

Article

Challenges and Success Factors of ERP Systems in Australian SMEs

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Academic Editor: Donald Kerr

Received: 27 March 2016; Accepted: 26 April 2016; Published: 5 May 2016

Abstract: Today, great potential is envisaged for ERP systems in small and medium-sized enterprises (SMEs), and software vendors have been repackaging their ERP systems for SMEs with a recent focus on cloud-based systems. While cloud ERP offers the best solution for SMEs without the overheads of the huge investment and management costs that are associated with traditional ERP systems, the SME sector faces many challenges in their adoption. Traditional ERP studies have predominantly focused on large organizations, and gaps in the literature indicate that both vendor and consumer perspectives require more understanding with new technology offerings for SMEs. This paper describes some of the common challenges, such as cost effectiveness, alignment between software and business processes, customized governance and training, which form the major SME constraints for ERP system adoption. Due to the dynamic nature of SME businesses, best practice guidelines for an SME's ERP implementation could be arrived at through closer investigation of its business requirements in order to avoid misfits. This forms the main objective of the study. We identify key success factors of ERP implementation in an Australian SME as a case study. These target success factors are then compared to the actual outcomes achieved. Factors such as business process alignment with the ERP system, meeting customer and stakeholder needs and reducing recurring and maintenance costs were key to the success of ERP implementation for the Australian SME. In particular, the IT and business strategy alignment with a customer focus and flexible reporting features of ERP systems has resulted in business agility.

Keywords: enterprise resource planning (ERP); small and medium enterprise (SME); business strategy; success factors; challenges; ERP implementation

1. Introduction

Integrated, streamlined, responsive and agile are the key words used to define what organizations must be developed into, in order to stay profitable, in particular for the sustainability of SMEs in today's global and competitive environment that businesses face [1–5]. With advancements in information technology (IT) in the past decade, enterprise-wide adoption of technology is considered, and enterprise resource planning (ERP) systems are viewed as a key enabler of an organization's business transformation [6–9]. It is globally known to large companies, as well as SMEs that providing the right information at the right time brings marvelous returns to enterprises in the competitive market [10–13]. Therefore, organizations require efficient and effective information systems like ERP to compete in today's complex and fast market economy [14]. However, SMEs face various issues of integration with ERP solutions [5,15]. These form the underlying reason for ERP vendors to offer systems, and they have started to channel their efforts to attract smaller firms. This paper covers the vendor perspectives to implement and deploy ERP systems for SMEs. Vendors are targeting the SME market with repackaged ERP systems. ERP vendors are offering these systems keeping in

view the SMEs' budget and time constraints and are presenting economical, simple, easy-to-install, pre-configured ERP systems or hosting services. However, the perceptions of SMEs of such systems need to be studied. While ERP vendors perceive ERP opportunities in SMEs, there are several implementation constraints and success factors that are based on each SME's business context. The main adoption issue is the misfit in the actual ERP implementation by a typical SME due to non-alignment between the vendor's standard ERP system and the SME's business strategy [15]. In order to gain an in-depth and first-hand understanding of the ERP implementation problem in SMEs, the constraints reported in the literature need to be explored, and the actual ERP implementation process adopted by an SME is to be studied in the present local and global context, so that useful adoption lessons could be learnt from other similar SMEs [3,4,6]. Hence, the aim of the paper is to identify from the literature the constraints and factors affecting the adoption and implementation of ERP systems in SMEs that are similar to the Australian context. In the past, research studies conducted with Australian SMEs have reported the importance of capital outlay and human resources for ERP selection and implementation, and ERP implementations were undergone as a mere technological fix to problems rather than a strategic investment [16,17]. With new technological paradigms, such as cloud computing, the situation requires a revisit, as the cost constraints and other success factors are not the same. While the majority of recent research in Australia has been focusing on ERP implementations in higher education [18,19], in this paper, a structured approach to ERP deployment in a small courier business in Australia is presented as a case study in the contemporary context. We believe this paper takes a modest step to fill the gap in the literature, as there is a scarcity of research studies on contemporary issues surrounding ERP implementation in Australian SME. In particular, since SMEs grow rapidly, achieving a fully-integrated ERP system in such a dynamic situation requires a well-planned feasibility study and a well-guided implementation process. Our focus is to report on the implementation process details undertaken by a fast-growing Australian SME for its ERP adoption. This study includes identifying the common challenges and barriers faced by the SMEs and current strategies adopted by ERP vendors that have resulted in arriving at specific process-based guidelines for successful ERP implementation in the Australian SME. We describe the best practice steps adopted by the SME, including various success factors identified and the actual outcomes achieved.

2. Global and Domestic Context of SMEs

Globally, organizations adopt a wide range of definitions of small and medium enterprises (SMEs), also known as small and medium-sized businesses. The main difference is in the choice of size and thresholds used within the measure [20]. Organizations use the following three key measures for defining SMEs, and the value of one or more of the above measures falls below certain limits for SMEs [21]:

- Employee size,
- Total revenue and
- Balance sheet size

Table 1 summarizes with employee size and revenue as the main criteria used by different countries to define SME.

However, within Australia, different organizations use different measures to define SMEs, such as:

- The Australian Stock Exchange (ASX) categorizes entities with less than 50 employees as SMEs.
- The Australian government describes an SME as an entity having an average gross revenue of A\$250 million.

Table 1. Definition of an SME by employee size and revenue.

Countries	Employee Size	Revenue	References
Australia	<200	\$20 million	[22]
Canada	<500	\$25 million	[20]
China	<2000	CN¥300 million	[23]
European Commission	<250	€50 million	[21]
Germany	Follows the European Commission		[21]
India	<1000	Rs.25 Lakh–Rs.10 Crore (manufacturing)	[24]
Japan	<100 or <300	¥50 million	[23]
Singapore	<200	S\$100 million	[25]
USA	No standard definition exists		[26]

In contrast to larger organizations, SMEs mainly rely on other firms for services, like marketing and training. With respect to SMEs' relationship with other organizations, SMEs can be classified into three broad groups: sub-contractors, cluster members and totally independent. SMEs are an essential part of economic policy, especially in terms of employment creation and expert growth [21].

In Australia, there were 2,132,412 actively trading businesses as of June 2011, an increase of about 8000 actively trading businesses from the previous year. Out of these businesses, almost 96% were small businesses (2,045,335), 3.8% were medium businesses and less than one percent was large businesses. In comparison, to more than 10 years back, Australia had approximately only 10,000 SMEs representing about \$5 billion of the Australian market [27]. Based on the employment size classification of SMEs, Table 2 shows a comparison of the survival rates of small, medium and large businesses in Australia between June 2007 and June 2011 [28].

Table 2. Business “survival” rates by employment size between June 2007 and June 2011.

	Number of Businesses Operating in June 2007	Number of Businesses that Continued to Operate to June 2011	“Survival” Rate (%)
Small (0–19)	1,985,822	1,185,997	59.7
Medium (20–199)	82,071	62,243	75.8
Large (200+)	5900	4386	74.3
Total	2,073,793	1,252,626	60.4

Data source: Australian Bureau of Statistics (ABS) Catalog No. 8165.0 and Department of Innovation, Industry, Science, Research and Tertiary Education (DIISRTE) calculations.

Implementing an ERP system is considered an important strategy for establishing new robust accounting practices for improving the SME survival rate [29]. However, SMEs show resistance to ERP adoption due to the constraints and barriers involved in the domestic and global contexts, and these need to be studied from the perspectives of both ERP consumers, as well as vendors. Hence, the aim of this paper is to provide a case study approach, reviewing various investigations conducted within the Australian SME context that are common to the global context. To achieve this, in the next sections, we identify the constraints and barriers that could affect the standard ERP adoption by SMEs in Australia reported in the literature and the strategies that ERP software vendors have adopted. Unlike other studies conducted in Australia, this paper focuses on the ERP system adoption, evolution and success achieved by one Australian SME as a case study forming a role model for other SMEs in Australia.

3. Constraints of Standard ERP Adoption in SMEs

Standard ERP system implementation generally requires significant input from the organization in terms of effort, time and money. Comparing to large firms, SMEs have limited time, resources, skills and budget. SMEs also lack the latest technology, IT infrastructure and the quantity and quality of available business data [30]. These limitations become an obstacle in ERP implementation or in adjusting to ERP after its deployment [31].

Different researchers have defined different major barriers and constraints faced by SMEs in ERP adoption and implementation. The following are the key constraints faced by SMEs for standard ERP adoption.

3.1. Resource-Intensive Nature of Standard ERP

ERP implementation requires appropriate workforce allocation, intensive training and top management commitment. Furthermore, this requirement becomes more accentuated if customization of the ERP is required [29,31].

3.2. Long Implementation Time Frame

ERP requires more time for implementation than any other software package. The extensive usage of SMEs' resources for a long time may negatively affect the organization's core business [31,32].

3.3. High Cost of Standard ERP Implementation

ERP is known for its high implementation, customization, resource, training and some hidden costs. Financial constraints play a major role in the rejection of ERP by SMEs [31,33].

SMEs demand solutions at a reduced price from a limited number of ERP vendors. However, it is not possible for ERP vendors to offer all SMEs solutions at a reduced price [27,34].

4. Vendor Strategies for SMEs

The ERP vendors have collected data about the constraints and challenges faced by SMEs, to which their product is targeted. To meet SMEs' requirements and constraints, ERP vendors offer solutions based on scaled-down versions of their standard and giant applications, which are primarily designed for large organizations. These solutions are thoroughly studied, evaluated and defined. The functionality of the ERP is scaled down in order to make them fit and be affordable for SMEs, which are smaller in size and less complex. Market research illustrates that the affordable cost of software packages and short implementation times are among the most important ERP selection criteria employed by SMEs [10,35].

To facilitate and meet SMEs' requirements, many vendors have developed affordable and less complex ERP systems, e.g., All-in-One (SAP), Business-One (SAP), Microsoft Dynamics NAV (Microsoft), JD Edwards Enterprise One (Oracle), Alliance Manufacturing (Exact Software), etc. The following are some of the strategies/solutions ERP vendors offer to attract SMEs.

4.1. Compact/Pre-Configured Solutions

ERP vendors provide complete pre-configured products to SMEs that offer everything required to run integrated key processes. These pre-configured solutions are based on the general requirements of any particular SME sector [36].

Pre-configuration of ERP system is specific to each industry and includes pre-configured data, software menus, software test catalogues, documentation functionality and support for particular industries, e.g., banking, beverages, the mining industry and many more. For example, SAP's All-In-One ERP Solution to fast track the implementation of a pre-configured solution has been developed for SMEs focusing on specific SME industries by following the best practice methodology [37]. In Australia, some companies have utilized pre-configured ERP systems successfully [33].

4.2. Flexible Pricing Policies

ERP vendors follow flexibility in pricing for their ERP products that are targeted towards the SME market. SMEs can buy the core solution as their immediate requirement and then buy add-on modules/components later on. The ERP pricing options are even more attractive when hosted on the

cloud. This flexibility allows SMEs to invest an affordable amount for selected components as and when required [38,39].

ERP vendors also offer prices of ERP solutions based on the number of client licenses, facilitating SMEs to invest in ERP according to their budget by buying the minimum number of licenses required [39].

Another pricing policy offered by some vendors is ERP financing for SMEs. Financing services make ERP an affordable solution, and it is possible for SMEs to buy an ERP solution by financing it for a few years using well-defined monthly payments. For example, SAP offers SMEs a financing scheme to cover major costs related to SAP implementation up to seven years. These payments include the cost of SAP software, hardware, third-party software, customization, installation and training [36].

In short, ERP vendors offer different pricing plans for ERP implementation to attract SMEs, and the pricing is determined based on module specifications, the number of licenses, subscriptions and annual support and upgrades [40]. Recent ERP offerings in the cloud environment are attractive for SMEs, delivering a competitive advantage in a dynamically-expanding business environment [41].

4.3. Implementation Methodologies

The implementation methods used by ERP vendors have evolved over time to have a fast track execution in order to reduce the expenses, time and effort of SMEs. These methods include implementation processes defined in the ERP itself, modular implementation, continuous training during implementation for quicker knowledge transfer, the workshop-driven approach and post-implementation system support [40]. ERP vendors are packaging ERP software in a way that it is ready to use within a few weeks' times, reducing the total deployment and implementation costs. This ready-to-go software implementation includes detailed, step-by-step implementation procedures, extensive, reusable documentation for scope evaluation and end-user training [36,42]. Figure 1 is an example of the implementation method for providing a packaged solution that SAP offers to SMEs.



Figure 1. Packaged solution: mid-sized enterprises.

4.4. Hosting Options

ERP vendors also offer different hosting options to SMEs, including the provision of infrastructure for running the ERP system comparatively at a cost less than if SMEs have to build and maintain their own infrastructure. ERP software cost is the major component of total investment. Hosting reduces SME implementation costs, including specialized resources required for ERP maintenance [43]. Furthermore, ERP vendors offer 99.99% availability of the infrastructure and services. They have proper infrastructure, including hardware, software and resources, which is not quite possible for an SME. Thus, vendors attract SMEs by claiming that the hosting option at their infrastructure prevents data loss and permits data availability 24/7.

Another variation of a hosting option for SMEs is the application service provider (ASP) solution, in which ERP software is rented. The ERP system is hosted by a specific ASP with expertise and support from ERP vendors. The ASP is fully responsible for support and hardware and software upgrades. The SME can access its application via the Internet and does not have to invest a large amount in the ERP implementation [12]. For example, U.S.-based ASPs like Corio and US Internetworking are offering

ERP software services to SMEs. Both deliver ERP from SAP, Oracle and Siebel [44]. With software as a service (SaaS) cloud platforms available [45], there are various ERP hosting options in private/public clouds, and these require careful scrutiny [46,47]. Literature reports both the advantages, as well as the challenges of cloud-based ERP [48]. A new manufacturing paradigm with cloud-based ERP has been studied [49].

4.5. More Specialized Functionalities

ERP vendors have designed special solutions to cater to different vertical sectors of the SME market and to include a broad range of innovative business functions. SMEs initially activate only currently-required functional areas and then add in more functionality as and when requirements arise [34].

Recently, ERP vendors have been designing their ERP solutions for SMEs in such a way that they are compatible with their own allied products for more specialized functionalities. These special features catering to horizontal integration can also be added any time after or during the implementation of the ERP solution based on SME requirements. For example, SAP Business One has a broad range of innovative functions [38]. Microsoft has a broad range of their ERP-compatible products [50].

4.6. Open Source ERP

ERP solutions presented by open source vendors are not as sophisticated and rich in features as commercially available solutions. However, they are a major attraction for SMEs. These solutions are available for free or at very nominal prices, including documentation. These solutions also make implementation quicker and simpler as they have sufficient features that may be adequate to fulfill an SME's requirements. SMEs can transform their business with less effort and at a low cost. Furthermore, SMEs can migrate to commercially available ERP solutions once they get enough experience in ERP implementation [51].

For example, OpenMFG ERP Suite by OpenMFG and the ERP suite by Compiere are open source ERP solutions. These companies offer ERP software in two ways:

- Free open source tools with licenses and annual support cost or
- Free software with implementation support and custom development on-demand cost.

4.7. Selling into the Midmarket through Both Direct and Partner Channels

ERP vendors market and sell the ERP solutions directly to target SMEs, in accordance with the hybrid go-to-market strategy, and expand their solution portfolio through their worldwide network of SME solution centers. This tactic lessens the configuration burden on ERP vendors' partners and lets them focus on the delivery of an affordable and valuable ERP solution for SMEs. For example, in 2006, SAP setup 11 SME solution centers, and SAP All-In-One was the first product of SAP that was delivered to the SME market through these centers.

5. Barriers to ERP Implementation in SMEs

It is clear from the earlier discussion that the vendor strategies adopted for SMEs are technology oriented to meet the resource, time and cost constraints faced by SMEs for ERP implementation. However, the slow ERP adoption among SMEs is due to the barriers that prevail due to the business context and operating nature of SMEs. Most of the SMEs work in a highly dynamic manner, where changes may occur in both internal and external requirements due to customer preference, government agencies, technology advancement, and so forth. The SME's flexibility to respond to these changes comes from characteristics, like less employees, orders and customers. Hence, it is important for SMEs to retain flexibility even after the adoption of software like ERP [52], as ERP forces a more rigid structure. Among the various ERP implementation and maintenance challenges faced by SMEs,

as shown in Figure 2, issues related to ERP customization, business process reengineering and the required training have been reported to be the top barriers [53]. Many of these are ongoing challenges that SMEs need to address during the entire ERP implementation life cycle. There are noteworthy ERP implementation lessons that SMEs could learn from the various case studies reported in the literature. We further explore the key influencing factors that form barriers to the successful adoption of ERP by SMEs. These are summarized below.



Figure 2. Challenges faced in implementing and maintaining ERP.

5.1. Lack of Organizational Leadership/Commitment from Top Management

Any ERP system implementation process is phased over a time period. In most cases, during the implementation phase, SME's management interest and commitment decline [40].

The management of SMEs has less understanding of ERP implementation aspects, like size, scope and technical problems at the top management level. Sometimes, there is a lack of commitment for providing resources required for successful implementation [54].

5.2. Availability of Skilled Resources

SMEs generally do not have technical and business specialists within the organizations. The scarcity of specialized resources required for initiation, adoption and implementation of new technology, like ERP, creates a negative impact on SMEs [35,55].

Even if SMEs have skills, it is difficult for SMEs to retain experienced staff. This generally happens because of their high demand and tendency to be approached by competitors. Most SMEs attempt to save resource expenses by extending employee's workloads to more than 50%. This approach mostly results in rescheduling the tasks and delays in ERP implementation as employees become exhausted after long and extensive work periods that result in unproductive efforts [54].

5.3. Business Process Reengineering Reduces Flexibility and Competitive Advantage

In general, SMEs have unstructured processes that have evolved over years. Thus, in most SMEs, an ERP implementation requires partial or complete business process reengineering, affecting not only the SME procedures, but also its organizational structure [35,40]. It is observed that SMEs mainly focus on day-to-day survival instead of long-term strategic planning. SMEs work in a highly dynamic manner. It is important for SMEs to retain flexibility, and thus, there is no need to rush for ERP to achieve any benefit against flexibility [35,56].

ERP implementation may change business logic or create conflict with existing business practices, which can further lead to the loss of SME's competitive advantage. In general, the competitive advantage comes from the knowledge and experience of employees, and business operations carried out using ERP systems may be contrary to traditional industry practice [57].

5.4. Internal Change Management

Effective change management is required for ERP implementation due to business process reengineering. Without a proper change management process, an SME organization will not be able to implement ERP successfully [58,59].

5.5. ERP Selection

Most SMEs develop inadequate definitions of functional requirements. SMEs do not analyze the features of the ERP system according to their environment and culture. Executives responsible for ERP implementation in SME usually assist the implementation from their prior experiences without developing new functional requirements based on the current environment. Sometimes, top management is involved in the selection of the ERP system without knowing the characteristics of the system, which often do not meet the SME's requirements [54].

5.6. Ineffective Communication

Effective communication plays a vital role in ERP implementation. Expectations from management at every level of organization need to be communicated to ERP vendors [59]. In SMEs, one of the reasons for unsuccessful ERP implementation is poor communication. Sometimes, communication problems start showing up at the very beginning, *i.e.*, at the time of announcing the purpose for ERP implementation, and it continues till the end, *i.e.*, informing the organization's staff about the progress and importance of the ERP implementation. Poor communication prevents different parts of the organization from assessing how they will be impacted by the changes in processes, policies and procedures [54].

Communication failures occur in implementing ERP because SMEs have no prior experience with large IT projects. Secondly, it is also difficult to identify key contact persons in different departments to be earmarked as ERP implementation ambassadors [44].

5.7. Expectations from ERP and Cost Benefit Utopia

In the SME sector, it is a myth that ERP is an intelligent system that resolves all organization's business problems, like customer satisfaction, product quality, product defects, *etc.*, or that it is an off-the-shelf accounting software. The actual fact is that ERP is a system that is customized according to business requirements and operated by the organization's staff, who make business decisions. Thus, it not only requires the participation of ERP vendors, but also full support and involvement of the top management of SMEs [40].

The most common SME's expectation with respect to ERP price is to get "skies for nothing". There is an effort from ERP vendors to optimize the total cost of ownership (TCO), but the fact is that the quality of implementation and delivery is proportional to investment [40]. In the case of the ASP solution, SMEs generally do not achieve TCO benefits that are offered by ERP vendors, because of low investment, and the majority of SMEs show unwillingness to upgrade their existing IT infrastructure [44].

5.8. Inadequate End-User Training

Another cause for unsuccessful ERP implementation is insufficient training of the ERP system, as it is always underestimated in terms of budget, time and resources. A good training plan for making use of the features and functionality of the ERP system is essential. Every SMEs' staff should sufficiently learn how to interact with ERP and business processes, as ERP will affect the entire organization's operations [54]. Inadequate user training and lack of understanding of how ERP changes the existing business processes are impediments to a successful ERP implementation [58].

5.9. Customization

Leading ERP vendors generally have trouble in offering customization to SMEs; as sometimes, SMEs demand customization and work that appears to be too much for ERP vendors as compared to their big customers. Furthermore, large organizations have always been the main target market for ERP vendors. Therefore, when SME require customization, the vendor takes time to understand SME's business and in designing software programs. In contrast, SMEs find that small ERP vendors are incompetent (not competent enough) to match their requirements. Thus, they approach the top ERP vendors and finally end up with an understanding that no ERP vendor, either leading or small, can provide a solution for their requirements [34].

5.10. Confidentiality

Most of the leading ERP vendors do not offer source codes with the ERP offered to SMEs. SMEs hesitate to disclose their confidential business information because of the fact that leading ERP vendors are limited in number within the SME market, and they can also be a vendor for some other competing SME. A lack of adequate details becomes an obstacle for vendors in ERP customization with the expectation to fully match the minutest of details of the SME's requirements [13].

5.11. Centralized Nature of SMEs

Most of the SMEs have strong centralized management and decision-making, according to which the degree of decision-making power is concentrated. Less decentralized SMEs will be less predisposed to an ERP implementation [35].

5.12. Resistance to Change

Successful implementation of ERP requires full involvement of SMEs especially, in change management [10,52]. SMEs' employees resist the implementation of ERP due to:

- Stressful workload,
- Late involvement of end-users,
- Lack of proper communication,
- Absence of commitment and support from top management and responsible employees,
- Lack of motivation and adaptability.

5.13. Redundant Processes

ERP vendors offer process scoping functionality, which is practically redundant and not required by SMEs. It increases bureaucracy when implemented and does not offer practical management information [57].

By identifying the abovementioned general barriers to ERP implementation by SMEs, we are in a position to formulate best practice guidelines for a successful ERP implementation in an Australian SME.

6. Case Study

A private courier service company in Australia that has been experiencing rapid growth with its franchises is considered as the SME for this study. We have chosen such a typical SME for our case study, as its fast growth requires an ERP system to provide the integration of its dynamic business operations and agile decision support. Though the SME is fast-growing, the existing information systems are not integrated, and the company has different stand-alone applications, such as MYOB, spreadsheet-based software and other file-based utilities. Current information systems have no known ROI and have been incurring high operating costs. Since the IT infrastructure is based on multiple platforms, it is difficult as well as expensive to maintain. In addition, the existing systems are not

able to cope with the growth in franchises and business services. Overall, we identified the following prevailing challenges posed by the existing systems:

- the franchises lacked vital information on business performance, ROI and growth forecasts, as these could only be retrieved from multiple sources using manual IT support.
- the system crashed frequently due to system interoperability and performance issues as emails grew and franchisees increased every day.
- processing new customers of franchises required manual interventions and duplicate data-entry efforts that lost human resource productivity.
- critical customer order information was required by sales workforce while in the field.

The company requires an ERP system to integrate the business operations so as to overcome the above issues with the existing systems. With an ERP system, it is envisaged to improve customer service considerably as the company's franchises could have a real-time view of every business aspect. The framework that we recommend for the ERP implementation project is to:

- (a) use standard functionality,
- (b) integrate with existing working models,
- (c) use an iterative and collaborative approach with franchises and partners for defining and delivering services,
- (d) produce a working 'proof of concept' solution that could be evaluated and refined before wider release to end-users.

6.1. Feasibility Study of the ERP Implementation Project in the SME

An ERP system for the SME is to provide an enterprise-wide and integrated organizational model for delivering information service to the whole organization and to meet the growing business needs. The SME has chosen NetSuite to provide all of the franchises and their sales teams with access to a comprehensive cloud-based organizational model, using an integrated technology platform and to support business management processes aligned with the organizational model. NetSuite is to provide the SME with a mobile optimized version of the ERP system to enable anywhere, anytime access to key sales information. The cloud-based tools available on smart mobile devices to all of the franchisees and salespeople would help to speed up the sales cycle and increase success rates. Automated and streamlined paperwork enables prospects to automatically activate new contracts during meetings via a mobile device. Similarly, an end-to-end full automation gives franchisees immediate access to new customer details and the latest orders, which can be incorporated dynamically into their financial forecasts. These features enable the SME to have greater, real-time visibility of its business. We recommend the following integration steps as essential components for the successful ERP implementation within the SME:

- External application systems via external integration,
- Enterprise portal via portal integration,
- Business intelligence via report integration,
- Internal non-NetSuite system integration.

NetSuite is required to support compliance with legislation and security guidelines. NetSuite will facilitate the provision and sharing of data, information and knowledge. It will also provide various online functionalities and reporting tools for better operational performance, greater access, better decision-making and reporting and improved resource development.

6.2. Target Success Factors of the ERP Implementation Project

According to Law and Ngai [60], identifying the objective(s) and justification for implementing an ERP system will lead towards arriving at the key success factors of the ERP system's adoption. The

main objective of the implementation of ERP in this SME case study is to have a sustainable platform for growth supporting the delivery of customer services effectively through all of its franchises. Through this objective of ERP implementation, it is not only envisaged to increase the efficiency of the administration and operation of franchises, but also to improve their sales strategies. The target success factors considered for the case study are:

- Software alignment with the SME's business processes,
- Improved data access to franchises,
- Increase in new customers,
- Reduced conversion time for prospective customers in placing customer orders,
- Increase in yearly revenues,
- Savings in recurring costs,
- Savings in maintenance costs.

6.3. Process Details of the ERP Implementation Project

The SME followed a list of best practice steps for transitioning to an integrated ERP system as described below.

6.3.1. Evaluate the Organizational Needs (Requirement Analysis and Design Phase)

This initial step involves a comprehensive organizational analysis to understand the needs of the implementation followed by design. To facilitate this, subject matter experts from across all franchises of the SME were involved in workshops held during the detailed requirements analysis phase from May–September 2015. The SME had also completed the detail design phase. In consultation with a diverse team comprised of subject matter experts, HR specialists and representative operational managers, the SME requirements were analyzed and identified. We formulated scenarios that helped the SME and its franchises to visualize the end-to-end supply chain processes in the ERP system design.

For example, Figures 3–6 provide a set of scenarios, where the parcel items could be scanned with a consignment number assigned, which could be traced all along through the delivery job until the customer receives the parcel and is signed-off. In this example, as shown in Figure 3, the logistics personnel assigned to the consignment could capture a picture of the damaged item in a particular consignment from any franchise location using a smart device. The detailed information of the item, as well as the entire consignment could be viewed and could be forwarded to the management for getting approval to replace the item instantaneously. Once approved, the replacement item could be allocated for delivery with sender/receiver details, including special instructions, as shown in Figure 4. The replacement could be made from any franchise that has the item in stock, and the ERP system does this allocation intelligently based on the optimized logistics, which is possible through the integration of delivery jobs among franchises (Figure 5). Finally, once the replacement item is delivered, the transaction is marked as complete with the receiver's sign-off, as shown in Figure 6. These details are captured remotely and sent instantaneously to the back-end system for updating various database records. Since the delivery job can pool-in many consignments together and is integrated within the franchises, the delivery details could be viewed on a mobile device, with various logistics optimization and better decision-making that are possible dynamically anywhere, anytime.

Apart from formulating such scenarios for the SME's ERP system implementation, in this analysis and design phase, all possible risks, like budget, time and data loss or data corruption, were also studied for the implementation of ERP.

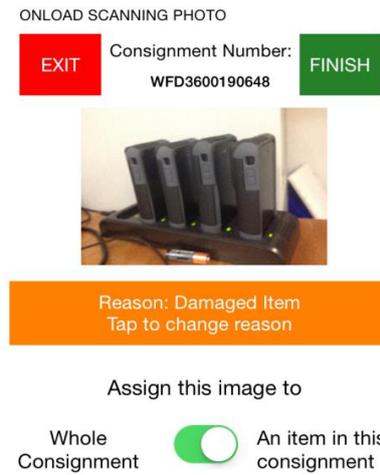


Figure 3. Scenario of a damaged parcel item scanned on a mobile device.



Figure 4. Scenario of delivery jobs integrated with franchises (CTN-Consignment Tracking Notes).



Figure 5. Scenario of optimized delivery jobs.



Figure 6. Scenario of supply-chain process completion with customer delivery sign-off.

6.3.2. Configure an ERP System (Build Phase)

This step sets up and configures the system based on the requirements identified during the initial phase. The Project Team from the SME and NetSuite commenced the building phase in October 2015. The building phase includes configuration of system functionality, training, solution development and system documentation.

6.3.3. Migrate Existing Data to the ERP System (Build Phase)

Records are migrated from the existing databases to the new ERP platform and then tested and validated for accuracy. In the initial phase, the SME has used expert resources to perform detailed analysis of data conversion to avoid time-consuming and frustrating errors. Data migration was done by NetSuite and tested and validated during the testing and deployment phase.

6.3.4. Launch the ERP System (Test and Deploy Phase)

This step ensures that the system has been appropriately configured to work as intended. After testing and resolving issues, the new system is moved to production and becomes active. The SME has not only been planned for testing and deployment of new the ERP system, but also has plans for post-production support for the specific period for a better adaptation with the new system.

6.3.5. Training

Training can begin any time during the data conversion and testing/deployment phases. The SME has used a blended approach for users' training of self e-learning and reference guides. Training is divided into: (1) prerequisite skill assessment session; (2) ERP induction training; (3) core training; and (4) performance support materials.

6.4. ERP Implementation Outcomes

The SME required an integrated ERP system implementation using a structured approach as described above. An analysis of the SME's current Information Systems (IS) platform and new ERP system implementation shows that the new system will strengthen the business across its franchises. The ERP system from NetSuite will also meet the needs of a fully-integrated system and has a wide functionality scope. It offers software modules (e.g., ESS, MSS and Powerful Reporting), which will cover all of the functionalities of franchises to service customers efficiently. In addition, it will eliminate

administrative functions from various departments and will allow each department to spend more time focusing on improving its sales strategy.

However, according to Soja [61], the implementation of ERP systems generally exceeds the time frame and budget for a typical business project. Therefore, clear goals, a business plan and a vision are needed to guide the ongoing organizational effort. In detail, a lack of financial resources, training issues from under-budget, inadequate or neglected training, a lack of internal expertise, a lack of consensus among the organizational senior management, inaccurate reports, resistance to change and alignment between software and business process are hindrances to effective ERP implementation [58,62]. Therefore, we recommend that the SME proactively commits to the implementation of NetSuite business processes and to follow the above formulated implementation steps in order to avoid these issues and to complete the project successfully. We also recommend SuiteApp on top of NetSuite's cloud business management suite, leveraging its powerful SuiteCloud development platform. The integrated solution combines the collective strengths of the SME's franchises to provide fast delivery of parcels by operating in the cloud business management platform, in real time and via any device. It caters to their customers' changing wants and needs dynamically. These features ensure that their digital capabilities can adapt with the existing business needs at present, as well as in the future, so as to provide the services and products for their customers efficiently.

The new ERP system has resulted in the following key benefits for the SME:

- Optimization of the capability available for all areas of the business because of consistent service delivery in the cloud and real time via any mobile device,
- Transformation of parcel delivery and collection processes ranging, from parcel rates, label printing, parcel dispatching and track and trace, to parcel lockers and parcel collection from convenient locations, all processes available in the cloud, in real time and via any device linking customers, delivery departments, franchises and intermediaries for correct and timely delivery of parcels,
- Better, quick and informed decision-making and future planning for franchises by transforming their parcel delivery and collection processes through the integration of each parcel's label printing, dispatching, track and trace, and other activities; while parcel rates could be chosen and verified, as well as labels printed from the website at any customer location, the tracking number generated helps to track the parcel from any smart device,
- Enhanced service delivery quality to employees and managers, enabling them to perform their mission-critical business operations, including inventory management, order management, warehouse management, ecommerce and financials, up to fulfilment, delivery, collection and customer relationship management (CRM),
- Allow each department to respond to their business needs with a scalable and flexible approach.

Overall, we observe that the ERP system in the SME has resulted in customers and stakeholders getting fully engaged with the range of services provided on the cloud ERP platform. At the same time, the SME's consumers wanted more choice and control at checkout, and so, a mobile app was suited to provide them with far greater click and collect options, which drives the SME's franchises to offer these delivery options to their customers, as well. Table 3 provides an overview of the targeted success factors and the actual outcomes achieved by the SME within three months after completion of its ERP project implementation.

Table 3. ERP implementation outcomes of the SME.

Targeted Success Factors	Actual Outcomes
Software alignment with the SME's business processes	Through internal and external integration, the ERP solution provides various online functionalities and reporting tools customized to provision for the SME's business processes
Improved data access to franchises	Franchises have access to a robust, integrated business management tool for managing their complete business cycle, including sales, customer relationship management and finances
Increase in new customers	New customers doubled per month within the first three months without any changes to their sales strategy
Reduced conversion time for prospective customers in placing customer orders	Conversion time reduced from two months to one week
Increase in yearly revenues	Revenues doubled at the end of three months
Savings in recurring costs	Recurring costs reduced by one-fifth because prospect information and tools were available on smartphone or tablet devices
Savings in maintenance costs	Maintenance and repairs were reduced due to the smart predictive reporting features of the ERP system

7. Conclusions

Now more than ever, businesses need to streamline processes to enhance productivity, increase efficiency, lower costs, empower employees and gain flexibility in today's dynamic business environment. To achieve all of this and to obtain greater business value from their information systems, organizations have been integrating data within and also across processes, which is the core objective of an ERP system. While there is a rise in awareness about ERP systems and their benefits, their adoption is slow among SMEs. An integrated ERP system is required to possess characteristics and conditions for achieving user information satisfaction, better system usage, flexibility, scalability and full benefits that would drive its implementation among SMEs. Recently, the SME market has become the focus for ERP implementation, and ERP vendors have started offering solutions in the cloud that would help in diminishing the myth that ERP is only viable for large organizations. Hence, this paper described an Australian SME as a case study to unearth its current information system problems and constraints, especially when the SME was finding it both difficult and expensive to integrate data with its growing franchises. The SME required a single integrated system to support its enterprise-wide dynamic processes consistently with a common approach and seamless access to a common pool of data. We developed a systematic inquiry into the prevailing issues and formulated a set of best practice guidelines for the ERP implementation project undertaken by the SME. By identifying target success factors and by following our recommended implementation process steps, the SME adopted a new integrated ERP system that had resulted in some positive outcomes.

Acknowledgments: This research is self-funded and partial data collected from ongoing students' projects with industry.

Author Contributions: Kiran Fahd performed the initial analysis of the issues faced by SMEs related to ERP implementation. Both the authors conducted literature review and identified the ERP success factors. Sitalakshmi Venkatraman developed the case study and analysed the results and outcomes of the ERP implementation in the SME.

Conflicts of Interest: The authors declare no conflict of interest.

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