



**An analysis of the processes that ensure success in ERP
implementations - A Case Study in a Public Sector Organisation**

A Case Study presented to the
School of Information Management
Victoria University of Wellington
in partial fulfilment of the requirements for the MMIM 590 course.

By

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19 October 2012

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Abstract

Companies adopt and implement Enterprise Resource Planning (ERP) systems to streamline their business processes, enhance functionality and reporting and ultimately to increase efficiency. ERP implementations are highly complex projects.

This paper analyses those factors that need to be considered and understood for a successful implementation. ERP implementation chances of success can be increased by ensuring the ERP project receives a high level of executive and project sponsor support. Top and middle management commitment and leadership and good, clear communication should also be paid particular attention to by any organisation gearing up to undertake such an initiative.

Introduction

This case study explores an ERP system implementation in a public sector organisation.

Given the complexity and criticality of ERP systems implementations, the purpose of this case study is to identify the processes that need to be clearly understood in order to ensure a successful implementation.

These processes are known in the literature as Critical Success Factors (CSFs), but not all are applicable in a public sector setting and each of them can be expected to have a different significance within the process.

The Blue Lagoon, a public sector organisation, was selected for carrying out a case study on the implementation of an ERP system in 2010 – 2011. In early 2010, the organisation recognised that the systems and processes in use no longer met the needs of the business. The key shortfalls and issues that had been identified were:

- Manual, duplicated entry of data into multiple systems.
- Multiple stand-alone systems with very few direct (or designed) interfaces.
- Fragmented information that is difficult to correlate and report on.

- High cost to support the disparate systems.
- An external audit remedial point was for the organisation to take corrective action to improve the data transparency levels and increase the quality of reported data.

A public sector organisation has been chosen because of its broad range of products and services that need to be covered by any ERP system implementation. The funding and control models, the acquisition and remuneration models are different and more complex than in a private business setting.

This investigation explores the role of selected CSFs and their influence on ERP implementation success. As the literature review will demonstrate, extensive research has been done in order to better understand the factors that enable ERP success. This paper will tap into existing research and channel it towards identifying the most important critical success factors in ERP.

Empirical substantiation will be obtained through semi-structured interviews with a range of selected participants in the implementation process.

Literature review

The way information is managed within an organisation could represent the difference between the organisation's success or failure to deliver high quality outputs for its' stakeholders.

Over the past 20 years organisations have changed the way they view and manage information. Rather than keeping disparate, stand-alone information systems, businesses started to employ a more holistic model. Under this model data is managed centrally by an integrated, enterprise wide information system, called an Enterprise Resource Planning system. (Jarrar, Al-Mudimigh & Zairi, 2000; Nah & Delgado, 2006).

ERP systems are in high demand in recent years. “Dynamic business conditions have spurred rising market demands for enterprise resource planning (ERP) systems as organizations seek to integrate their complete range of business activities in a single Information technology (IT) infrastructure” (Lim, Pan & Tan, 2005).

An ERP system is an off-the-shelf Information Technology (IT) package that provides enterprise (organisation) wide integration between business functions and processes. (Ifinedo, 2008; Klaus, Rosemann & Gable, 2000).

Organisations which implement such systems tend to pursue objectives like inter and intra – business operability improvements, or gaining competitive advantage over their competitors, by being more agile and responsive to dynamic business environments. (Davenport, 1998; Ifinedo, 2008).

In recent years ERP systems developed into the technological solution to ever-changing needs of modern, fast-paced business environments (Francoise, Bourgault & Pellerin, 2009). In order for the modern organisation to be scalable and effective, it needs to be adaptable. ERP systems integrate all information needs of a company within a single software system (Koch, Slater & Baaytz, 1999), resulting in better visibility across the company's operations. Key business processes become automated and integrated, increasing data availability and quality and facilitating quick and reliable access to it (Shah, Khan, Bokhari & Raza, 2011).

ERP implementations are very complex undertakings because of the nature and depth of change they produce. If planned and implemented properly, they help standardise business process across the enterprise (Nah & Delgado, 2006). Numerous implementations were unsuccessful because the implementing organisations failed to put in place the procedures required to manage the change (Jarrar, Al-Mudimigh & Zairi, 2000).

ERP products are typically written by programmers outside the client companies, and as such the logic behind the system is based on best practice and not on the particular processes at the client company (Francoise, Bourgault & Pellerin, 2009). Businesses need to pay particular attention to the process of adapting (configuring) the off-the-shelf product to meet their needs.

ERP implementations costs average 178% over budget and 250% over time. The underlying reason for this is complexity, with a plethora of areas, links and connections that need to come into play of a successful ERP implementation (Wang, Chou & Jiang, 2005).

Critical success factors are “those few things that must go well to ensure success for a manager or an organization, and, therefore, they represent those managerial or enterprise area, that must be given special and continual attention to bring about high performance” (Boynton & Zmud, 1984). Critical success factors are those elements that must be present in order for an initiative, assignment or project to be successful, or to achieve its’ mission (Boynton & Zmud, 1984).

Critical Success Factors (CSFs) have been extensively researched over the years. Given the vast variety of ERP systems on the market, as well as the diversity of reasons for client organisations to employ those systems, the research looks at CSFs from a number of different angles.

Finney and Corbett (2007) selected 45 articles and identified all CSFs that were mentioned in relation to ERP implementations. They then ranked those based on the number of mentions each factor got in the articles they researched. Their research shows that the top two CSFs for ERP implementation are *top management support* and *change management*.

ERP implementations are being undertaken as projects. Aside from the challenges that the ERP implementation itself presents to the client organisation (changing and aligning

business processes, organisational transformation), the usual challenges that projects bring about need to be taken into consideration.

Projects are ad-hoc organisations, which are "created for the purpose of delivering one or more business products according to an agreed Business Case". (What is project management?, 2012).

Project teams can sometimes lack the cohesiveness needed to ensure optimal performance by the group. Individuals, as well as teams as a whole, need time to adjust to the environment (the project environment, in this case) and operate at maximum potential. The four stages of group development were discussed and analysed in the literature. These four stages are: form, storm, norm and perform (Tuckman, 1965). There is no performing, unless the three prior stages were complete, according to Tuckman. Fast progression through those stages and getting optimal results takes interest and skill.

An empirical study established the significance of the varied critical success factors that are related to project success in an enterprise environment. The results of this study show that the two most important factors are the *project manager* and *team commitment*. (Mishra, Dangayach & Mittal, 2011).

The project manager can influence the outcome of the project in the form of information availability (suitable communication). Team commitment is the second most important success factor, according to Mishra et al. (2011). Here, team refers to everyone involved starting with the projects' stakeholders, top management, project manager and the project crew. *Top management support* is identified as essential to project success (Mishra, Dangayach & Mittal, 2011), as the project manager has limited or no influence over the organisation as a whole.

This view is in line with the findings of Ifinedo (2008), Jarrar, Al-Mudimigh & Zairi (2000) and Nah, Lau & Kuang (2001) which suggest that *top management support* is a key factor in projects like ERP implementations. They state that IT projects benefit from public top management support, as other members of the organisation tend to interpret such moves positively and act accordingly. Top management, also, typically allocate resources (people,

time and money) for such projects to be carried out properly. Top management support can, therefore, be considered an enabler of project success.

Another key factor talked about in the literature is *end user involvement*. The more involved the right users are in an ERP implementation, the more the results are going to meet their expectations. (Francoise, Bourgault & Pellerin, 2009). Top and middle managers need to put forward the right people (both quantitatively and qualitatively).

The project plan should incorporate a training plan which has to be defined based on the end users' know-how and with their needs in mind. End user knowledge is needed early in the system development process, to ensure they compensate for the lack of business knowledge of the development team. (Francoise, Bourgault & Pellerin, 2009).

In 2001, Sommers and Nelson wrote a paper which lists and ranks CSFs for ERP implementation. They looked at the impact that CSFs have on ERP projects across the implementation stages.

ERP implementations consist, in their view, of six stages. These are: "initiation, adoption, adaptation, acceptance, routinization and infusion." (Cooper & Zmud, 1990; Sommers & Nelson, 2001).

Following a process of identifying and synthesising critical requirements that have been recommended by both academics and practitioners, Sommers and Nelson propose a broad list of 22 CSFs related to ERP implementations. These were then ordered by score. The top two factors across all six stages, as identified by Sommers and Nelson (2001) are *top management support* and *project team competence*.

Research methodology

During the analysis phase of this paper, a ranking system was established to measure the importance of critical success factors in ERP implementations. This was done based on the number of mentions that each of the CSFs received in the reviewed literature. One reference made to a CSF in a paper attracted one value point which was recorded in Table 1 below.

The CSF that got the highest score, namely *top management support*, is the one CSF that got selected for further, more in depth, analysis.

Top management support is the only CSF that authors referred to in each of the articles that were reviewed as part of this case study. What different authors refer to when speaking about top management support can differ, though. Those meanings have been looked at and further analysis was done to unravel and rank the roles that top management should perform in ERP implementations.

The results of the further examination of the top management support success factor are shown in Table 2.

From that, the 2 most important elements which come under the top management support umbrella were selected. This was done by grouping together similar functions that the literature suggests top management should perform and ranking them, based on the number of mentions received in existing research. The top two sub-categories were selected as the basis of the ERP implementation case study analysis.

The literature review showed that the most important functions of top management in an ERP implementation setting are:

- Commitment, strong leadership and encouraging middle management involvement and support, and
- Ensuring dedicated and valuable resources are allocated to the ERP project team.

Critical success factors in the literature

Table 1.

	Top Management Support	User involvement / participation	User training & education	Clear goals & objectives	Project team organisation & competence	Project management	Change management	Communication / cooperation	BPR	Careful package selection	Consulting services & partnership	Minimal customisation	System / IT related
Plant & Willcocks (2007)	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nah & Delgado (2006)	✓	-	-	✓	✓	✓	✓	✓	-	✓	-	-	✓
Jarrar et al. (2000)	✓	✓	✓	-	✓	-	✓	-	✓	✓	✓	-	✓
Finney & Corbett (2007)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Somers & Nelson (2001)	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Francoise et al. (2009)	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	✓	✓
Shah et al. (2011)	✓	✓	-	✓	-	-	✓	✓	-	-	✓	-	-
Mishra et al. (2011)	✓	-	-	✓	✓	✓	-	-	-	-	✓	-	✓
Shirouyehzad et al. (2011)	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	-	-	✓
Magnusson et al. (2004)	✓	-	✓	✓	✓	✓	✓	✓	✓	-	✓	-	✓
Al-Mashari et al. (2002)	✓	-	✓	-	-	✓	-	✓	✓	✓	-	-	✓
Akkermans & van Helden (2002)	✓	-	-	✓	✓	✓	-	✓	-	✓	✓	-	-

	Top Management Support	User involvement / participation	User training & education	Clear goals & objectives	Project team organisation & competence	Project management	Change management	Communication / cooperation	BPR	Careful package selection	Consulting services & partnership	Minimal customisation	System / IT related
Esteves-Sousa & Pastor-Collado (2000)	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	-
Zabjek et al. (2009)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Zhang et al. (2003)	✓	✓	✓	-	-	✓	-	✓	✓	-	✓	-	✓
Total	15	8	11	10	12	13	11	13	11	10	11	6	12

Top management support examination

Table 2.

	Dedicated and valuable resources allocated to the ERP project team	Top Management provide approval and support for the project	Top Management publicly and explicitly identify the ERP project as top priority	Existence of project champion	High level executive as champion	Project sponsor commitment, strong leadership, middle management involvement	Business and IT alignment, strategic planning	Setting the vision and business direction, enabling the business to perform, harnessing energy and creativity of employees	Strong commitment to the introduction of the ERP system
Plant & Willcocks (2007)	✓								
Nah & Delgado (2006)	✓	✓	✓	✓	✓	✓	-	-	-
Jarrar et al. (2000)							✓		
Finney & Corbett (2007)						✓	✓		
Somers & Nelson (2001)								✓	✓
Shirouyehzad et al. (2011)	✓		✓			✓			
Magnusson et al. (2004)						✓			
Al-Mashari et al. (2002)					✓	✓		✓	✓
Akkermans & van Helden (2002)						✓			
Esteves-Sousa & Pastor-Collado (2000)	✓						✓		
Total	4	1	2	1	2	6	3	2	2

Top management support

One of the main roles of top management in ERP implementations is to drive down the organisational chart the vision and desire to change.

In an ERP implementation top management and steering committees need to be committed to the introduction of the ERP. Ideally, the members of those groups should have different backgrounds and view points. (Magnusson, Nilsson & Carlsson, 2004). Committed leadership at the top management level is required in order to succeed. (Finney & Corbett, 2007). Their view finds support from other authors like Aladwani, (2001) and Skok & Legge, (2002).

Finney & Corbett (2007) describe the attributes of top management support as needing to provide the strategic direction and be able to anticipate potential issues, as the ones with the high level view of the organisation. The higher ranked on the organisational chart the main supporter of the ERP is, the more of a holistic view this person has on the end to end process. This can offer access to other dimensions of top management support. Namely, the strategic vision can help the project set achievable (realistic) goals. It also provides a clear business direction (Akkermans & van Helden, 2002; Finney & Corbett, 2007). This requires active involvement and participation. (Motwani, Mirchandani, Madan & Gunasekaran, 2002).

Leadership is another attribute that top managers need to show to help enable the ERP implementation process (Al-Mashari, Al-Mudimigh & Zairi, 2003; Finney & Corbett, 2007; Shirouyehzad, Dabestani & Badakhshian, 2011). Middle management will play a different role than top management and it is important to have the “do-ers” support, as well. (Akkermans & van Helden, 2002).

Top management also have the role of tying staff and ideas together as well as mobilising teams' creative energies. (Al-Mashari, Al-Mudimigh & Zairi, 2003). Not only the right amount of time needs to be allocated for such implementation, but the appropriate people as well (Nah, Zuckweller & Lau, (2003); Shirouyehzad, Dabestani & Badakhshian, (2011)). Even with top management involvement and support, it is sometimes difficult to obtain dedicated and focused people resources for the project (Plant & Willcocks, 2007). Sustained support is required from both top management and middle management, in terms of their

willingness to assign valuable personnel to the project. (Esteves-Sousa & Pastor-Collado, 2000).

Analysis and discussion

The literature review has provided the foundation for the analysis of the critical success factors in ERP implementation. Empirical substantiation was sought and six interviews were conducted over a 10 days period, to delve into the detail of the selected implementation at The Blue Lagoon.

The interviewees were all staff members of The Blue Lagoon. No external people have been interviewed. The interviewees fit the following profiles on the organisation chart: one member of the top management team, two middle managers, two lower tier managers and one clerk.

The interview data was tabulated and analysed against best practice, as identified from the literature review. The questions were chosen with a view of exploring the following attributes of the implementation:

- Has the client organisation done the upfront analysis required for a successful implementation?
- Were the objectives clear to the project team and everyone involved?
- Was the project explicitly made a priority by top management?
- Have the right people (both qualitatively and quantitatively) been allocated to the project?
- Was the project supported by middle management?
- How visible was top management support, in the different stages of the project, to the project team and other people involved?

Question 1

The first question referred to the business needs, as identified prior to the start of the ERP project at The Blue Lagoon. The interviewees were asked to name those business needs that led to the organisation choosing to go down the ERP implementation path.

The respondents had similar views regarding the needs which led to the ERP implementation. There was a common view (4 out of the 6 interviewees mentioned it) that the main reason for choosing to implement an ERP solution was the lack of visibility around where the money was being spent. Operational and financial data was collected in multiple systems. This meant that there was no one reporting tool available to bring all the information together, in a cohesive manner. The information was "silo-ed and inefficient". The Finance department were unable to produce reports on costs over the life of a project. There was "no transparency". No proper project practices were used in the Finance business unit and other operational areas. Data was fragmented and it came from different sources and there was "huge reliance on manual processes and suspected inaccurate data".

These findings are in line with the views of a number of researchers, whose statements relate to ERP providing a central data repository as well as data and enterprise wide functions integration. (Ifinedo, 2008; Jarrar, Al-Mudimigh & Zairi, 2000; Klaus, Rosemann & Gable, 2000; Nah & Delgado, 2006;).

Having "one version of the truth" was another outcome that the management team at The Blue Lagoon were after. Having data being handled multiple times and entered into multiple systems was inefficient. It also meant that the information stored was, in some cases, unreliable (human error) and/or not easily available for analysis. The view was that the ERP solution will streamline and tighten the processes and "eliminate opportunity for error". The solutions that were in place prior to the ERP system being implemented were seen as "non functional and unproductive due to the isolation of the systems". One other objective on management's agenda at The Blue Lagoon was "that the organisation gets to the point of clear understanding about cost drivers" and that the ERP delivers high quality executive reporting.

According to existing research, ERP systems integrate all information needs of a company within a single software system (Koch, Slater & Baaytz, 1999). A properly implemented ERP solution brings better visibility across the company's operations. Key business processes become automated and integrated, increasing data availability and quality and facilitating quick and reliable access to it (Shah, Khan, Bokhari & Raza, 2011).

Given the issues outlined by the interviewees, it appears that management at The Blue Lagoon made a good decision in choosing to source and implement an ERP solution. The initial objectives are all elements that can be achieved by a successful ERP implementation, as discovered from the literature review.

Question 2

The respondents were asked to describe the degree to which those above mentioned business needs were met by the project.

Three of the respondents thought that the business needs were partly met. In contrast, one interviewee stated that they were not met by "any stretch of the imagination", while one other said that "the end of the implementation stage has not been reached yet", therefore they could not comment on the business needs being met or not. The sixth respondent also thought that the process has not ended with the end of the implementation, but commented that business needs were largely met at the end of phase one. They added that "there is an initial installation from which the configuration takes place". Then the fine tuning phase follows, which is a period of "relatively fast evolution". Once that phase was completed, then the system "changes with the business from then on".

The good – there is a "one version of the truth" in place now, with data being stored and manipulated all in one place. Some reporting was in place and "information could be extracted". For the "average user" detailed reporting data was available.

The bad - what the implementation failed to deliver was quality executive reporting and full integration with other systems. "We can get partial reports or can't get them at all". A few reasons that led to this shortfall were identified. These are:

- a) poor specifications (not detailed enough) for the design phase.
- b) the local vendor not having sufficient knowledge of their own product and not being interested in a true partnership, but only interested in making the sale, and
- c) underlying issues with the system design (at the vendor end) – flaws in design and the system didn't encourage "proper project practices".

The issues described by the respondents have been extensively discussed in previous research. It all starts with having clear, detailed objectives. Goals need to be detailed, so they are "specific and operational" (Sommers & Nelson, 2001). The objectives at The Blue Lagoon, as unravelled during the interviews, were not specific. In fact they were described by one respondent as being "so poorly defined that anything would have gotten the job done". The deliverables need to be very specific and agreed by all involved/affected parties. During the early stages of any ERP implementation project there should be a prototyping of the end result (Sommers & Nelson, 2001).

The client organisation need to pay particular attention to selecting the right ERP product (Al-Mashari, Al-Mudimigh & Zairi, 2003; Yusuf, Gunasekaran & Abthorpe, 2004). The choice of the product to be used has to be made, typically, very early in the piece. The package choice will "shape the entire project" (Sommers & Nelson, 2001). If the wrong package is selected the client organisation faces the prospect of having to do a high level of customisation, so that the ERP system fits the business processes and company's strategy (Akkermans & Van Helden, 2002). Heavy ERP customisations are costly, time consuming and risky to the client organisation (Janson & Subramanian, 1996; Nah, Lau & Kuang, 2001; Sommers & Nelson, 2001).

The vendor needs to be carefully scrutinised prior to engaging in such an important relationship. The vendor organisation need to be experts in their product (or product set) and they need to be part of the project team. Their role is to transfer knowledge during the design and implementation phases, so the reliance on the vendor decreases progressively as the project advances (Al-Mashari, Al-Mudimigh & Zairi, 2003; Skok & Legge, 2002).

The vendor should play a strategic role in this partnership and enhance "an organisation's competitiveness and efficiency" (Sommers & Nelson, 2001). It appears that this was not the case with the vendor for the implementation in question. No vendor can turn into an asset for a buyer while they do not, firstly, master their own product.

Question 3

The matter that the respondents were invited to discuss with the third question was how the project team members were selected. Many authors discuss the importance of a well built, balanced project team.

Simply described by Finney and Corbett as "the best and the brightest", the core implementation team is to be comprised of high calibre employees (Finney & Corbett, 2007). The project team members should represent different views of the business and the business system (Magnusson, Nilsson & Carlsson, 2004). The project team members need to be selected in such a way that there is representation from the "business, information technology, vendor and consulting support" (Esteves-Sousa & Pastor-Collado, 2000; Francoise, Bourgault & Pellerin, 2009).

At The Blue Lagoon there was a mix of reasons for the selected people to become part of the project team. Four of the interviewees thought that project team members were selected because they were specialists in their business area, or subject matter experts. They were selected primarily for their business acumen. Two of the four above cited respondents also mentioned that apart from being experts in their areas, some of them were "pushed there by political affiliations". The project team mix was described by one interviewee as being a "good cross section from their business units". The team members were selected and appointed to the project by the Steering Committee.

The remaining two respondents commented that project team members were selected based on availability rather than skill. A selection process not based on capability introduces a high risk into the project environment due to the high degree of transformation that the organisation is about to experience. The project team performance and composition are extremely significant, as the project team are performing critical activities throughout the life of the project (Nah, Lau & Kuang, 2001). The success or failure of the project is determined, in the view of one of the respondents, by how they "engage with the software". The interviewee then added that "we had the wrong people on the project team, at least in some cases".

One of the interviewees added that there was not enough user representation at the project level "to be able to get ownership of what was designed and implemented".

The more involved and consulted users are (directly or through users representatives), the more of a chance that they will approve of and use the newly implemented system. "People support what they help to create" (Levasseur, 2007). Users need to be involved during the development stage of the project, to compensate for the lack of business knowledge of the vendor organisation (Francoise, Bourgault & Pellerin, 2009).

The Blue Lagoon's executives appreciated the importance of this project for the organisation and decided to employ a professional project manager. This was a good strategic move from the company's leaders, as project management is one of the most cited success factors in the ERP literature. The function of project management is responsible with scope definition and control, as well as planning all aspects of the ERP implementation (Esteves-Sousa & Pastor-Collado, 2000). If the project scope is too broad or unrealistic, this is likely to cause major issues further down the track (Sommers & Nelson, 2001).

The good – the project manager took a people oriented approach to the project, spoke to the different business groups and external consultants and "got them involved early". There was "good communication and cooperation" among project team members. One respondent indicated that, at a senior level, there was a "desire to make it work". Starting those conversations early and getting the right people 'on board' with the imminent change is precisely what previous research indicates as the right thing to do. Technical issues represent the cause of failure for 35% out of 42 examined projects, while the remaining 65% are related to "management causal factors" – people issues (McManus & Wood-Harper, 2007).

While considered on its' own it will not lead to a successful implementation, "two way communication is essential" (Levasseur, 2010). People are less likely to resist change if they were integral part of the change process from the outset.

The bad – the main issue with project team staffing revolves around the fact that people were put forward to the project team based on availability and/or political decisions, rather than skill or fit to purpose. There was "sole reliance on consultants, with no support from

certain areas of the business". This causes multiple issues during all phases of the project, starting with the design and ending with the post implementation period. The lack of user involvement during the design phase means that there is no, or very limited, organisational knowledge being transferred to the vendor. The vendor lacks this expertise which is highly important for a good end result (Francoise, Bourgault & Pellerin, 2009).

One respondent notes that, at a project level, there was no clear direction set by the project manager. The tasks were not "clearly outlined" to the project team. Nah, Lau & Kuang (2001) argue that the project management function is responsible, among other things, for allocating of tasks to all players involved. The interviewee then added that "there was no clearly defined project team". This indicates that the approach was somehow informal and no clear boundaries were set.

Question 4

For the fourth question the respondents were asked to describe the sponsorship model employed for the ERP implementation project.

The project sponsor was one of the managers in the Finance department. There was a common view among the respondents (four out of six) that the project did not receive the appropriate sponsor. The project sponsor was "not high enough" in the organisation to "make a real impact". An additional comment was made: "the sponsor got totally distracted by side, operational issues" and there was "no time and energy for the project". This last observation comes to support the view of the other interviewees who argued that the project sponsor was not the right person for the job. There has to be a clear separation between the strategic and operational levels, so that the right attention is given to both. The sponsor plays too vital of a role for the project success, for them to get sidetracked by day to day issues. On the business front, the sponsor needs to articulate the vision and show the path to follow. At a project level, one of the sponsor's roles is to harness "the energy and creativity of employees" (Al-Mashari, Al-Mudimigh & Zairi, 2002).

According to Finney & Corbett, (2007), in the context of an ERP implementation there is a need for top management – who the project sponsor should be a part of - to show commitment and leadership. Three out of the six respondents said that there was "neither

leadership nor commitment at the right level", while two more implied the same without explicitly saying it. One of the people interviewed thought the level of sponsorship received "was more of a lip service", meaning that there was some talk but no action. In contrast, one of the respondents thought that the project received the "right level of commitment and support from top management".

In terms of the project profile around the organisation, it appears that this was quite low. One interviewee who sits on different committees at The Blue Lagoon mentioned that "there was a one off sales pitch at a leadership forum" and then nothing else happened. Executive management has to "publicly and explicitly identify the project as a top priority" (Nah, Lau & Kuang, 2001).

Comparing the interview results with what the literature describes as best practice, it became clear that at The Blue Lagoon the sponsorship model was not the right one. The result of having a sponsor who is not a powerful influencer is that the project's chances of success are being dented from the start. Furthermore, lack of commitment and drive from the client organisation's executives means that the vision, if it exists in the first place, is not filtered down to staff. Human beings, through their nature, are resistant to change. Among Torben's 12 reasons why people resist change, there are: benefits and rewards, change in the status quo and fear of the unknown (12 reasons why people resist change, 2011). In an ERP setting all these should be addressed by the sponsor and/or top management. The fact that the organisation embarked on the journey of implementing an ERP system means that there are reasons for it. Those reasons should be articulated and clearly communicated to everyone concerned. The sponsor needs to paint the picture of the future and create a sense of safety for the staff.

Question 5

For question 5 the respondents were asked to comment on the level of support received from middle management throughout the project. Middle managers, as the people who from an organisational perspective oversee the staff who are allocated to the project, have their important role to play in the implementation. Their support is needed with freeing project resources up from the operational, day to day work, and getting them focused on

the project. Their buy-in is essential for the success of any ERP implementation. The fact that, as explained above, the project manager has engaged the different stakeholder groups (including some of the middle management group) early in the life of the project is a plus. People tend to support initiatives that they have been consulted on.

The answers to this question were varied: two of the respondents described the support received from middle management as high or very high. Two others thought that only a few middle managers, especially those ones impacted by the imminent change were supportive and "strongly committed". The last two interviewees saw very little, or no commitment at all from the middle managers.

One interviewee thought that the ERP implementation project was seen by everyone "as something that was going to benefit somebody else" and not as something that was bound to introduce a "fundamental change to the way the whole organisation operates". There was a feel that the implementation "was actively or passively silo-ed by management".

This view suggests that a lack of communication was experienced. Clear and targeted communication is required for an implementation of this sort to be successful.

"Expectations and goals must be communicated effectively among stakeholders and throughout all levels of the organization" (Nah & Delgado, 2006).

Question 6

For the last question the interviewees were asked to describe the level of executive support received pre, during and post implementation.

The responses were, once again, varied. One of the respondents thought that the level of top management support was high throughout the project, until the end of the implementation phase. The support level for the vendor organisation decreased once executives realised that the "reporting was not delivering what it was supposed to".

Three of the respondents thought that the level of executive support was minimal irrespective of the stage the project was at. Top management "did not see themselves as influencers", the project did not feature on their meetings agendas, there was no communication coming from top management about the project. The executives at The

Blue Lagoon "by allocating some resources to the project thought they have done their bit" and left the project to run by itself. They were verbally supportive of the project, but lacked on the action front.

The fifth and sixth interviewees had similar views to one another. They both commented that the post implementation level of support was much higher than the support received pre or during the implementation. This was due to the "poor performance of the system". Top management are now, in the post implementation phase, "very committed and actually driving it".

This is the fundamental role of top management, to drive the change process within the organisation. Management must show the employees the new direction the organisation is taking through the implementation of the new system (Francoise, Bourgault & Pellerin, 2009). Top management need to actively support an ERP implementation project, otherwise it has not got much chance of success (Akkermans & Van Helden, 2002).

For the implementation at The Blue Lagoon this appears to have not been the case. Top management did not explicitly support the project and they did not drive the organisational change. They allocated the resources but did not assume an active role in championing the project across the organisation.

Conclusion

Research on the topic of critical success factors in an ERP implementation can be a step taken towards increasing the chances of success for such a project.

The complexity of ERP systems implementations often results in those undertakings being unsuccessful, or only partially successful. It is important for practitioners to understand which factors can contribute to increasing the success rate of these projects.

Existing research stresses the importance of project sponsor commitment, strong leadership and middle management involvement as well as the project receiving dedicated and valuable resources.

This case study analysis shows that those identified critical success factors are extremely important for the success of such an implementation. The degree to which they eventuate can determine the level of quality of the deliverables.

ERP systems are about integrating multiple and diverse business functions into one single system. A clear direction and good, solid communication practices are at the core of a successful process. Like any project that involves a considerable amount of change, top and middle management support are required, so that everyone in the organisation understands that there is now a new path to follow.

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Appendix 1 – Interview Data

Question 1.

What were the business needs identified prior to choosing to implement an ERP system?

Interviewee 1.	Interviewee 2.	Interviewee 3.	Interviewee 4.	Interviewee 5.	Interviewee 6.
Disjointed Asset Management system. There was a real problem with financial control. Very difficult to make informed decisions around resourcing and funding. Not being able to get a hold of financial reports, huge reliance on manual processes and suspected inaccurate data. New system for capital projects, operational projects and also for new projects. Data held in a variety of locations, no one version of the truth. Not able to easily put it together. Error prone.	The need to have visibility over information and for it to be timely available and accurate. To streamline processes: duplication, information being handled multiple times, tighten the process, eliminate opportunity for error. Targeted at the Works business unit. Board setup to deal with the Works department's needs and business model. Having visibility into where the money was being spent. Impossible to know for a project what was spent through its' life. Bringing all information together and having it timely available.	We didn't have a functional job cost system (task management for Works). There were some ad-hoc solutions, but not functional and unproductive due to the isolation of the systems. Everything was fragmented. CE keen that the entire organisation get to the point of clear understanding about cost drivers. No reporting, ledger based system, no data mining capabilities. Impact on timely and informed decision making. No connection between the task and its' cost. Costing was by group of tasks and activities. Productivity and efficiency analysis – difficult to do at best.	There was a failure in the Project Management in the accounting area. Poor (non existent) project practices in Finance and Works. Spending money without knowing where it was going. No opening, closing, capitalisation of projects. We couldn't report on anything. No data in – no data out.	To ensure that there was the integration between the financial system and other systems. Same applies for regulatory processes. Misalignment between sources, no integration. Silo-ed and inefficient information. Multiple data handling and inaccurate reporting. There was a view to also put the ownership and accountability with the right people. Better usability of information and transparency.	To get away from bespoke, paper based systems. A more transparent mechanism was needed in all operational areas. There were lots of duplicated processes. None of these processes talked to one another and required user intervention, or manually feeding spreadsheets with data into other systems. There was no way of drilling down on any piece of information. All information was unsubstantiated or incomplete.

Question 2.

Please describe the degree to which those business needs for which the ERP was purchased and implemented were met.

Interviewee 1.	Interviewee 2.	Interviewee 3.	Interviewee 4.	Interviewee 5.	Interviewee 6.
One version of the truth now, data in one place. Reporting was in place, information could be extracted. The quality and integration with other systems was limited. Lack of NZ consultants understanding their own product meant reduced quality of deliverables. We didn't know what we didn't know and vendor lacked understanding of their own product. The New Zealand model is sales, not product oriented. Basic reporting – Yes. Integrated reporting – No. Business needs met to a certain extent (limited).	It has been successful in reducing multiple manipulation of data. The project has delivered reporting at a detailed level, for the average user. It has failed miserably to deliver executive reporting. That (executive reporting) was the one thing that was going to support the high rate of return, because it was going to be used for making timely and informed decisions. The reason why this happened: there was a fundamental change in the requirements done mid way through the project. This resulted in changes in the product design. These were key in supporting the executive reporting. Executive decision to change -> change in design -> flow on effect: inability to deliver robust executive reporting.	I don't believe we have reached the end of the implementation stage. There is an initial installation from which the initial configuration takes place. Then there is a fine tuning phase where you make it work for you. This is about a 3 years period of relatively fast evolution, then everything starts to settle down. It only changes with the business from then on. We are about half way through that. We have changed both the business model and the application to make them both work with one another. It has just got to be a good collaboration between the application and the business model. Application customisation needs to be minimal.	The business needs were not met by any stretch of the imagination; we still can't get reports out. We can get partial reports or we can't get at all. The requirements were not well defined, they were not detailed enough. They were so poorly defined that anything would have gotten the job done. E.g. deliver project reporting. What, how, when? There were, also, underlying issues at the vendor end, the system is not designed properly. The system does not encourage proper project practices (see Question 1 above). Part of the reason is to do with product limitations, but most of it is internal fault. No software is going to change behaviour and culture, it cannot fix itself. Same people at the top, same culture, same thinking, same results.	The important thing is that we are still in a process of transition. We have not realised the full potential yet. Some of the early fundamental build were not well managed, we are still catching up. Vendor support was not what it could or should have been. The New Zealand vendor have not got the high level view of their own product. Lack of knowledgeable specifications at the beginning – inexperienced vendor and organisation. The needs were met to a limited extent. We now know how to bridge that gap, through a new design, with the solution formulated by a system expert. The vendor have not sold us a complete solution, but a suite of products.	The business needs were largely met. The measure of success for this is how well the system is being used. Data entered into the system was of much higher quality than before. The usage has grown over time and the way it's used is the right way. Data accuracy is reasonably high, as well. The system now provides detailed reporting. There were technical, underlying issues with the system. The entered data was correct, however the system's analyser would produce wrong reports. One other reason for not completely meeting the business needs: the design brief with requirements hasn't been followed. Change of mind from executives during the project.

Question 3.

Please explain how the project team members were selected.

Interviewee 1.	Interviewee 2.	Interviewee 3.	Interviewee 4.	Interviewee 5.	Interviewee 6.
Project team members were selected primarily for their business knowledge and also because they were going to be impacted by the implementation, also a mix of internal politics. The key move was the employment of a professional Project Manager. Because of the size and impact of the project, the work was broken down in manageable chunks. Good communication and cooperation. It was supported at a senior level; there was a desire to make it work. Not resourced properly: lack of understanding around project complexity, lack of organisational experience in dealing with projects and implementations, workload and resourcing issues in key area: Finance	Project team members were subject matter experts in their areas. Good cross section from their business units. The project's Steering Committee chose the people resources for the project. Project Manager spoke with the different groups, got them involved early and worked with the consultants – cohesiveness. Sole reliance on consultants, with no support from certain areas of the business. Not enough focus at the Steering level to the project. The Project Manager was left to make it all happen without the support.	The project team members made it to the team for a mix of reasons: some of them were thought to be specialists, while others were pushed there by political affiliations. The project sponsor was one of the Finance Managers and therefore there was a misguided view that this project was a financial project and the installed product will be a financial product. As a general comment, users didn't get enough representation at a project level to be able to get ownership of what was designed and implemented. Hence no user ownership of the product. At an organisational level, there is not enough appreciation that business units are there to support the implementation and product.	The project team was formed by deemed specialists in their area of expertise. There were no clearly defined project team and the responsibilities were not clearly outlined or explained. They have not found the right balance with this. Some areas were not represented at all, other areas were over represented. People deemed busy, not getting involved in the design process. People were verbally put forward, but nothing really happened.	The fundamental flaw was that the non techies (the Subject Matter Experts) were selected based on availability rather than fit for task. Senior management have not made it a priority, so the project did not get the right people on the project team.	The project team was selected more on availability, rather than skill. The project team was made up of a number of people with different technical expertise. When introducing new software, which is not known to the organisation, it is all about how team members engage with the software. This determines success or failure. We had the wrong people on the project team, at least in some cases.

Question 4.

Please explain the sponsorship model employed for this project.

Interviewee 1.	Interviewee 2.	Interviewee 3.	Interviewee 4.	Interviewee 5.	Interviewee 6.
Executive management sponsorship, Chief Executive was the sponsor. General Manager Corporate Services was the project owner. Project Steering committee members were senior managers. The right level of commitment and support from top management.	The Sponsor was the Finance manager – not high enough on the organisation chart. Steering committee – middle managers. The project has always been wrongly viewed as a finance driven exercise, rather than operationally driven. Neither leadership nor commitment at the right level.	The sponsor was the one of the Finance Managers, delegated from General manager. The project was not sponsored at the right level, with very little to no championing at top and middle management level. There was a one off sales pitch at a leadership forum and no buy in was sought at middle management level.	Sponsorship was more of a "lip service", no real action was taken, no decision was made. No direction was provided. Lack of commitment.	The Sponsor of the project was a Finance Manager of the organisation. They are not the right person as they are not high enough on the organisation chart. The project was not sponsored at the right level. The sponsor got totally distracted by side, operational issues. No time and energy for the project.	There was a governance group (project steering committee), a project sponsor and there were business owners. The project sponsor, a Finance Manager, was too low in the organisation rankings to make a real impact. The project sponsor should have been the Chief Executive, or at least someone from top management.

Question 5.

Please explain the level of support received from middle management throughout the project.

Interviewee 1.	Interviewee 2.	Interviewee 3.	Interviewee 4.	Interviewee 5.	Interviewee 6.
By and large the project was well supported by middle management. Middle managers understood the importance. A certain area of the business had a vested interest in a competing product. More a question of process, because the product in question was not able to perform the same functions.	For those who were involved, they were supportive of the changes (the ones that the project manager reached out to and communicated with). I don't know that most of them knew there was going to be a change until it arrived. If it's not impacting me, then I am not going to worry about it. Those who knew they were going to be impacted and have been involved, have supported the project right through.	The project was not really supported. Everyone saw this project as something that was going to benefit somebody else, they saw it as a niche product, rather than something that was meant to introduce a fundamental change to the way the whole organisation operates. It was passively or actively silo-ed by management. The information did not reach the beneficiaries. The project was seen as whole of Council, but not really.	It can be easily described as mostly poor. If and when middle managers were asked to get involved they would say "yes", but not get involved, in reality. There were lots of meetings held, but with no real outcome.	One or two of the middle management team saw this as a priority, because they were going to be impacted by the implementation. They were strongly committed to making it work for them and their teams. I cannot say that in the universal sense.	Middle managers offered a very high level of support. Everyone knew that the status quo was not working for anyone. The manager of the business unit which was the main client of this implementation was extremely committed and involved. They did want to understand the conceptual model of what was being introduced, and once understood they were completely behind it. They were involved in pushing the new model and concept forward. Limited reach, though, only internal to their team and somewhat department. Low on the organisation chart, middle manager level.

Question 6.

Please explain the level of executive (top management) support received pre, during and post implementation.

Interviewee 1.	Interviewee 2.	Interviewee 3.	Interviewee 4.	Interviewee 5.	Interviewee 6.
The level of top management support was high all the way through. Once implemented and top management realised that the reporting was not delivering what it was supposed to, the support changed. Not the level of support for the product or project team, but for the vendor. It didn't have an impact on the uptake, though. More work is still required to embed it into the organisation as the new way of doing business.	The level of top management support received was minimal. The project did not feature on any top management meeting agenda. Top management did not see themselves as influencers. I didn't see a lot coming out of top management in the way of how important this project was to the organisation. If this was an important project to the organisation, there should have been messages coming from the Sponsor or any of the top management team to the wider groups.	It is fair and realistic to say that top management, by allocating some resources to the project, thought they have done their bit and then got back to BAU. The sponsor was supposed to just run with it. Top management showed no leadership, commitment and ownership with this project. Top management should be involved in the organisational side of management. There was a bit of a push at the start of the project, although not very convincing. Then everything went silent and stayed this way. They didn't create a sense of crisis to underline the importance of the system and new business model. Hence people wondering why they would change, why they would use the system.	Top management were verbally supportive of the project, but in reality this didn't translate into actions. No cultural change was instigated and the project was not championed at all. At the beginning they said "we support you", same at the end. But the actions in between were not matching the words.	The first stage of the implementation created a major problem in the financial reporting area. Post implementation the top management support got much higher than the pre or during implementation level of support. This was due to the poor performance of the system.	Pre implementation there was reasonably good top management support. Good access to executive management team, both as a group and individually. During – there was significant action at the beginning, but then just words. We started getting into issues around engagement. There is a big difference between saying you are going to do something and actually do that. Post implementation support was extremely high. At the beginning you understand what is going on. Then you start to see what is not going on and this is when you act. Top management are now very committed and actually driving it.