Contextual Aspects in Enterprise Integration

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Abstract
The aim of this research is to determine the impact of contextual aspects in an Enterprise Integration (EI) process. The paper focuses on two cases where Information Systems (IS) are implemented within a Merger and Acquisition (M&A) context. The implementation is affected by various cultural issues and conflicting organizational interests, both of which include aspects like communication, management and alignment. The effect of these aspects on the implementation and adoption of IS within the context of M&A's are unclear and need further analysis. This paper looks at the role of issues regarding business and IT before the start of an EI/M&A process, illustrating that contextual aspects have an impact on EI processes that are initiated from an overall M&A integration effort and demonstrating the relevance of assessing contextual aspects and the importance to management of being aware of these aspects when defining integration policies and, in doing so, providing insight to academics by shedding light on contextual aspects and helping practitioners improve the preparation of EI/M&A processes.

1. Introduction

M&A deals with buying, selling and combining different companies, with growth being the key motivator in almost all cases. Acquisition is defined as the buying of one company (the ‘target’) by another (the ‘acquirer’), while merger is a combination of two companies into one larger company. However, both processes thrive on the integration of disparate information systems operated by the companies involved. Replacing legacy systems by new systems is fraught with challenges, because the new company (the combination of the two companies) is venturing into a developing and emerging environment. The approach and implementation strategy used by an acquirer organization may not be readily transferable to the target organization.

The integration team has to adapt approaches and strategies in order to suit the integration efforts and fit the environment of the combined organizations. In this adaption process, there are a number of factors and aspects that affect the integration process and that should therefore be taken into account.

In earlier research [24], recurring integration process factors that affect M&A integration have been found. Integration process factors like staff and expectations are factors that can be identified before the integration processes begin and include decisions or circumstances that are relevant to the actual execution of the integration process. The process factors that were found in this study were based on a combination of literature and confirmed by case studies [24]. In these case studies, the global roll-out and implementation of corporate IS was identified the most dominant and critical activity, since the efforts and expected results of new IS were considerable. Furthermore, this study analyzed contextual aspects that influenced the EI process and related IS implementations. A contextual aspect is defined as an internal or external circumstance that cannot be controlled by management but is accepted as a fact that should be considered in the closure of the M&A deal. Contextual aspects should, therefore, be assessed in the pre-merger phase, because they are conditional factors that play a role in the integration efforts. Identifying these contextual aspects is important because they have a significant impact on EI processes and on the IS implementations involved.

Although, thus far, no direct relationship between a factor like staff and an effect like satisfaction has been identified, research indicates that contextual aspects present in the pre-merger phase have an impact on the integration process, which is why the starting point of this research is to analyze the role of contextual aspects in EI processes in the wider M&A context. The aim of this paper is to analyze the characteristics and impact of contextual aspects. The question that will be addressed is how contextual aspects can be related to process factors.
Finally recommendations on the preparation of EI processes within an M&A context will be provided by defining alternative integration policies.

This paper helps academics and practitioners alike by increasing their understanding of contextual aspects that are present before EI processes are started and by examining their impact on the implementation of distributed IS as a dominant and critical activity within the scope of EI processes, allowing to devise a strategy for dealing with implementation challenges. This paper presents the results of a qualitative research and provides insight into the characteristics of contextual aspects, shows the relationship between contextual aspects and process factors and finally indicates how those aspects should be managed when preparing EI processes and related IS implementations. First, existing research is examined to identify relevant concepts. Secondly, the research approach and instruments are discussed. Next, the results are presented, followed by a discussion of results and limitations. Finally, the main conclusions and contributions to existing knowledge are addressed.

2. Literature review / previous research

The results from earlier studies were used to define the baseline of the paper. Schonewille and Bouwman [24] found that EI processes are not only influenced by process integration factors, defined as aspects that can be identified, controlled and managed before integration processes are started and that are relevant during the actual execution of the integration processes, but also by contextual aspects that cannot be controlled or managed, including technological and behavioral aspects. One dominant aspect is culture, which has a significant impact on the way EI processes evolve. As Hofstede [25] emphasized, cultural aspects exist in people's minds and play a role in the way people distinguish one group from another. Since cultural aspects are not always directly observable, they can be recognized in verbal statements, myths and rituals that exist within organizations. The relationship between culture and EI processes works both ways. Grant and Tu [1] found, for instance, that an ERP implementation, as an enabler of integration, poses a potential threat to corporate culture.

However, contextual aspects go beyond mere culture. Newell et al [2] argue that there it is not important to investigate the influence of technology on integration, but also to adopt broader perspective by taking the organization and its environment into account. Alaranta and Kautz [28] also mention aspects that can be characterized as contextual. They created an analytical framework with three perspectives that include elements like alignment, politics and culture, which are all aspects that are already in place before integration starts, but that cannot be managed in advance.

Grant and Tu [1] found that the lack of standardization among business processes plays a role in integration processes. Furthermore, they found that language, congruent vision, misfit between systems and processes and a lack of user involvement all have an impact on integration processes. Robbins and Stylianou [26] examined the role of differences in information intensity, which can also be seen as a contextual aspect in enterprises, while Bork and Holmström [27] identified merger integration capabilities, which have characteristics that are similar to contextual aspects and which include, for instance, IT compatibility between firms, the presence or absence of a clear IT vision and the effectiveness of the IT department as relevant conditional factors. The capabilities, references, issues and factors found in other studies are similar to contextual aspects in that they range from business-related to IT-related issues and from organizational issues to technological issues. A list of the factors mentioned in existing studies that can be identified as being contextual in nature was compiled by the authors of this study. The list, which is indicative and by no means exhaustive, includes, among other things, IT-Business alignment criteria and maturity categories [3], IT capabilities [4], IT transformations [5], IT people metrics [5], Key Leadership Skills [6], Risk management mistakes [7], Cultural Dimensions [8], Integration risk factors [9], Cultural integration areas [10], Killer Phrases [11], Relational capital [12], Management styles [13], Management commitment [14], Stakeholder theory [15], Integration efforts [16], Business planning [17], Company management [18], Culture Shock [19] and Integration evaluations [20].

Many different terms and definitions are used to describe aspects that have an implicit or explicit impact on EI processes but that cannot be influenced or managed in advance.

3. Research Approach

For this paper, the results of two case studies in the transport sector industry were used. The case studies in question adopted a multi-method approach using qualitative instruments, combining in-depth interviews and analyses of core documents. In total, 29 interviews were conducted and recorded.
The interviews were then transcribed using Atlas.ti. The coding process was an iterative process starting from the list of contextual aspects mentioned in literature. The list of initial codes was illustrated by and expanded based on the coding used in interviews. To guide this process, memos with initial thoughts, draft codes with reference to concepts and networks with links to process factors were created to identify emerging concepts and relationships relevant to the scope of this paper.

The initial list of contextual aspects divided into more specific concepts by relating them in a code-to-code relationship of an ‘is-a’ (ISA) specification of the more general concepts. The actual registration was performed by altering and expanding the initial list on the basis of new insights derived from the analysis of the interviews. Using the final list of contextual aspects, a Context Association Network (CAN) was created for each Integration Process Factor by linking individual process factors to contextual aspects via an ‘is-associated-with’ (ASSO) relationship. The CANs were based on the impact of the individual contextual aspects on specific process factors. The definition, selection and linking of contextual to process factors was based on the initial insights and the subsequent analysis of the interviews.

The validity of the association between the various contextual aspects and process factors was established by analyzing quotations linked to the relevant process factors and the way references to the specific contextual aspects were made. Quotations were reviewed using the ‘quotations per code’ function in Atlas.ti. The impact of a specific contextual aspect and process factor was registered using the ‘code-link manager’ function, in which not only comments were added to specify the impact, but, in case no impact was found, the initial assumed relation was removed. The results were collected in datasheets ranking the impact of the contextual aspects and the process factors based on their frequencies. A scoring mechanism was used to indicate the importance and validity of specific effects. Based on the data analysis and scores, a final list of integration policies was defined.

4. Research Results

We begin by present the impact of contextual aspects, after which we discuss association networks. Next, a more detailed description of the various effects of contextual aspects on EI processes is provided. Finally, the concept of integration policies is introduced and some examples of integration policies are presented.

In this first step, the four contextual aspects that were found in previous studies [24] were further analyzed, which resulted in an expanded list of contextual aspects that was used as input for the next.

Figure 1. Network View Contextual Aspects
The results are presented in Figure 1, which shows the breakdown of contextual aspects and the relationship between the general and specific aspects. It includes numbers that refer to the grounding and density. The network view was used to determine the impact of the contextual aspects on the process factors.

4.1. Presence of Impact

Based on the list of contextual aspects identified in the first step, a more detailed analysis of impact was conducted. The initial assumptions were related to case study data and relevant literature. Impact is defined as the degree of influence that contextual aspects have on the process factors of an EI process, as expressed in the number of links between individual contextual aspects and a given process factor.

The concept of impact and the need for organizations involved in EI processes to assess aspects at an early stage is highlighted by many authors, including Haspeslagh [35], Appelbaum [36] and Bruner [37]. However, our aim is to make the concept of impact more specific by directly relating contextual aspects to process factors. In doing so, not only is the concept of impact defined, it also becomes possible to devise policies aimed at coping with the impact. Furthermore, by using a scoring mechanism, aspects can be sorted based on the intensity of their impact. All contextual aspects and process effects were listed in a single chart presenting the number of occurrences in the combined cases (Figure 2).

The chart shows the number of times a relationship was found between specific process factors and specific contextual aspects. The process factors are positioned horizontally, while the contextual aspects are positioned vertically. The size of the bubbles presents the number of co-occurrences, calculated using the co-occurrence tool in Atlas.ti. A high number of co-occurrences indicates there is a higher likelihood that one will have an impact on the other. From the data analysis and the chart, it can be concluded that the contextual aspects Corporate Culture, Management Style, Planning Perspective and Alignment Perspective have the biggest impact.

4.2. Context Association Networks (CANs)

Based on the presence of impact, Context Association Networks (CANs) were created, which provide a graphical presentation of the relationship between contextual aspects and integration process factors. As can be concluded from the CAN shown in Figure 3, only contextual aspects that were assumed to have a connection with a specific process integration factor are linked via an ASSO (association) relation type, indicated by the ‘= =’ symbol. The ‘~’ symbol is assigned by Atlas.ti to show that a more detailed description is added to a specific link.

In total, 15 CANs were created, which are available on request, in line with the number of integration process factors (vertical axis figure 2), since the association networks are modeled around the integration process factors.
In one view, CAN’s present contextual aspects that have an impact on a process integration factor. All links descriptions were added and used as the basis for integration policies.

4.3. Description of Impact

Since the aim of this research is to clarify the impact of contextual aspects and help practitioners in preparing an EI process, the concept of impact was further explored. In the exploration phase, a general description of impact was created based on the quotations associated with the contextual aspect. For all relationships, a quotation from interviews was attached that described an example of impact with regard to a specific contextual aspect. In this paper, we discuss the contextual aspect ‘Professional Approach’ as an example. The contextual aspect ‘Professional Approach’ refers to the way people carry out their job and how they expect people with similar jobs to execute their jobs. One may expect this contextual aspect to have an impact on multiple process factors, in particular on the adopted ‘Integration Approach’, as is confirmed by the case results. One quotation illustrates that professionals of the acquirer organization had a tendency to take a very high level approach, without translating that approach into concrete actions and results. In the integration process, this was reflected in the overall approach and described as follows by one of the interviewees from the targeted organization: “They never came to the details of starting up the integration and never formulated concrete specifications”.

Other interviews also illustrate that the ‘Professional Approach’ of the acquirer organization involved focusing on high level topics and making decisions at a high pace. This resulted, for instance, in early decisions regarding the selection of the acquirer system portfolio. One of the interviewees from the acquired organization commented: “I probably should have made a more critically assessment of the requirements for the company's IT application”.

These two examples show that a generally accepted professional approach affects the way integration is approached, and the way this aspect influences the decision-making process in the integration approach. From the case results, it can be concluded that the professional approach on the part of the acquirer will have a significant impact on the integration approach, i.e. the integration approach will have the same characteristics as the professional approach found within the acquirer organization. Defining guidelines on how the integration approach should be assessed and selected, taking into account the impact of the professional approach, is an important activity in preparing for an EI process. The translation of these preparatory activities is made by defining integration policies.

4.4. Integration Policies

An integration policy can be defined as a guideline for an integration process factor that should be assessed and decided upon before initiating EI processes. Integration policies help prepare an EI process and, in addition, create awareness and mutual understanding about the factors that play a role in the EI process, highlighting critical areas that could cause delays, overruns or even total failure.

The integration policies proposed in this paper can be used as input for integration meetings between the parties involved in a merger or acquisition. The policies guide the integration meetings and list their agenda topics. As a result of these meetings, a context-specific integration policy can be created and communicated to the integration teams.

An integration policy should at least include three elements:
1. **Purpose**: what is the goal of the specific integration policy and how should it be used;
2. **Stakeholders**: the people involved in analyzing and deciding particular integration policies;
3. **Aspects**: the aspects that should be assessed and regarding which decisions need to be made. These are based on the contextual aspects that affect specific process factors.
For the scope of this paper, we include the Integration Approach as one of the integration policies, to illustrate the content and role of integration policies in the preparation of EI processes. The purpose of adopting an integration approach is to consider in advance execution how to integrate IT-related aspects like planning and management.

### Integration Approach

**Purpose**

Define the rules of engagement for the IT integration at a high level. The integration approach focuses on people who will be responsible for creating detailed integration plans and people who will be responsible for the different work streams.

**Stakeholders**

- M&A Team Members
- Business and IT Executives
- Business and IT Managers
- Program / Project Managers

**Aspects**

1. **Professional Approach**: determine which professional approaches are shared by both organizations and select a joint approach to the integration. Discuss aspects like level of detail, structure, required knowledge and skills, control and decision-making characteristics.
2. **Management Style**: determine which management style is shared by both organizations and which style is the most effective in the integration process. Discuss aspects like authority, delegation and reporting.
3. **Alignment Perspective**: determine which alignment perspective is exercised in both organizations and assess how this will impact the integration.
4. **Planning Perspective**: determine which planning perspective is used in both organizations and assess how this will impact the integration.
5. **Corporate Culture**: determine what cultures exist in both organizations and take action to bridge potential gaps.
6. **Operational Uniformity**: determine whether the two organizations have similar operational processes and practices and select the level of uniformity and related actions to align them.
7. **M&A Experience**: list the experiences of the two organizations in executing integration processes and list lessons that have been learned in the past.
8. **Economic Climate**: assess the current state of the economy but also include long-term developments into account. Decide whether the current state or long-term developments should influence the approach.

Table 1. Integration Approach Policy

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<td>The integration approach is used as input for detailed integration plans and determines at a high level how the integration should be executed.</td>
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Financial Soundness: the financial situation of the company is a recurring aspect that determines the attitude and approach of a company and individuals toward the other party, based on the financial situation of their own company. Pritchett et al. link this aspect to acquisition attitudes and indicate that this could affect morale and cooperation in a negative or positive way [23]. In general, there are two extremes: either the company is financially sound, i.e. making a profit, or the company is in financial shape, i.e. making a loss.

Company Language: another contextual aspect is the language that is commonly used in the organization and among its employees. This can be International or Local. Workforce diversity in terms of linguistic differences is likely to complicate communication [29].

Management Style: the management style refers to the most dominant and accepted way managers act and behave within a company. This not only has to do with the way they approach their employees, but also with the way they plan, communicate, prioritize and make their decisions. Possible management styles include: Autocratic vs. Democratic, Implicit vs. Explicit and Relaxed vs. Strict. Leadership or management styles and their relationship with M&A has already been mentioned in early research [30] and has been confirmed by some recent research [31].

Planning Perspective: this aspect has to do with the way a company and its employees execute plans and undertake scheduling. It determines at what level plans are created, but also what time horizons are taken into account in integration processes. Generally speaking, again there are two extremes Long-term and Short-term. Ward and Peppard [18] highlight the importance of the planning perspective.

Professional Approach: this aspect refers to the way a company and its employees approach their jobs and the expertise that is required. It has to do with the way issues are addressed and what is considered important in the execution of the tasks involved. Different approaches include a Generalist vs. a Specialist approach, a focus on Overview or on Details, maintaining Standards or adopting a more Pragmatic approach. A study by Judge et al [32] demonstrated a relationship between values (for instance, a generalist approach) and people's job choice. Also, in other domains (medical etc.) the approach workers take has been investigated several times.

Scale Perspective: this has to do with the size of a company, as well as its market and operation. It has less to do with financial figures or the number of employees, but more with the perspective a company adopts. The two extremes here are Large vs. Small. Other researchers also found that scale is likely to have an impact on the integration and smaller parties normally tend to adjust their practices to a larger ‘parent’ organization [17].

State of Mind: this has to do with the way a company and its employees feel about their position and value in the market. In many cases, this aspect determines how people approach others and how confident they are about their own activities and abilities. The two extremes, Superior vs. Underdog, indicate their level of confidence. Other studies indicate that, within integration processes, mood is a relevant aspect, and that teamwork and adopting a non-threatening approach may be beneficial [15].

Operational Uniformity: this indicates the way the business operation is executed across different units and divisions. More specifically, it indicates whether an operation is executed in similar ways within an organization and focuses on aspects like quality, processes, organization, etc. Uniformity can be High or Low. Although, in literature, many different words are used for what we call operational uniformity, including standards or similarities, they all basically refer to a sense of cohesion throughout the company [34].

The contextual aspect Economy was also found to be too general in nature and the following breakdown into three sub-aspects was realized based on further analysis:

Economic Climate: This represents the situation of the economy at the moment a merger takes place. A high economy with high growth levels versus a low economy with margins under pressure and a primary focus on survival: a Positive or Negative economy. There is clear and sufficient evidence that mergers and acquisitions are affected by economic conditions.

Market Situation: this is similar to the previous aspect and has to do with the market situation at the moment a merger takes place, in particular with regard to market stability. Again, there is sufficient evidence to assume there is a relationship between the level of M&A and, for instance, a consolidation stage in a certain industry.
• Shareholder Return: this refers to the question whether or not shareholders benefit from the merger. As O’Brien and Marakas [16] argue, business ethics prescribe that managers have an ethical responsibility to manage a firm for the benefit of stakeholders, for instance company’s stockholders. Return on investment can either be High or Low. Generally speaking, financial aspects, including earnings per share, are considered important drivers for M&A processes [33].

Furthermore, it was determined that contextual aspects can be related to specific process factors. In contrast with contextual aspects, process factors can be controlled and managed, and should be decided upon before the start of an EI process. While existing studies have identified many factors that play a role in EI processes, this study provides clarity by separating contextual aspects from process factors, since their impact and the measures that are available to manage the impact are quite different. Via network views, impact charts and CANs, the concept of impact is explained, including the relationship between contextual aspects and process factors.

The relationship between contextual aspects and process factors highlights the need for specific actions and strategies that are translated into the concept of integration policies. Integration policies help prepare for an EI process by creating focus and pace in a time when there pressures on lead-time and decision-making are high. The analysis and definition of contextual aspects is an important step in the process of determining impact and defining policies to prepare the EI process. The relevant aspects can be divided into two coherent sets, based on whether or not they can be controlled. However, this was an intermediate step in the analysis of a possible relationship between contextual aspects and process factors, the ultimate aim being to define guidelines that will improve preparations for an EI process.

6. Conclusions and Contributions

This paper highlights the presence and impact of contextual aspects in EI processes, which are not only executed in the overall context of (internal) organizational developments, but they are also affected by aspects that are present in the business ecosystem.

These contextual aspects should be identified and assessed not because they can be controlled, but because they should be integrated in the overall plan, including strategies aimed at dealing with these contextual aspects. In previous research, there is a lack of consistency with regard to similar phenomena. This study contributes to the existing body of knowledge by integrating a wide range of terms into the consistent concept of contextual aspects.

However, there are some limitations to our research. The research is limited to two case studies set in the transport industry. From these case studies, literature and other research, the relevance of contextual aspects was deduced. Furthermore, the research was limited by the scope of this paper and does not include an exploration of the interaction between contextual aspects or the interaction between different process factors. Future research should further examine the relationship between contextual factors and process factors and their joint impact on process effects. Since the scope of our research was limited to identifying the existence of a relationship rather than on defining the type of relationship, this is another relevant avenue for further research.

Finally, future research should be aimed at applying the integration policies to real-life cases and assessing the impact of defining and using integration policies in an EI process.

Integration policies will help organizations that are in the preparation phase of an EI process by listing contextual aspects that should be assessed and related to process factors. These process factors will then play a significant role in the EI process and organizations need to carefully consider the potential impact and decide how to deal with process factors.

The concept of integration policies provides guidance to this assessment and decision-making process. Incorporating integration policies into the standard practice of organization involved in EI processes is not a time-consuming effort and should be considered by any organization that wants to improve its preparation of an EI process.

7. References


