Implementing the Digital Library – some theories and experiences on leadership of change

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Introduction

Implementing the Digital Library means a lot of changes in the library. Some may be greater than others, but however we look at it, for many of our patrons the library will change beyond recognition, as will it change for the library staff.

In this chapter I will present some theories that I find relevant and helpful in change processes. Interspaced with the theories I will give a few examples of our experiences in the University of Bergen Library. More about the processes may be found in other chapters in this book. I then take a brief look at the leader's role in the different processes, and use implementation the Digital Library as an example. The implementation of the Digital Library will be seen as a change that may be planned and anticipated, as opposed to driven by uncontrollable "forces".

There are many definitions of "the Digital Library", but for our purpose it will be sufficient to maintain that it means a major change, both for patrons and staff, that it involves technological changes, and that it will concern most of the processes in the library.

Theories on organizational changes

"Explaining how and why organizations change has been a central and enduring quest of scholars in management and many other disciplines." These are the opening words in an authoritative and widely quoted article from 1995, where Andrew Van de Ven and Marshall Scott Poole conducted a literary review of 200 of the most central articles about organizational change and development. In doing this, they introduced four basic types of process theories that explain how and why change unfolds in social entities: life-cycle, teleological, dialectical and evolutionary theories.

"Life-cycle theories" suggest that change has to happen in a logical and programmatical way, in which organizations will be moved from one point towards a prefigured end. Typically, change events in a life-cycle model follow a specific sequence of stages which are cumulative and related. Each change sets the stage for the next (Van de Ven and Poole 1995:515).

The teleological change theories see organizational change as proceeding towards a goal. The organization is seen as purposeful and adaptive. It can formulate goals, take action to reach them and monitor the progress. Development is a repetitive sequence, but not preordained (Van de Ven and Poole 1995:516).

The dialectical process theories explain change as a struggle of balance between opposing entities within or without the organization. We can speak of a thesis – antithesis – synthesis process (Van de Ven and Poole 1995:517).

The evolution models explain change as a "recurrent, cumulative and probabilistic progression of variation, selection and retention of organizational entities". (Van de Ven and Poole 1995:518)

Libraries as organizations

Academic libraries, or libraries that are part of academic institutions, have a number of characteristics that set them apart from other organizations; sometimes also from public libraries. Some of the characteristics of Norwegian academic libraries/university libraries that may influence the way they change may be:

- The library is organizationally placed within a University organization. This means that changes within the University may affect the library.

- Forces of change from the external environment, the society, that affect the University, may also affect the library.

- The library belongs to an academic institution, which means that the main focus is on furthering learning and research. This differs from the much broader aim of the public library, which also caters to the reading public for whom reading may be a pleasure in itself.

- We may also expect the library to see itself as taking part in the research process, meaning that the level of help and service given to an individual researcher will be high. This very high level of service orientation is of course a common feature among all librarians.

- An academic library of a certain size will be a hierarchally structured organization.

- It will be an organization with detailed and established routines for dealing with its patrons.

- The academic library is good at documenting, by statistics and written plans, prognoses and reports, what is going to happen or has happened in the organization over the time.

The German sociologist Max Weber developed a theory on leadership in different types of organizations, and found that the bureaucracy has its basis in laws, and is characterized by a specializing in responsibility, with competence and specialization as one of the fundamental criteria for the personnel, a clear and hierarchy of powers with many stages, and by written, formal, standard and repetitious task formulation. We may, from the above, see the academic library as a bureaucratic organization in Weber's sense of the word. (Weber 1979)

Change in organizations

A definition of change in an organization can be that change will be registered when we see a major difference between two points of time, but there has been a relative stability in the situation at the two points. (Jacobsen, 2004) We can also consider that implementing the Digital Library will ideally be a change that may be planned, and therefore also a process that may be led by someone, either the formally appointed leader, someone delegated the task, or someone who will take the leadership and assume the responsibility.

The powers of change

What are the driving forces behind change?

One such driving force may be summed up in "a feeling of imbalance" e.g. between two or more internal elements in the organization. This may be a negative imbalance – in which the organization has to correct a deficiency – or a positive imbalance – when the organization aspires to become even better.

Another driving force may be a measurable imbalance, concerning changes among the customers, the competitors, the suppliers or change in political issues etc.

In the library, we may see imbalances stemming from technological changes, where modern technology is brought to the market and the library has to use it. We may see imbalances when it comes to economic changes, when the subscription prices of journals rice a lot higher than the mean price indices.

The different driving forces may cause changing behaviour in the organization, but do not necessarily do so, and the same forces may have different impact in similar-looking organizations, from a total make-over to no action at all. For change to take place the driving forces must be translated into action, and must be considered relevant for the organization. Organizations will perceive the changes differently. Also they choose different strategies to meet the changes.

Case Study: University of Bergen Library

Digital library = modern technology

In an analogue library, patrons will find and retrieve material of interest, and the library itself will not be involved in their use of the material. In the digital library, patrons will retrieve and manipulate content as far as the functions and services of the digital library allow. At the same time we see that building a sustainable digital library presumes that the systems and services meet the need of some user community (Borgman 2002), in our case the scholars and students at the University of Bergen.

The cluster of changes that may be called "Implementing the Digital Library" consists for the most part of technological changes, and the cultural changes that come with modern technology and new needs rising from modern technology. One example may be Internet and its possibility of information overflow that leads to a new need for teaching of information literacy. This is a new need for students, but also for the library in order to stay current. See Tonning this volume, for more about this.

Among the technological changes in the environment we see the same ones that have led to many of us using internet banking, or reading the newspapers on the internet, that is, the spreading knowledge and use of personal computers, and of the web or internet. These changes have been fully documented, and here will be taken as a given.

Within the University the technological changes show themselves in the growing number of different Learning Management Systems being used in university teaching and learning over a period of time.

In the University of Bergen Library, the technological changes manifested themselves first in the building of an electronic catalogue, and purchase of computers for patrons to use for searches. Then came the purchase of electronic resources in order to make them available to patrons. There are a rapidly growing number of journals, databases, reference works and other electronic resources on offer, both for current and back issues, in many different forms, shapes and formats, and at a widely differentiated price range. A new library portal for accessing the electronic resources has been acquired. Computers for reading journals in the library were introduced, and later they have been augmented and equipped even for students writing essays.

In recent years the discussion about digitising the library's own material (pictures and special collections of old and rare books and manuscripts) has been taken up. Along with this came a wish stemming from the Open Access movement, to create our own Institutional Repository.

The most recent aspect of the Digital Library to be implemented is the

developing of a set of courses in information literacy, also available on the internet.

All these changes are explored in fuller detail in the other chapters of this book.

What needs to be changed?

Evidence from recent user surveys in academic libraries shows that:
- People trust libraries and their information
- The faculty think that they will be more dependent on electronic information in the future
- Patrons want to navigate the world in a self reliant way.
(Cook, Colleen 2006)

When patrons' behaviour changes, among other things because they become more used to computers and the internet, the library also has to change. Generally speaking, the changes may include changes in what an academic library building may contain: We may have an electronic catalogue; freely available over the internet from the workstations of student or academic staff. We may have several types of PCs for student use; both for single, double or group use, or for classes. We may have a wireless network allowing patrons to work on their own lap-tops all over the library building, where ever there are relevant resources.

Other current changes include what is on offer in the library or from the library. This may include electronics journals, databases and reference literature. Also, we may find the library involving itself in teaching Information Literacy to students, in cooperation with the academic staff at the university.

These sets of changes will involuntary lead to another change: a change in the staffing of the library, where we may experience a growing need for more computer specialists and pedagogues than traditional librarians; or a growing need for traditional librarians with an added expertise in computers and pedagogy.

Among the things that will stay the same we find the library's dedication to service, to academic research and to good value for money. We also believe that the physical building with the printed books and some journals will remain.

How are we changing?

Electronic catalogue

One way that University of Bergen Library has changed, is by having an electronic catalogue of our holdings, freely available on the internet. (Åsmul,

this volume) Thus, patrons may access our catalogue from their workstations, from their homes, or from all over the world, at their leisure. They may compare our holdings to those in other libraries that also are available on the net. As a result of this we experience that our users have a growing demand for inter-library lending of books that are found in the catalogue. Of course, we will at the same time experience a reduced demand for inter-library lending of journals, when they are more easily accessed electronically.

Purchasing electronic resources – what about the paper?
Another way our library changes is by purchasing electronic resources. Again, patrons may compare our holdings to those of other libraries, and decide if we have the relevant resources.

When we purchase electronic versions of resources and we already subscribe to the printed version, the discussion arises whether to keep the printed version in the library, or discard it. Some of our patrons may want us to keep the printed versions, but if we decide to keep them this will take up space in the library, and render it less flexible. If, on the other hand, we decide to throw the paper away, we will have more room in the library, for instance for workstations, where patrons may search and access our electronic holdings. This problem is being solved differently in the different libraries, depending also on space constraints.

The libraries with a certain amount of electronic resources are finding that the printed versions will not be in demand, and not be used. This seems to be the result of patrons starting to use electronic resources, and then falling out of the habit of using printed matter. We also see that research groups with sufficient funding will pay for single articles themselves, if the library does not subscribe to the actual journal. If the library, for economic reasons, decides not to subscribe to a certain electronic resource, it runs the risk of becoming obsolete for this particular group of researchers (Sivertssen 2006)

An other experience from the academic libraries that have many electronic resources is that the academic staff is happy to access the electronic resources from their office computers. Often, they cease coming to the library building at all. The library loses the day-to-day contact with one of the major groups of patrons, and thus a possibility for spontaneous feedback, be it positive or negative. The present spontaneous feedbacks will probably mainly be "I can't access this resource, what's wrong?" or "Why doesn't this work?" (Sivertssen 2006, Kongshavn and Sivertssen this volume)

In addition to the changes we have seen, we experience a growing need for instruction, teaching and information, especially about the electronic resources, for many kinds of patrons. These needs will be diverse, and will need more or less tailor-made courses for each different group of patrons.

Teaching Information Literacy to students

In Bergen we have experienced, and experimented with, the teaching available from the library. We have included Information Literacy among our services, and have, as already mentioned, different courses for different groups of students and academic staff. For the first term or first year of study, students will typically be offered a course in how to use the library catalogue, a few chosen electronic resources, about academic integrity and how to cite, and a guided tour in the library. For more advanced students we offer courses that focus on more advanced search possibilities among the electronic resources, and for masters, doctoral and academic staff we offer courses in electronic resources that are subject specific, and in reference management systems.

The different libraries have diverse student groups. To a certain degree they offer different electronic resources, depending on subject. This makes the course menu different in the various libraries.

Another difference is the degree of contact between the library and the departments when it comes to encouraging their students to follow courses at the library. Sometimes the contact is good, and the library courses appear in the student's schedule through the learning management system, while we have greater challenges in getting students from some other departments to come to the library courses.

For all the libraries we see that the best strategy is to establish and maintain close contact with the departments, both in order to make use of their help in promoting the library courses and also for the library to be able to give targeted courses that suit the academic work that the students are doing at that particular stage in their education. In this way we can show the departments the value in library training for their students.

In addition to the close contact with the departments, a strategy for teaching Information Literacy at the University of Bergen has been developed by the Library , and this strategy has been discussed at the top level of the University itself.

The teaching initiative is partly a result of implementing the digital library, but also because of changes in Norwegian Higher Education. (Tonning this volume), (Skagen and Torras this volume)

Digitising our own collections

In addition to purchasing electronic resources in the commercial market, we have decide to digitise documents that are in our own holdings.

It remains to see what the most useful starting point is for this work. Would it be it texts for study purposes, or original sources, like legal documents, for

research? Would funding be available to digitize a part of the holdings, perhaps a special collection that would benefit from digitization? In Bergen we are at the moment trying all these strategies in different projects, and have not yet evaluated this fully. See also Greve and Kyrkjebø, both this volume.

Library staff – keeping ahead of the development

Library staff will need to work hard to keep up with the electronic world. We need to be aware of the different search functions, and how to make them interact with the interface we already have in the library. We need a good interaction with the academic staff, in order to keep them informed, and promote certain resources and courses. We need to keep an eye on the statistics, making sure that we get good value for money. Also, we need a certain level-headedness, in order to not be seduced by all the different offers in the market, but to able to distinguish the useful from the useless resources.

We also need to keep abreast of the pedagogical challenges, with more and more courses being taught about more and more different subjects. It will be necessary to evaluate our use of the different kinds of personnel resources. When we decide to use new groups of personnel in the teaching, or to teach differently, there is a need to be trained.

Incremental changes or a revolution?

When we look at the examples of changes, we see that the changes seem to be incremental, small and spread over time. Indeed they became more like adjustments than changes, once we started cataloguing electronically, and once we bought our first electronic journal.

At the same time, we can see that the library has changed beyond recognition over time. Imagine what the library was like before electronic catalogues were freely available on the net: patrons needed to come to the library building and use the catalogue themselves and searching in the catalogues was limited to author or subject. Ten years ago only printed journals were available and the researcher had to come to the library to read or copy from them; compare this to today, when the latest research arrives at the researcher's computer almost by itself.

The revolutionary aspect is the change in medium, from paper to electronic. Can we compare this to any of the other great changes in library history? From scrolls to codices, from hand-copied to printed books, these are changes considered by many to be a revolution in the book – and in library history, but in my opinion the embracing of the idea of the digital library must be considered even more of a revolution.

In this changing library, the library staff to a much larger degree remains constant. The same kind of people who used to type the catalogue cards now catalogue electronically. The same kind of people who used to show patrons how to search by author name in the catalogue will now teach them how to search all the possibilities in the catalogue, and also in all the electronic resources. (Åsmul this volume)

Case compared to theory

Returning to the typology offered by Van de Ven and Poole (1995) we will see that the changes forming a part of the implementation of the digital library may be classified more easily under some theories than under others.

It will be difficult to see the digital library as a part of a life-cycle for libraries, where the digital library is like a seed, waiting for its time in the sequence. The change is too radical and too different for this to be considered a natural development, or following a law of nature.

The teleological theories look at planned changes, where the organization proceeds purposefully and adaptively towards a goal or an end state. It is easier to see the implementing of the digital library within this framework.

The dialectical process theories concern themselves with the balance of power between maintaining the status quo and opposing forces. We can easily imagine that this also has been the case when it comes to implementing the digital library.

Finally, we have the theories that Van de Ven and Poole called "evolution", where change is seen as a recurrent, cumulative and probabilistic progression of variation, selection and retention of organizational entities. For some aspects of the digital library these may come into play.

Van de Ven and Poole (1995) then went on to classify the different models using the dimensions "units of change" and "mode of change". If we follow this classification, we find that implementing the digital library, being a change that takes place in one organization and with a certain degree of prescription to the mode of change, fits among the teleological theories.

What kind of change?

Changes that may be classified as teleological point towards a planned change (Jacobsen 2004:35). For the planned change there are certain kinds of leadership and leadership strategies that have proven to be more fruitful than others.

Generally speaking, we would first need to examine the limitations to the

decisions we are able to make. Often, we will start by making a SWOT-analysis, where we examine the Strengths, Weaknesses, Opportunities and Threats to a given organization, at a given time. The strength and weakness sections form an analysis of internal issues, while the opportunity/threat dimension comes from an external analysis in the relevant environment.

All action is a result of cooperation between the individual and the environment. We will see that it is often easier to change the environment than the individual.

Jacobsen (2004) describes two different strategies for leading planned changes, quoting from Michael Beer and Nitin Nohrias book "Breaking the Code of Change" (2000). Stating his fundamental assumption – that a planned change is possible if a) the correct strategy is chosen, and b) the process is correctly led and suitable to both the process and the situation (p.193f) – he then goes on to describe the two strategies. One he calls strategy E, or Economic, and the other is called strategy O, for Organizational.

Strategy E is used to create an added economic value. The focus is on formal structures and systems. It is run by the top leader with much help from external consultants and by using financial incentives. It is planned and programmatic (Beer and Nohria 2000 p.3, quoted in Jacobsen 2004).

Strategy O, on the other hand, is concerned with developing the human resources in the organization, making them capable of implementing strategy and learning from earlier experiences in processes of change. The focus is the development of a culture that will in turn create enthusiasm. There is a large amount of staff participation, and consultants and monetary incentives are less frequently used. Change happens incrementally, and less planned and programmatic (Beer and Nohria 2000 p.3, quoted in Jacobsen 2004).

The two strategies are different, particularly for the following questions: 1) What kind of goal? 2) What is the top leader's role? 3) What is changing? 4) How is the change process planned? 5) How is motivation created? 6) What kind of role do external consultants have in the process? (Jacobsen 2004)

In the Digital Library-setting, we can see that strategy E may be the correct strategy to take when approaching the major decisions involved in implementing the Digital Library: the decision to start cataloguing electronically; the decision to convert the catalogue from print to electronic; the decision to purchase electronic resources systematically in order to create electronic holdings; the decision to create an institutional repository; the decision to digitise a larger amount of the library's own holdings. The top leadership needs to guarantee this type of decision, which concerns major investments, both monetary and in terms of labour. Other decisions, such as "how do we do this?", "what now?", "how can we use this aspect of the Digital Library to better our service to customers?" may

well be better off with a strategy O process, where the library staff will themselves be much more pro-active. Especially when the goal of a process is to change the culture, not routines only, a strategy O process seems to be the most functional.

What kind of leadership?

From the differences between the two strategies, we can easily see that they will require two different styles of leadership.

While strategy E focuses on economic goals, strategy O focuses on cultural changes that have to happen in the organization. For the library the economic goals will be securing funding, considering how to use resources (both monetary and human) efficiently, and what kind of modern technology to implement when. As for the cultural changes, they could be new ways of meeting customers, new products and services, or new routines and systems that have to be developed, and they are changes that should be learnt by the whole organization.

In strategy E processes the top leadership has a key role. They are the ones that can commit the organization and a certain amount of the resources to a certain course of action. They are the ones to formulate the problem, the goals and the solution. The changes that follow from this process will often concern themselves with systems and structures. The top leadership will still have to gain acceptance in the organization in order for the changes to be implemented, but this may be done by threats (of job losses or bankruptcy) or promises (of bonuses or gains). Often external consultants are heavily involved in at least some phases of the process. (Jacobsen, 2004)

In processes following strategy O the goal will often be to achieve an organization that is more capable of learning and developing. Systems learn by focusing on staff and groups, and humans may be lead by also being allowed self-leadership. Strategy O assumes that learning is a never-ending process, and that learning happens by correcting mistakes, and then reflecting on our behaviour in order for the same or similar mistakes not to happen again. The top leadership's role in this kind of processes is to create a vision and an enthusiasm for learning and development in the organization. They must delegate, participate and support. Everybody must be allowed to bring in ideas and viewpoint. In order to implement, most, if not all, employees have to agree to a course of action. (Jacobsen, 2004)

This type of process focuses on the humans in the change processes, including cultural aspects like competence, values, emotions, relations between people and groups of people, and the ability to cooperate and to handle conflicts. The informal elements will first change, and then they will influence the formal

elements of the organization. This is typically done in smaller instalments, as incremental changes, rather than in all encompassing sweeps. Motivation for change may be created either by focusing on a dissonance in the present situation, or by focusing on aspirations to become even better. The process of change itself must be motivating, in order to create energy. The leader of the process, who may or not be the top leader, will have to inform, involve, and inspire.

In the Bergen context we may see that while converting the card catalogue into an electronic catalogue, freely available on the internet, was a strategy E process, the fact that we now catalogue all electronic resources with the central UBB-signature instead of the signature of the library that pays for it, or where it "belongs" according to patron preferences, may be seen as a result of a strategy O process.

Also, we may view the original decision to purchase the Knudsen picture collection in the same light, where the purchase itself came as a result of a strategy E process, and the development of the digitising strategies has clear indicators of being a strategy O process.

Once a library has decided to look into implementing the Digital Library, the next step will be to identify the different levels of decisions as belonging to either an E- or an O process. Accordingly the responsibility for the processes will be placed either at the top leadership or the middle manager level. What would then be the best way for the leader to act?

At the start, when the decision to go in the digital direction must be taken, there may be a myriad of questions to answer and details to look into. Depending on the level of digitisation already attained in the library, and how far into the process the organisation has already stumbled by coincidences, the leader will need to address questions like funding, technology, what parts of the digital library to implement, and in what order. The leader needs to make sure she has all (or as many as possible) relevant facts, and will get them by employing external and internal experts, find descriptions of best practices from other that have already been through the same process, by assessing her own library's strengths and weaknesses, and by communicating with relevant others, especially the ones that deliver the funding. In some stages of this process external consultants may have a role.

Once this process has passed a certain point, typically the task forces for different projects will be created, or the task of implementing will be handed over to the relevant part of the organization.

At the University of Bergen Library, we see this for instance when the University Library building was renovated and made into the Arts and Humanities Library building. Once the decision to rebuild had been made by the Library, and the funding was agreed upon by the University, a task force was

created with members of the most relevant groups, to plan and implement the building, moving and change process (Bagge this volume). This building process is also an excellent example of a process where staff was highly motivated for the great change, both because of the perceived drawbacks with the old library, and also because of the anticipated gains to come in the modern building, both for patrons and staff.

In this change process, there are also some limitations arising from the fact that the organization is classified as a bureaucracy. From what is written about this, we will expect change in a bureaucratic organization to be mainly top-down, mainly concerned with structures, systems and routines, and the entity will often be considered as quite difficult to change. But in an academic library one of the core values will be learning and development, and there are a lot of information specialists, who will eagerly follow development within the academic library sector. Also, the level of service orientation will probably be a lot higher than for an ordinary bureaucracy. Both these factors play key roles in determining the probability of the university library to manage a high degree of changes and learning.

In the task forces, wherever in the organization they may be located, however they are put together and whatever part of implementation they are focusing on, there are different kinds of smart behaviour from the task force leader, which will make the work to go as smoothly as possible.

In the process of setting goals leaders can influence the levels of self-efficacy in the individual members of the task force, by influencing their ideas on how they can perform, both when it comes to the levels of difficulties they can handle, and their general feelings of competence. These are factors that have been shown to influence performance by individuals. Leaders may also help members perform better by offering opportunities for training and by making relevant resources available. Thirdly, leaders may, by delegating responsibility for parts of the task, empower members. (Strand 2001:457)

Leaders also have a responsibility for integration and culture building. For the leaders to be moving the library culture from that of being an analogue library to a library that also is digital means hard work. In the University of Bergen Library, this means creating acceptance for this change in the face of a lot of different sub-goals, which different parts of the library organization or the University itself have. The main responsibility for this falls on the top leadership, but also on the middle management.

We need to prepare the organization for the fact that the different changes we have seen so far are only the beginning.

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