

ERP Post Implementation Conflicts: Evaluating the Taxonomy

Completed Research Paper

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Abstract

Conflict is an inherent part of ERP implementation phenomenon due to the involvement of many stakeholders, opposing views held by these stakeholders, and the complex nature of organisational change that ERP implementing organisations generally undertake. However, the literature on ERP implementation places an emphasis on technical and process conflicts that is generated from inside or outside the organisation. The literature on conflict in the context of ERP implementation has been summarised in a taxonomy of ERP conflicts using two dimensions (types and sources). These dimensions generating four different types of ERP conflicts. In this paper, we seek to apply and refine existing two dimensions ERP conflict taxonomy for ERP post implementation context. Several internal and external stakeholders were interviewed about conflicts they have experienced during ERP post implementation. Qualitative data analysis was used to evaluate the types and sources of conflict. The data analysis highlights the important role people play in conflict that requires an extension of conflict taxonomy by adding a people dimension. Our findings reported in this research paper contribute to a better understanding of ERP post implementation conflicts.

Keywords: ERP, ERP post implementation, ERP conflicts, conflicts taxonomy, people

Introduction

ERP post implementation is a change associated with upgrades and maintenance of a current implementation. This term originated from Dahlbom and Mathiassen (1993) and Sabherwal and Newman (2003) who considered the process of change a key characteristic of information systems (IS) development. ERP systems represent a major type of IS and require considerable time, effort, budget, and resources for implementation. The journey of organisations during ERP implementation is not easy because many challenges (e.g. IT infrastructure and ERP system misfits) are encountered (Haddara, 2018; Arachchi et al., 2015; Chang et al., 2015; Lech, 2015). ERP post implementation may also involve considerable risks due to different views and interests of diverse stakeholders associated with the ERP post implementation. One way to facilitate ERP implementation is to engage ERP stakeholders who play important roles. Engagement of ERP stakeholders can bring to light issues that arise during the ERP post implementation (Khoo et al., 2011). Moreover, involvement of ERP experienced stakeholders in ERP implementation leads to managing, resolving, and understanding problematic aspects related to ERP post implementation (Bologa and Lupu 2014). Additionally, according to Chen et al. (2008) and Alsulami et al. (2016) involvement of ERP consultants (who represent an important stakeholder) helps organisations to reduce their operating costs and complexity during ERP post implementation. This includes the intent, size, scope, costs, and timing of these initiatives (Jiang et al., 2018; Kornkaew, 2012). Without involving knowledgeable ERP stakeholders in ERP post implementation, it is difficult for organisations to properly arbitrate the inherent conflicts associated with the ERP post implementation. This could lead to major cost blow-outs.

ERP post implementation is also not easy to undertake and frequently face conflicts. These conflicts can influence an organisation's ability to achieve benefits from ERP post implementation. Various theories are available to explain the process of organisation change associated with technology (e.g. technological-driven change (Paluszek 2006), organisational change (Markus 2004), technochange (Markus 2004) and organisation change models (Van de Ven and Poole 1995)). These theories considered the change as a main characteristic of information systems (IS) development. ERP systems represent a major type of IS and require considerable time, effort, budget, and resources for implementation. In this study, it is argued that ERP represents a system based on Information and Communication Technology (ICT) that is dualistic in nature because its implementation involves several stakeholders with opposing views and different stakes in ERP. This dualistic view of ERP systems is also due to the interaction between this ICT based system and organisations as a product of human action (Markus and Rowe, 2018; Orlikowski, 1992). Technology is considered to have a dualistic nature and ERP post implementation involves understanding the dualistic nature of technology. This paper views ERP post implementation conflicts as a lens to develop a rich understanding of the way stakeholders and organisations think about inherent contradictions related to development. ERP post implementation further involves considerable risk because of opposing views and interests of stakeholders. The contradictory views and expectations, when not well managed, can generate conflicts. As a result, many ERP systems fail to deliver expected benefits to organisations (Chadhar and Daneshgar, 2018; Khoo 2011; Umble et al. 2003; Ng et al. 2003). The Original ERP conflict taxonomy is developed from the literature and our expectation is that this conflict taxonomy will need to be adapted to take the dualistic nature of technology into consideration. Therefore, evaluating the conflict taxonomy using empirical data from a case study can lead to further refinement of that taxonomy.

The aim of the paper is to: Evaluate the taxonomy of ERP conflicts, developed from the literature, through empirical data from an ERP post implementation case study.

In this paper, we report on an initial empirical evaluation of that taxonomy (Alsulami et al. 2014) by analysing the ERP conflicts reported by the Australian Large Educational Institute (ALEI) during their ERP post implementation journey. Despite the existence of a rich body of literature on ERP implementation, surprisingly little attention has so far been given by IS scholars to identify the impact of people in conflicts during ERP post implementation. However, the current literature on ERP conflict focus on conflicts generated from technical and process conflicts and does not place emphases on people. To address this knowledge gap, we have extended the taxonomy of four types of ERP conflicts divided into two dimensions: types of conflicts and sources of conflicts. The data collected in the ALEI case study shows that people involved in ERP post implementation play an important role. Thus, extending the conflict taxonomy by adding the people dimension as a main type of conflict that influence the ERP post implementation. The new people type of conflict can be defined as *any clash of stakeholders (internal and external) while they are dealing with each other during ERP post implementation*. Classifying ERP conflicts into different categories is important because ERP managers can then plan appropriate actions to mitigate these conflicts. We claim that the revised ERP conflicts taxonomy is useful to theory and practice. To theory, the taxonomy of ERP conflicts can help researchers to study how conflicts can be resolved or avoided. To practice, an awareness of the conflict's taxonomy can better prepare ERP managers and consultants to avoiding these conflicts. Understanding and managing conflict can contribute to the success of ERP post implementation.

Organisational change during ERP post implementation

ERP systems do not just represent a change in technology but also includes sizable organisational changes (Roekel and Steen, 2019; Feldman et al., 2016; Strong and Volkoff 2004). Several theories exist to help explain the process of changes associated with technology. These have been described as technological-driven change (Paluszek 2006), organisational change (Markus 2004), or technochange (Markus 2004). These concepts are closely related to the various organisation change process models that have been developed by Van de Ven and Poole (1995). Van de Ven and Poole's (1995) theory conceptualised four different change processes for information systems development: teleological, life cycle, dialectic and evolution. Weiner (2009) found change process models an appropriate perspective on organisational change and a useful way to think about strategic change in organisations. Although these change processes are developed for information system in general, they have been applied to ERP context to describe the process of organisational development and change (Nordheim 2009). Organisation change process models are a theory that can be used to explain change during the ERP post implementation.

In the organisational literature, conflicts are defined as clashes of interdependent people who perceive different interest of goals, aim and values (Putnam and Poole, 1987). This definition differs from the conceptualisation of conflict in the ERP literature that focuses on technical and process conflicts. However, conflict in the organisational change literature seems to be between people not only between technical and processes. Therefore, from an organisational change literature perspective there is evidence that indicates that people play an important role in conflict. Conflicts are a persistent phenomenon, which affects business processes and outcomes of many organisations (Samba et al., 2018; Barki and Hartwick 2001). Smith and McKeen (1992) view conflict as a real part of IS development in the implementing organisation and a major barrier which affects computerisation. ERP conflicts are generally conceptualised as an inherent part of the ERP post implementation, which emerges through social construction and technological change (Sabherwal and Newman 2003). Moreover, it is difficult to predict the mutual adaptation

process between the technology and the organisation, and the outcomes of the process during technological change (Wei et al. 2005). Therefore, some implementing organisations believe a technologically deterministic depiction of ERP systems advised by ERP vendors a false promise (Grant et al. 2006). Moreover, Hirschheim and Klein (1989) recognised that conflict is a natural part of IS development. Conflicts may lead to totally different ways of thinking in terms of systems design features, systems implementation strategies, user satisfaction, and system use (Hirschheim and Klein 1989).

During ERP post implementation, an implementing organisation faces several conflicts. These conflicts have types and sources (Alsulami et al. 2014). Miao et al. (2010) argue that ERP post implementation conflicts affect learning performance and influence the relationship between the stakeholders involved during ERP post implementation. As a result, these conflicts influence the development teams and the change process in a positive or negative way (Miao et al., 2010; Wong 2005). Several stakeholders are engaged as key players in mediating and resolving ERP conflicts (Doom et al. 2010). A stakeholder is any individual who can affect the ERP implementation or organisation's objectives (Santos et al., 2018; Finney 2011). It is important to address or resolve conflicts so that organisations can realise the benefits during ERP post implementation. A brief description of the ERP conflicts type and source is now provided.

A type of conflict refers to the nature of the problematic situation that gives rise to contradictions during ERP post implementation (Alsulami et al. 2014). Various types of conflicts are reported in the ERP literature (Nordheim 2011; Alsulami et al. 2013; Sia and Soh 2007; Boonstra 2006; Allen 2005; Robey et al. 2002; Besson and Rowe 2001) that can be divided into two broad types: *Technical and Process*. *Technical conflicts* refer to those clashes of interest due to a misfit between ERP packages and organisation's system. Conversely, *process conflicts* refer to any clash of interest due to how business processes need to be designed and supported by an ERP system. Source of conflict on the other hand is defined as the locus from which conflicts are generated. It is of two sources: *Internal and External*. *Internal conflicts* refer to those clashes of interest, which arise from internal technical and process types about how business processes need to be implemented and technically supported by ERP systems. Whereas *external conflicts* refer to those clashes of interest, which arise from external technical and process types about how business processes between implementing organisation and external organisation's systems (e.g. customers and suppliers) to technically fit and meet the business process requirement with regard to the support given by ERP systems for business processes which are inter-organisational in nature (procurement) as well as business process that operate within an organisation (Alsulami et al. 2014). Combining types of conflicts and sources of conflict leads to a taxonomy as shown in Figure 1.

		Source of Conflicts	
		Internal	External
Type of Conflicts	Technical	Type A: Internal technical conflicts <ul style="list-style-type: none"> Conflicts arise inside the organisation Clashes between ERP packages and internal systems requirements 	Type B: External technical conflicts <ul style="list-style-type: none"> Conflicts arise outside the organisation Clashes between ERP packages and external systems requirements

Process	Type C: Internal process conflicts <ul style="list-style-type: none"> • Conflicts arise inside the organisation • Clashes about how internal business processes should be implemented and supported 	Type D: External process conflicts <ul style="list-style-type: none"> • Conflicts arise outside the organisation • Clashes about how external business processes should be implemented and supported

Figure 1: ERP Conflict Taxonomy

Type A represents *internal technical conflicts* that are related to ERP systems misfits with internal systems requirements as perceived by internal stakeholders. The awareness of internal conflicts leads the implementing organisation management to be more involved and support the implementation team to reduce the risk and avoid ERP failure. Whereas, **type B** represents *external technical conflicts* that are related to ERP systems misfits (ERP packages and external systems requirements which is belong to external organisation systems). Organisations should get support and agreement from both implementing organisations about what and how these changes should be implemented to avoid ERP post implementation risk. **Type C** represents *internal process conflicts*, which arise due to a clash between internal business processes and ERP processes and how these processes should be implemented and supported by the ERP system. During this conflict, the implementing team members should be ready to negotiate any conflicts, which they might face. Finally, **type D** indicates the *external process conflicts*, which are related to clashes between external business processes and ERP processes and how these processes should be implemented and supported by the ERP system. External partners (e.g. customers and suppliers) in this type of conflict have different perceptions about the new systems implementation and expectation.

Research approach

As the focus here was on ERP conflicts during the ERP post implementation in an implementing organisation, case study research is an appropriate choice. This is because the case study research method enable rich explanations about the complexity of the phenomena (i.e. ERP conflicts during the ERP post implementation), understanding and describing people's personal experiences, and provide data based on the participants' own meaning (Johnson and Onwuegbuzie, 2004). Moreover, a case study of technology implementation requires in-depth and close examination because of the complexity of the phenomena, which involves technology, organisations and people. This view is strengthened by the belief that the focus of IS research is that: "*interest has shifted to organisational rather than technical issues*" (Benbasat et al., 1987, p. 382). In addition, prior research on technology issues employed case study research method, which was mainly used to study technology issues at the individual level in an organisational context (Choudrie and Dwivedi, 2005).

During this study, the researcher needed to understand ERP conflict during ERP post implementation that involved multiple stakeholders. Data was collected through various means: observation and semi-structured interviews and written material including annual reports, agendas, announcements, e-mails, texts and websites. Semi-structured interviews with 13 internal and external stakeholders (e.g. CIO, project manager, internal and external consultants, ERP vendor, ERP programmer team) were used for data collection. These interviews were conducted using an interview protocol developed from the literature review. The interviews lasted about an hour. In some instances; more than one meeting was conducted with interviewees. Follow-up phone calls along with e-mails were also used to seek further clarifications. All information provided via e-mails and through additional meeting were added to the original documents of the interviewees.

ATLAS.ti software was used to develop a holistic picture about the ERP post implementation conflicts. This study considered all sources of evidence that supported the credibility and richness of the research findings, and provided the opportunity for triangulation, as suggested by Creswell and Miller (2000) and Miles and Huberman (1985), as well as capturing contextual complexity as suggested by Benbasat et al. (1987).

Qualitative content analysis was used to analyse the interview data. It allows the researcher to evaluate theoretical issues to enhance understanding of the data (Elo and Kyngäs 2008). Through content analysis, it is possible to reduce the words into a number of content related categories. When classified into the same categories, words, phrases and the like share the same meaning (Cavanagh 1997). The purpose of concepts or categories is to build a conceptual model, or conceptual map. Data analysis of the ERP post implementation at ALEI is described in terms of episode “*instances of conflict*”. Episodes were used as a way to analyse the narratives that emerged. Typical episodes were divided into components of conflict for analysis purposes. These episodes were selected because they highlighted the conflicts that typically emerge during large software implementation (like an ERP system) where multiple stakeholders are involved and need solutions.

Case organisation

ALEI is a Large Australian Educational Institute that began its ERP implementation journey when SAP ERP R/3 version 4.0b was introduced at the main campus in 1999 and currently SAP ECC6 is used. ALEI is purposefully selected as a suitable case for our research because it was one of the very first adopters of ERP in Australia. A number of systems have been implemented to form a platform of systems. In 2000, they implemented SAP ERP R/3 Version 4.0b at their main campuses. After a technical upgrade of SAP from 4.0b to 4.6c commenced in October 2001 and was completed by April 2002. A few enhancements were applied followed by the configuration of a module for Strategic Cost Management in Jan 2003. In 2006, ALEI had another major upgrade of their SAP systems. In this upgrade some modules were decentralised to fulfil requirements from ALEI faculties. Between 2006 and 2014, several implementations of hot-packs were undertaken. Hot-packs 22-25 were initially implemented, followed closely by hot-packs 26-27 as planned. Some of these hot-packs were provided by the vendor but were customised by ALEI development team. ALEI undertook several in-house enhancement projects to better adapt the ERP system to the organisation’s requirements. From 2013 a major change was initiated to integrate the ERP system for ALEI payroll and human resources solutions for overseas campuses.

Findings and discussion

Drawing on the case study, we find evidence of the existence of six conflicts during ERP post implementation during 2013 to 2017. A brief explanation for each conflict is now provided.

Conflict One (Local Upgrade Conflict)

ALEI allocated several ERP post implementation upgrade projects (e.g. Support Pack 26 upgrade) within the Australian campus for implementation during July 2013 to July 2014. These upgrade projects were implemented in parallel by different team members. These teams encountered internal technical conflict due to technical bugs in their current Support Pack 26 and they kept on fixing these bugs on a regular basis. These technical bugs originated from several ERP interface customisation projects, which was threatening to delay the go live date of these projects. To solve this problem, the ERP consultants advised ALEI to upgrade the current ERP system (Support Pack 26) to the new version (Support Pack 27). This advice was supported by the CIO and was later passed on to the project review board for final approval. However, the review board rejected the upgrade of the ERP system and implementing Support Pack 27 because of extra time and cost

involvement. According to the Business analyst leader: *“We opted to not go to the latest version of the support packs [as suggested by ERP consultant] because going to the latest version would have meant we would have had to upgrade our servers as well, because SAP said that, you know, if you go to support pack 27, [we] need to upgrade your hardware and your operating system, and we didn't have the budget or time to do that this year”*. The time spent in getting this matter resolved by the project review board was considerable. In fact, six weeks were lost in order for the review board to make a decision. This in turn caused a delay because the ERP programmer team then went back and started fixing the technical bugs on their current ERP (Support Pack 26) version. The project manager commented: *“Project Review Board was assigned six weeks later, which meant six weeks of the available time had already elapsed with a fixed end date”*. CIO said that: *“[ERP post implementation team] has access to the [ERP system] and put a customisation.....diagnose the problem and fix it.....they do the designing, approving and testing and once we make a decision that's it.....we got errors and we fixed them, which cause the delay”*. As a result of this delay, a regulatory change, which was mandated to the university, was delayed frustrating the senior managers of the university. Business analyst leader considered the multiple project implementations as a challenge but believed the implementation team can do it by saying: *“The challenge that we faced was there were too many changes happening within the same system.....we had a major issue with that this time around”*.

Conflict Two (Overlapping Upgrades Conflict)

During the 2013 to 2014 time period, ALEI undertook three parallel ERP post implementation upgrading projects in its local and overseas campuses for implementation on the same platform. Different team members were responsible for implementing these upgrade projects. Technical conflicts occurred because these projects involved working with some common modules and functionalities. For example, a project from the overseas campus changed the functionality according to the needs of that campus which is also used by the local campus. However, the requirements of the local campus from that functionality are quite different. Hence, a conflict occurred from the overlapping of functionalities across both campuses that have different requirements. This in turn caused significant delays of completing these projects. This sentiment is expressed by a programmer team member as follows: *“Now at some stages some changes override the others. Also today change might affect some common component with ALEI functions”*. A Business analyst also commented: *“I know of where there's been a major clash with other changes and things. So, I think that probably created some other issues.....we have modifications in place for our leave requests that we use for main campus. Overseas campus has the issue that, they have these requests obviously as well, they want to do the same thing, and they run into issues because we have this modification; they didn't know what we've done and why we've done that. They tried to fiddle around with it themselves and it didn't work and because they have been separated and they weren't really able to talk to each other, it took a long time to resolve it”*.

Conflict Three (Human Resources Conflict)

As indicated earlier, ALEI undertook several parallel ERP post implementation projects in its local and overseas campuses for implementation using the same platform. Each project requires allocation of a number of human resources like consultants, project manager, power users, functional analyst and business analyst. However, as human resources are limited at ALEI, completion of these parallel upgrade projects was delayed. Hence, a conflict occurred from the unavailability of internal human resources during ERP post implementation. This view is supported by the business analyst as: *“The problem with that was we had three projects in different locations implemented at the same time. Now ALEI overseas projects had a really aggressive*

timeline where it actually wanted to go live straight after the support pack upgrade [project],the conflict that we faced [is] the limitation of human resources”.

Conflict Four (Outsourcing Conflict)

The overseas campus of ALEI implemented a payroll upgrade project on the same platform as used by the main campus. This project was however outsourced by the overseas campus management to an ERP vendor. This vendor in collaboration with overseas ERP consultants and overseas campus IT staff designed a solution for the implementation of that project. However, the design of the solution used in that project did not involve the participation of the ERP programmer team from the main campus who are more familiar with the technical specifications and constraints of the ERP platform used by both campuses. As a result, the implementation of the payroll project suffered problems because their solutions were incompatible with the requirements of the platform used by both campuses. This incompatibility then in turn caused a delay of the go live date and forced them to re-implement the project. The Business analyst team leader said: *“[The ERP overseas project] for many reasons has run a lot longer ... than was initially thought it would. Initially they wanted it in late December 2013, which was ambitious, then February 2014, then, you know, April, now we're at May”.*

Conflict Five (Internal People Conflict)

This conflict took place at the local campus of ALEI when an external ERP consultant was hired by the CIO to work on an upgrading project. The consultant was initially interviewed by the CIO who was quite satisfied with the credentials of the consultant. The consultant was however required to work with other members of the implementation team (e.g. project manager, power users, ERP programmer team, functional analyst and business analyst). Internal people conflict took place due to a clash between the ERP programmer team members and the external ERP consultant. The programmer team members went to the CIO and complained about the lack of knowledge of the consultant. The CIO then met with the consultant. During this meeting, the CIO realised the consultant had a high level of competence and knowledge of ERP. However, the CIO suspected that the primary reason for the conflict between the consultant and the ERP programmer team could be rooted in the differences in their behaviour, personality, and attitudes. This conflict eventually caused a delay of the go live dates for these projects several times. According to the CIO: *“Sometimes [we] have personality clashes with consultants and staff here.....these consultants can be quite strong in personality”.*

Conflict Six (External People Conflict)

ALEI has signed two contracts with two consultancy firms. One for local projects and another for overseas campus projects. This was necessary because without their participation ALEI was not able to undertake multiple parallel ERP upgrading projects from both campuses. However, senior management of ALEI realised that the ERP consultants from these two firms were not willing to collaborate with each other when it comes to work on projects that require them to use the same platform. This is perhaps because of the possible apprehension by the overseas consulting firm that their jobs may be taken over by the consulting firm operating from Australia. This lack of cooperation in terms of information sharing had a negative impact on the timely completion of many upgrading projects. According to the ERP programmer team leader: *“The consultants need to talk to each other; that's all. So we have, for example, modifications in place for our leave requests that we use for local campusoverseas campus have the issue that, they have these requests obviously as well, they want to do the same thing, and they run into issues because we have this modification.....it didn't work and because they have been separated and they weren't*

really able to talk to each other, it took a long time to resolve it.....as I mentioned already communication is always important.....especially when it comes to external consultants, they come in do something short term and they leave, you don't have their brain to pick, so you are heavily relying on documentation”.

The ERP conflicts taxonomy outlined in Figure 2 is now re-invoked to analyse the conflicts.

Conflict One (Local Upgrade)

The type of conflict is internal technical as the errors originated from several ERP customisation projects. These errors together with the time lost in receiving a decision from the review board contributed to the delay of the projects undertaken at the local campus. Considering these characteristics, the conflict is categorised as an instance of Internal Technical type (**Cell A**). The source of local upgrade conflict is internal as ALEI implementing parallel project locally and using the same platform, which caused several technical issues.

Conflict Two (Overlapping Upgrade Projects)

The type of conflict is external technical as the ERP post implementation team (from overseas campus) makes changes twice to the ERP system. This in turn affected the ERP system functions that are commonly used by both local and overseas campuses. This overlapping delayed the overseas project and resulted in re-implementing some functions. Considering these characteristics, the conflict is categorised as an instance of External Technical type (**Cell B**). The sources of overseas upgrading overlapping conflict is external as ALEI implementing overseas campus project as a separate project.

Conflict Three (Human Resource)

The type of conflict is an internal process as it is related to accepting views to implement several ERP upgrading projects at the same time. Considering these characteristics, the conflict is categorised as an instance of Internal Process type (**Cell C**). The source of human resource conflict is internal as multiple parallel process changes at local campus at the same time. This decision resulted in unavailability of staff during ERP post implementation and delayed the go live dates for several projects.

Conflict Four (Outsourcing)

The type of conflict is an external process as it relates to outsourcing some business process to a third party who has no experiences about the main local campus. Considering these characteristics, the conflict is categorised as an instance of External Process type (**Cell D**). The source of outsourcing conflict is external to the implementing organisations. The ERP vendor and ERP consultants (of the outsourced company) decided not to involve the local campus stakeholders (i.e. ERP programmer team) in the business process upgrade. ERP programmer team knew the organisation platform and structure on which the overseas payroll upgrade project was expected to operate. The decision resulted in accepting a turnkey solution, which was not compatible with the main campus platform. Eventually, the payroll projects needed to be re-implemented and exceeded its deadline.

Conflict Five (Internal People- Internal cooperative)

The type of conflict is neither rooted in technology nor process. In fact, a new type of conflict was observed that relates to the personality differences between the programmer team and that of the consultant. This particular aspect was not found in the ERP conflicts taxonomy (Figure 1) presented in Section 3. The discovery of this new type of conflict is however quite consistent with the views of Putnam and Poole (1987), Barki, and Hartwick (2001), and Liu et al. (2011) who argue inter-personal issues as an important source of conflicts for IS development. Hence, a new

category (**Cell E**) is now created and is shown in Figure 2. The source of conflict is internal because clashes of interest took place within local campus between the ERP programmer team members and an externally hired ERP consultant who was required to work with these team members.

Conflict Six (External People - External Cooperative)

This category of conflict relates to clashes of interest between two external consultancy firms about exchanging information about tasks that related to local and overseas upgrading projects. Both external stakeholders in this conflict have different perceptions about each other. This can be classified as a people type of conflict. The source of conflict is external because the clash of interests originated beyond ALEI's boundaries. Considering these characteristics, this particular conflict is categorised as an instance of External People type (**Cell F**).

In summary, we thus define *People conflicts* as ERP conflicts related to stakeholders during ERP post implementation, which include stakeholders' personality and relationship with other ERP implementation team members (involving stakeholders' characteristics). The six cells in the taxonomy are not independent but there is an interplaying between each of these conflicts. The revised ERP conflict taxonomy is presented in Figure 2.

		Source of Conflict	
		Internal	External
Type of Conflict	Technical	Cell A: Internal technical conflicts <ul style="list-style-type: none"> • Local upgrade 	Cell B: External technical conflicts <ul style="list-style-type: none"> • Overseas upgrade overlapping
	Process	Cell C: Internal process conflicts <ul style="list-style-type: none"> • Human resources 	Cell D: External process conflicts <ul style="list-style-type: none"> • Outsourcing
	People	Cell E: Internal people conflicts <ul style="list-style-type: none"> • Internal cooperative 	Cell F: External people conflicts <ul style="list-style-type: none"> • External cooperative

Figure 2: ERP extended conflicts taxonomy

Conclusion

The ERP conflicts taxonomy, which was not empirically validated, is evaluated by analysing data from Australian large educational institute. While our analysis of qualitative data collected from this institute provides empirical support to the conceptual taxonomy, it further points out the inadequacy of the taxonomy. Drawing on the case data, we have identified the presence of a new dimension of ERP conflict (called People) and then extended the existing conceptual taxonomy. Moreover, we found the relationships between ERP conflict taxonomy cells, which impact each other. For example, people (external or internal) during ERP post implementation have impact on the technical and process types (the clashes which happened between the ERP programmer team members and the external ERP consultant affected the technical solutions and how these solutions implemented). We argue that the revised ERP conflicts taxonomy is useful to both theory and practice. To theory, taxonomy of ERP conflicts can help researchers to study how conflicts can relate to various resolution strategies. To practice, an awareness of the conflict's taxonomy among

ERP managers and consultants can better prepare them for avoiding those conflicts by plan appropriate actions to mitigate these conflicts and developing conflict management strategy. The findings of our work however are based on a single case study. It is therefore possible to identify additional types of conflicts through further in-depth case studies. Hence, future work is needed to further empirically evaluate this extended taxonomy.

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