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Evaluation of ERP Investment and Business Benefits

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Abstract – Enterprise Resource Planning systems (ERP) projects often lead to disappointing outcomes, even downright failures, which is not in keeping with the vast investments they represent. Many explanations have been provided, but it seems to be difficult to move beyond the specificities of each case study of failure. In any case, the publication of long lists of CSFs for ERP implementations has failed to make any impact on the difficulties faced by organizations. In this paper, we propose that it is the mismatch between the very ambitious goals of firms and the means they apply that is the primary cause of their failure to obtain benefits from their ERP projects. In particular, seeking strategic benefits and treating the ERP project as a technical venture is bound to fail. Using four case studies of typical ERP implementations, we seek to explain why firms continue to struggle with integrated systems despite their best intentions and efforts.

Keywords: Investments in IS, ERP projects, Critical Success Factors (CSFs)

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1. INTRODUCTION

Over the past few decades, a new paradign of IT-enabled initiatives' (Ross and Beath, 2002), for example, Business Process Re-engineering (BPR), Data Warehousing, Enterprise Resource Planning (ERP), has pointed the importance of investing strategically in IT. Numerous reports have highlighted that ERP projects have occupied a dominant space in IT investment over the last decade, however paradoxically; researchers have noted a deteriorating trend of evaluation of these investments. This is not a new argument in the general IS field, where the evaluation of IT investments in general is regarded as unsatisfactory. The predominant reason for this state of evaluation of IT investments is that organizations find it very difficult to perform such evaluations, which it can be argued, is related to the lack of suitable investment appraisal methodologies for this type of strategic investment. In effect, conventional methodologies , have proven inadequate for modern IT due to the fact that these projects have decreasing scope for cost displacement and an increasing focus on effectiveness objectives. ERP projects are considered huge organizational undertakings coupled with a potentially high risk of project failure, it should be imperative that proper evaluation be undertaken. In this paper, we use the Ross and Beath framework to case studies of ERP implementations we carried out, and attempt to find a correlation between the way they approached their investments in ERP and their degree of success, as measured by the extent to which specific benefits that were sought have been achieved. This is used to explain why firms are more successful than others with the ERP implementations.

2. INVESTING IN ERP

Although there is no agreed upon definition for ERP systems, their characteristics position these systems as integrated, all-encompassing complex mega-packages designed to support the key functional areas of an organization. The American Production and Inventory Control Society (APICS) defines ERP as "an accounting-oriented information system for identifying and planning the enterprise-wide resources needed to take, make, ship, and account for customer orders". It is this all-encompassing nature and high degree of business integration which distinguishes ERP from other technologies or systems and led us to consider ERP projects as inherently different in terms of difficulty and success factors. At the core of ERP project, there is a crucial need to craft new business processes that fit both the objectives of the firm and the ERP system to be implemented and too little is understood about how this can be done effectively. This observation allows us to note that, based on the many reported cases of ERP implementations, investments in enterprise-wide ERP projects are often unrealistic and lack credibility, in terms of what can be achieved in reality and what is actually expected from the

initiative. Thus, it has been reported that top management have a tendency to 'short-select' ERP projects making their reported evaluation sketchier . In fact ERP investments are often made on faith and not on good judgment and this observation is further corroborated by many studies, both in relation to ERP and the broader IS community. One possible explanation suggests that organizational decision-makers significantly underestimate costs and overestimate benefits to justify their projects when utilizing the conventional methodology of financial evaluation. However, the state of evaluation is much worse in the case of ERP projects, in that it is extremely difficult to estimate all the costs and to assess all the benefits prior to the configuration of the 'to-be' processes. As a result, it is important for researchers to understand the true nature of an enterprise-wide ERP project and how these IT investments are approached and justified by organizations. It has been argued that if an enterprise-wide ERP system is properly implemented it can in fact achieve unprecedented benefits for an implementing organization. Throughout the available research that has been published in the enterprise-wide systems area, it has, however, been reported that some organizations have difficulty identifying any measurable benefits or business process improvements from the introduction of an ERP system and a number of reasons have been provided in explaining this situation. Many organizations "fail to realize the full benefits of ERP systems because they are not organized in such a way to benefit from the new information tools provided by, and the new disciplines required of, the enterprise systems". Furthermore, some organizations are not positioned for integration with departments working toward their own set of objectives; performance measurement and rewards being functional and not global; information being spread out on many fragmented systems and few people have an enterprise-wide view of the organization. In fact, this is an observation already made by proponents of BPR Therefore, in light of these observations, it poses the interesting question of what organizations expect from introducing an enterprise-wide ERP system and how these expectations materialize and are subsequently managed. Analyzing the discourse of participants within the ERP Community, notably vendors and consultants, but also managers who look towards ERP as the solution to all their problems, all too often reveals unrealistic and unrealizable expectations on ERP systems. Implementing organizations seem to display an acceptance of the ERP vendors' and consultants' sales discourse that is not in keeping with the most basic principles of prudence It is fair to suggest that this has provoked a phenomenon termed 'Inside View' by Kahneman and Lovallo (1993), where actors focused solely on the current project and fail to take into account knowledge they acquired in previous similar decision making situations because they want to believe that fresh ways can be found that will offer radically new solutions to old problems. Therefore, believing that the introduction of an ERP system will be the solution to all organizational problems leaves the organization with a poor value-for-money system infrastructure, and due to the all-encompassing nature of ERP offerings, where a level of dependence is created that "far surpasses the dependence associated with prior technological regimes", this can have detrimental consequences for the organization. For example, Sammon et al. (2001) reported on a survey which revealed that organizations did not seem to be overly worried that they ran the risk of sacrificing unique competitive advantage by implementing ERP packages, where 80% of managers studied did not consider any alternative to an ERP package. Furthermore, managers seemed quite certain that acquiring and implementing a complete business solution and applying it to their organizational business model was the main source of advantage. However, available evidence points to a key issue where organizations do not analyse their needs adequately prior to undertaking the package selection exercise, never mind the subsequent ERP implementation and therefore rush into an implementation that changes, possibly unnecessarily and negatively, the very features that made the organization different provided a comprehensive benefits framework which can be used as a foundation for planning, justifying and managing the ERP system. They propose that the framework could be a "good communication tool and checklist for consensus-building in within-firm discussions on benefits realization and development". However, it is worth mentioning that the list of benefits is of little use to decision-makers, if a thorough needs analysis is not conducted by the implementing organization, prior to the consideration of an enterprise-wide ERP system. However, at that time, Shang and Seddon (2000) commented that there were few details of ERP-specific benefits in academic literature and further noted that 'trade-press articles' and 'vendor-published success stories' were the major sources of data. As a result, Shang and Seddon (2000, p.1007) pointed out that *"cases provided by vendors may exaggerate product strength and business benefits, and omit shortcomings of the products"*. Other researchers have also pointed to the poor realisation of benefits from ERP systems in-use, for example, Rutherford (2001) observed that only around 10% to 15% of ERP implementations delivered the anticipated benefits, while according to James and Wolf (2000) organizations that were able to identify benefits thought they could have been realized without the implemented ERP system. In fact, James and Wolf (2000) reported that 80% of the benefit that organizations realized from their ERP system came from changes, such as inventory optimization, the benefits of which could have achieved without making the IT investment. Furthermore, Jahnke (2002) reported that 51% of organizations that attempted an ERP implementation were dissatisfied with the results. In addition, Jahnke (2002, p.1) commented that *"40% of the projects failed to achieve their business case within one year of going live, and those companies that did achieve benefits said that achievement*

took six months longer than expected". This insight proves extremely worrying for organizations investing in ERP systems and calls into question the expectations of organizational decision-makers as to the initial benefit of ERP versus the actual value-for-money from the changes introduced from the initiation of such an IS/IT investment. However, according to James and Wolf (2000, p.2), reporting on an instance of an ERP implementation, *"many of the benefits that we are able to achieve today could not have been predicted at the time that we started work on ERP. In fact, in hindsight it appears that much of the value of these large systems lay in the infrastructure foundation they created for future growth based on Information Technology"*. This indicates that the realities of ERP implementation are not fully understood by managers at the outset of a project and the expected benefits are not a realistic feature of the actual project outcomes. Ward and Peppard (2002, p.432) highlight that *"benefits from strategic IS/IT investments are uncertain and depend on future events, making priority setting even more difficult"*. In fact, Ward and Peppard (2002, p.434) further comment that, *"setting objective priorities on scant evidence is not very reliable"*. However, scant' reasoning and 'mindlessness' are indeed common characteristics defining an implementing organizations approach to investing in ERP packages. In light of this, it can be argued that assessing the level of benefit realization is a subjective exercise where operational efficiency could be deemed of strategic value to an organization, and therefore categorized as a strategic benefit. This subjective view is based on managerial interpretation of the impact of the implemented ERP system on organizational activity, used as a means of providing retrospective explanations for the earlier rationales in selecting an ERP package. Furthermore, the justification for adopting ERP centres around their business benefits, however, Donovan (1998) believes that to receive benefit from implementing ERP there must be no misunderstanding of what it is about, or underestimation of what is involved in implementing it effectively. Even more important, organizational decision-makers must have the background and temperament for this type of decision making. Therefore, it needs to be established if the introduction of an ERP package into an organization has been considered a strategic project. It has been observed that ERP packages have been sold to CEOs and CFOs as strategic solutions and not as computer software, which is the outcome of the legitimized rhetoric propagated around the enterprise-wide ERP phenomenon by ERP vendors and ERP consultants in the ERP Community. Thus, it is necessary to understand if it is worth investing millions of dollars to obtain 'operational transparency' (Kalakota and Robinson, 2001).

3. A FRAMEWORK FOR ITS INVESTMENT

'Traditional approaches' to IT investment evaluation are limited and inadequate, where they simply attempt to identify projects with the best profit potential. However, with the heightened strategic importance of IT, organizations have been forced to think differently, and this may not simply mean 'making the business case' for a strategic initiative. However, it is interesting to establish how strategic an investment in enterprise-wide ERP actually is, and indeed a number of differentiating views exist in the literature with regard to how an enterprise-wide ERP investment decision should be perceived. For example, according to Sumner (2005, p.11) "the decision to implement an ERP system is a business investment decision, similar to the decision to build a new warehouse, hire a new executive, or invest in a training program. As such, the ERP investment decision must create measurable business benefits that justify the acquisition costs and the costs of system implementation". Furthermore, Sumner (2005) refers to the justification of the acquisition of an ERP system, involving an assessment of tangible and intangible benefits, as making the 'business case' for ERP. In addition, Chen (2001) has observed that many large ERP projects have been initiated without sufficient analysis of costs and benefits, however, the huge investment required to implement the ERP system needs to be weighed carefully against the eventual savings and benefits the system will produce. Ross and Beath (2002, p.53) commented that "our perspective is that lasting pressures have permanently changed how companies approach the problem of justifying IT investments. Given that technological and market changes are intensifying dependence on IT, it seems more prudent to adopt new investment strategies not as exceptions, but as part of a deliberate rationale that says success comes from using multiple approaches to justifying IT investments. Making the business case is only one approach". Therefore, Ross and Beath (2002) propose an alternate framework for IT investments, which suggests alternative approaches to the 'business case', as illustrated in Figure 1. In analyzing organizational practices, Ross and Beath (2002) identified that investments differ along two dimensions: (1) 'strategic objectives' - which highlight the trade-offs between short-term profitability and long-term growth, and (2) 'technology scope' - which distinguishes between shared infrastructure and business solutions.

TECHNOLOGY SCOPE

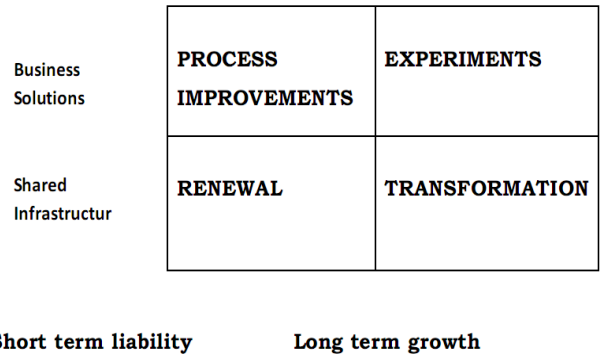

Figure 1: A Framework for IT Investment (after: Ross and Beath, 2002)

According to Ross and Beath (2002, p.53) "to address both dimensions companies need to make four distinct types of investment: Transformation, Renewal, Process Improvement, and Experiments". A brief explanation of each of these investment types is provided in Table 3.

Ross and Beath (2002) argue that organizations must assess the returns on individual investments against demands for organization-wide capabilities. Furthermore, organizations must assess opportunities to leverage and improve existing systems and infrastructures in light of opportunities to create new capabilities and test new business models. As a result of this assessment within organizations, regarding investment potential and targeting, Ross and Beath (2002, p.52) observed that 'complex trade-offs are leading to new IT-investment patterns'. The framework for IT investment proposed by Ross and Beath (2002) positions ERP implementations as 'Transformation Investments', in which they are perceived as strategic decisions as opposed to cost justified business decisions. According to Ross and Beath (2002, p.53) "transformational investments are necessary when an organization's core infrastructure limits its ability to develop applications critical to long-term success. Transformation is triggered by the growing need for integrated customer data, end-to-end processing and platforms that provide around-the-clock support. Transformation initiatives are often risky, undertaken when companies have determined that not rebuilding infrastructure significantly is even riskier". Furthermore, the observations made by Sammon et al. (2004) seem to support the idea of 'Transformation Investments' whereby ERP is now being seen for what it really is: 'a means to an end', in that, its primary benefit is in the integrated infrastructure that it introduces and its ability to support future IS investments.

Investment Type	Description	Sample Initiatives
Transformation	Inadequate core infrastructure.	ERP, Data warehouse, standardizing technology and middleware implementation.
Renewal	Cost reduction, quality improvement and initiatives with IT.	Retiring old system and data access with new technology.
Process Improvement	Low risk operational excellence with process improvement and legacy systems.	Cost reduction through automated data capture and paper free office.
Experiments	New technology, ideas, processes, business model for organizational and infrastructure change.	Testing and accessing demand, self service, pricing strategy and new channels.

Table 3: An Explanation of Investment Types

However, what is critical to understand is that this infrastructure must be aligned with the requirements and directions of the changing business model, therefore, ensuring that the long term vision for the implementing organization is supported by the implemented ERP system. As a result, for an ERP investment to be considered a true transformational investment and achieve the expected benefits from the outset, the importance of changes to the business model needs to be fully understood. If this thinking around the expectation of change does not exist, then 'desired' transformational investments produce 'actual' outcomes of renewal investment types, which is simply an investment to replace existing systems without embracing cultural and procedural changes.

4. RESEARCH METHODS

This research study is based on 4 cases studies of firms having implemented ERP applications in the past. It has followed a deliberate theoretical sampling plan. In an effort to guide the case selection, the insights of Stake (2000) have been drawn upon, where an *instrumental* study extended to several cases was undertaken, where the diverse organizational stories of those 'living the case' could be teased out (Stake, 2000). In the context of this study, for an organization to be considered suitable for inclusion it had to have undertaken an enterprise-wide ERP project, and at the time of first contact with the organization, be in the post-implementation phase for all or part of the project, depending on the implementation approach followed by the organization. The researcher was also mindful of the fact that gaining access into an organization is difficult due to the time and commitment required by the members of the organization involved in the research process. Keeping this in mind the researcher contacted approximately twenty possible research sites and was hopeful to gain entry into at least four in order to ensure a depth and breadth of organizational

experiences. In a two month period following initial contact, nine of the prospective research sites had not replied with an expression of interest in participating in the research study. However, follow-up discussions took place with points-of-contact in the remaining eleven sites. Therefore, following a brief telephone conversation with one or more personnel from these remaining sites, another four sites ruled themselves out of participating in the research, due to an inability to commit the time required for the interviewing process. Throughout this period also, a preliminary interview was conducted with the main point-of-contact in each of the remaining seven sites. Again, following these preliminary interviews the researcher ruled out the possibility of continuing research in three of the sites, due to concerns about future access to interviewees and, the openness to questioning and willingness to share documentary evidence on the part of the point-of-contact. Notwithstanding this, throughout this same time period, two of the remaining four cases had progressed considerably in such a short time frame, where openness to share information and willingness to make personnel available for interview was a key feature of their attitude and willingness to participate in the research project. The outcome of this somewhat *opportunistic* (Patton, 1990) approach to purposeful sampling of research sites saw the researcher selecting four organizations, namely: SerCom Solutions, an Irish owned organization specializing in Supply Chain Management Services, Banta Global Turnkey (BGT) a global firm involved in the same business, the Irish Health Services (now the Health Service Executive), and An Post, the state-owned firm in charge of delivering postal services in Ireland. The advantage of the approach taken, as described above and indeed something faced by many researchers, regarded the fact that as the number of cases was reduced, either by the organizations decision not to participate, or the researchers decision to exclude them, a greater sense of understanding was gleamed as to the nature of the organization, its operations and complexities, the competitive forces at play, etc. However, more importantly, an initial perception of the enterprise- wide ERP project and its outcomes was achieved by the researcher, as presented in Table 3.

In retrospect, this collection of cases has proven extremely beneficial, due to the fact that understanding them has led to a better overall understanding of a variety of organizational approaches to implementing an enterprise-wide ERP system, to understanding their respective states of readiness to undertake such an initiative and to classify their investment in terms of the Ross and Beath framework. Within this research study the interviews were conducted on site, varying from a one to a three hour timeframe. Furthermore, due to the longitudinal nature of this research study, a large percentage of interviewees were interviewed two, and in some cases, three times. All interviews were audio-taped for subsequent transcription and for verification of accurate interpretation. Following the first round of interviews, transcripts were sent to the informants for review and verification of the content. During the focused interviews ambiguities and discrepancies were clarified and information from the first round of interviewing was confirmed. Furthermore, the repeat rounds of focused interviews ensured that a certain flow of questioning was followed based on the analysis conducted on the earlier interviews, both in that same case and across the other cases. Table 4 presents a breakdown of the personnel interviewed within the four organizations and identifies their positions of responsibility within their respective organizations. Furthermore, the personnel interviewed were most of the remaining key decision-makers and most knowledgeable persons, in relation to the decisions made at the outset of the enterprise wide ERP project.

Organization	No. of informants	Hours of interview	Duration of study
Telecom	22	40	6 months
Construction	18	41	6 months
Logistics	12	20	6 months
Health Services	16	25	6 months

Table 4: Breakdown of Interviews by Case

Other sources of data were also exploited, and for each case collected documentation provided specific details to corroborate, and in some instances clarify, factual evidence collected through interviews.

5. A COMPARATIVE ANALYSIS OF INVESTMENTS

As argued by Ross and Beath (2002) enterprise-wide ERP projects should be considered transformation investments. However, this classification of investments in ERP does not appear to fit with what is understood in practice, with regard to the approach that some organizations take to investing in ERP packages. Analyzing the nature of the enterprise-wide ERP project investments within the organizations studied and highlighting the discrepancies between what was achieved in reality and what was actually expected when undertaking the project at the outset provides a clear illustration of this contention.

5.1 Classifying the cases

Figure 2 provides an insight into the experiences of the four organizations studied, and highlights the differences between the desired' (the expectations managers held at the outset of the project) and

'actual' (the outcome of the projects or in some cases after another "corrective" project has been undertaken) investment types for each enterprise-wide ERP project. These assessments are based on the combined retrospective accounts provided by the informants in each case.

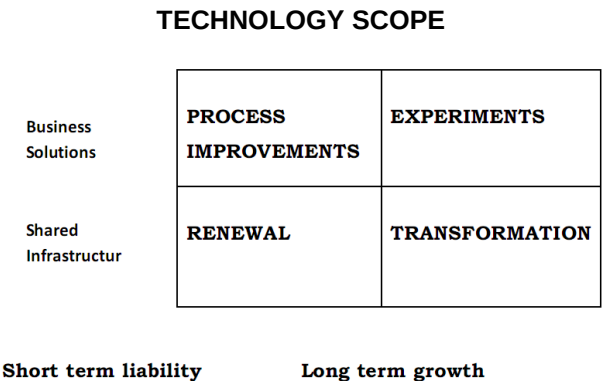

Figure 2: Categorising the ERP Projects 'Desired' and 'Actual' Outcomes

From the outset SerCom viewed their ERP project as an enterprise-wide initiative and the supporting investment was viewed as transformation, emerging from the termination of a renewal investment. The driver for the project was very much a carbon copy of that described by Ross and Beath (2002) for transformation investments 'a core infrastructure that is inadequate for desired business model'. Furthermore, the entire organization took ownership of the project investment, embracing a 'long-term growth' strategic objective and a 'shared infrastructure' technological scope. However, when compared to the ERP project undertaken by BGT, while it was initially considered a transformation investment in terms of group-wide focus, both the US and European operations commenced separate renewal investments. Both of these initiatives were driven by the issue of Y2K compliance and were owned by IT. The strategic objective characterising these investments was short-term focused, where the technological scope was limited to providing a separate shared infrastructure for both operations.

However, over time BGT invested in a series of Business Process Improvements (Finance BPI and SCM BPI) from a group perspective throughout BGT. These process improvement investments were viewed as the key to bringing BGT closer to the ideal of a transformation investment. Therefore, this new investment portfolio allowed BGT to fulfil their strategic objective of 'long-term growth' and providing a 'shared infrastructure' across the entire group. Therefore, while both these organizations managed to sustain their existence in their competitive business environments, their path to implementing an enterprise-wide ERP system and their experiences with such an initiative were extremely different. An Post attempted a transformation investment at the outset but it was effectively a renewal characterized by a series of Process Improvement investments throughout the project although they were not distinctly identified as such. The project ultimately delivered cost reductions in certain areas of the An Post operation and raised the quality of IT service, in the majority of cases moving from a manual to automated solution within the Business Units involved. However, limited business process change was a feature of the project, where existing processes were simply automated, and it was very much driven by external consultants and internal IT, with poor business resource and expertise provided by the Business Units for the project. While the strategic objective was short term profitability, the technological scope provided shared infrastructure but on a somewhat limited enterprise-wide view, throughout An Post. In comparison the PPARS project within the Irish Health Service may have been politically described as a transformation investment, but in reality, at the outset, the project was supported as a renewal investment type (short-term strategic objective, introducing a limited shared infrastructure), in that it was simply replacing existing HR/Payroll systems in a small number of agencies. The PPARS project did not embrace an enterprise-wide perspective or set about to introduce process standardization across the Health Service in these functional areas, as presented in the constructed case narrative in this chapter. Although advised by a number of external consulting groups to address the state of the project before proceeding in Phase 2, the Health Service continually attempted to undertake a transformation investment without addressing these issues. It is possible that these issues may have been addressed if the Health Service leveraged off of a number of distinct process improvement investments, as was identified in BGT and in An Post to a lesser extent. Inevitably this attempted transformational investment failed and the project did not achieve enterprise-wide coverage and was suspended. At the time of writing, the most interesting issue is whether or not the approach to the PPARS project will be changed, to suit the nature of this investment type, if continued in the future.

5.2 Interpretation

Although the four types of investments are 'conceptually distinct', in reality, they are difficult to distinguish. However, an effort should be made to distinguish the investment types within an organization as much as is possible to understand, for example, what is driving the project, how is it funded, who has responsibility, who will it impact, what are the benefits and to whom will they materialize. A failure to differentiate between investment initiatives could lead to an inaccurate perception by stakeholders of the value for money of the investment. For example, BGT have formally communicated and created a series of distinct investments over time as part of the enterprise- wide ERP project, however, the Health Services failed to

make this distinction which ultimately led to serious criticism of the cost of the project and the actual value for money of the initiative, due to that fact that it is perceived as one continuous investment over a lengthy time period. Specifically, Ross and Beath (2002) suggest that an organization should distinguish 'transformation from process improvement', if the benefits will be realized by different parties, and, perhaps the toughest distinction, 'transformation from renewal' investments. Ultimately, transformation investments create a basis for long term growth; however, their payoffs are not easily or quickly achieved (Ross and Beath, 2002). The value from such an investment does not come from implementing the system; instead it comes from changing both the operating and management processes and cultures. According to Ross and Beath (2002, p.57) "transformation investments demand significant senior management commitment to invest funds, guide implementation and process change, and steer the organization toward opportunities to leverage the investments". However, it is worth noting and evident from the cases under study in this research project that many organizations will struggle with the necessarily large commitment required by such a transformation investment, for example, an enterprise-wide ERP project. For the most part this explanation, or aspects of it, would appear to characterize the experiences of most organizations with regard to ERP (and other enterprise-wide systems in general). However, certain decisions taken at the outset of the project (based on awareness and preparedness), as regards the nature of the project and the supporting investment, can: (1) account for the problems that an organization experiences throughout the execution phase of the project implementation, (2) affect the impact of the project/investment on the organization, (3) impact on the desired outcomes of the project, and (4) affect the perception of the system in-use. According to Ross and Beath (2002, p.55) "process improvements may boost operating results of a particular business unit, but the benefits of a new shared infrastructure may be company-wide and longer lasting". If senior management directs transformation investments, the organizations' overall IT capability 'is more likely to support its strategic business direction'. For example, where the Health Services did present somewhat 'text book' expected benefits in their project documentation (to the various stakeholders involved), they failed to follow through on the nature of the investment required, which did not facilitate these benefits to be realised and led to dissatisfaction at various levels with the project and the resulting PPARS system, and mismanaged expectations over time. Furthermore, according to Ross and Beath (2002, p.55) "renewal investments replace old shared technologies with newer, more powerful or more cost effective ones. Renewal may foster process improvement, but that is not its primary objective". However, transformation intentionally changes an organizations' infrastructure in ways that 'not only enable, but usually demand, process change'. For example, where SerCom have undertaken a transformation investment, embracing enterprise-wide business process changes, in what was deemed a business project, BGT, An Post and the Health Services have undertaken renewal investments in what were deemed IT projects. The value of renewal initiatives does not depend on making business process changes and as a result the initiatives are often the responsibility of IT. However, of even greater interest is the fact that, while these three organizational entities may have wanted to pursue a transformation investment at the outset, by the very nature of undertaking an ERP project, it appears that certain organizational characteristics prohibited this happening which ultimately left the organizations with a difficult implementation and a less than successful project outcome. For example, the organizational architecture within BGT did not facilitate the pursuit of a true transformation investment from the outset and their approach to ERP was very much characterized by a series of distinct investments over time. In fact, even though a business case was developed for the new wave of transformation investments within BGT (referred to as a 'readiness to serve'), it was not required by the Board of Directors when deciding whether to fund the project or not. The view had been formed by senior decision makers that the BGT organization simply needed an enterprise-wide ERP system, supporting a global business process infrastructure, to survive and ensure future growth. Furthermore, according to Ross and Beath (2002, p.57) "responsibility for transformation investments must be located with those who will compel the necessary process changes". Based on the analysis of the cases studied in this research project, SerCom was the only organization to embrace this notion of ensuring that responsibility for the transformation investment rested with those stakeholders who understood the business and could drive through the necessary process changes. All of the other organizations faced problems with this ideal of responsibility for the investment and ultimately the project. For example, where SerCom had the most senior and highly skilled business personnel in positions of responsibility on the project, both An Post and the Health Services had inexperienced business personnel taking responsibility, when these business personnel were in fact made available (in fact consultants took a lot of the responsibility in these two project initiatives), while BGT had IT personnel predominantly dictate the project and take responsibility and the business ultimately 'copped-out'. Therefore, using this framework proposed by Ross and Beath (2002) and leveraging understanding of the cases, based on that with-in case analysis conducted in

this chapter, it can be observed that the awareness and preparedness of BGT, the Health Services, and An Post was inadequate with regard to undertaking a transformation investment of the nature of an enterprise-wide ERP project.

6. CONCLUSION

The four organizations we studied present a comprehensive panorama of ERP implementations, ranging from undeniable success to undeniable failure. As such, it appears to be representative, though obviously not in a statistical sense, of the ERP experience faced by firms today. Our investigation shows that the Ross and Beath framework is a very useful conduit for examining ERP projects and that it does not matter so much what firms try to achieve, because how they go about it and in particular, the fit between the means applied and the goals pursued are the most powerful determinants of the outcome of their ERP projects. The interesting factor in using the Ross and Beath framework, is that combined with the explanations they provide, their framework and the scenarios we present in this paper can be used a managers as blueprint for initiating and executing their ERP ventures. Two scenarios that are of particular significance are that of SerCom, on the one hand, which can be characterised as continually undertaking projects throughout their business and which was able to manage its ERP projects as one of these projects, and those of An Post and the Health Service, which can be simply considered IS projects. Whether it is due to the lack of organizational practice in "managing by project", or whether it is due purely to a lack of leadership in this particular initiative, both organizations fail to convert their intention into a commensurate programme of change. As a result, both failed. As more cases of ERP implementations are reviewed through the lens of the Ross and Beath (2002) framework, it will become possible to provide managers with a detailed series of actionable scenarios which they can use as blueprint for their EPR projects. This may lead to a greater understanding of how success can be obtained, not by simply trying to follow cook book recipes based on long lists of CSFs, but by realising from the very beginning, *which ones of these CSFs* will matter greatly based on the types of strategic objectives pursued by the firm and the current state and position of the firm. In time, more categories may emerge in the framework which will allow for even more detailed scenarios to be developed that are a closer match to the circumstances of each implementing firm.

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