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AN EXTENDED MODEL OF DECISION MAKING FOR A *MINDFUL* APPROACH TO IT INNOVATIONS (ENTERPRISE-WIDE ERP PROJECT IMPLEMENTATION)

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Abstract

Overall, despite the strong push toward enterprise-wide ERP systems in the wider organisational community, there is, in relation to ERP implementations, a lack of understanding of the difficulties that can arise when organisations fail to ensure that all the required factors of success are present in their enterprise-wide ERP projects. Therefore, it can be argued that novel ideas for improved enterprise-wide ERP project preparation are needed. This paper provides a definition for the concept of organisational readiness and presents a method of practical relevance for organisational decision-makers. This method for measuring organisational readiness uses a devil's advocate workshop and embraces the concept of sense-making, in a pre-planning 'intelligence' phase of an enterprise-wide ERP project life-cycle. Therefore, organisational readiness is viewed as a 'preparatory exercise' with an intention to protect the implementing organisation from attempting to implement a solution for which they are not prepared. As a result, it is 'common sense' to assume that the organisation's state of readiness for undertaking an enterprise-wide project, will impact on the actual outcomes of the project initiative

Keywords: ERP projects, organisational readiness, sense-making, decision-making, devil's advocate workshop.

1   INTRODUCTION

Enterprise Resource Planning (ERP) packages can be positioned as the most sought after means of organisational transformation and IT innovation since the mid 1990s. In fact, the origins of ERP can be traced back to the Industrial Revolution and the initial attempts at optimising industrial activities with regard to materials and inventory management (O'Gorman, 2004). Indeed, the issues of materials and inventory control addressed by MRP in the 1960s, which evolved into the MRP II systems of the 1970s, is still at the core of present day ERP packages. However, the continued evolution of ERP packages has brought about an increased depth and breadth of 'best practise' software functionality, supporting a wider range of industrial sectors[1]. As a result, in non-manufacturing industries, ERP packages offer the potential for consolidation of internal operations and an integrated, enterprise-wide view of the organisation. Over the past decade ERP packages have become a major part of the organisational landscape and forms the cornerstone of IS for an ever increasing percentage of organisations. Such an observation has been made in both the trade press and academic literature, suggesting that ERP packages have sustained their attractiveness to managers, and when their rate of adoption and implementation is examined (over the last decade) it can be observed that these ERP packages were indeed the solution to organisational integration problems, and alternatives were not needed.

One such example of this observation has been made by Swanson and Ramiller (2004, p.554) in their award winning MISQ research article titled innovating mindfully with information technology, where they reported that *"by the mid-1990s, ERP was a topic that was being banded about in boardrooms. It wasn't just an information technology (IT) project, but a strategic business imperative... the ERP genie was out of the bottle – every company needed to have an ERP implementation"*. However, Swanson and Ramiller (2004, p.554), borrowing Weick's concept of *mindfulness*, suggest that *"adopting organisations entertain scant reasoning for their moves. Especially where the innovation achieves a high public profile, as with ERP, deliberative behaviour can be swamped by an acute urgency to join the stampeding herd, notwithstanding the high cost and apparent risk involved"*. Indeed, this *mindless* behaviour in pursuit of 'best practise' is the rule, with the exception being a *mindful* organisation engaging in such an IT innovation. Paradoxically, the argument can also be made that investments in these ERP packages are amongst the most significant an organisation has, or will ever, engage in; however, the nature of these same enterprise-wide ERP packages and the impacts of implementation on the organisation is not well understood by managers.

This research paper presents an innovative method of assessing an organisations state of readiness (*mindfulness*) prior to undertaking an enterprise-wide ERP project. In this respect it is extremely important that organisational decision-makers are conscious of the state of organisational readiness at the outset of an enterprise-wide ERP project; as problems not addressed, or factors not considered at the initial stages of a project, can have serious consequences at later stages, and impact the overall outcome of the project.

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[1] SAP has more than 25 industries solutions tailored to the following industry groups: consumer products and life sciences; discrete manufacturing; financial services; process manufacturing; public sector; retail and wholesale distribution; service industries. www.sap.com

2 THE IMPLEMENTATION OF ERP PACKAGES

The malaise surrounding ERP seems to grow hand in hand with the astonishing escalation of its implementation market (Caldas and Wood, 1998). Since the mid-1990s, ERP systems have become the *de facto* strategic standard for replacement of legacy systems in large and, in particular multinational organisations (Holland *et al.*, 1999a, 1999b; Parr and Shanks, 2000; James and Wolf, 2000), as organisations increasingly moved towards purchasing software packages (Shanks *et al.*, 2000). The observations made by many analysts lead us to believe that the ERP movement is one of the broadest and most sustained technological deployments in the IS area (Rebstock and Selig, 2000; Shanks *et al.*, 2000; Chang and Gable, 2001). Never since businesses started relying on computer systems, have such a large number of varied organisations rushed towards one single type of information system over such a short period of time (Boudreau and Robey, 1999; Davenport, 1998), representing a major paradigm shift in organisational and information systems management (Stefanou, 2000). Sumner (2000) stated that an enterprise-wide ERP project often represents the single largest investment in an IS project in the history of an organisation and, in many cases, the largest single investment in any enterprise-wide project. This is a staggering vote of confidence for a concept about which so many disturbing failure stories have been reported. For example, Sauer (2002) commented that 31 percent of ERP projects were never completed, 53 percent were completed but viewed as failures, and just 16 percent were deemed successful.

In examining the influences on the justification process that are applied to the selection and implementation of large-scale Information Systems (IS), it can be observed that much of the current ERP literature uncritically reflects the discourse propagated by the primary and secondary diffusion agents (Abrahamson, 1991; 1996; Kieser, 1997; Caldas and Wood, 1998). Although volumes of literature exist concerning the various rationales that influence the adoption of an enterprise-wide ERP system, these rationales remains a contentious area that needs to be fully understood by researchers and practitioners. In fact, the adoption of fashionable techniques tends to necessitate a culture change, also known as the 'management of meaning' or the 'management of symbolic action' (Abrahamson, 1991). However, this change can be dealt with in a shallow manner, either by the consulting firm (Adam and O'Doherty, 2000; Sammon and Adam, 2002) or the client (Caldas and Wood, 1997), resulting in the implementation of a set of procedures, that may or may not be properly implemented, rather than fundamental change. In fact, incidence of dysfunctional effects of packaged solutions result from minimal diagnosis and the imposition of mechanistic, procedural steps by organisations (Gill and Whittle, 1992). This trend supports the contention that the level of managerial understanding of technological innovations is generally low, and managers need to understand what is critical for a successful project implementation. Therefore, an organisation committing to the implementation of an enterprise-wide system needs to be empowered and made aware of the complexities of the enterprise systems market, and needs to internally assess, if not their readiness for an enterprise-wide ERP system, their ability to manage the fashion setters (the consultants and the vendors) within the enterprise systems market.

Returning back to the arguments made by Swanson and Ramiller (2004), regarding *mindful* and *mindless* organisations and their approaches to pursuing IT innovations, there is no doubt that their theoretically motivated discussion provides quite practical implications, in that *"deficient understanding – handmaiden to mindlessness – has been identified as a prime cause of firms' widespread failures with IT investments"* (p.577). However, it still remains that more needs to be done to provide a means of assessing an organisations level of understanding before they embark on complex innovating pursuits (for example, enterprise-wide ERP projects). While the concept of *deferral of attention* can explain organisational managers approach to ERP package adoption, where a decision is rushed under a sense of urgency induced by 'bandwagon pressures', it is argued in this

research paper that it is not an acceptable approach due to the fact that *"mindless adoption can presage equally mindless implementation"* (Swanson and Ramiller, 2004 p.564). Therefore, organisations need to be made aware of the fact that early comprehension of the inflexibilities of ERP packages and the complexities of the implementation process, may indeed reduce future ill effects, and produce desired outcomes in-line with the strategic vision of the implementing organisation.

3 THE CONCEPT OF ORGANISATIONAL READINESS

There is no doubt that enterprise-wide ERP projects are highly complex and challenging initiatives to undertake (regardless of organisational size) for reasons relating to: projects being difficult to scope, with issues becoming apparent only once the project is under way, the benefits being nebulous, and the scale of the project being greater than an organisation is prepared for, in implementation. In fact, success has not been easy to achieve and organisations that implement enterprise-wide ERP systems, based on a myopic mindset and only for an immediate return on investment, have been in for a 'rude and expensive awakening' Gargeya and Brady (2005). Therefore, improving the likelihood of success prior to undertaking a project would prove hugely beneficial to most organisations. In fact, many organisations view their project implementations as failures. However, it has also been argued that the cause of these ERP implementation failures relates to a lack of appropriate culture and organisational (internal) readiness, which if addressed, is also a feature of the most successful enterprise-wide ERP projects. This readiness is referred to as a 'readiness to change' and it has been argued that not enough time and attention has been devoted to the 'internal readiness' factor at the outset of an ERP project and the subsequent changes required during the implementation process (Davenport, 2000; Gargeya and Brady, 2005). As a result, an organisation's state of readiness is extremely important in order to undertake an enterprise-wide ERP implementation and, as a result, the awareness of managers should be reflected in the preparations made for the project initiative. Therefore, the most pressing issue that needs to be addressed is simply what should constitute an organisation's state of readiness and how should it be assessed.

Very little academic research literature in the enterprise-wide ERP systems area focuses directly on the issue of organisational readiness for enterprise-wide ERP projects. However, numerous articles in the trade press highlight the importance of an organisation assessing its state of readiness to undertake an enterprise-wide ERP project. However, these readiness checks are promoted by ERP vendors and consultancy groups and are tightly integrated into a preferred implementation methodology, which ultimately positions these checks on readiness in the planning phase of the project. Indeed, it can be argued that the planning stage is too late for this self-assessment exercise, in that it should be a vendor/consultant-independent, methodology-independent and 'pre-planning' or 'intelligence phase' thought process in relation to undertaking an enterprise-wide ERP project. Therefore, it seems that a critically important issue to consider with the introduction of any ERP package is the readiness of the organisation for such an initiative, prior to the project's initiation. This view is certainly supported by the available research literature and by the fact that a high number of enterprise-wide ERP projects fail in such a way that the cause of failure can be related to a lack of preparedness in the early stages of the project. Ideally, readiness is viewed as an organisational mindset and should be concerned with a straightforward and comprehensive assessment of the level of understanding that exists within an organisation, with regard to what is involved in undertaking an enterprise-wide ERP project, and the actual preparedness that is needed within the organisation for such a project undertaking. Therefore, organisational readiness is simply viewed as a 'common sense' approach to an enterprise-wide ERP project. In fact, it can be argued that readiness leads to highlighting the criticality of certain factors *a priori* that may, if absent or unmanaged, lead to less than desirable project outcomes. As a result, organisational readiness should be concerned with providing focus and establishing the structures that should constitute an enterprise-wide ERP project.

3.1   Awareness and Preparedness

While awareness is determined by the organisational decision makers' understanding of what an enterprise-wide ERP project entails, preparedness relates to the actions managers take to prepare themselves and the organisation for an enterprise-wide ERP project, thereby leveraging this awareness. As a result, a lack of preparedness can be as a result of a lack of awareness as to what is involved in such an undertaking and a lack of appreciation for the existing organisational configuration in the context of a managers own organisation. In accordance with Weick (1988, p.306), if understanding is facilitated by action and *"if action is a means to get feedback, learn, and build an understanding of unknown environments, then a reluctance to act could be associated with less understanding and more errors"*. Therefore, within implementing organisations a *"delicate trade-off between dangerous action which produces understanding and safe inaction which produces confusion"* exists (Weick, 1988 p.306). This highlights the fact that low levels of awareness and preparedness is characteristic of *safe inaction* where organisational decision-makers display:

- weak project management, and

- myopic thinking.

However, high levels of awareness and preparedness within an organisation is characteristic of *dangerous action* where organisational decision-makers display:

- strong project management, and

- hyperopic (strategic) thinking.

Indeed, as Einhorn and Hogarth (1987, p.69) argued *"whether we like to acknowledge it or not, most of the time we do a poor job of thinking forward with any accuracy"*. Indeed, Mintzberg and Westley (2001, p.90) also commented that *"vision requires the courage to see what others do not"*, which equates to this notion of hyperopic thinking and dangerous action. In fact, Hammond *et al.* (2006, p.126) argued that the 'best defence is always awareness' and stated that *"the best protection against all psychological traps – in isolation or in combination – is awareness. Forewarned is forearmed. Even if you can't eradicate the distortions ingrained into the way you mind works, you can build tests and disciplines into your decision-making process that can uncover errors in thinking before they become errors in judgment. And taking action to understand and avoid psychological traps can have the added benefit of increasing your confidence in the choices you make"*. It can be argued that the discussions presented by Hammond *et al.* (2006) are an effort to strengthen organisational decision-makers awareness, before committing to a course of action, with regard to the decision-making process they are about to follow. Indeed, this can be perceived as suggesting that *foresight* can be achieved to some degree by organisational decision-makers. In fact, this suggestion of *foresight* would somewhat counteract the need to use *hindsight* with regard to decision-makers retrospectively making sense of the outcomes of their actions, which were informed by their decisions. Therefore, allowing a decision-maker the opportunity to retrospectively make sense of their proposed future decisions, using a devil's advocate workshop[2], would indeed embrace this concept of *foresight* and

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[2] The concept of *devil's advocate* has been used by a number of researchers in the study of the strategic planning process (Mason, 1969; Boland, 1984). Mason (1969) suggested that there were a variety of organisational designs used to cope with the problem of strategic planning, and suggested two 'ideal types' as a means of achieving good organisational design for planning. One ideal type is referred to as the *expert approach*, where a planning department is established and serves as managements 'alter ego'. The other ideal type is the *devil's advocate approach*, where managers and planners of an organisational unit submit plans for extensive cross-examination by top management. Boland (1984) used retrospective

should ensure a more *mindful* (Swanson and Ramiller, 2004) approach to enterprise-wide ERP projects.


4   DEVIL'S ADVOCATE WORKSHOPS

The concept of a devil's advocate workshop is extremely important to ensure that adequate planning and the associated level of understanding exists to govern decisions around an enterprise-wide ERP project. These devil's advocate workshops promote the importance of the intelligence phase of decision making for enterprise-wide ERP projects. Therefore, it is proposed that a workshop environment, promoting the enacted[3] sense-making of outcomes, in light of the level of awareness of the CSFs (Critical Success Factors) for ERP implementation (before any decisions or actions are taken), will add value to the existing body of knowledge with regard to enterprise-wide ERP projects, as illustrated in Figure 1.

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analysis to get management groups to understand their actions during a period of time, why they had taken those actions, and how they felt about having taken those actions (this period was created through generating fictitious accounting reports to demonstrate plausible future scenarios for an organisation, in terms of alternative future directions an organisation could have taken) and to enhance the group process of inquiry during the initial stages of planning. *"The impact of this exercise on the managers' cognitive and emotional experience and their commitment to use the method in other decisions suggest that sense-making can enhance the group process of inquiry during the initial stages of planning"* (Boland, 1984 p.868). Also, Hammond *et al.* (2006), when analysing the hidden psychological traps in decision making (workings of the confirming-evidence trap), suggested that to ensure a decision maker has made a smart choice, they can get someone they respect to play *devil's advocate*, to argue against the decision they are contemplating.

[3] The concept of enactment involves both a process (enactment) and a product (an enacted environment) and ultimately when organisational personnel act, structures, constraints, and opportunities are produced that were not in existence before the action was taken (Weick, 1988). Within the enactment process, preconceptions are formed and personnel act under the guidance of those preconceptions, where issues requiring attention are often shaped in the direction of preconceptions, as a result, actions tend to confirm preconceptions (Weick, 1988). Therefore, an enacted environment is the residuum of changes produced by enactment (Weick, 1988) and due to the fact that a residuum, emphasising what is left after a process, has potential significance, it cannot be ignored.

Figure 1 An Extended Model of Decision Making for a Mindful Approach to IT Innovations (Enterprise-Wide ERP Project Implementations)
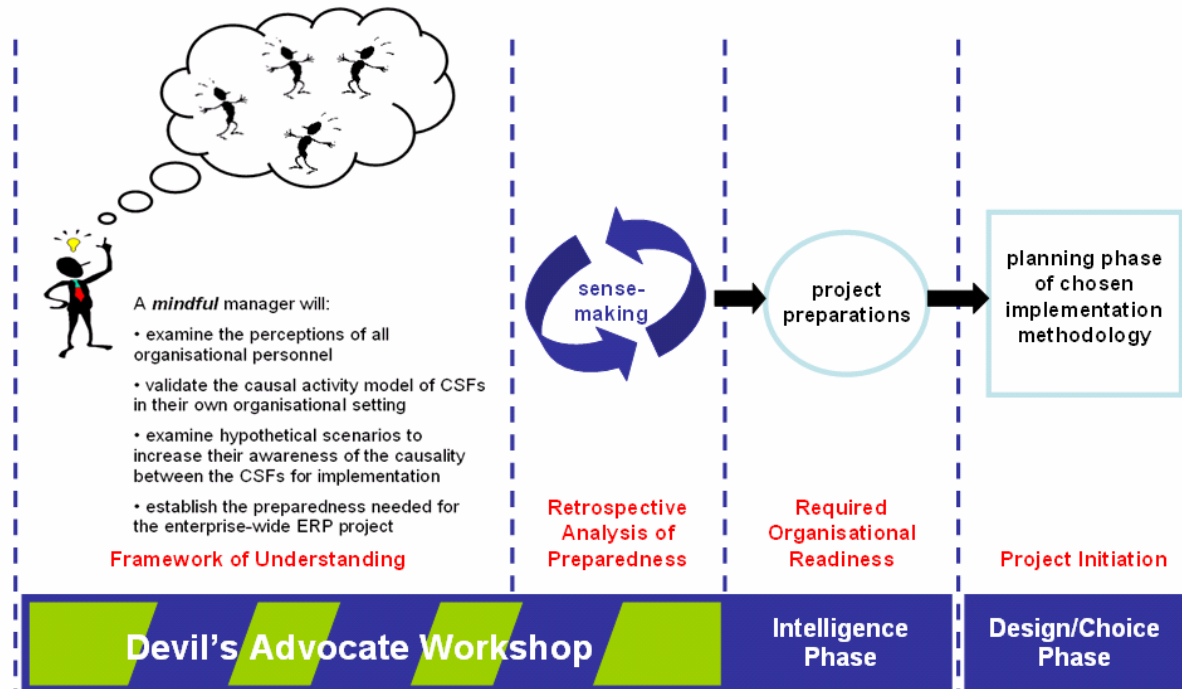
As illustrated in Figure 1 organisational readiness is positioned in the 'intelligence' phase of an enterprise-wide ERP project, in a pre-planning environment. The state of organisational readiness is determined by the outcomes of the devil's advocate workshop which promotes a sense-making process. Therefore, preparedness for the project is based on the level of awareness that exists regarding the true nature of an enterprise-wide ERP project. The need for such a novel approach to an enterprise-wide ERP project is linked to the existing inadequacies in the activities defining the planning phase of existing ERP implementation methodologies, and the decisions made by organisational decision-makers within this phase. Therefore, a more *mindful* managerial decision making process to selecting and implementing ERP packages is in fact missing in practice, which highlights the inconsistency between thought and action by decision makers.

This sense-making exercise is based on the contention that projects fail or get into difficulty for remarkably similar reasons. Therefore, if the causes of likely future problems can be identified in advance, then they can be addressed, or at least sign-posted and worked around, improving an enterprise-wide ERP project's chances of success prior to initiation. An organisation considering and preparing for an enterprise-wide ERP project, or in fact wondering what went wrong with a failed project, should measure itself in terms of conducting such a sense-making exercise. In fact, this process can be viewed as an operationalisation of the concept of *mindfulness* discussed by Swanson and Ramiller (2004). The main concern of the sense-making exercise is the fact that there needs to be a clear and consistent understanding of the CSFs[4] for ERP implementation within the organisation. As

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[4] The use of CSFs is significant in that a failure to address a CSF during an ERP project implementation will lead to a less than desirable project outcome. For example, 'top management commitment and support' is widely cited as a CSF for ERP implementation but the *absence* of the CSF in a project can lead to a less than desirable project outcome. Therefore as an

a result, all managers whose business areas will be impacted by the introduction of the ERP package need to undertake a sense-making exercise and analyse the outputs of the survey[5], in order to establish the level of awareness of organisational personnel, with regard to their perceptions of the *absence* or *presence* of certain CSFs within the organisation, for the project. Therefore, if survey questions are frequently answered as 'no', this points to low levels of awareness amongst organisational personnel with regard to a CSF for the ERP project implementation. This low level of awareness, leads to a lack of preparedness and the emergence of implementation problems that further cause less than desirable project outcomes. Therefore, if awareness exists prior to project initiation, then adequate preparations can be made to address the CSFs and reduce the negative impact on the enterprise-wide ERP project outcomes.

Therefore, asking probing questions as a means of assessing an organisation's awareness would facilitate this understanding at the earliest possible stage in an enterprise-wide ERP project life-cycle. As a result, discussions around any issues identified from the outputs of the survey of all personnel will raise the awareness of decision-makers to these issues and improve organisational preparedness at the outset of the project, thereby reducing the possibility of problems occurring and having a negative impact on the projects overall strategic value to the organisation. In the context of the assessment method presented here, it is argued that these discussions take place in what is termed a devil's advocate workshop. This devil's advocate workshop introduces the use of sense-making into an organisation's approach to an enterprise-wide ERP project implementation and proposes a novel method of assessing organisational readiness. This sense-making exercise involves running hypothetical scenarios against the outputs of the survey, in order to highlight the areas that need to be examined, and determine the preparedness needed.

4.1 The Benefits of a Devil's Advocate Workshop

The devil's advocate workshop embraces the dialectical method[6] and by its design suggests that theses and antitheses will be proposed by workshop participants (using the results gathered from the survey of organisational personnel). Furthermore, workshop participants will raise their collective awareness and resolve disagreements through rational discussion around undertaking an ERP project implementation within their organisational context. Therefore, the devil's advocate workshop aims at being persuasive through dialogue, or at least results in a shared understanding (synthesis) amongst workshop participants who are the key organisational decision makers on the project.

As a result, the devil's advocate workshop should avoid *adversarial* decision processes, where for example, one workshop participant deems themselves to win, while another workshop participant is deemed to lose with regard to deciding on the preferred course of action to take in preparing for a project. The nature of the workshop design is not intended to follow this adversarial process. However, the devil's advocate workshop does not simply want to satisfy all workshop participants

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example, establishing the level of managerial awareness that exists around the criticality of this factor at the outset of an ERP project would be extremely beneficial to the implementing organisation.

[5] All organisational personnel that will be impacted by the introduction of the ERP package are surveyed. This survey will provide managers with the organisational personnel's perception of the introduction of the ERP package. The questions should examine the absence or presence of the CSFs for ERP implementation, and in order to facilitate this, 'yes' / 'no' answers are required.

[6] The dialectical approach (Mason and Mitroff, 1981) uses creative conflict to help identify and challenge assumptions to create new perceptions. Traditionally, the devil's advocate approach, while useful in exposing underlying assumptions, has a tendency to emphasise the negative, whereas dialectical inquiry has a more balanced approach.

through 'soft' *consensus* through identifying and recording agreements that already exist, while they may not have been previously recognised. In fact, the merit of the devil's advocate workshop is that in embracing the dialectical processes, the focus of workshop participants is on disagreements which are turned into agreements, or indeed there is a transformation in the dialogue in that direction. As a result, from this dialectic between opposing views a greater understanding of the CSFs for ERP implementation can emerge with a pooling of information in pursuit of better decision-making.

The design of this devil's advocate workshop embraces the arguments of Mintzberg and Westley (2001, p.89) who stated that *"a 'thinking first' model of decision making should be supplemented with two very different models – a 'seeing first' and a 'doing first' model"*. In fact, Mintzberg and Westley (2001) commented that when managers use all three models, the quality of their decisions can improve, and healthy organisations should have the capacity for all three. While the thinking first model is essentially the rational model of decision making, in practice it is uncommon in light of the *mindless* (Swanson and Ramiller, 2004) approach of managers to enterprise-wide ERP projects. However, inherent in the method of assessing organisational readiness, managers are given the opportunity to think first, by analysing the outputs of the survey questions.

The seeing first model proposes that decisions or at least actions may be driven as much by 'what is seen as by what is thought' (Mintzberg and Westley, 2001). Therefore, this proposes that understanding can be visual as well as conceptual. In the devil's advocate workshop[7] a Causal Activity Model of CSFs can be developed as a visual representation of the causal relationships between CSFs for ERP implementation. As a result, the outcomes of future decisions made around these CSFs can be visualised and with the increased understanding of these CSFs, the expected future actions may require further thought. Finally, the doing first model is described as being similar to that of sense-making (enactment, selection, retention) as proposed by Weick (1995). However, doing first requires action and the necessary thinking can happen after the action, based on trying something and then learning from it. In fact, Mintzberg and Westley (2001, p.91) commented that doing first requires *"doing various things, finding out which among them works, making sense of that and repeating the successful behaviours while discarding the rest"*. This illustrates the real value-added of the devil's advocate workshop, especially in relation to enterprise-wide ERP projects. Given how complex and resource intensive ERP projects are and given the prohibitive cost of incorrect action, or indeed safe inaction producing incorrect outcomes, implementing organisations cannot afford to get it wrong. Therefore, the positioning of the devil's advocate workshop in a pre-planning environment, prior to project initiation, promotes a more inexpensive setting for the experimentation that doing first requires.

While action is important and produces learning, in the context of the devil's advocate workshop and the proposed method of assessing organisational readiness, the action is being undertaken in an environment which may present managers with opportunities for improvisations, for example, identifying the skills required to execute the project, and therefore, increasing their capacity for learning and understanding. However, managers may be able to use the benefit of *foresight* as opposed to *hindsight*, which has been a major defining characteristic of previous organisational approaches to selecting and implementing ERP packages. The value of the devil's advocate approach can be further demonstrated for this research study by referring back to the observations made by Mason (1969) with regard to the use of the devil's advocate approach for strategic planning. Mason

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[7] Mintzberg and Westley (2001) refer to having conducted 'seeing first' workshops for managers as part of this distinction of the three models of decision making.

(1969, p.407) argued that *"those who employ the devil's advocate approach assume that truly good plans will survive the most forceful opposition and that a sound judgment on a plan occurs when the plan is subjected to censure"*. In fact, Mason (1969) provided a description of how the devil's advocate approach worked in relation to planning, which is illustrated in Table 1. Table 1 has been extended to further illustrate the practicalities of using a devil's advocate workshop for the pre-planning stage of an enterprise-wide ERP project.

Table 1 The Devil's Advocate Approach

Devil's Advocate Apporach to Strategic Planning (Mason, 1969)	Devil's Advocate Workshop for Enterprise-Wide ERP Projects
• Normally used internally rather than with consultants	• Internal self-assessment of organisational readiness in a vendor-independent, methodology-independent and pre-implementation thought process
• Planner appears before the organisation's management and advocates a plan (in a manner similar to that of the expert[8] approach)	• All organisational personnel (impacted by the implementation of the ERP package) complete the survey with regard to their understanding of the CSFs for ERP implementation
• Management assumes the role of an adverse and often a critic of the plan. • Management attempts to determine all that is wrong with the plan and highlight the reasons why the plan should not be adopted	• The results are analysed and discussed by workshop participants (managers) as they become both advocates and critics of the findings • The causal nature of CSFs for ERP implementation is also analysed to assess the severity of the *absence* or *presence* of themes of understanding, which relate to the organisational personnels' perception of the CSFs in their organisational environment.

To conclude, as argued throughout this section the value-added the devil's advocate workshop is indeed compelling and promotes the establishment of a *mindful* (Swanson and Ramiller, 2004) approach to enterprise-wide ERP projects. However, this devil's advocate *ideal type of organisational design* (Mason, 1969) has not featured in organisations' approaches to adopting and implementing ERP projects.

5   SUMMARY

The basic premise of the sense-making theory is that people act on the basis of the meaning that they attribute to situations where *"action is not a mere release in response to some predefined presented stimuli, but emerges from social interaction and is developed and modified through an interpretive process"* (Lyytinen, 1987, p.31). Therefore, in accordance with Boland (1984) a sense-making exercise may be antithetical in this respect, due to the fact that sense-making denies that management action is based on preconceived goals or objectives and instead assumes management action is *"a continuous, equivocal (subject to two or more interpretations and usually used to mislead or confuse) stream of experience that can only be understood (or made sense of) when it is viewed in retrospect"* (Boland[9], 1984 p.868).   Therefore, the idea of sense-making is that reality is an ongoing

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[8] The *ideal type* referred to as the *expert approach*, exists where a planning department is established and serves as managements 'alter ego' (Mason, 1969).

[9] In fact, Boland (1984) views planning as a process of inquiry, where inquiry can be enhanced if different views of the world are used to inform each other. This is very much a constructivist perspective which views all knowledge as constructed due to the fact that it does not reflect any external transcendent realities; it is contingent on convention, human perception, and social experience. For example, one form of constructivism (social) contends that categories of knowledge and reality are

accomplishment that emerges from efforts to create order and make retrospective sense of what occurs.

In an organisational environment faced with organisational change, a key characteristic of an enterprise-wide ERP project, it is worth considering the relevance of decision-making theory in improving understanding. Mintzberg *et al.* (1990) commented that, in understanding organisational change, the relevance of decision making theory takes on the appearance of the 'continued playing of the orchestra on the Titanic, as it sank'. As a result, introducing the concept of sense-making, although it is a precursor to decision-making, it is not decision-making in itself, but a total process that is partly a wholly conscious activity (Craig-Lees, 2001). For example, Weick (1995) explained that sense-making was about such things as placement of items into frameworks, comprehending, constructing meaning, and interacting in pursuit of mutual understanding and patterning. In fact Weick (1995) commented that sense-making is not synonymous with interpretation or decision-making, as it encompasses more than how cues (information) are interpreted, and as a result is concerned with how the cues are internalised in the first instance and how individuals decide to focus on specific cues.

In summary, if issues can be understood in retrospect then a devil's advocate workshop, prior to undertaking an enterprise-wide ERP project, would provide managers with an understanding and appreciation of the complex nature of the enterprise-wide ERP project initiative. As a result, managers would be able to identify their state of organisational readiness for their enterprise-wide ERP project, emerging from their improved awareness of the causality between CSFs for ERP implementation and the impact of CSFs on desired project outcomes; therefore, improving their collective awareness and strengthening their preparedness for the project, as illustrated in Figure 1. Therefore, using the devil's advocate workshop, this can be achieved in a vendor/consultant-independent and methodology-independent thought process. As a result, organisational managers may no longer need to use *hindsight* to retrospectively make sense of their actions, and the resulting, less than successful, project outcomes from their ERP implementation process.

According to Brown (2000, p.47) *"there is a reasonable consensus that sense-making is accomplished through narratives"*, which makes the unexpected expectable (Robinson, 1981), allows us to comprehend causal relationships such that they can be predicted, understood, and possibly controlled (Sutton and Kahn, 1987) and which assist organisational participants to map their reality (Wilkins and Thompson, 1991). Therefore, a *mindful* manager (decision-maker) will have the opportunity to make sense of their state of organisational readiness, through using the devil's advocate workshop; therefore, analysing the answers provided by organisational personnel to the survey questions, and making sense of the causality between the CSFs for ERP implementation, will result in an increased focus on preparedness, which will increase an organisation's ability to manage the actual enterprise-wide ERP project initiative. Therefore, sense-making is a thought process that uses retrospection to explain outcomes. In fact, these explanatory products of sense-making have been referred to as accounts and attributions in various strands of research, where statements are made to explain untoward behaviour and bridge the gap between actions and expectations, providing reasons for outcomes and discrepancies (Louis, 1980). As a result, a sense-making exercise as presented in Figure 1 may reduce an organisations tendency to accept the discourse of experts (ERP vendors and consultants), which has legitimised the actions and interests (*sales discourse*) of these dominant actors.

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actively created by social relationships and interactions, and these interactions also alter the way in which scientific episteme is organised. Social activity presupposes human beings inhabiting shared forms of life, and in the case of social construction, utilising semiotic resources (meaning making and meaning signifying) with reference to social structures and institutions.

Therefore, it is argued here that sense-making can promote and strengthen the *needs discourse* of an implementing organisation.

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