one.

Generation X (born 1965-1977):

- Strive for work/life balance
- View work as "just a job"
- Adoptive and responsive to change
- "Me" attitude
- Street Smart
- Pessimistic and critical of Government and Public Institutions
- Look to their peers for advice

The Millennials (born 1980-d.d.):

- Assume they will have work/life balance

² see e.g. www.universum.se

- Believe that through their work they can make a difference and value creativity in their work
- Used to plan everything and are not as comfortable with change and uncertainty
- "We" attitude
- Savvy
- Hopeful about the future and eager to take on the world through the public sector
- Look to their parents for advice

The Millennials are sometimes called the "Trophy Generation", or "Trophy Kids," a term that reflects the trend in competitive sports, as well as many other aspects of life, where "no one loses" and everyone gets a "Thanks for Participating" trophy and symbolizing a perceived sense of entitlement. They are said to be sociable, optimistic, talented, well-educated, collaborative, open-minded, influential, and achievement-oriented. They've always felt sought after, needed, indispensable. They are arriving in the workplace with higher expectations than any generation before them³. In fact, some employers are concerned that Millennials have too great expectations from the workplace and desire to shape their jobs to fit their lives rather than adapt their lives to the workplace⁴. Whether one believes this to be true, or not, it can be said that the generation of 'new employees' today, must be seen for their own traits.

2.5. The role of management

Management has a very important role when dealing with the future statisticians, perhaps even more so than earlier. Perhaps leaders must think differently when dealing with future statisticians compared to their older colleagues. Millennials, who are used to teamwork and collaboration, are not ones who accept top-down instructions without question, and are used to speaking their mind. At the same time, Millennials need structure – a framework to operate within. They are used to parents and teachers micromanaging their schedules, planning things out for them, leaving very little unstructured free time. This can be a challenge for managers today, who are expected to have a general understanding of many statistical issues, have excellent relational and communicative skills, and at the same time have the authority and knowledge to guide their employees on statistical topics – without necessarily being the most knowledgeable. The difficult question of "how to be a first-class leader" is one that can never be put to rest, and the topic is not one with a clear answer. Each organisation must define what type of leaders and leadership-style are right for them. But it can be said that the authoritarian leadership style is outdated, and what is needed today is not managers, but leaders.

Leaders in Statistics Norway have traditionally been recruited internally and among the strongest statistical professionals, and this has affected our leadership culture. Lately, however, we are slowly experiencing changes towards a new leadership culture. This can be seen in our new set of leadership principles, which are just finished. The leadership principles are thought to represent our view of what it means to be a first-class leader in Statistics Norway.

As part of the management training it has also been found useful to define criteria for good leadership, which are relevant when talking about competence development:

A leader in Statistics Norway...

- ...gives life to the strategy
- ...strives for innovation and improvement
- ...takes overall responsibility
- ...develops expertise
- ...treats employees as individuals

These main points are further specified and the one on skills and qualifications is for instance specified as:

- Recruits and develops the right expertise
- Supports employees' professional and personal development, and delegates work

³ <http://www.generationsatwork.com/articles/millennials.htm>

⁴ www.wikipedia.com

- Creates arenas in which experiences can be shared and expertise can be developed jointly
- Stays up-to-date on his subject without having to be the leader in his field

We will continue implementing these principles on different levels of the organisation, and hopefully make them an integral part of everyday work.

To sum up – we have a situation where we recruit mostly academics, while many non- academics will be retiring in the next few years. The new employees will perhaps have different needs than their older colleagues. Also leaders will have to adapt to this. At the same time new technology and new methods and work organisation will change the training needs and competence requirements for those being recruited.

There are several lines of actions in order to meet these challenges. One important way is through the training programmes offered. In the next chapter we will present some examples related to future training in Statistics Norway.

3. Training in Statistics Norway designed to meet future challenges

Statistics Norway seeks to educate and professionalize qualified employees for work with official statistics. We strive for a high quality, comprehensive in-house training programme, to fit both new and older employees. In the following we will give a description of some of the methods for training in Statistics Norway. Some of the measures have been running for some years and function well, and we believe they are suited also for the future statisticians. These will be described shortly. Other measures have been redesigned and revised with the new statistician in mind, and will be more thoroughly presented.

3.1. Present internal training

Statistics Norway's internal training programme, called "Byråskolen" consists of courses on a variety of topics and with different duration and periodicity. Most of the training is performed by own staff, but for some specialised courses we use external experts. In 2008 there were 84 courses with around 900 participants. Almost half the staff attended at least one course.

The IT related courses, covering topics such as use of powerpoint, excel, Unix and SAS, attracts large participation and is given high priority. Furthermore, dissemination is an important area, covering topics such as loading data into the dissemination database, utilising dissemination and presentation tools and writing articles and handling the media. Social competencies have also been considered to be important including communication and presentation skills, group and project management and conference leadership. Courses on selected methodological topics area also considered vital for most of the staff, covering topics such as sampling methods, estimation and imputation, data editing, regression analysis and time series analysis. There are relatively few courses on specific subject areas, but for instance courses on national accounts are quite regular.

3.1.1. Project and team work

One of the more extensive programs offered in-house is the program on project and teamwork (ProTeam). The objective is to provide the participants with knowledge on project work, to develop competencies for cooperation and team building and to introduce how Statistics Norway defines quality work. The program runs over 8 - 9 months with four joint training courses for a total of 12 days. In addition to the seminars, the participants are expected to work one day a week on a project. The projects are suggested by the management, and are often developmental projects that the sections themselves do not find the resources to work on. Thus the expectations and demands are high and very real. The participants are guided throughout the process, and learn about the different stages of project and teamwork as they are experiencing it themselves.

This combination of theory and practice has made this program a success for 11 years. It is still very popular, and the participants emphasize a high learning outcome. This way of organizing training is a

way that suits the modern statisticians, and Statistics Norway plans to continue this program in the years to come.

3.1.2. Training of quality pilots

Statistics Norway has for some time been trying to implement elements of a total quality approach (TQM). One concrete part of this has been the training of quality pilots. All projects of a certain size are given a quality pilot and the quality pilot guides the project leader, and focus on the quality in the processes. Today there are about 50 staff members that have been through this training.

The programme consists of 6.5 days with four sessions. Session 1 is on quality principles, session 2 on project work, session 3 is on communication and session 4 is more in depth on quality management. A part of the course is on an external location and with external experts.

3.1.3. Statistical advisor

The qualification scheme for statistical advisers is a measure that supports both the possibilities for individual development and career, and Statistics Norway's need to develop and keep a core of people with insight and experience in official statistics. The qualification emphasizes both formal qualifications (university education including some education in statistical methods), work experience (cooperation, project experience and work style) and results from work with statistics and more personal abilities such as communication skills. The candidates are evaluated by an evaluation committee consisting of 5 senior statisticians from Statistics Norway and one member from outside the institution. The committee evaluates the applicants based on application with a CV that includes description of different work tasks, written documentation including planning documents, methodological papers and dissemination of statistics and analyses and a reference statement from the applicant's boss. Our in house training department offers training consisting of modules covering the requirements in statistical methods. Training that supports the other (non-formal) criteria, such as knowledge to the statistical system and teamwork are taught in several of the more general courses, such as courses in project- and teamwork and quality work.

3.2. New training measures

3.2.1. Introduction programme

The first few months after starting at a new workplace are of great importance for the future well-being of employees. Statistics Norway has for some years held a quite extensive introductory course for new employees. It covered altogether 8 days of which 3 days were allocated to statistical methods. Although the course received a pretty good evaluation, a further inquiry (group interviews) showed that very little of the topics presented were remembered afterwards, and that little of what was taught was used in their daily work. The new employees stated in interviews that they wanted to know more about SSB at a strategic level, what the overall goals were and how they could be targeted and met. They also wanted practical information on Human Resource issues, and IT systems and tools. Other topics sought after were individual career development, and possibilities for working abroad. Considering the length of the course and resources spent on it, it was decided a revision was needed.

After lengthy discussions, the new course was designed with our main strategy as a template. The strategy sets the direction for Statistics Norway's development in the years ahead. It is built around a few brief primary strategies: *Statistics portray society, Research of high quality, Satisfied users and motivated respondents, Cooperation to improve statistics and Quality in every process*. By using these same topics as a way of organizing the course, we have a pedagogical framework for organizing the course as well as ensuring that our strategy and main goals are made clear.

The introductory course has been shortened to four days, and the topics are of a more general character. The idea is that the more practical statistical skills employees need to perform their job are individual and best taught in the work setting, by colleagues. The aim of the program is to:

- Give new employees a positive experience of their first few months
- Create a better understanding of statistics Norway as an institution and our importance in the social system

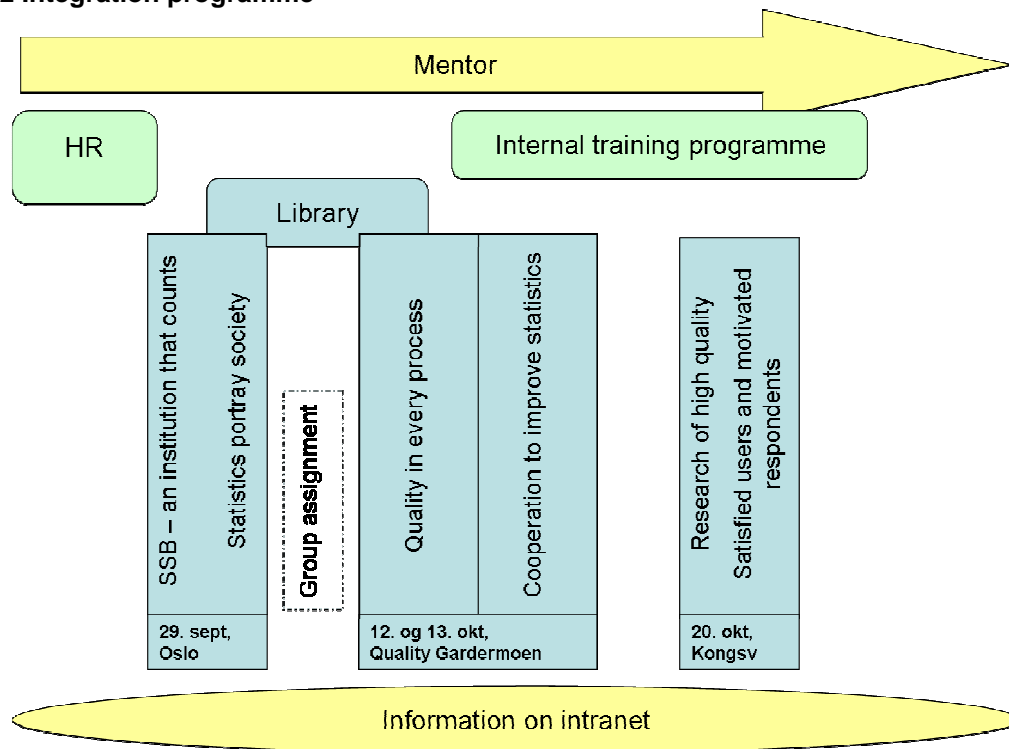
- Give an overall understanding of statistical activities and understanding of high quality statistics
- Contribute to professional and social networking across divisions

Two of the four days take place in an overnight seminar, away from the office. The course is designed with a mix of lectures, activities and group assignments. For example, the participants will the first day be given a group assignment on a statistical topic, and are expected to (with help and support from the library and other resource personnel) to work on this task between course days.

Consumer price index is used as an example throughout the program, to make the topics more accessible to the participants, as well as understanding CPI. At the present, we have not yet executed the new program, and are excited to see how it is received by the new employees.

It is important to note that for the new employees, this is a period when much is to be learned. Not just professional tasks and responsibilities, but also culture and codes, relationships to colleagues, where to find information, routines, identification of key players, organisational structures and so on. These are topics that can not be taught in the classroom. Nevertheless, new employees need structure and support to find their way. Therefore, to complement this more traditional introductory program, other supporting processes will be looked at in parallel. We want to move from an introductory program to an integration program (Figure 2).

Figure 2 Integration programme



We are currently also working on the following measures:

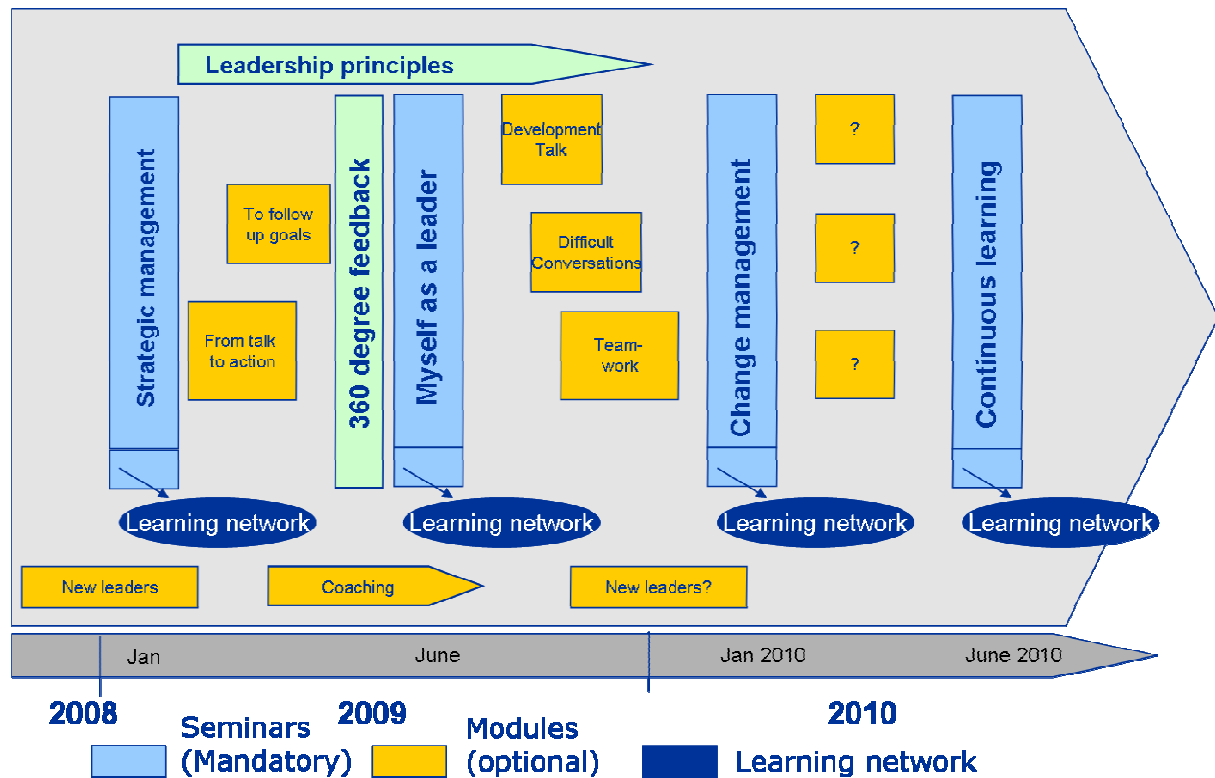
- The role of the mentor, more assistance and clearer definition of responsibility
- Review information given by HR department at arrival and after some months
- Assess (and possibly add) courses offered at our internal training to this target group
- Update and supplement information at our intranet
- Individual career planning offered after 12 months on the job

We hope that this way of organizing will give the new employees the knowledge and support-system they need to fulfil their potential.

3.2.2. Management training

As mentioned earlier, management has a key role when dealing with future statisticians. Also leaders need training and help to develop. Statistics Norway is currently in the middle of a training program for managers, a program we believe to be of great importance for the leadership culture in our organisation. The aim of this program is stated as “A common platform for leadership in Statistics Norway, and focus on the importance of leadership”. The program has a two year perspective, and consists of several different elements.

Figure 3 Leadership development programme



Essential in the program are the four 2-day seminars that are mandatory for all line leaders. The first topic (January 2009) was “Strategic management in Statistics Norway”, with discussions on what strategic management is, and discussions on what it means to be a first-class leader in Statistics Norway. The second seminar took place in June 09, and the topic was “I as a leader” where leaders were given the opportunity to discuss the more general topics on an individual level. The purpose was to define what was important for each individual leader, in their unique situation.

The seminars consist of some plenary presentations on relevant topics, but more important are the smaller groups, so called learning networks, that everyone has been divided into. It seems it is within these groups that a lot of development takes place, and the participants describe this way of working as “highly valuable”. This is a confidential arena for the more personal topics, where the participants are given time to talk about what is relevant for them, and receive feedback and advice from the rest of the group. The learning network is administrated by a trained facilitator, who steers the conversation and helps the group to keep focus and move in the right direction. The participants in the group do not necessarily know each other well before, and no direct line of command is present.

The topics for the two next seminars, taking place in 2010 are

1) Change management in SSB, where the goal is to mediate a deeper understanding of change management, and leaders can support and be a driving force for change. An element of this will be the new technologies and working processes, and how to benefit most from change. Topics will be both individual and organisational change management, change models and processes, and how people respond to change.

2) Continuous learning – Statistics Norway as a learning organisation. How do organisations learn, how do knowledge workers learn, and how to create a well functioning team and a culture for learning. Especially this fourth seminar is important in respect to dealing with the future statistician, but we believe that this program will have a positive effect on the leadership culture, and that the whole organisation will benefit from the time invested in this.

As a part of the program all leaders have subjected themselves to a 360 degree feedback. "360" refers to the 360 degrees in a circle, with an individual figuratively in the centre of the circle. Feedback is provided by subordinates, peers, and supervisors. It also includes a self-assessment and, in some cases, feedback from external sources such as customers and suppliers or other interested stakeholders. This feedback is used exclusively for development purposes, and each leader was given his personal results by a certified facilitator, with the purpose of identifying key areas for improvement. Together they made an individual development plan that the leader will work with for the rest of the program. To support the leaders in their development they receive offers of individual coaching lessons, and optional 1-day training courses on more practical topics.

The evaluations and feedback so far show that the leaders find participation in this program very useful, and many say that the program has given them an opportunity to reflect on leadership issues and develop as leaders. It remains to be seen whether the impact is a lasting one, but we believe the organisation as a whole benefits from this programme and the focus on leadership that is accompanying it.

3.3. Training for the future

High quality training is a prerequisite for development of the staff, but it is important to remember that training can be done in a variety of ways. A guiding principle is that training and learning is something that is best done as an integrated part of everyday - not solely in the classroom. As stated in Statistics Norway's HR strategy (2007):

Sharing knowledge and best practices is necessary in order to ensure high-quality products and processes, and to develop and retain the right expertise in the organisation. The most important aspect of human resource development is the daily professional work and cooperation with colleagues. Creating fruitful arenas for learning and professional development in all levels of the organisation is a priority area in this respect. Furthermore, efforts shall be made to increase knowledge sharing between senior and junior staff, and a better foundation shall be created for knowledge sharing between various areas within Statistics Norway.

Creating fruitful arenas for knowledge development, and encouraging mobility is something we have been working on for quite a while without really succeeding. Now, with standardisation across the organisation, staff can more easily change positions. We believe this to be an increasingly important measure for knowledge development for the future staff.

In an organisation with many cross-cutting projects and tasks and moving in the direction of process orientation, it is necessary to recruit and train staff to manage these projects and processes. This has been an important element of our training, but might be even more important in the future.

E-learning is another area we believe to be more and more important in the future. The future statisticians are "digital" by nature and this form of learning suits them. We have started and it has been found useful to implement some training activity as e-learning. Those areas covered so far are: Windows office tools (Excel, word, PowerPoint, outlook), and Internal security. The topics covered so far are those of a relatively simple and technical nature and where it is important to cover as many as possible of the staff on a regular basis. Some benefits of this approach are that even the interview staff located across the country can benefit and it is possible to pick up the information material when needed. E-learning has a much greater potential for supporting learning and development than we have so far benefited from, also on more difficult and bigger topics.

Many of the employees today have spent many years at schools and universities and are both used to, and comfortable with, gaining knowledge "in the classroom". However, studies show that one stands the risk of forgetting much once one enters the workplace again, unless the knowledge is put to

use immediately. The question one must answer is whether the learning happening in the classroom is the right kind? Is the knowledge gained relevant for future statisticians? And do participants succeed in applying their gained knowledge once back in the daily work. Perhaps the future training measures need to focus even more on how they can support and substantiate the learning taking place everyday in the workplace.

4. Future competencies

In chapter 2 we discussed some future challenges for our organisation related to staff replacement, changing business processes and new staff expectations and management roles. Furthermore we discussed in chapter 3 some ongoing actions in the field of training to meet some of the present day needs. Whenever these topics are discussed the question of what competencies will be needed in the future arises, and that is not an easy question to answer. How do you define the skills, behaviours, and attitudes that workers need to perform their roles effectively?

It is crucial for the future development of our offices that these issues are discussed and that the development and recruitment supports the development in statistical production. One also needs systems and processes to back up these new changes. To be able to do this, it is crucial to know what we already have. A framework for competence description is – we believe – a useful tool both at present and in the future.

When talking about competencies it is important to underline that we consider this to be more than formal training and can comprise the following:

- Knowledge (What you know, both tacit and explicit)
- Skills (How you do something)
- Abilities (Talent)
- Attitudes (Values)

Thus it is both technical, formal knowledge and ability for problem solving and social skills.

4.1. Towards a framework for competence description

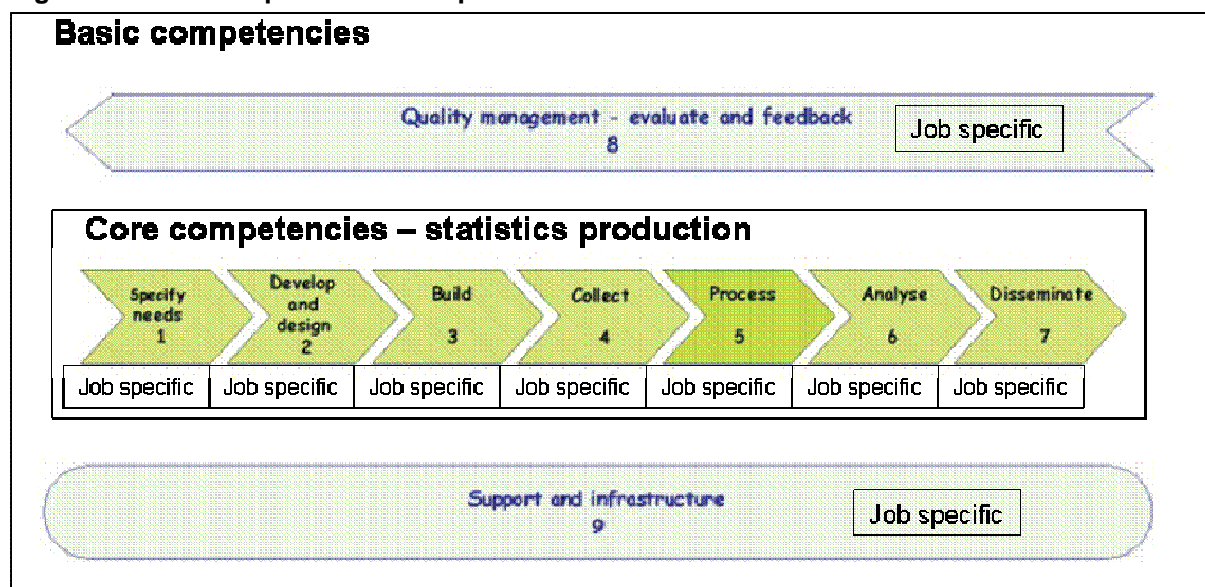
A framework for competence description defines the knowledge, skills, and attributes needed within an organisation. Within Statistics Norway we established a project fall 2007 with the aim of examining how we would benefit from implementing a systematic approach for describing competencies. The project looked at both internal challenges and experiences other organisations and countries had on the topic (among others Statistics Denmark and Statistics Sweden). Based on external experiences and an internal review, the project concluded that we should develop a solution for mapping competencies within Statistics Norway. The project also suggested a method for carrying out this mapping.

This conclusion was supported by internal discussions with the middle and top management that underlined that we need to have a more systematic overview of existing and needed skills and qualifications. However, it was necessary to develop the approach more in detail.

On the basis of brainstorming sessions and examples from other countries we have drafted an overall framework.

The framework suggests to distinguish between three types of competence: "basic competencies", "core competencies" and "job specific competencies". Figure 4 shows how this links to the business model (presented in chapter 2.3).

Figure 4 Relationship between competence framework and business modell



Basic skills and competencies are defined as those required of all employees in the organisation, regardless of role or business unit.

The objective has been to identify some major categories and at present these are:

- Basic ICT skills (use of windows tools, internal administrative tools, web)
- Statistics Norway and its role in society (legal basis, strategy, management and planning, business model, international cooperation etc.)
- Social and communication skills (teamworking, oral and written communication...)
- Creativity and result-orientation (innovation skills, delivering results on time...)

Core competencies are linked to the primary task of statistics production and the major categories at present are:

- Knowledge of statistical principles and methods
- Numeric and analytical skills
- Understanding for the production process, routines and quality requirements
- Orientation about social issues and the statistical needs of the society
- Abilities in using the relevant tools for treating statistical data

When applying this to our discussion about the future statistician, it is interesting to note that the formal academic training is not the most prominent feature. This does not mean that academic background is unimportant, rather it is a prerequisite (as shown in the first two bullet points in Core competencies), and that different academic fields can be relevant. We believe the last three points to be even more important in recruitment and development processes and for the future statistician.

Job-specific or specialist competencies are applied to specific roles, job groups and functions, especially within the field of methodological, ICT or administrative support, but might also be the case for specific tasks within the statistical production process. Although standardisation of the statistical process is something we are working for, there is still a need for Job-specific or specialist competencies – a specialized generalist.

In the autumn this year we are going to test and develop the drafted framework within some sections in Statistics Norway. When testing this framework we will also test the use of a scale of competence levels. The benefit of such a scale is that it 'forces' those involved to perform an evaluation of level of competence, and that it is easier to aggregate and summarise information. On the other hand, it can

be somewhat arbitrary and should be used with discretion, especially on an individual level. Our suggestion is a four level scale ranging from 1 (very low competencies) to 4 (very high competencies).

The areas where we at present use a competence descriptions and where a more standardised framework might be helpful are:

- Announcement of vacant positions and recruitment procedures
- Appraisal interviews and evaluation of competence needs within sections
- Planning of training and development activities

If successful and accepted by the management, a more systematic approach for competence description and mapping might be implemented on a broader scale in different areas. Hopefully these actions will lead to better knowledge and use of competencies in the organisation, resulting in more efficient production of high quality statistics.

5. Who are the future statisticians?

The production of official statistics has a long tradition based on well established practices and methods. Thus one might assume that future competence needs are more or less the same as in preceding years. And to some extent this is true, there are some basic numeric and analytical skills that will be prerequisites for the production of high-quality statistics also in future.

On the other hand; there are a number of internal challenges such as staff turnover, changing technology and production routines and external challenges related to the recruitment of staff with the relevant background and new expectations, relationship with external stakeholders and users, international cooperation etc. These challenges require a more conscious approach to competence requirements and competence development.

In this context it is worth referring to what Mr. Hal Varian, Google's chief economist, said in an interview, presented in McKinsey Quarterly in January 2009:

I keep saying the sexy job in the next ten years will be statisticians. People think I'm joking, but who would've guessed that computer engineers would've been the sexy job of the 1990s? The ability to take data—to be able to understand it, to process it, to extract value from it, to visualize it, to communicate it—that's going to be a hugely important skill in the next decades, not only at the professional level but even at the educational level for elementary school kids, for high school kids, for college kids. Because now we really do have essentially free and ubiquitous data. So the complimentary scarce factor is the ability to understand that data and extract value from it⁵.

If this is true, the statistical institutes will even get a stronger competition when recruiting employees with these fundamental numeric skills, even if we also might offer unique opportunities for those who have this interest. Thus we need to continue the work of building a positive image of official statistics and the statistical institute as professional employer (branding), and to ensure competitive wage conditions.

However, we also have to be honest about what type of work statistical institutes can offer. Even if manual and routine oriented work has been drastically decreasing over the last years, we assume that some of these tasks, mainly related to data collection, editing and documentation, will continue. At least for Statistics Norway it might be a challenge to recruit staff with the relevant background for these tasks replacing some of those that now approach pension age. One option is to develop external training in cooperation with other partners.

Another challenge we can see is that there will be less stability in future both regarding staff, technology and internal production processes. Thus we need to develop a more flexible organisation with a high degree of internal training and transfer of knowledge, and not least professional

⁵ http://www.mckinseyquarterly.com/Hal_Varian_on_how_the_Web_challenges_managers_2286

management at all levels. This organisation will require staff with strong abilities in team work and project/process management combined with innovative and analytical capacities.

So, what is the profile of the official statistician? Perhaps the answer is that there is not one profile but a number of profiles. We have to live with a situation that those recruited have quite diverse background, also concerning mathematical statistics, and we have to supply necessary internal training (on the job, courses, e-learning) combined with an efficient work organisation, in order to ensure a stable output of high quality official statistics.

This situation requires a clear management strategy and a human resource function closely interacting with all parts of the organisation, ensuring that everybody has a high degree of consciousness about required and available skills and capacities, and that there are tools to identify needs and gaps and not least mechanisms to fill the gaps. A mechanism to fill competence gaps is to benefit from international training and exchange of best practices – and staff.

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