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What needs making Information Systems Integration successful in the case of Mergers and Acquisition

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Abstract

Information system integration during merger and acquisition (M&A) is a critical process when organizations are joining. The integration process consisting of several crucial activities for making organizations being able to work together. Organizations need to evaluate internal and external factors in order to make the process work. In this paper we evaluated critical success factors, challenges and information systems (IS integration methods from interviews with employees in a case study to identify the most critical activities for a successful IS integration. The investigated process stretches from the introduction of the M&A to the actual integration of two organizations IT-stacks. The identified crucial activities found were top management support, organizational culture, importance of competence, internal communication, maintaining information system security, communication with end-users and managing legacy system. Evaluating these topics and creating a short and a long-term plan on how to integrate and work with these are essential to succeed with the IS integration in any M&A.

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1. Introduction

One way for organizations to grow is through merger and acquisition (M&A) which could be an excellent opportunity to expand but are equally as challenging. Henningsson, Yetton [1] mentions that 60-70% of the M&As causes organizational problems rather than creates financial values. One process that is problematic and cause confusion is the information system (IS) integration, which today plays a central part in the realization of an M&A. According to Sarrazin and West [2], 45-60% of the expected benefits, such as financial gains and market shares, are directly dependent on IS integration. Accenture [3] reports that IS integration is the second most important reason for M&A failures, which can cause billions of dollars in losses if not prioritized.

IS integration related to an M&A is often described as consisting of the same key processes including due diligence and the IS integration processes [1, 4-7]. These processes, together with success factors and challenges, create a blueprint for how IS integration can be done in practice. However, reality is more complicated, and the realization of the process is one of the most critical steps of the M&A [5]. Haspeslagh and Jemison [8] have broken down the M&A process into two phases. The pre-phase and the post-phase, where the most critical phase is stated to be the pre-phase [8]. Henningsson [4] later redefined these phases, including several sub-processes. Harrell and Higgins [6]; Lam [9] as well as Soliman, Clegg [10] identified several success factors and challenges that are critical to a successful IS integration. Another identified challenge in the literature is organizational culture. During the integration of two companies, organizational culture is considered as an important challenge to manage [11]. According to Henningsson [4], only 18 % of the M&As deals with post-phase challenges, while 82 % struggle with pre-phase challenges. Technology integration during an M&A is a crucial part of the upcoming organization. All major processes of an organization are dependent on the information IS provides, e.g. decision-making, resource allocation task performance, risk identification [6, 12].

It is clear that success of an M&A lays in the decision of how to integrate IS. Teams working with the integration must evaluate the best way of combining IS-stacks during the integration process [13]. Lohrke, Frownfelter-Lohrke [13] suggest three methods for an IS integration: complete, partial or coexisting. Choosing one method is vital in the early stages of the integration to minimize the complexity of the upcoming processes of the integration [13]. Further Henningsson [4] points out five IS integration approaches to consider. These approaches are architectural on the technological level of the integration and consist of: Point-to-point, middleware, enterprise-wide, meta-level, and SOA [4, 14-17]. Even though the technical aspects of the integration are essential, there are several critical organizational areas to consider during the integration processes of an M&A

To achieve a successful IS integration during an M&A, organizations need to appeal the needs for the integration, including the challenges and critical success factors described in literature. Several studies have been made regarding what makes an IS integration successful [1, 4, 6, 18]. These studies show that the most critical part of the integration is the pre-phase and the construction of an IS due diligence (ISDD), evaluating the technical prerequisites for the integration. Studies also includes challenges organizations are facing, among these are: communication between the organizations [6], maintaining a high level of IS security [13], implementing a common organizational culture [11, 19, 20] and integrating the two IT-stacks [4, 6, 13]. Harrell and Higgins [6] point out 17 different challenges that need to be evaluated for a successful integration.

However, few authors focus on the implementation of the identified factors and challenges for a successful IS integration. Harrell and Higgins [6] are just mentioning the challenges merging organizations are facing and do not mention any specific details or how to overcome them in real-life scenarios. Henningsson [4] investigates the phases of the IS integration process. However, the problem with phases is that the IS integration limits the advancement if not integrated into the employee's daily work. The statistics in Henningsson [4] showed that the pre-phase of the M&A is the phase where 82 % of the participating organizations fail the IS integration process. The purpose of this research is to investigate what makes a successful IS integration. It is possible to identify a gap in the literature regarding how the processes of an IS integration should be implemented in an organization for a successful IS integration. This leads to the following research question: *What needs for making an IS integration a successful system integration in an M&A?*

This question is discussed from a case study of a Swedish telecom merger. After this introduction to the topic and some literature of M&A as well as the research question the next section presents how the research was done. This is then followed by a discussion around findings from the empirical data contrasted with what we already know

from a literature review. The paper is then concluded with our overall findings and some thoughts about future research directions.

2. Research Method

This research followed a qualitative method approach building on a single case study, which explored an ongoing M&A in a Swedish Telecom organization. The M&A chosen for this case study was a vertical merger between two organizations (company A and B). The merger was done to extend the organization's product portfolio. The organizations were operative in the Swedish telecom market, had approximately 6600 employees in total before the merger and together approximately a total revenue of 3 billion Euro. At the time for the research the case organization was in the middle of an ongoing merger where parts of the integration were complete, while other integrations were still in progress. Interviews was done in a semi-structured way to allow room for improvisation during the interview. This made it possible to find critical factors and processes that are critical or vital for IS integration during an M&A. The interviews were conducted with seven key employees from the IS integration including the following roles: program manager (R1), solution architect (R2), IT project leader (R4), technical product managers (R3 and R7), IT manager (R5) and the head of architecture and planning (R6), and they lasted for around one hour each.

The interviews were supported by a priority form, consisting of seven essential topics for an organization to consider during a merger. The topics were based on the literature review and the interviewees rated these from 1-7, seven as most important and one as least important. The respondents were only allowed to use each number once. By only letting the respondents chose each number once, they were forced to prioritize the most important processes according to them. This priority form resulted in a ranking of the most important topics, as perceived by the interviewees. This ranking was then contrasted with information from the interviews

3. Discussing empirical findings

In Table 1 the results from the priority form investigation are presented. The seven priority topics is discussed one by one in the coming section, starting with "Top management involvement".

Table 1 Results of the exploration of priority of topics.

Topic	Respondent priority							Score	Mean	Median
	R1	R2	R3	R4	R5	R6	R7			
Top management involvement	6	2	6	4	6	7	7	38	5,43	6
Organizational culture	5	7	1	5	5	5	6	34	4,86	5
Importance of the right personnel in the right processes	4	4	7	7	1	6	4	33	4,71	4
Internal communication	7	3	5	1	7	3	5	31	4,43	5
Maintaining information system security	2	6	4	2	3	4	3	24	3,43	3
Communication with end-users during the integration process	3	1	3	6	4	2	1	20	2,86	3
Managing legacy system	1	5	2	3	2	1	2	16	2,29	2

3.1. *Top management involvement*

When asking respondents to prioritize topics related to M & A, top management support was stated as having the highest priority with a mean score of 5,43 out of 7. Even if top management support most often is described as a “on top critical success factor” it is interesting to see that the respondents state this as the top one in the case of in M&A. It can be argued that top management support is crucial. It can also be claimed that this is because top management’s responsibility for assigning tasks and the expectation that executives will clearly communicate what happens or will happen. If this fails the risk is that it will create a domino effect that affects all different levels of the integration with information getting lost on its way down in the hierarchy. Even if not clearly expressed it could be claimed that the high importance of having top management support is closely related to the need of having information spread in the organizations. It is possible to see a correlation between the literature and the answers of the respondents in terms of the importance of communication during an IS integration. Harrell and Higgins [6] and Soliman, Clegg [10] found that communication with end-user is essential while the respondents in this research found general communication as an essential tool to succeed with designated tasks. The communication during an M&A should be included throughout the process to reach the common goal for the merging companies. This is a clear task for top management and most likely demand high involvement from executives in the process. Top management support is a very common critical success factor raised in a lot of different context such as ERPs [21]. Comparing with for instance ERP implementation what complicates the integration process in an M&A is that there are at least two different instances of top management that needs to be involved and at the same time there are actually some stages in the process when top management actually cannot communicate freely.

3.2. *Organizational culture*

The priority form shows that organizational culture is the second most important topic with a mean score of 4,86 out of 7. This shows that respondent’s value organizational culture over other identified critical success factors. From this it could be indicated that organizational culture is of high value for employees in merging organizations. If the integration of culture is performed in a proper way, the merging organizations can avoid problems described by for instance Henningsson and Kettinger [11]. The problems they present are: loss of independence, negative moral and staff resistance to new systems and environment. This could then lead to business disruption.

Organizational culture can also be applied to an organization’s choice of IS development, in this specific case organization A outsources offshore, while organization B develops in-house. Getting two different cultures to cooperate is a challenge and might affect significant parts of the organization since tasks can be delayed and forgotten if the deadlines are not withheld. All respondents mentioned organizational culture as a significant problem. The two merging organizations in this case had different cultures and ways of working. R1 mentions the challenges organizational culture brings for the collaboration, while R2 describes how they needed to swap into a more agile work method. The major problem was the onboarding process, which was going on for a couple of months and then ceased. This resulted in cultural problems described by R5 as “the one-year crisis”. The cultural problems occurred when the different work methods collided. Cultural problem during M&As is heavily cited and for instance Weber [19]; Weber and Tarba [22]; Avison and Myers [20]; Henningsson and Kettinger [11] and Liebowitz [23] are all pointing out the challenges a failing organizational culture integration could cause. Organizational culture affects the whole organization but can have a substantial impact on the IS integration process as well. From an IT perspective, it can lead to business disruption, slower workflows, and resistance to adapt to new systems and IS environments.

3.3. *Importance of the right personnel in the right processes*

Liebowitz [23] and Harrell and Higgins [6] mentions competence and competence loss as a challenge during the M&A process. The respondents all said that it is important to have the right employees, the right education, in the right places within the organization. In the priority form it was ranked as number three, with the mean score of 4,71 out of 7, just 0,15 lower than organizational culture. The problem with competence is that it is an abstract word. The term competence means nothing if it is not used or put into practice. When merging two organizations, competence

is a valuable resource and R1, R3 as well as R4 mentions that key persons left the organization due to the uncertain future of the organization, and that they were cutting down on personnel. This becomes a problem on both a high and low level within the organization since duplicate teams become one in the newly formed organization. This could most likely be connected to the factors top management involvement as well as the questions around communication.

One factor that needs to be evaluated in addition to the respondents' answers is the vendor part of the ISDD as described by Delak, Vasilecas [12]. They state that organizations need to evaluate which processes that should be outsourced to external consultants and which ones should be kept in-house. In this case, the merging companies have different ways of developing IT solutions, company A outsource while company B develops in-house. The analysis of this research regarding competence suggests that the distinction between using the competence in-house and hiring external consultants is hard to find. External consultants are important for some major processes of the integration process due to their experience and knowledge. However, they should be included in the beginning stages of the merger. This follows what R6 says regarding hiring external consultants. The problematics with having too many external consultants is the process of learning and to understand the IT-stacks of the organizations. This learning curve is far longer compared to using in-house competence. Top management also needs to have trust in their employees and give them the responsibility to conduct the integration themselves. If there is no trust from top management, problems and cost of the complete integration will rise according to R6.

3.4. Internal communication

Harrell and Higgins [6] and Soliman, Clegg [10] both highlights the importance of communication for successful IS integrations. Communication is also mentioned in the interviews and highlighted in the priority form as important to a relatively high grade (median 5). The mean is lower (4,43) since there are high differences between the respondents, the IT project leader (R4) gives it lowest rank (1) while the program manager (R1) gives it the highest rank (7). The communication internally and externally with offshore teams makes up for a very critical process of the integration. In this case as already mentioned, company A outsourced a lot of IS development offshore while company B was developing most IS in-house. To be able to follow the requirements and succeeding with the IS processes, communication became vital. According to R3, R4 and R6 is communication important for the decision-making in the integration process. Harrell and Higgins [6] mention top management support as an essential factor for the success of an IS integration, and as described above this is closely related to communication between different stakeholders in merging organizations. Combining top management support with internal communication clearly give as a result that this is extremely important in an M&A process, but it could also be stated that this is activities that are both tricky and hard.

3.5. Maintaining information system security

Maintaining information system security is an ongoing challenge for merging organizations. According to Lohrke, Frownfelter-Lohrke [13], IS security mainly becomes a risk during the ISDD phase. The reason for increased risks is that more employees need access to information through the existing IS. The organizations need to lower their firewalls to access data between the different IT-stacks. The priority form indicates that IS security is not a top priority during the M&A with a mean score of 3,43 out of 7. The interviews conclude that company A and B both had skilled personnel and similar ways of working with IS security (R1, R6, R2, R4). The reason for IS security getting a low rating in the priority form might be due to six out of seven respondents were not really involved in the ongoing IS security process, since IS security being a necessary process managed by the security teams themselves. The case indicates that it is not a significant challenge for a successful IS integration, while security is important both before as well as after the IS integration.

3.6. Communication with end-users during the integration process

According to Harrell and Higgins [6], there are some general success factors an organization need to fulfil to be able to have a successful IS integration. Harrell and Higgins [6] as well as Soliman, Clegg [10] mentions six

important success factors related to personnel which are: (1) Importance of excellent personnel, meaning that the organizations need to maintain a well-organized and educated employees. (2) During the evaluation phase (part of the pre-phase) is it important to get end-users' input. (3) Have clear communication with the end-users throughout the entire integration process. (4) Do not try to modify commercial software, instead redesign, or create new business processes which would fit the existing software. (5) The importance of obtaining and sustain top management support (6) Obtain or hire personnel with both the business process and technical knowledge [6, 9, 10]. The priority form ranks this topic very low with a mean score of 2,86 out of 7. Also, this is surprising and it could be strongly questioned why the respondents not rank this higher, however, they had to rate topics over each other, and that fact might be the reason for the low number. Another reason could be that they not really see communication with end-users as important because if the M&A is successfully executed the end-users might not at all think about it. But this seems to be a dangerous way of conducting an IS integration process and it seems to challenge the whole project in some way.

3.7. Managing legacy system

Henningsson [4] as well as Harrell and Higgins [6] mentions legacy systems as a part of the integration. However, both Henningsson [4] and Harrell and Higgins [6] are just touching the surface of legacy systems and do not elaborate on the topic any further. The priority form also shows that legacy systems are given low importance from respondents, with a score of 2,29 out of 7. The reason for this could be that managing legacy systems is seen as a short-term solution, and the legacy will not have much impact during the integration. R1, R2, R3, R4, R5 and R7 mention short-term solutions such as building API's to connect IT stacks from both organizations and harvest the necessary information. This is just a simple solution to a bigger problem. According to our understanding, the problem with legacy systems should be treated from a long-term perspective. If legacy systems are not handled carefully and not dismantled in time, this could create a technical hole, which can create an IT-stack that is hard to manage for upcoming M&As. In addition to this assumption, R3 also describes that temporary solutions have been built during previous M&A. These solutions have later been forgotten, which creates a technical debt that grows over time. To counter this problem, evaluation of the IT stacks can be done during the ISDD process to develop a strategy to reduce the technical debt and lower the amount of legacy systems.

4. Conclusions and future research direction

This paper discuss the question: *What needs for making an IS integration a successful system integration in an M&A?* It does so from a process perspective, and it can be concluded that merging organizations need to consider some activities carefully before the IS integration takes place. Top management support is of high priority for employees to be able to complete the process of IS integration. Except for the categorizing of phases, the main distinction between literature and practice in this research is the importance of evaluating work methods when legal restrictions are still in place. Finding a way to conduct the IS integration during the time organizations cannot talk to each other is important for the day one launch of the new organization. To have functioning IS at day one, the organization needs to have clear communication and integrate the two organizational cultures with a short and long-term plan. This plan should also include the structuring of the combined IT-stacks and should evaluate which systems to kill or to re-invest in. Organizations also need to put effort into merging the cultures and unite employees early in the M&A. It will facilitate the workflows between employees and involved organizations. Transparency is crucial in and between involved organizations. This transparency is especially important from top management level, that clearly needs to communicate organizational goals, integration methods and approaches to all levels of participating organizations. It can also be claimed, even if the respondent did not give it high priority, that manage the question of legacy systems is crucial. The merging organizations need to have a working solution up and running at the day one launch. Otherwise, it could have consequences for the customers due to unavailable services. Hence, it is not viable for the future, building on old systems. It will eventually end up in technical debt, costly to both invest in and to deconstruct.

The research was done as a single case study to understand the phenomenon. The conclusion of this study is that future research in the same area could be done on a larger scale with more participating organizations in different

lines of businesses. To understand IS integration more deeply it is also suggested that future research in the same area should explore beginning stages of M&A to understand the chain of events and processes more in-going. Another suggestion is to research legal restrictions, since a major problem merging organizations have is how to work efficiently around legal restrictions to minimize the challenges caused by it. Legal restrictions are a field not mentioned enough in the investigated literature and could be auspicious to investigate. Another challenge found in the research are legacy systems. This paper suggest that future research investigates how to prioritize and restructure the combined IT-stacks to find efficient ways to help with organization's decision-making. It can be claimed that consider both the short and long-term perspective when dealing with legacy systems is both challenging and important.

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