A bottom-up approach to carry out pre-studies for the implementation of electronic archives – a case study from a Swedish organisation

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Abstract

In this paper a bottom-up approach to carry out preliminary studies for the implementation of electronic archives is presented. Pre-studies are a standard procedure ahead of putting forward a project for the implementation of electronic archives. The top-down method, fundament for presented approach relies on the activities of Problem Analysis, Goal Analysis, Business Analysis, Change Needs Analysis and Determination of Change Actions (iteratively and in that order). The bottom up approach proposes change, positioning Goal Analysis after Business Analysis due to the way of stipulating goals from this approach become stronger since it put forward employees goals as the driving forces for change. The bottom-up approach more clearly discloses complexity and to some extent competing and disperse goals within studied organisation.

Introduction

In this paper, I present a bottom-up approach when carrying out pre-studies as the first stage in the implementation of electronic archives. In recent years, the European commission[8], Swedish governmental agencies [12] have called for an overall digitisation of all possible activities within the sphere of public administration. As a response to this call, Governmental, County and Municipal [1] organisations have developed extensive digitisation programmes. The programmes have included the digitisation of archives, which to some extent still are paper archives. In our practice as a consultant company in the field of archives, we have observed that most pre-studies regarding the implementation of electronic archives are carried out to prepare or to be used as a decision assessment document before implementing electronic archives within the requesting organisation. A question that rose was: How good is the quality of these decision assessment documents? Naturally the obvious answer should be, depending on how well the pre-study was carried out. The quality of the pre-study depends on the skills of the consultant and the method used during the process of the pre-study. However, not all consultants have intrinsic skills to carry out a good pre-study and then support in the shape of a good method is necessary. In any case, a good method or approach should render good results. But how does the method or approach look like?

Methods for pre-studies

Pre-studies are a standard procedure ahead of putting forward a project for the implementation of electronic archives in Sweden. Whilst all phases of a presumptive project are guided by stringent models and methods, there is scarce guiding while conducting a pre-study. To some extent, it is assumed that a pre-study is just an ad hoc inquiry to corroborate well-known issues and hopefully disclose well-hidden problems. The SIMM-method [10] was proposed for conducting analyses before the implementation of IT-enabled changes within organisations. This model was proposed in 1988, revisited in 2012 [10] and stands for "Collaboration through Questioning and Idea Development as Support of Methodology" (changed to FA/SIMM for its acronym in Swedish) and pre-studies implicitly reflect this method. The method relies on the activities of Problem Analysis, Goal Analysis, Business Analysis, Change Needs Analysis and Determination of Change Actions (iteratively and in that order). One determinant characteristic of this method is that questioning (how relevant are the suggestions for change) is essential. Another characteristic is that assumption that "there are problems to be solved". From my point of view there are also needs (gaps to be filled) and external demands, as driving forces for change within an organization.
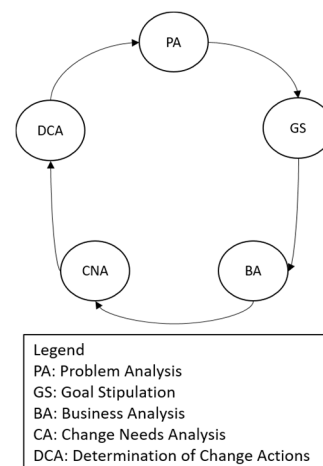

Figure 1 – A simple model of FA/SIMM

The case

I conducted a consultant assignment in a Swedish municipality within the Stockholm County. The assignment consisted in a pre-study for the implementation of an electronic archive within the implied organization. In order to achieve good results I had to consider a good methodology for the matter. The "traditional" top-down approach seems to be a natural choice, however I began with a review over recent pre-studies in the same topic. My analysis revealed that the approaches were pretty much ad hoc and being carried out as top-down approaches to elicit valuable insights of change actions. One of the most crucial observations was that there was a kind of "gap" between the results

and a priori expectations over useful electronic archives. So I assumed that approaching bottom-up might render result mitigating this gap. Within the scrutinized organisation, I conducted deep interview with employees from four different units belonging to five administrative divisions. Two of the units belonged to one administrative division (IT and Archive), one belonged to the Nature and construction management and the last one to Social and elderly care administration. Archive and IT unit were natural since the Archive unit was the outsourcer and IT unit since the implications of the technical implementation of the electronic archive will be their responsibility. The unit in the Nature and construction management was concerned much about performance and the unit in the Social and elderly care administration was concerned about secrecy and information security. Some observations from this case are discussed later in the paper. To disclose the complexity, I used Information Systems perspective as instrument for analysis. To be more specific, I used general information systems properties such as System Integrity, Existential Conditions and Stakeholders, System Parts and Scope and, System Synergy and System Structure. The pre-study shows that the electronic archive *should be there* since it is expected to be there and the stakeholders with high influence and high interest in the electronic archive are those who will work with the primary functions of the electronic archive. The scope of the electronic archive is that it should be a common asset for the whole municipality and work as an information hub for the whole organisation. In such a way, the old borders between divisions "disappears" or at least gets very blurry and then the electronic archive integrates (moves in) parts of the business of some divisions of the municipality. Since the work of some divisions "moves in" into the electronic archive, it creates a synergy of homogenous although complex system structure, but at the same time demands higher level of cooperation between all the involved instances in relation to a common informational model, authentication, work routines and accounting and billing.

The Top-down Approach

To some extent, it is assumed that a pre-study is just an ad hoc inquiry to corroborate well-known issues and hopefully disclose well-hidden problems. As stated before, the FA/SIMM methodology is implicitly used in a bottom up approach since it invites to do so regarding the driving forces for change. This driving forces influences managerial decisions of change, which are "pushed down" through the agency of the method. The method naturally helps in making thorough analyses of future changes that will influence in necessary organisational changes. However, after reviewing a set of pre-studies I notice that the expectations over electronic archives were as a "leading star" when approaching results from the pre-studies. From my point of view, I considered these approaches a bit to biased and my intention with my different approach was even to unbiased disclosed problems and needs within the organization. Nevertheless, most pre-studies do not clearly tie results in relation to expected ones, born in the driving forces of change, Pre-studies do not either discloses the intrinsic complexity and its internal driving forces for change (or not change) that exist within organizations. Here exists a gap.

The Bottom-up Approach

To address this gap, I conducted a pre-study in a (slightly) bottom-up approach. I collected data by interviewing people from four divisions within the organisation and tied up their goals I relation to expected results from the managerial level. So, I jumped down to the "floor" and rose up the goals of the employees working with the organisation's day-to-day activities, and made these goals the real driving forces for organisational change. The idea was to fortify the results of the pre-study towards expectations, stating certain degree of complexity within the organisation showing common and conflicting goals.

The approach lied on beginning slightly from a high (managerial level) and changing the order of doing things as a) Analysis of Driving Forces for Change, b) Business Analysis, c) Goal Analysis, d) Change Needs Analysis (recommendations) and d) Determination of Change Actions (preliminary plan for changes). The approach is depicted (figure 2) below.
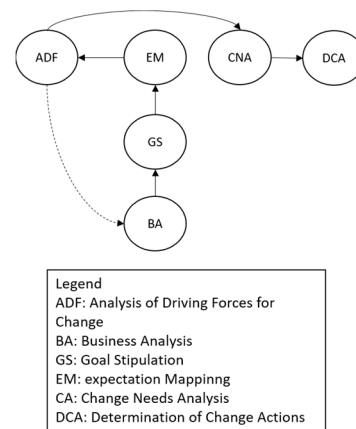

Legend
ADF: Analysis of Driving Forces for Change
BA: Business Analysis
GS: Goal Stipulation
EM: expectation Mappinng
CA: Change Needs Analysis
DCA: Determination of Change Actions

Figure 2 – A bottom-up approach to conduct pre-studies

Analysis of Driving Forces for Change

A consultancy assignment is based upon managerial decision on organizational change. Consultancy experience show that there are four driving forces for change. *Laws and regulations*: as stated in the introduction of this paper, calls are made by governmental institutions and transformed to regulations to follow [1][8][12]. *IT-development*: The development of computers, operating systems software, hardware, causes incompatibility between versions and generations of technology creating a state of hardware and software obsolescence. [16] *Internal problems and needs*: problems may cause inefficient use of resources increasing costs. Need are gaps to be filled up in order to make thing works smoothly. To respond to calla and regulations, to tackle IT-obsolescence, to solve problems and fulfil need, call for changes at the same time that this call create expectations.

Business analysis

My approach does not introduce novel ways of making business analysis neither data collection methods. Even if the FA/SIMM method implies a qualitative inquiry to collect data it is not specified as a suitable model for that matter. In this phase, I

collected data in a traditional manner carrying out a series of interviews with key people within selected divisions of the municipality. However, how to select key people to interview is given by a stakeholder analysis.

Stakeholder Analysis

How benefits with the implementation of an electronic archive? Eason [9] identified three types of users that might benefit from an IT-system. Primary users are those persons who actually use the IT-system; secondary users are those who will occasionally use the IT-system or those who use it through an intermediary; and tertiary users are persons who will be affected by the use of the IT-system or make decisions about its purchase. Those users are also called stakeholders and thus a stakeholder analysis is required.
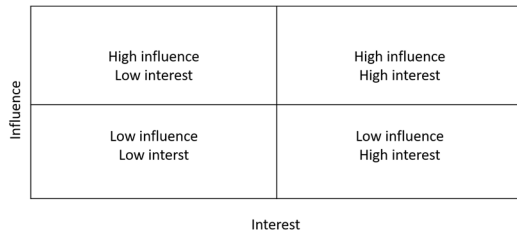

Figure 2- Influence/interest matrix

Our practice is concentrated to governmental, municipal and county authorities; which are politically governed organizations. Many decisions are made through political power. Thus, the election of the well-known power/interest matrix [11] for stakeholder analysis seems "natural", as for one reason. The other reason is that archives are very stable organisations that from the beginning have a designated community and the target group is given beforehand. However, in the long term, it is difficult to predict who the designated community will be; in any case it is assumed to be some kind of research community.

The power/interest matrix stipulates four categories of stakeholders according to the power that in fact is the ability of making decisions or influence over the archives and interest over the existence of the archives including its operational management (see figure 2). Thus, the term of influence is used instead of power.

Why it is done in this way? The simple reason for that is to identify who will be the main users or the people affected by the implementation of the electronic archive and they are found within the square of "high influence/high interest". The people in the "low influence/high interested" are to be identified as the designated community, in terms of the OAIS reference model [3]. The people of high influence and low interest are people the grant economic funds and make policy decisions over the archives and the people in the low influence/low interest may be similar organisations.

Collecting Data

This very crucial activity demands a good phase of planning since key people may have fully booked calendars. However, the difficulty is carrying out the collection using the same data collection model from time to time; this because of the fully booked calendars but also depending on the culture of the

scrutinized organization. In our practice we have been using different ways of collecting data, some ways better than others however, difficult to say which is the most suitable. Nevertheless, we recommend deep interviews with key employees since interviews gives deep insight in the work procedures of the scrutinized organization [13]. Workshops can be also used to, on one hand disclosing general problems and requirement inside the organization and in other hand gather together employees from different units to make aware one another about sharing the same type of problems and needs [1].

Goal Stipulation

The importance of goals is obvious. The Swedish Association of Local Authorities and Regions (SKL by its Swedish acronym) has stipulated a set of recommendations [5] when dealing with the implementation of electronic archives within local authorities and regional counties. However, these recommendations do not specify how and when in the pre-study process the goals are stipulated. The foundation method for this paper (FA/SIMM) specifies clearly the order of carrying out the different phases of the method. The review conducted preceding my pre-study also reviled that goals were stipulated "a bit in advance". The goals, so to speak, are given as expectations from the recommendations from SKL. Then, the relation between goals and expectations might be a bit "forced" into one another, especially in a top-down approach.

The goals to be disclosed are related to the everyday reality of the employees, their needs and problems. Goals are disclosed and stipulated as a part of the analysis of the collected data.

Mapping to Expectations

Expectations may exceed the capabilities of IT-systems since stakeholders expect IT-systems will solve lots of problems just by "pushing a button". It is here when the bottom-up approach shows its strength. Mapping to expectation is methodologically a feedback process. The bottom-up approach is driven slightly inductive beginning from the business analysis through the empirical and goal analysis ending up in the recommendations to the organisation. Nevertheless, the feedback need question the core ideas of the assignment. This can be done only together with key stakeholders. On one hand specify employee's goals as the real driving forces for change; let us call normative goals for change and being the initial set of requirements for the new electronic archive. On the other hand, let us call regulatory goals for change, were stipulated in the IT-policy documents of the organisation. Making the mapping is crucial since it indicates the relation between regulatory and normative goals for change. For instance, the Social and elderly care administration advocates rigorous controls of secrecy and security since there is a law that requires these controls are made. The IT-policy documents mention IT-security from a perspective of common practice. Thus the requirement from the Social and elderly care administration regarding secrecy and security, will be a driving force for change based upon by legislative impositions and not only because of common practice. This example of mapping needs to be communicated to affected stakeholders, and emphasised in the recommendation to be given organisation. This feedback process, as it can be seen, is in fact a social process within the organisation.

The main message that needs to hold forth is that "Successful change takes good ideas, skills, and plain hard work – but it does not need magic". [14]

Remarks to the Approach

The clash of two perspectives

I realize that the hardest part of the whole approach was the analysis of the data. I "discovered" that here were some tensions in analysing the collected data. One the recurrent problems in the present case and the observations presented in the reviewed pre-studies was the lack of an overall information handling; from its design to its final preservation in the electronic archives. I dare an explanation for this.

Organisations, like the studied in this paper, are organised in divisions and units and preceded by an idea of decentralised organisation. This creates logic of autonomy within each division [1][6] that leads to take own decisions in how its decentralised information handling should look like.

However, the nature of archives lies in the supply of information in the long term. On one hand the archives as a work unit is also decentralised, nevertheless without the real aptitude to decide over its own information handling because of the legacy of information within the whole organisation. Moreover, archives are carries a centralizing nature since archivists claim that information and information handling should be archival-friendly designed [16]. This topic has naturally very little relation with the method itself presented in this paper, however it has a bearing on the expectations whenever the method is applied in an actual case.

Discussion

The results of the pre-study were two-folded. On one hand, it confirmed well known problems and on the other hand, the results also disclosed (partially) a bit unexpected needs and desires that in its implementation can be quite complex to deal with. Moreover, different divisions within the municipality had different "desires" and thus wanted to stipulate different goals. The archival division focused in information centralization, the technique division in performance, the social care division about individual integrity by security means. Nonetheless, the goals were analysed and a set of goals and requirements were created from that. However, from this point I can posit three things: a) the way of stipulating goals from this approach become clearer since it can be derived from where and why the goal comes from, b) my approach discloses complexity and to some extent competing and disperse goals within the organisation, and c) the order of the mentioned method need to be changed, positioning Goal Analysis after Business Analysis.

My approach seems promising but needs to be further developed. Anyone can clearly realize that this work in progress is the embryo towards a more robust way of conducting pre-studies. Nevertheless, I realize that the outcomes of the pre-study do not completely cover all goals that should be covered. Several more divisions should be involved in the collection of presumptive goals. That would disclose a more extensive set of goals and thus strength the relation between feasible goals and expected ones. My approach shows that carrying out a pre-study in this way, will render better results in terms of better and deeper understanding of

the difficulties in implementing electronic archives. These results can be more clearly matched in relation to expectations of electronic archives and at the same time, much precise recommendations can be given.

Future Work

The bottom-up approach proposed in this paper reviled the need to further investigate some open questions, since it is a work in progress. A) Meanwhile I think that I was partially successful, and then it is imperative to take a new round making the approach "stronger" and prone to generate more accurate results. One way of achieving this is the use of a maturity model, like the "Queensland Maturity model" [7] B) The approach also need to be completed with additional "of-the-shelf" input like recommendations or guidelines dealing with IT-security clearly related to Swedish law requirements. C) There is also a need a coherent framework of data analysis since Business Development theories and IT development theories generate different answers to the same question regarding electronic archives. D) Questioning the flexibility of different data collection methods in favour of deep interviews is imperative; this demands naturally a good scheduling beforehand long before the actual consultancy assignment commences. E) A Top-down comparative study is also needed, in order find out how the two approaches may enrich each other perhaps resulting in a new approach.

The theoretical tension between a decentralised business work and the centralized information handling of the archives need to be elucidated. A candidate theory of particular attention might be the proposed Sociomateriality, which tries to understand the constitutive *entanglement* of the social and the material in everyday organizational lifecycle. [15]

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