Consolidating understanding of ERP Conflicts: a dialectic perspective

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Abstract:

*ERP implementation and post implementation initiatives involve organizational changes. Conflicts, due to technology and processes, regularly arise in such a change process and the dialectic model of change is useful to understand such conflicts. The categorization of ERP conflicts can provide a better understanding of ERP implementation. The aim of this research-in-progress paper is thus to develop a categorization of ERP conflicts. We expressed this ERP categorization in terms of four scenarios which are in turn based on two characteristics: sources of conflicts and types of conflicts.*

**Keywords:** ERP, conflicts, categorization, change, dialectic
1. INTRODUCTION

The organization change literature highlights that ERP change processes are not easy to undertake and face several challenges. These challenges affect ERP implementation change processes which can influence organizations’ ability to achieve benefits from ERP implementation. Various theories are available to explain the process of organization change associated with ERP implementation (e.g. technological-driven (Paluszek 2006), organizational change (Markus 2004), and technochange (Markus 2004)). Van de Ven and Poole (1995) conceptualized organization change into four types of process models: teleological, life cycle, dialectic and evolution. Drawing upon Van de Ven and Poole’s (1995) conceptualization of organizational change, this paper views an ERP change process as a dialectic process involving forces promoting and opposing change. Soh et al. (2003) suggested that a dialectic perspective is potentially a useful tool to understand and explain the issues encountered during ERP change process. The dialectic approach has been used to develop a rich understanding and explanation to understand the way systems developers think about inherent contradictions related to development (Dahlbom and Mathiassen, 1993). Moreover, the dialectic perspective is used in this study as a theoretical lens (framework) to explain inherent conflicts during ERP post-implementation change process. Dialectic perspective conceptualizes conflicts as an inherent part of the ERP change process. The dialectic organization change model enables the organization to understand the dualistic nature of technology. Technology is considered to have a dualistic nature when it involves several stakeholders in a project. This dualistic view of technology is due to the interaction between technology and stakeholders as a product of human action (Orlikowski 1992). ERP change processes may also involve considerable risk because of different views and interests of stakeholders associated with ERP change process. As a result many ERP systems do not deliver expected benefits to implementing organizations after being implemented as shown in the ERP literature (Khoo 2011; Umble et al. 2003; Ng et al. 2003).

ERP change process is complex (Otieno 2008), expensive (Holst et al. 2008) and risky (Ng et al. 2003). A high level of risk is generally associated with ERP implementation change process due to three reasons. First, in many organizations implementers have limited understanding and experience in supporting ERP change process efforts. Second, ERP implementation change process tasks require the involvement of multiple stakeholders with contrasting expectations regarding the tasks to be performed. This in turn makes ERP change process activities highly complex and risky. Third, conflicts are inherent in ERP implementation change process (Wong 2005). The main difficulty arises from conflicts which occur during implementation and refinement stages. Moreover, there is a rich body of literature about conflicts in ERP change process (e.g. integration and differentiation conflict (Soh et al. 2003) and conflicts over work priorities (Allen 2005)). We argue that a theoretical driven categorization of conflicts will provide a better understanding of the impacts ERP conflicts have on the implementation process. The ERP literature recognizes conflicts associated with ERP implementation (Wang et al. 2006) as a mismatch between software packages and organization requirements. More broadly, conflict is defined as “a clash of interest (sometimes escalating to active struggle) between individuals, groups or society” (Sociology Dictionary 2012). The categorization is a first attempt at consolidating the literature on conflict associated with ERP change and will hopefully lead to a better understanding of the conflict and can potentially lead to the development of management strategies for different categories of risks. The research question addressed in this paper is:

- Can the conflicts related to ERP change processes be categorized?

The rest of the paper is organized as follows. Firstly, the next section reviews the theoretical concepts associated with organizational change. Secondly the paper provides a discussion of the use of dialectic change model for ERP change. One of the key components of dialectics is the identification of different stakeholders that can hold different viewpoints. Therefore, thirdly the paper highlights the various stakeholders associated with ERP change. Finally, ERP conflicts are defined and a categorization of ERP conflicts is provided.
2. ORGANIZATIONAL CHANGE PROCESS DURING IMPLEMENTING ERP SYSTEMS

ERP systems are not just a change in technology but also include sizable organizational change (Strong and Volkoff 2004). Moreover, various theories have been developed to explain the process of change associated with ERP implementation. These have been described as technological-driven (Paluszek 2006), organizational change (Markus 2004), or technochange (Markus 2004). These theories are closely related to Van de Ven and Poole for the information systems discipline. Van de Ven and Poole’s theory conceptualized four different change processes for information systems development: teleological, life cycle, dialectic and evolution. These different change processes are developed for general information system, and they have been applied to ERP systems to describe the process of organizational development and change (Sabherwal and Newman 2003).

Van de Ven and Poole (1995) categorized the organizational change process into two main dimensions. These dimensions are: Unit of change and Mode of change as shown in Figure 1. Using these two dimensions, the organization developmental process can be classified into four ideal schools of thought (Van de Ven and Poole 1995). The schools of thought have been used in different research areas and have a long standing intellectual tradition and associated terminologies (Garud and Van de Ven 2002). Van de Ven and Poole (1995, p. 519) said that the four process models “provide fundamentally different accounts of the sequence of events that unfold to explain the change process in an organizational entity”. Weiner (2009) found change process models an appropriate perspective on organizational change and a useful way to think about strategic change in organizations. The main advantage with Van de Ven and Poole’s typology is the identification of the dimensions of process as well as a different set of conditions (e.g. in the life cycle model activities passes through stages) (Garud and Van de Ven 2002).

![Figure 1: Organization change process models (from Van de Ven and Poole 1995, p. 520)](image)

The Unit of change refers to the size of the unit that needs to undergo change. These units can be a single entity (individual or individual group) or interactions between more entities (groups) (Garud and Van de Ven 2002). The dialectical change model involves multiple entities (Van de Ven 2002) with at least two entities.

The Mode of change distinguishes the four models in terms of whether the sequence of change is prescribed (either deterministic or probabilistic laws) or whether the progression emerges as the change process unfolds (Van de Ven 2007). Moreover, Van de Ven (2007) defined a prescribed sequence as the entities in a pre-specified direction, typically of maintaining and incrementally adapting in stable and predictable ways.
Whereas, the constructive mode of change is defined as generating unprecedented actions which are often discontinuous and unpredictable departures from the past (Van de Ven and Poole 1995). A prescribed mode uses a pre-established program or action routine as a sequence of change events, but a constructive mode, conversely, produces new actions which are created based on the situation (Van de Ven and Poole 1995).

The dialectic change model is considered constructive and incorporates a constructive mode of development (Haywood 2006; Garud and Van de Ven 2002). In the dialectic change process a sequence of thesis and antithesis describe the conflicts and resolutions that may occur occasionally over the course of the organization change process (Garud and Van de Ven 2002). The resolution is a synthesis which becomes part of the second round of change (Sabherwal and Newman 2003). The dialectic change process model is summarized in Table 1.

<table>
<thead>
<tr>
<th>Model stages</th>
<th>Model concepts</th>
<th>Definition</th>
<th>Strategic organization change issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialectic</td>
<td>Thesis, Antithesis, Conflict, and Synthesis</td>
<td>Confrontation and conflict among pluralistic stakeholders.</td>
<td>Change as negotiated settlement, strategy; resolution of conflict and tensions with the articulation of higher order constructs to achieve the main goals.</td>
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Table 1: Overview of dialectic model of organizational change process (from Garud & Van de Ven 2002)

3. STAKEHOLDERS’ INVOLVEMENT IN ERP SYSTEMS

Stakeholders hold views that can lead to conflict in values that are competing for dominance in an unstable situation that usually occurs between two opposing stakeholders (thesis and antithesis) and leads to synthesis or solution (Nordheim and Tero 2006). Moreover, Nordheim (2008) found that stakeholders play an important role in the dialectic change process to reach a synthesis. He mentioned that understanding the conflict situation depends on stakeholders involved in the synthesis. The project manager needs strong stakeholders representatives to express the requirements of the business units when a dialectic enterprise systems adaptation occurs (Nordheim 2008). However, one reason for the high degree of complexity in ERP change process is the participation of several types of stakeholders in ERP projects (Albadri and Abdullah 2009). A stakeholder is any individual who can affect the ERP implementation or organization’s objectives (Finney 2011). The engagement of ERP stakeholders is cited as a most influential factor which leads to ERP success (Wang and Chen 2006).

ERP literature has differing views about stakeholders involved in ERP change process. Some scholars (e.g. Wang and Chen 2006) have identified two types of stakeholders: internal and external. While other scholars (e.g. Finney 2011) classified stakeholders into four groups: managers, users, IT staff, and consultants. The external stakeholders are vendors and consultants who help the organization by providing knowledge, training, maintenance, and technical support (Ifinedo 2008; Thong et al. 1994). External engagement of vendors and consultants who have diverse knowledge and skills are among the most widely cited positive influences in the success of ERP implementation (Ifinedo 2008; Wang and Chen 2006). Whereas the internal stakeholders include: top management, project managers, IT staff and ERP systems users who play a significant role in ERP implementation process and outcome (Wong 2005). Equally important is the influence of internal stakeholders, because internal stakeholders must understand and learn to use the system (Wang and Chen 2006).
4. CONFLICTS IN THE ERP CHANGE PROCESS

The dialectic change model conceptualizes conflicts as an inherent part of the ERP change process. It examines the relationship as emerging through social construction by individuals and groups of stakeholders (Sabherwal and Newman 2003). The mutual adaptation process between the technology and the organization, and the outcomes of the process are difficult to predict (Wei et al. 2005). Therefore a technologically deterministic depiction of ERP systems advanced by ERP stakeholders amounts too little more than a false promise (Grant et al. 2006). Moreover, Hirschheim and Klein (1989) recognize that conflict is a natural part of IS development and hence argue that using a dialectic perspective is an important approach. This approach leads to totally different ways of thinking in terms of systems design features, systems implementation strategies, user satisfaction, and system use (Hirschheim and Klein 1989).

4.1 Conflict Definition

Conflict represents clashes of interdependent people who perceive different interest of goals, aim and values (Putnam and Poole, 1987). The conflict is a persistent phenomenon which affects processes and outcomes of many organizations (Barki and Hartwick 2001). Smith and McKeen (1992) view conflict as a real part of IS development in the implementing organization and a major barrier which affects computerization. Moreover, some of these conflicts are clearly mentioned by business managers and IS personnel (Smith and McKeen 1992). For example these conflicts include: lack of trust and understanding related to IS managers’ beliefs (users are hostile, business managers feel IS are not responsive to their needs and system developers do not understand business needs), frustration and argument with other stakeholders. Traditionally, conflict is viewed in a negative sense which has undesirable outcomes. For example, Wang et al. (2006) mentioned that conflicts have adverse effects on the perceived quality of the ERP systems delivered and identify that ERP implementation stakeholders are important in influencing the perceived ERP system quality. The adverse effect of conflicts can persist through implementation and lower system quality even after implementation (Wang and Chen 2006). Wong (2005) identified that conflicts involve: manpower resources, equipment and facilities, capital expenditures, cost, technical opinions and trade-offs, priorities of requirements, administrative procedures, scheduling, responsibilities and penalty clashes. However, conflicts can be interpreted in a positive sense as well. For example, Wong (2005) pointed out that conflicts are good because it highlights misunderstanding that can be resolved. This view is supported by Damanpour et al. (2006) who pointed out that some conflicts are good because they prevent group thinking which might prevent innovation. Furthermore, understanding conflicts can easily help the organization to develop proper actions and communication which improves project outcomes (Wong 2005). In this paper we describe conflicts in terms of two characteristics: source of conflicts and type of conflicts. Each is described below.

4.2 Sources Conflicts

We define the term of “sources of conflicts” as the locus from which conflicts can generate. Although current ERP literature does not explicitly discuss sources (internal and external) from which conflicts arise, we suggest that sources of conflict is an important characteristic to describe conflicts. This is because the measures or strategies which senior management may like to adopt to mediate the effect of conflicts could differ depending on the sources of conflicts. Another reason to recognize the sources of conflicts is the legal implications associated with problems arising from external sources as compared to the internal sources. These conflicts can involve issues related to business process, technological challenges among others. We identify two sources of conflicts: internal and external. Internal conflicts refer to those clashes of interest which arises among internal stakeholders (e.g. users, managers and IT experts) about how business processes need to be implemented and supported by ERP systems. It also includes clashes of interest among internal stakeholders because of their difference in perceptions on potential misfits of ERP packages to support their business requirements. Therefore, the degree of misfits between the ERP systems and business requirements is not perceived equally by different internal stakeholders. External conflicts refer to those clashes of interest
between an organization’s internal stakeholders and external stakeholders (e.g. vendors, customers and suppliers) with regard to the support given by ERP systems for business processes which are inter-organizational in nature (procurement) as well as business process that operate within an organization. The notion of the sources of conflicts as conceptualized in this paper can include interpersonal, intergroup and inter-organizational as suggested by Putnam and Poole (1987).

4.3 Types of Conflicts

There is a rich discussion on various types of conflicts in the current ERP literature (Nordheim 2011; Alsulami et al. 2013; Sia and Soh 2007; Boonstra 2006; Allen 2005; Robey et al. 2002; Besson and Rowe 2001). In this paper we categorize conflicts into two types (technical conflicts and process conflicts) that were identified based on the broader concept of the key component involved in describing a complex information systems like ERP systems (Davis 2000; Lai et al. 2007). A brief description of technical and process conflicts are given below.

Technical conflicts: They represent conflicts that relate to ERP systems misfits. Technical conflicts refer to those clashes of interest due to a misfit between ERP packages and organization’s system processes (inside and outside processes). Some studies (e.g. Sia and Soh 2007; Soh and Sia 2005; Soh et al. 2003; Themistocles et al. 2001) identified that technical conflicts occur during ERP implementation when requirements of implementing organizations do not match the structures of the ERP systems and the structures of the implementing organization. This type of conflict can be solved either by modifying the package or changing the organization practice to fit the package (Soh and Sia 2005). However, workarounds are developed when implementing organizations decide not to modify their ERP systems or change their business practices (Robey et al. 2002).

Process conflicts: These are conflicts that include task priority and relationship conflicts that are related to the implementation process (Liu et al. 2011). Process conflicts refer to any clash of interest by stakeholders about how business process need to be implemented and supported by ERP system (involve inside and outside stakeholders and business process). In each stage of organizational change several views are expressed by various stakeholders related to system change (Liu et al. 2011). Miao et al. (2010) point out that dysfunctional conflicts affect learning performance and affect the relationship between the conflicting parties during systems change. Some studies (e.g. Boonstra 2006; Allen 2005; Robey et al. 2002) mentioned that stakeholder conflicts occur during objectives and priorities setting which includes rarely agreed on common aims, learning processes and conflicts over evaluation fairness. Opposing views can occur between stakeholders and some contradicting opinions seem more important than others (Allen, 2005). Each contradictory view should be analyzed in detail to illustrate the different interests of each stakeholder and identify the conflicting sides (Dahlbom and Mathiassen 1993). Moreover, conflicts, negotiations, compensations, or compromises should be considered because that might help understanding and contribute to resolving the conflict and support further development (Meissonier and Houze 2010; Chen et al. 2008).

Table 2 shows the contradictions/conflicts literature associated with ERP change process. It can be observed that the focus of the studies (Nordheim 2011; Alsulami 2010; Sia and Soh 2007; Soh et al. 2003; Robey et al. 2002; Nordheim 2008; Nordheim 2007; Boonstra 2006; Allen 2005; Besson and Rowe 2001; Nordheim & Tero 2006) is on conflicts encountered during the initial implementation stage of ERP change process. An exception is the work of Soh and Sin (2005) who identified some conflicts (e.g. misalignment between package and organization) during the ERP post-implementation change process. However, these conflicts are similar to those reported for the initial ERP implementation change process.

5. DISCUSSION AND IMPLICATIONS

The issues of ERP systems conflicts have been recognized over the years (Alsulami et al. 2013). ERP implementation initiatives have been taking place for over three decades to integrate a range of business activities across the organization in many cases replacing legacy systems. At present, most organizations
have moved to upgrading of the initial implemented ERP systems. Moreover, many conflicts are encountered during the ERP change process and involve considerable risks because of varied interests of technical and processes conflicts. One way to facilitate ERP change process success is to categorize ERP change process conflicts by combining the notion of sources of conflicts and types of conflicts as discussed in the previous section. This results in four conflict scenarios as indicated in Figure 2. We now discuss the characteristics of each scenario:

<table>
<thead>
<tr>
<th>Source of Conflicts</th>
<th>Type of Conflicts</th>
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<tbody>
<tr>
<td><strong>Technical</strong></td>
<td><strong>Internal</strong></td>
</tr>
<tr>
<td></td>
<td>• Inside the organization</td>
</tr>
<tr>
<td></td>
<td>• Between ERP packages and internal business requirements</td>
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<tr>
<td><strong>Process</strong></td>
<td><strong>Internal</strong></td>
</tr>
<tr>
<td></td>
<td>• Inside the organization</td>
</tr>
<tr>
<td></td>
<td>• Between stakeholders and how internal business process should be implemented and supported</td>
</tr>
<tr>
<td></td>
<td><strong>External</strong></td>
</tr>
<tr>
<td></td>
<td>• Inside and outside the organization</td>
</tr>
<tr>
<td></td>
<td>• Between ERP packages and external business requirements</td>
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**Figure 2: ERP Conflict Scenarios**

Type A (Internal technical conflicts): Organizations encountering this scenario have internal technical conflicts (Nordheim 2011; Alsulami 2010; Sia and Soh 2007; Soh and Sia 2005; Soh et al. 2003) which are related to ERP systems misfits with internal systems requirements as perceived by internal stakeholders. The awareness of internal conflicts leads the implementing organization management to be more involved and support the implementation team to reduce the risk and avoid ERP failure. The implementing organization can modify their internal business processes instead of modifying the ERP system to minimize the ERP implementation risk as perceived by internal stakeholders. Moreover, ERP package domain specifics and organization domain specifics (related to system misfits and business requirements) can be negotiated and managed during the early stage of ERP selection. As a result, the ERP implementation will encounter less conflict.

Type B (External technical conflicts): Organizations encountering this scenario can expect to have external technical conflicts (Nordheim 2011; Sia and Soh 2007; Soh and Sia 2005; Robey et al. 2002) which are related to ERP systems misfits (ERP packages and external business requirements) with outside partners. They should get support from both sides (internal and external stakeholders) to avoid ERP implementation risk. The implementing organization can arrange their internal business processes to be more suitable and compatible with their external partners (e.g. vendors, customer and suppliers). Awareness of these conflicts will create more trust and authenticity between partners.

Type C (Internal process conflicts): In this scenario, organizations encounter internal process conflicts (Nordheim 2008; Nordheim 2007; Boonstra 2006; Allen 2005; Soh et al. 2003; Robey et al. 2002; Besson and Rowe 2001) which arise due to a clash of interest between internal ERP stakeholders about how internal business processes need to be implemented and supported by the ERP system. The implementing team should be ready to negotiate any conflicts which they might face. Building a strong relationship between internal stakeholders help the implementing organization to overcome all conflicts related to work priorities, know their roles, and understand the procedures of business implementation.
Type D (External process conflicts): Organizations encountering this scenario are likely to experience external process conflicts (Alsulami 2010; Sia and Soh 2007; Nordheim & Tero 2006; Soh et al. 2003) which are related to clashes of interest between internal and external stakeholders about how external business processes need to be implemented and supported by the ERP system. Both sides (external and internal stakeholders) in this type of conflict have different perceptions about the new systems implementation and expectation. These conflicts seems to be more complicated because it is an human action influenced by the different changes to technology that stakeholders have chosen to focus on and belong to two different organization.

6. CONCLUSION

Drawing on Van de Ven and Poole’s (1995) conceptualization of a dualistic organization change process, we have conceived the need for developing a categorization of ERP conflicts. This categorization is described in terms of two characteristics: (sources of conflicts and types of conflicts). By combining these characteristics, four ERP conflicts scenarios are identified. We argue that this categorization provides a richer understanding of how conflicts occur during ERP implementation in the organization change process. It further helps to illustrate the conflicts during organization change while implementing ERP systems. It also highlights the dualistic nature of technology in the dialectic change model which is an important part of ERP implementing organizations.

We claim to make modest contributions to theory and practice. Our work reported in this paper would contribute to the ERP literature in three ways. First, it categorized the ERP implementation conflicts into technical and process conflicts during organization change process drawing on Van de Ven and Poole’s theoretical analysis. Second, it viewed ERP change process as a dialectic process involving forces promoting and opposing change. Finally, it helps improve researchers’ understanding about ERP conflicts during ERP change process. The conflicts categorization will also be valuable to practice. Senior management, responsible for decisions making regarding implementing and enhancing ERP systems will have a better understanding about organization change during ERP implementation.

References


