# ANALYZING BEST PRACTICE AND CRITICAL SUCCESS FACTORS IN A HEALTH INFORMATION SYSTEM CASE – ARE THERE ANY SHORTCUTS TO SUCCESSFUL IT IMPLEMENTATION?

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Abstract

*This paper discusses critical success factors (CSF) and best practice in relation to IT implementation in the health sector. We have studied a University Hospital's implementation of a health information system (HIS) and particularly one clinic which implementation process was described as very successful compared to other units at this hospital. The purpose of the paper is to gain further understanding of if and how well CSFs and best practice solutions can explain this successful case. We do this in order to explore if CSFs and best practice offer any shortcuts to successful IT implementation. By understanding the reasons behind this case's success we can identify if CSFs and best practice potentially can explain the success, or if there are other explanations in this case. Based on our findings we discuss and question the sometimes overestimated belief in CSFs and best practice as shortcuts to success performance. An important contribution from this study is that situational and contextual factors are very critical to understand and acknowledge during HIS implementations.*

*Keywords: Best practice, critical success factors (CSF), health information systems (HIS), IT implementation process.*

# 1 Introduction

Successful IT implementation processes have been discussed for decades. Many attempts have been made to explain why some projects are successful while others fail (Szulanski, 1996; Rockart, 1979). This line of research has often focused on *critical success factors* (CSFs) (e.g. Holland and Light, 1999) that are put forth as general explanations and recommendations. In parallel, CSFs have been criticized as offering over-simplified solutions that are difficult to realize in practice, since many contextual circumstances also influence the outcome (cf. e.g., Berg, 2001; Wagner et al., 2006). Many IT projects concern implementation of standardized software packages such as enterprise systems (ERP systems) of various kinds. In these cases the notion of *best practice* is often discussed. The standardized systems consist of solutions that are claimed to be optimal for a certain sector or line of business (Davenport, 2000; Kremers and van Dissel, 2000; Sammon and Adam, 2005). Best practice intends to capture an IT system's positive functions and expected usefulness. Also regarding best practice there have been many critical opinions, e.g., arguing that it is the IT vendor who has most to gain from recommending best practice solutions (Wagner and Newell, 2004). The criticism against both CSF and best practice seems to have something in common; the pre-packaged solutions to reach success might turn out to be shortcuts that do not work in a situated practice.

We approach the fields of CSF and best practice by analyzing a successful case of IT implementation within the health sector. We have studied a University Hospital's implementation of a health information system (HIS). During the longitudinal case study we came across one clinic which implementation process seemed to differ from many of the other clinics and care units. This clinic was described in the field as very successful compared to many other units at this hospital. The impression of a success story made us curious to study this clinic in more detail to find out what made the process and result so different there. By understanding reasons behind the explanations of its success we can identify if CSFs and best practice potentially can explain the success, or if there are other explanations in this case. Based on our findings we discuss and question the maybe overestimated belief in CSFs and best practice as shortcuts to success performance.

Heeks (2006) discusses that many studies of HIS implementation have focused on successful cases and, thus, missed to generate knowledge from failures. We acknowledge this opinion and agree with Heeks' argument that there is a gap between design of HIS and the practice in a care unit that can relate to different aspects; such as information, technology, processes, objectives and values, staffing and skills, management systems and structures, and other resources (ibid.). These are examples of the contextual circumstances, mentioned above, that we have to address when discussing success and failure in implementation processes. A similar discussion about the importance of contextual conditions in HIS implementation is emphasized by Yusof et al. (2008), who propose an evaluation model for HIS that consider fit between human, organization and technology.

Despite Heeks' (2006) call for studies of failures, we take a successful case as our point of departure in this paper, as we aim to compare this case and the reasons we find to explain the success with existing knowledge on CSFs and best practice. We are not aiming to formulate CSFs from our case, as most studies of success stories do. The purpose of the paper is to gain further understanding of if and how well CSFs and best practice solutions can explain a successful case. By doing this we will discuss and question if CSFs and best practice offer any shortcuts to successful IT implementation.

After this introduction, the paper is organized in the following way: In Section Two we discuss and compare previous research on best practice and critical success factors in IT implementation projects. The research approach and case study design are reported in Section Three. The empirical findings from our case are presented in Section Four. In Section Five the findings are discussed. The paper is concluded in Section Six, in which we also make some statements about the need for further research efforts in this area.

# 2   Literature Review

In this section of the paper we discuss and compare previous research on best practice and critical success factors in IT implementation projects.

## 2.1   Best Practice

The idea of *best practice* builds on the assumption that there are certain solutions that are superior compared to others when solving problems in a certain context. Best practice was present already in the early industrial era and was a keystone in the Taylorism tradition (Taylor, 1911). The IT sector did adopt the notion of best business practice early which implied that business leading practices were built into standardized IT systems. The aim is that the best way to solve a problem or handle an issue should be easily transferred and copied to the organization which implements the IT system.

When deconstructing the concept of best practice, Szulanski (1996) argues that practice refers to the organization's routine usage of knowledge. This implies an implicit part of practice which is embedded in individual skills in the organization and an explicit part of common social arrangements. When transferring best practice within an organization it is a matter of replication, i.e., a copy of actions is created which appears to be superior in this context (ibid.). Generally speaking, best practice is about taking advantage of previous experiences to define feasible ways to conduct actions and solve problems. Stephenson and Bandara (2007) describe that by using such a knowledge resource, organizations can be beneficial in assuring quality in their results and retaining consistence in their actions. Today, there are many process models that can be used in organizations to define, improve, implement and evaluate business development (ibid.). The idea of best practice does not imply that organizations are tied to an inflexible, unchangeable practice. Best practice can instead be regarded as a philosophical approach of continuously learning and improvement in the organization, realized by current assessment and updating of processes (ibid.).

According to these definitions, best practice is basically about designing a formalized process to take advantage of useful experiences and transferring these in a successful way. This is done both internally in an organization by process improvements and externally between organizations by using models for quality improvements, standardized IT systems, and professional networks. Even though there is an ambition to improve and develop organizations by best practice, there are also problems when trying to implement best practice solutions in an organization. There might be a gap between an IT system's functionality and the usefulness of this functionality in a certain organization (Wagner and Newell, 2004). In the context of IT systems, best practice describes positive functions in the system and its intended usefulness in the organization. This is often done with the purpose to market the IT system and the concept of best practice is, thus, not always used in a reflective way. By marketing an IT system as having best practice solutions built-in, the buyer might get the impression that the system will generate immediate usefulness in the organization. The fact that the best practice concept has not been enough questioned might be a reason for problems in IT implementation projects (ibid.).

Since every organization is unique and has its certain conditions there are obvious risks that some of the built-in (best practice) actions and processes in an IT system do not suit the organization. Thus, it is justified to question who has most to gain from best practice solutions. Wagner and Newell (2004) suggest that best practice might give most advantage to the IT vendor who can use best practice as a powerful argument when marketing the IT system. Or, do best practice solutions provide the organization with competence, knowledge and experiences that are useful tools when improving efficiency and quality? From an IT vendor's perspective a standardized IT system (as e.g. a HIS system) is supposed to be used by as many potential users as possible. There are, however, several contrasting dilemmas between generalized IT solutions and organizations' uniqueness. There might, as already mentioned, be a mismatch between best practice and contextual conditions in a certain organization that decreases the usefulness of the suggested solutions. If the best practice solutions fit into the organization, there is even though possible to question the usefulness of best practice in

relation to competitive advantage (e.g., Porter, 1998). If several competing organizations arrange their processes in the same (best) way, what will then make any of them more competitive than the others? Gratton and Ghoshal (2005) discuss this problem and argue that it takes more than best practice to stay competitive. They propose that organizations need to combine best practice processes with "unique signature processes" that differentiate them from others. Such signature processes have their origin from inside the organization and reflect the organization's specific value in opposite to best practice processes that come from outside the organization (ibid.). In this context, best practice can be defined as some kind of standardized practice that is generally accessible, while organizations also need to put their own sign on their processes in order to differentiate from their competitors.

From this discussion of best practice we find that best practice is common, and to some extent taken for granted, in the context of implementing standardized IT systems, e.g., HIS systems. It is obviously an important aspect to consider when studying IT implementation projects.

## 2.2 Critical Success Factors

Critical success factors were described by Rockart (1979), one of the pioneers in CSF research, as a guiding approach for managers to define the information needs in order to reach the goals of the organization. Later on, CSFs were focused on identifying key factors important for successful behavior (e.g., Leidecker and Bruno, 1984), which is emphasized by a quote from Boynton and Zmud (1984, p. 17): *"The CSF methodology is a procedure that attempts to make explicit those few key areas that dictate managerial or organizational success."* Since then, many authors have focused on describing and recommending certain actions and conditions under which success is likely to occur.

Literature in the area of public sector IT projects as well as other IT projects (Reel, 1999) reports on several sets of success factors. Gil-García and Pardo (2005) as well as Ho and Pardo (2004), have carried out extensive literature reviews of CSFs of government IT projects. Success factors mentioned are, for example, top management commitment, linkage to business, technical alignment, knowledge-able personnel, and user involvement (ibid.). The need to involve users in a sustainable way is also pointed out as a key issue by Carter and Belanger (2005) and Chan and Pan (2008). There are also studies focusing on CSFs in HIS implementation projects (e.g., Øvretveit et al., 2007) and the results appear to go in the same direction. CSFs, independently of source and context, tend to be of similar kind. Thus, it does not seem to be so many crucial differences between CSFs suggested for public or private sector. One difference between public and private organizations, highlighted by Rosacker and Olson (2008), is that public organizations are (less) competitive. They emphasize this as an important difference when discussing CSFs, since this implies that short-term incitements for change and innovation are lower in public organizations. As a result of their study they argue that when applying CSFs in public sector each factor's dominance differs from findings in private sector (ibid.). On the other hand, both public and private organizations aim to realize similar goals, such as increased coordination and efficiency, by applying CSFs.

Berg (2001) claims existing CSF lists to be problematic since success can be judged in many dimensions; such as effectiveness, efficiency, organizational attitudes and commitment, employee satisfaction, and patient satisfaction. This makes the situation very complex and CSF lists often offer a more simplified solution than what is needed in practice. In order to illustrate the complexities of HIS implementation processes, Berg (ibid.) investigates three myths related to such processes; implying that HIS implementation is a technical realization of a planned system in an organization, that HIS implementation can be left to the IT department, and that the implementation including the required organizational redesign can be planned (ibid.). By scrutinizing these myths, Berg concludes that HIS implementation instead is a mutual process where both organization and technology influence each other. This mutual process needs to be supported by both management and future users. The management of a HIS implementation process also implies a balance act between initiating organizational change and using the HIS as a change agent. This has to be performed without totally specifying and controlling this process (ibid.).

CSF research includes identification and assessment of factors that might explain an organization's or a project's success (Krcmar et al., 2004). In practice, CSF studies are often delimited to identification of such factors, though (Kuang et al. 2001). There is a lack of CSF research which adopts a holistic approach and analyzes how these factors can be handled in different contexts (Remus and Wiener, 2010). Remus and Wiener (ibid.) imply that CSF research contributions to practice can be discussed, especially quantitative studies of success as the dependent variable. The authors are critical towards the idea of marketing CSFs as objective knowledge that should be adopted to easily solve problems in organizations. Remus and Wiener (ibid.) argue that CSFs cannot be treated as instrumental, causal or objective. Instead, CSFs are of a conceptual character which implies increased dialogue between research and practice in order to identify new perspectives. CSFs need to be analyzed by looking at situational and contextual factors, but this kind of CSF research is still rare (ibid.).

## 2.3  A Comparison between Best Practice and CSF

Critical success factors are a means for organizations trying to reach success by fulfilling a set of important factors that previous experiences have shown to be decisive for success. In order to fulfill these factors and, thus, be successful, organizations have to act in a somewhat standardized way, which indicates a similarity between CSFs and best practice. There are of course significant differences as well, but here we focus on the fact that in both concepts there is a notion of a deterministic way of action and an intention that can be interpreted as a generalization of the road to success for purposes of diffusion. If we can formulate or find the best way of organizing processes or conducting projects, this "best way" can be transferred and used in various situations with a successful result. This reasoning is in line with Wagner et al. (2006), who describe this similarity as a desire to offer pre-packaged short-cuts for managers to reach organizational success. They argue that the CSF concept has become so diffuse that it can be interpreted as if success is automatically reached when an organization is able to stick to a list of factors (ibid.). This implies a deterministic perspective of success, as discussed above. Wagner et al. (ibid.) also make parallels to best practice and suggest that this is a reason why this concept has become so popular in many organizations without any deeper understanding of how classification of best practice is done. They criticize the process of defining what best practice is and the rather few actors who have the power to make such definitions. The fact that practices that have been modified (i.e., refuted and amended) still are marketed and sold as "best practice" makes the authors question the ethical dimension of best practice (ibid.).

Wagner et al. (2006) make important contributions by exploring how best practice is created and by showing that best practice is a somewhat temporary issue that might be questioned. This is important insights when we, in this paper, study a case where standardized best practice software solutions (in a HIS) are implemented in an organization that previously lacked standardized working routines.

# 3  Research Approach and Case Introduction

In this paper we analyze a case study performed in the health sector. We have conducted a qualitative, interpretive study (Walsham, 2006) of the implementation process of a HIS in a Swedish public health provider organization. The findings discussed in this paper are part of a larger longitudinal study of this implementation process that started in 2008. In this paper we focus on empirical data from a unit (a clinical department) within the University Hospital that has been pointed out as particularly successful in its implementation process. We have chosen to focus on this case since we are interested in what reasons we can find to explain this success. By looking at a successful case and comparing the implementation process and the HIS to theoretical notions on critical success factors and best practice, we aim to examine the practical relevance of these pre-packaged "shortcuts to success".

## 3.1 Data Collection and Analysis

The case study focused, reported and analysed in this paper was conducted during the summer 2010. The findings regarding that particular case within the larger case (embedded case study; cf. Yin, 1994) are generated from two qualitative semi-structured interviews. The interviews were audio recorded and each interview lasted for two hours. A qualitative interview guide was used, with a mix of pre-defined open questions and open ended questions, topics and informal communication (Patton, 1980). We asked questions about the respondents' experiences before, during and after the change and implementation process as well as what aspects they found to be most important in this context. During the interviews we focused why this case is perceived as much more successful than the rest of the organization. The two respondents are both organization developers employed by the studied public health provider. These two persons were selected as they possess much information about the focused case. The first respondent works at the hospital's care process center (CPC), and the second respondent was involved in the process change and HIS implementation project. The second respondent was suggested during the first interview, i.e., we used a snowball sampling method (ibid.) to find this respondent.

However, the empirical context of the focused case involves interviews, studies of documents, field work and systems studies. The number of interviews in total is over 25. In this larger study the respondents are located in the CPC responsible for the IT implementation process, in two public health centres and two hospital clinics. Examples of studied documents are; the health provider's website with information to patients, internal project documentation, budgets, external evaluation reports, and media's coverage of the project. This data triangulation (Denzin and Lincoln, 1994) implies that we have a thorough understanding of the case's organizational context as we have had access to the University Hospital for a long time.

## 3.2 The Case

The HIS implementation is studied in a large Swedish University Hospital. The studied organization is democratically run with a distinct dividing line between political and operational activities. The task of the health provider is to promote public health according to the needs of the population in the region. Local healthcare is organised into three geographical areas. Specialist healthcare operates from ten centres positioned in the region. The public health provider has approximately 11.000 employees, 83 percent of whom are women. The health provider operates approximately forty care centres and four hospitals, which includes highly specialized medical healthcare, in some specialist areas working with all of Sweden as a catchment area.

We have studied the HIS implementation process at the hospital orthopedics clinic, described below. The implemented HIS is called COSMIC (Compliant Open Solutions for Modern Integrated Care) which is developed by the Swedish IT vendor Cambio Healthcare Systems. The system is marketed as *"the new generation healthcare system"* and a fully integrated and organizational-wide system; *"a healthcare information system that covers the ENTIRE spectrum of healthcare functionality focusing on both patient administration and clinical care support"*. The system is build based on the device: *"One journal – one system for all healthcare"*. ([www.cambio.se/](www.cambio.se/)).

COSMIC has several similarities compared to an ERP system or an enterprise system used in the private sector; it is standardized, highly integrated, contains information commonality and is a commercial commodity. This implies that COSMIC consists of a set of 'best practice' solutions for the health sector. COSMIC has approximately 10.000 users in the studied organization, reaching from four different hospitals, regional and local healthcare units, administration, etc. COSMIC has the character of being both an e-administration system (e.g., supporting back-office processes such as storing medical drugs prescribed, laboratory test results, statistics, etc.) and being a present artefact, at desktops, when patients are meeting medical doctors, nurses and secretaries (e.g., having a dialogue of medical records, documents, etc.) in care situations.

## 3.3   The HIS Implementation Project

Sweden has adopted a national IT strategy regarding healthcare which emphasizes that implemented IT systems should offer patients good and safe care, accessibility, service and participation and at the same time provide employees in the health sector with well-functioning integrated IT systems that guarantee patient security and facilitate work tasks (cf. Ministry of Health and Social Affairs, 2009). Based on this strategy the studied University Hospital purchased COSMIC, consisting of several modules for healthcare; e.g., patient administration and clinical care support (including functions for handling medical drugs, prescriptions, letters of referrals, schedules, etc.), from the IT vendor Cambio Healthcare Systems. The studied health provider had earlier bought other IT modules from this IT vendor, which was a reason for choosing the same IT vendor in this procurement as well.

The implementation project (called PJ08) was initiated in October 2005. After a planning and preparation phase, a pilot study started in February 2007, which was followed by a full roll-out phase in 2008. The project ended in December 2008 when all public care units within the University Hospital had implemented the HIS. During 2009 private care units continued to be phased into the system as well. The project was run by the CPC which completed the project on time and below budget. The project's purpose was to define and implement new processes and corresponding IT support. Key aspects in the project were accessibility, security and efficiency which can be traced back to the national IT strategy, mentioned above.

The implemented HIS comprises a widely integrated medical record for all care units in the University Hospital which implied an important change in the entire organization. The project was characterized as the largest change project that the health provider had ever initiated. For the local healthcare centres the integrated HIS replaced local IT solutions for medical records. The specialist healthcare centres located at the hospitals in the region did not have any IT based medical record system before, so digitalized medical records was totally new to them. They have had disparate systems before handling, e.g., schedules, lab results, etc., but no integrated IT system. The implementation process of COSMIC started as a pilot involving a few care units and was then continued to all units in a rather fast pace. The implementation project followed a "big bang" model from the perspective of each organizational unit, but a step by step initiative from the overall perspective. Thus, time was apprehended as the most important project goal to meet (compared to function and cost).

## 3.4   The Studied Process

The unit studied in this paper is the orthopedics clinical department at the University Hospital. In an organizational change during the spring of 2010 this unit was included in a larger organizational body called Center for surgery, orthopedics, and cancer care. The studied unit had conducted a process change regarding how to handle referrals prior to the implementation of the HIS. The main motive for this process change was demands for improved usage of resources and planning, but also an ambition to increase patient focus. Identified problems in the old process were huge volumes of patients combined with unsatisfactory routines, high degree of randomness, and lack of sufficient planning. Very persistent hierarchical patterns and roles are some reasons for inertia in the change process until this process change was conducted. Much focus had been put on certain professions and organizational issues instead of focusing the patients and their needs for care. Previous to the HIS implementation there was also a lack of central governing instruments in the organization. The combined implementation of process changes and the HIS have resulted in a very successful integration of the system's prescribed functions for referral management and the new work processes, according to our respondents.

The origin of the change process was a conflict between an organization developer (one of our respondents) at the studied unit and one of her managers. The identified problems, mentioned above, were obvious to the respondent, but the understanding of these was not shared by the manager. Despite this, the organization developer got an assignment to calculate on possible capacity to handle patient

referrals with existing resources. When she presented her results she did not receive any approval from the organization, but she continued her assignment anyway. More or less by a coincidence, the respondent started to cooperate with a researcher with competence in optimization. The cooperation resulted in a thorough plan for capacity and resource optimization for the referral management at the unit. Because of severe resistance the organization developer started working with manual referral management based on rough sorting of referrals. In parallel, clear guidelines for referral management and assessment were established. The critical voices in the organization did not stop, but the respondent continued to defend the new process. She also became responsible for controlling that the new guidelines for referral management were followed.

This process change took place before the implementation of COSMIC. The developed manual model for the referral management process was then integrated in COSMIC without any problems, as the functions in COSMIC were very similar to the manual process. This is regarded as an important reason for the successful ending of the change process. The process change and HIS integration are considered to be a success that is now planned to be transferred to another care unit within the studied hospital.

## 4  Empirical Findings

In the studied case, the process changes regarding patient referral management were initiated before COSMIC was implemented. The ideas behind the changed process, described above, turned out to be in line with the referral process COSMIC supported. As the process was changed prior to the HIS implementation this cannot be seen as a planned result. The organization developer decided to act on her own initiative, following her own belief and step out of her formal role, addressing the needed process changes by direct facilitation on an operational level. The ideas behind the new process are not unusual as such, but rather easy to implement and use. The notable fact is that the need to think in new, innovative directions within the healthcare sector was acknowledged. Prior to the process change, the studied unit's routines for referral management were unstructured and uncoordinated. Without process changes, the best practice for referral management built into the HIS would not have supported the organization. One of the organization developers describes this as: *"We had to some extent already simulated COSMIC by manually distributing referrals and assessment responsibility between plastic boxes. When COSMIC was implemented the system did function in exactly the same way."*

The mentioned plastic boxes, used for sorting and distribution of referrals based on medical diagnosis, were at a later stage easily modelled and implemented in the HIS and, hence, proved to be a successful fit between the changed business process and the HIS functionality. Obviously, the studied unit had started to think in new directions and question circumstances that had been taken for granted before. The notion of overlapping competencies leading to efficiency, which has been a common view in the healthcare sector for a long time, was for example challenged. The case showed that it, instead, was more important to use existing resources in the most suitable way and actively recruit certain competencies. One of the most distinct organizational changes in the studied process was the introduction of an explicit coordinator role. The coordinator is responsible for controlling the flow of referrals through the HIS and distributing them to the correct part of the unit depending on required expert skills. This is put forth as an important new role by one of the organization developers: *"We have introduced coordinators, this is very, very important. Now there are persons who are appointed to have this assignment."*

Even though it might be easier to retrospectively identify positive changes manifested in regular process changes, it is obvious that the coordinator role is very important for the outcome of this process. Another critical factor is the distinct and in some aspect firm control that the management has conducted, as indicted by one of the organization developers: *"The management has been really supportive – they have been very determined and told everybody that this is the way we shall handle the referrals from now on [...] please, staff each section according to this decision."*

The "best practice solutions" in COSMIC are not really questioned in our case; the system is considered to be functionally relevant in most aspects. The challenges are, instead, to be found in the organization, as this quote from one of the organization developers shows: *"It might sound strange but we handle huge volumes of patients. We had many employees and insufficient working routines with much arbitrariness. It has been an extremely tough assignment to break up such hierarchical patterns."*

During the change process, conflicts related to the strict hierarchical organization and power structures associated with professional roles in the health sector have been a recurrent problem. For example, the coordinator role was questioned since a "business generalist" took control of the flow instead of a skilled physician. This can, together with previous lack of central control instruments and unwillingness to change, be seen as inertia factors in this context. The distinct change inertia might also be explained by the absence of previous change processes. There was no experience of earlier change projects and many employees reacted very negatively when the studied changes were presented. It seems as the organization as such was not ready to accept the change arguments in which positive consequences of increased patient focus and cooperation were emphasized. The management used economy as incitement to handle this situation. The parts of the organization which did not accept the new goals and processes were financially "disfavoured", as one of the organization developers expresses: *"It is all about money – it always comes first. And it takes a strong leadership to have the courage to carry the ideas through. It is about understanding that we are responsible for a production that must be satisfying – it is not the resources in such that are going to be satisfied. You have to think the other way around."*

From our empirical findings we identify the following explanations for this case's success: 1) The new process and the implemented HIS were aligned. 2) The persons involved in the project got an explicit change assignment. 3) The persons controlling the referral flow made objective assessments based on high level of understanding and overview of the business processes and contexts. 4) The organization developer was a very committed key actor who believed in the process change throughout the project. 5) The organization developer was strongly supported by the management (both as a person and in her professional role) which made her a legitimate change agent. 6) The organization developer had enough courage to fight against the project's critics. 7) Rewarding, although rather ad hoc, cooperation with external experts on optimization.

## 5   Discussion

The studied case is a good example of a situation where best practice embedded in a HIS and CSFs for implementation projects converge. The studied organization succeeds in getting full advantage from the suggested "best practices" in their HIS implementation thanks to recently made process changes. However, neither because of the best practice software solutions in such nor because of the way the implementation project is carried out. The process change is not driven by or initiated in coherence with the HIS implementation (cf. the emergent perspective proposed by Markus and Robey, 1988). Nevertheless, this case is highlighted as a very successful example of HIS implementation in the studied University Hospital. An image of success is surrounding the case, and this image is not false as the case indeed shows a successful outcome. The way to reach the results might, thus, not be described as following any pre-packaged, standardized short-cut to success. Instead, this situation can be compared to one of the myths that Berg (2001) discusses, i.e., the belief that the HIS implementation including required organizational redesign can be completely planned (cf. also the causal agency in the organizational imperative discussed by Markus and Robey, 1988). Berg proposes a balance act between initiating organizational changes and using the HIS as a change agent (ibid.). In this case, the HIS was not used as a change agent, but organizational changes were initiated regardless of the HIS. The change process was driven by one person, but without support from strategic intentions in the organization. Thus, the experienced fit between organization, human and technology (Yusof et al., 2008) was not explicitly planned.

The case indicates that implementation of a HIS that is based on best practice solutions for healthcare, is not automatically creating success just by following a list of important fulfillment measures or critical success factors. On the contrary, if the process of referral management had not been changed prior to the HIS implementation, the system (with its best practice for referral management) would not have fitted into this organization. From the case, we cannot say that common CSFs such as top management commitment, linkage to business, technical alignment, knowledgeable personnel, and user involvement (Ho and Pardo, 2004) alone would have led to success, even though we find signs of these elements in the case. Instead, the success can be explained by individual key persons' (cf. project champions discussed by Beath, 1991) deep organizational understanding of the situation and commitment to their assignment to achieve change. This combined with a growing demand for organizational control and patient focus as well as top management's thorough governance, were very important factors for performing successful change management.

From the definitions of best practice and CSFs, and a similar criticism directed towards both these concepts, discussed earlier in the paper, we can conclude that best practice and CSFs appear to belong to the same category of phenomena regarding some aspects. An ambition to help organizations to succeed in their daily tasks has led to generic solutions (i.e., road maps for success) which have been very much adopted and appreciated in practice, but more criticized by some researchers (e.g., Wagner and Newell, 2004; Wagner et al., 2006; Remus and Wiener, 2010). The goal of standardizing and determining successful behavior stands in contrast to the notion of situational uniqueness and contextual differences (Berg, 2001; Gratton and Ghoshal, 2005; Heeks, 2006; Yusof et al., 2008; Remus and Wiener, 2010).

Much emphasize in this case has been put on the need to work intensely with business process development and, in parallel, fight against strong hierarchies and powerful professional groups. The studied case gives insights in the situation when a HIS is considered to be functionally relevant in the organization, but still creates huge challenges in the organization. Understanding and acknowledging the context in cases such as the one we have studied is crucial. One thing we learn from the case is that if an organization manages to handle its contextual aspects in a successful way, the organization can be supported by best practice solutions. It is also possible to find signs of CSFs in their behavior. The empirical findings have, however, not convinced us that it works the other way around. Without being able to handle, e.g., the hierarchical conflicts between professions or overcoming the change inertia in the studied organization, no best practice solutions or CSFs would have solved the situation. One could argue that handling these challenges was part of this organization's unique signature (Gratton and Ghoshal, 2005) that made it successful. This is also important to acknowledge when trying to transfer this success to other care units.

## 6 Conclusions

This paper has examined if and how well CSFs and best practice software solutions can explain a successful case of HIS implementation. The main conclusion drawn from having studied one successful case is that even though this organization in the end was supported by the best practice process of referral management and showed signs of common CSFs in the project, this alone cannot explain the success. We can identify CSFs and best practice solutions, but we cannot see that these have offered any shortcuts to successful IT implementation. The HIS offered the appropriate functionality but the organisation would not comply voluntarily. An important contribution from this study is, instead, the focus on situational and contextual factors when trying to understand what makes an implementation project successful. The success in our case can be explained by the fact that contextual circumstances were handled in a beneficial way by a strongly committed organization developer who, in a way, created her own implementation plan and proved to be strong enough to battle against the existing professional hierarchies. This encourages us to argue that situational and contextual factors are very critical to understand and acknowledge during HIS implementations. This is also supported by Remus and Wiener (2010) who call for further studies of CSFs from this wider

perspective. We also believe that important factors in this case have been a history of local empowerment and organizational stability. The lack of experience regarding organizational change might, to a great extent, have caused employees to react negatively on imposed change initiatives whatever the cause was.

Even though we have studied HIS implementation in this paper, we argue that our findings could be expanded to other IT implementation contexts as well. Of course there are some characteristics that distinguish the health sector from other sectors; such as strong professional roles, explicit hierarchies, specialized expertise, and certain laws and regulations. As reported above, public IT implementation projects also have certain characteristics compared to implementations in private sector, for example lower degree of competitiveness (Rosacker and Olson, 2008). Since our main point in this paper is the importance of understanding contextual circumstances, we argue that this is valid also when implementing other IT systems than HIS. The contextual circumstances might differ between sectors (otherwise they would not be contextual), but we argue that the context needs to be acknowledged in any IT implementation process, both in public and private sectors.

This study provides us with illustrations from one limited case. The intention has been to add further understanding of the usefulness of CSFs and best practice in relation to the importance of acknowledging contextual factors in implementation processes. In order to develop a more comprehensive picture of the focused issues we do, of course, need to study and compare further cases.

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