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Developing an Enterprise Resource Planning Taxonomy of the Critical Success Factors for ERP implementation

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Abstract: Understanding the critical factors of the success of ERP implementation will benefit both implementing companies and ERP software vendors. First, ERP implementing companies could understand the complexities inherent in ERP implementation projects to avoid possible barriers. In addition, decision makers will be able to prepare better strategies to increase the probability of achieving the desired results. Also, ERP system vendors would build ERP products that keep their customers happier and consequently they may possibly increase their market share and their profits. Second, although the adoption and implementation of the ERP systems has been studied, additional research and insights are needed. This is because ERP product life cycles have become very short, and technology is changing rapidly. Third, the ERP vendors are now trying to extend their market to companies in developing countries. The purpose of this study is to analyze the current literature base of CSFs of ERP implementations and present a new comprehensive taxonomy of CSFs for ERP system implementations. This study is significant because the proposed taxonomy helps both academic and practitioner organize their knowledge for successful ERP implementation. ERP Taxonomy can help in specifying the critical success factors over ERP life cycle in addition it make an ERP evaluation after implementation in terms of business success and project success.

Keywords: Critical success factors, ERP taxonomy, ERP implementation

Introduction

Organizations consider ERP to be a vital tool for organizational excellence because it integrates varied organizational systems and enables flawless transactions and production (Framinan et al. 2004). Successful implementation of an ERP system can reduce inventory, production, shipping, labor, and IT maintenance costs and lead to greater effectiveness and a better competitive edge in terms of improved strategic initiatives and responsiveness to customers (O'Leary 2000; Sandoe et al. 2001; Bharadwaj et al. 2007). As a result, the identification of ERP critical success factors is perceived as playing a crucial role in today's enterprise management and is becoming the core of many organizations (Al-Mashari et al. 2003; Parthasarathy et al. 2007).

Organizations continue to underestimate the complexity of implementing an ERP system throughout its life cycle (Olson and Zhao 2007; Motiwalla and Thompson 2009). Chang (2004) indicates that: (a) 90% of ERP implementations are delivered late or are over -budget, (b) enterprise initiatives show a 67% fail rate in achieving corporate goals and are considered negative or unsuccessful, (c) more than 40% of all large-scale projects fail. Moreover, ERP projects fail due to errors in managing the following dimensions: leadership (42%), organizational and cultural (27%), human and people (23%), technology and other issues (8%) (Waters ,2006).

Shaul and Tauber (2013) concluded that most failures stem from organizations too eagerly committing to ERP implementation without thorough investigation into the potential critical factors and risks. It can be posited that the area of ERP implementation is in dire need of more contributions from quality researches. Moreover, authors have reported the lack of research studies examining ERP critical success factors after implementation by evaluating both business and project success through developing ERP taxonomy that identifying and classifying CSFs.

Based on the above argument, this paper is organized as follows. Section 1.1 defining ERP critical success factors and listing the most critical factors found in the literature. Section 1.2 addressed ERP life cycle models and its critical success factors .Section 1.3 discuss the studies that focus on factors contributing to ERP Implementation Success in specific phase of ERP life cycle .Section 1.4 discuss the studies that focus on factors contributing to ERP implementation success in all phases of ERP life cycle .Section 1.5 discuss the studies that developing a taxonomy of the ERP Critical success factors that impact on ERP implementation success. Section 1.6 addressed the proposed taxonomy of the critical success factors. The paper end up with summery and conclusions.

1.1 ERP Critical Success Factors (CSFs)

The success factors approach dominates the ERP literature and primarily focuses on identifying, developing and analyzing CSFs through case studies (Livermore and Ragowsky 2002; Moon 2007). The ERP implementation literature has extensively examined ways to identify or develop CSFs. Some articles generate a list of CSFs and others analyze data regarding these factors (Moon 2007). However, several studies have criticized the current literature for providing different sets of CSFs (Ngai et al. 2008). In addition, a few studies on CSFs for ERP implementation have presented in-depth analyses of sub factors (Nah et al. 2003). Nevertheless, only a small number of studies have addressed the identification of CSFs and their relevance along the ERP life cycle, unlike most studies that only focus on CSF identification (Esteves and Pastor 2006).

In this study, it is our belief that the concept of CSFs adequately serves that purpose. The concept of Critical Success Factors (CSFs) was developed in early 1960s. Ronald Daniel was the first scholar who discussed, in the literature devoted to management, the idea of CSF. He stated that the information analysis should have the focus on success factors to help organizations achieve their targets (Alqashami *et* Mohammad, 2015).

Rockart (1979) was the one who issued the CSF method, describing it in a Harvard Business Review article, entitled "Chief Executives Define Their Own Data Needs" and since then the method of CSF came to be accepted and employed, in increasing numbers, in organizations (Bullen et Rockart, 1981).

According to the Bullen *et* Rockart's (1981) definition, the CSF are the key areas in a company in which favourable results are necessary in order to ensure the organization productive performance. Rockart (1979) noted that the CSF could lead the company to achieve satisfactory results, ensuring productive performance in the organization. The collection of most articles disused the CSFs was carefully examined in light of common success factor constructs described in extensively cited studies (Al-Mashari et al. 2003; Holland and Light 1999a; Nah et al. 2001; Somers and Nelson 2004; Umble et al. 2003). This careful examination yielded 94 CSFs in ERP implementations as listed in Table 1.

1.2 ERP life cycle models and its critical success factors : The ERP life cycle is assumed to be different from the software life cycle since the ERP package involves configuring and adapting the generic functionality to fit organizational structures and processes developed by a known vendor and only customized by the client rather than programming and creating new software functionalities developed by the client for internal use [Brehm and Markus 2000]. Unlike the traditional view of operational information systems that describes a system life cycle in terms of development, implementation, and maintenance, an ERP system life cycle involves major iterations of subsequent revisions and re-implementations that follow the initial implementation and go far beyond what would normally be considered system maintenance [Chang 2004].

Previous studies have shown that the factors associated with the ERP life cycle make it a multi-faceted phenomenon of immense complexity that there is no simple solution and therefore need a detailed analysis [Chang 2004]. CSFs should be analyzed, in each stage of the implementation process [Esteves and Pastor 2006]. Thus, a broad perspective of the ERP system evaluation process throughout the life cycle of ERP systems is needed due to the complexity of ERP software, its intangible nature which evolves over time and the organizational, technological and behavioral impact of an ERP [Stefanou 2001]. In addition, some factors are temporally bounded in that they are only significant in certain ERP implementation phases [Somers and Nelson 2001]. Generic IS life cycle models should fit the context of the ERP system's project life cycle. However, the strength of generic life cycles can become their weakness. In the following section, the researcher will present studies discussed the factors contributing to ERP implementation success in specific phase of the ERP life cycle, studies investigating the factors contributing to ERP implementation success across the ERP life cycle and studies investigating the factors contributing to ERP implementation success through developing ERP taxonomy for the critical success factors.

Table (1)
A comprehensive critical success factors categorization for ERP implementation that presents the ninety-four CSFs grouped under fifteen constructs along with an indication of sources

Implementation strategy	Akkermans and van Helden 2002; Al-Fawaz et al. 2010; Al-Mashari et al. 2003; Al-Mudimigh 2007; Al-Mudimigh et al. 2001; Bhatti 2005; Brown and Vessey 1999; Brown and Vessey 2003; Buckhout et al. 1999; Chuang and Shaw 2005; Clemons 1998; Davenport 2000; Dezdar and Sulaiman 2009; Doom et al. 2010; Dowlatshahi 2005; Ehie and Madsen 2005; Esteves and Pastor 2000; Finney and Corbett 2007; Francoise 2009; Garcia-Sanchez and Perez-Bernal 2007; Gibson et al. 1999; Gunson and de Blasis 2001; Gupta 2000; Ho and Lin 2004; Holland and Light 1999a; Holland and Light 1999b; Hong and Kim 2002; Ifinedo and Nahar 2007; Jafari et al. 2009; Kamhawi 2007; Kansal 2007; Kraemmerand et al. 2003; Lam 2005; Law and Ngai 2007; Lee and Lee 2001; Loh and Koh 2004; Mabert et al. 2003; Mandal and Gunasekaran 2003; Motwani et al. 2005; Nah and Lau 2001; Nah et al. 2001; Nah et al. 2003; O'Leary 2000; Olson and Zhao 2007; Osman et al. 2006; Parr and Shanks et al. 2000; Plant and Willcocks 2007; Rajagopal 2002; Reimers 2003; Remus 2007; Robey et al. 2002; Ross and Vitale 2000; Sarker and Lee 2003; Shanks et al. 2000; Skok and Legge 2002; Soja 2008; Somers and Nelson 2003; Somers and Nelson 2004; Stefanou 1999; Sumner 2000; Trimmer and Wiggins 2002; Tsai et al. 2004; Tsai et al. 2010; Umble et al. 2003; Verville et al. 2005; Welti 1999; Wong et al. 2005; Woo 2007; Wu and Wang 2010; Yusuf et al. 2004; Zhang et al. 2005;Leandra 2017;Thompson 2018
Use of consultants	
A detailed decision making process style	
Focused performance measures plan	
Effective Planning for the cost of ERP implementation	
system integration	
Appropriate time for system implementation	
Business process reengineering	
Appropriate system selection and examination	
Effective communication	
Departmental requirements are properly defined	
organizational resistance treatment	
Implementation strategy	
Top management support	Akkermans and van Helden 2002; Al-Fawaz et al. 2010; Al-Mashari et al. 2003; Al-Mashari et al. 2006; Al-Mudimigh 2007; Al-Mudimigh et al. 2001; Brown and Vessey 1999; Brown and Vessey 2003; Buckhout et al. 1999; Chua and Lim2009; Chuang and Shaw 2005; Chung et al. 2008; Clemons 1998; Davenport 2000; Dawson and Owens 2008; Dezdar and Sulaiman 2009; Dowlatshahi 2005; Ehie and Madsen 2005; Esteves and Pastor 2000; Falkowski et al. 1998; Francoise 2009; Garcia-Sanchez and Perez-Bernal 2007; Gargeya and Brady 2005; Gunson and de-Blasis 2001; Holland and Light 1999a; Ifinedo and Nahar 2007; Jing and Qiu 2007; Kalling and Selander 2007; Kansal 2007; King and Burgess 2006; Koh and Saad 2006; Lam 2005; Law and Ngai 2007; Lee and Lee 2001; Legare 2002; Loh and Koh 2004; Mandal and Gunasekaran 2003; Motwani et al. 2005; Muscatello and Chen 2008; Muscatello et al. 2003; Nah and Delgado 2006; Nah and Lau 2001; Nah et al. 2003; Nah et al. 2007; Nah et al. 2001; Ngai et al. 2008; Nguyen et al. 2008; Noudoostbeni et al. 2009; Olson and Zhao 2007; Parr and Shanks 2000; Parr et al. 1999; Plant and Willcocks 2007; Reimers 2003; Remus 2007; Saini and Nigam 2010; Shanks et al. 2000; Skok and Legge 2002; Soja 2008; Somers and Nelson 2001; Somers and Nelson 2003; Somers and Nelson 2004; Sumner 2000; Taube and Gargeya 2005; Trimmer and Wiggins 2002; Tsai et al. 2004; Umble et al. 2003; Umble et al. 2003; Verville et al. 2005; Wang et al. 2008; Wong et al. 2005; Woo 2007; Yusuf et al. 2004; Zhang et al. 2005;Thompson 2018
Senior Project leader	
Use of managerial and professional steering committees	
Involvement	
Developing an understanding of needs, capabilities & IT limitations	
Active involvement of senior project champion	
Resolving conflicts	
Business vision	
Willingness to adopt modern technologies	
Allocating valuable resources	
Enterprise system	Al-Fawaz et al. 2010; Al-Mashari et al. 2003; Al-Mudimigh 2007; Al-Mudimigh et al. 2001; Bingi et al. 1999; Botta-Genoulaz et al. 2005; Brown and Vessey 1999; Buonanno et al. 2005; Chang et al. 2008; Chung et al. 2008; Davenport 2000; Dawson and Owens 2008; El Amrani et al. 2006; Esteves and Pastor 2000; Francoise 2009; Holland and Light 1999a; Holland and Light 1999b; Hong and Kim 2002; Jafari et al. 2009; Kamhawi 2007; Kansal 2007; Kumar et al. 2003; Lam 2005; Law and Ngai 2007; Lee and Lee 2001; Legare 2002; Loh and Koh 2004; Mandal and Gunasekaran 2003; Mathrani and Viehland 2010; Murray and Coffin 2001; Muscatello and Chen 2008; Nah and Lau 2001; Nah et al. 2001; Ngai et al. 2008; O'Leary 2000; Olson and Zhao 2007; Osman et al. 2006; Parr and Shanks 2000; Parr et al. 1999; Plant and Willcocks 2007; Reimers 2003; Remus 2007; Saini and Nigam 2010; Shanks et al. 2000; Sharif et al. 2005; Soja 2006; Somers and Nelson 2003; Somers and Nelson 2004; Stefanou 2001; Sumner 2002; Sun et al. 2005; Trimmer et al. 2002; Tsai et al. 2010; Wang et al.
Level of customization	
Ensuring system flexibility to changing conditions	
Ensuring system integration	
Ensuring system reliability	
Ensuring system support	
Suitable considerations of software and hardware	

	2008; Wong et al. 2005; Woo 2007; Yusuf et al. 2004; Zhang et al. 2005;Thompson 2018
Software maintenance	Al-Fawaz et al. 2010: Al-Mashari et al. 2003: Al-Mashari et al. 2006: Doom et al. 2010; Esteves and Pastor 2006; Finney and Corbett 2007; Francoise 2009; Holland and Light 1999a; Ifinedo and Nahar 2007; Ifinedo2007; Loh and Koh 2004; Nah and Lau 2001; Nah et al. 2003; Nah et al. 2001; Saini and Nigam 2010; Tsai et al. 2010; Woo 2007; Zabjek et al. 2009 Thompson 2018
Developing a plan for testing interfaces with integrated legacy systems	
Developing proper troubleshooting tools	
Developing proper troubleshooting skills and techniques	
Developing a testing and troubleshooting architecture	
Data Management	Al-Fawaz et al. 2010; Brown and Vessey 1999; Clemons 1998; Doom et al. 2010; Esteves and Pastor 2006; Hong and Kim 2002; Jafari et al. 2009; Loh and Koh 2004; Mabert et al. 2003; Markus and Tanis 2000; Mathrani and Viehland 2010; Nah et al. 2001; Ngai et al. 2008; O'Leary 2000; Osman et al. 2006; Plant and Willcocks 2007; Remus 2007; Saini and Nigam 2010; Shanks et al. 2000; Soh et al. 2000; Somers and Nelson 2003; Somers and Nelson 2004; Umble et al. 2003; Welti 1999; Woo 2007; Wu et al. 2007; Xu et al. 2002; Zhang et al. 2005 Thompson 2018
Develop a data analysis Plan	
Data model is compatible with data requirements	
Data quality control	
Developing a plan for migrating and cleaning up data	
Develop a Data conversion Plan	
Develop a Data accuracy Plan	
Project Management	Akkermans and van Helden 2002; Al-Fawaz et al. 2010; Allen et al. 2002; Al-Mashari 2003; Al-Mashari et al. 2003; Al-Mashari et al. 2006; Buckhout et al. 1999; Chua and Lim 2009; Chuang and Shaw 2005; Clemons 1998; Davenport 2000; Dawson and Owens 2008; Dezdar and Sulaiman 2009; Doom et al. 2010; Dowlatshahi 2005; Dowltshahi 2005; Esteves and Pastor 2000; Falkowski et al. 1998; Finney and Corbett 2007; Francoise 2009; Gargeya and Brady 2005; Gargeya2005; Gunson and de Blasis 2001; Holland and Light 1999a; Holland and Light 1999b; Ifinedo and Nahar 2007; Jafari et al. 2009; Jing and Qiu 2007; Kalling and Selander 2007; Kamhawi 2007; Kumar et al. 2003; Law and Ngai 2007; Lee and Lee 2001; Legare 2002; Mandal and Gunasekaran 2003; Markus et al. 2000; Mathrani and Viehland 2010; Murray and Coffin 2001; Nah and Delgado 2006; Nah et al. 2001; Nah et al. 2003; Ngai et al. 2008; Noudoostbeni et al. 2009; O'Leary 2000; O'Leary 2000; Osman et al. 2006; Parr et al. 1999; Plant and Willcocks 2007; Reimers 2003; Remus 2007; Saini and Nigam 2010; Shanks et al. 2000; Sharif et al. 2005; Soja 2008; Somers and Nelson 2003; Somers and Nelson 2004; Stefanou 1999; Sumner 2000; Sumner and Bradley 2009; Taube and Gargeya 2005; Trimmer and Wiggins 2002; Tsai et al. 2004; Umble et al. 2003; Verville et al. 2005; Welti 1999; Wong et al. 2005; Woo 2007; Yusuf et al. 2004; Zabjek et al. 2009; Zhang et al. 2005; Thompson 2018
Strong control over change requests	
Knowledge transfer management	
Management of conflicts	
Management of legacy systems	
Clear and defined project plan	
Planning required upgrades	
Management of expectations	
Risk management	
Project tracking	
Total quality management approach	
Interdepartmental communication and coordination	
Professional training services	
Enterprise system selection process	Akkermans and van-Helden 2002; Al-Fawaz et al. 2010; Al-Mashari et al. 2003; Al-Mudimigh et al. 2001; Al-Mudimigh et al. 2003; Esteves and Pastor 2000; Sanchez and Bernal 2007; Gargeya and Brady 2005; Holland and Light 1999a; Hong and Kim 2002; Jafari et al. 2009; Kamawi 2007; King and Burgess 2006; Lam 2005; Lee and Lee 2001; Motwani et al. 2005; Muscatello and Chen 2008; Nah and Delgado 2006; Osman et al. 2006; Plant and Willcocks 2007; Remus 2007; Sharif et al. 2005; Soja 2008; Somers and Nelson 2003; Somers and Nelson 2004; Taube and Gargeya 2005; Umble et al. 2003; Verville et al. 2005; Wong et al. 2005; Woo 2007; Wu and Wang 2007
Careful and professional package selection process	
Fit between ERP system and business process	
Change management	Al-Fawaz et al. 2010; Allen et al. 2002; Al-Mashari et al. 2003; Al-Mudimigh 2007; Brown and Vessey 1999; Brown and Vessey 2003; Buckhout et al. 1999; Buonanno et al. 2005; Davenport 2000; Esteves and Pastor 2000; Francoise 2009; Gunson and de Blasis 2001; Hong and Kim 2002; Huang and Palvia 2001; Ifinedo and Nahar 2007; Kalling and Selander 2007; Kamhawi 2007; Legare 2002; Nah et al. 2007; Nah et al. 2001; Ngai et al. 2008; Olson and Zhao 2007; Plant and Willcocks 2007; Remus 2007; Skok and Legge 2002; Soja 2008; Somers and Nelson 2004; Sumner 2000; Trimmer and Wiggins 2002; Tsai et al.
Change management program	
Understanding the political structure	
Understanding the organizational culture	

	2004; Umble et al. 2003; Verville et al. 2005; Wong et al. 2005; Woo 2007; Yusuf et al. 2004; Zhang et al. 2005; Leandro 2017;Thompson 2018
Project team competence	Al-Fawaz et al. 2010; Al-Mashari et al. 2006; Barker and Frolick 2003; Bingi et al. 1999; Bradley 2008; Brown and Vessey 1999; Brown and Vessey 2003; Chua and Lim 2009; Chuang and Shaw 2005; Davenport 2000; Dawson and Owens 2008; Esteves and Pastor 2000; Falkowski et al. 1998; Finney and Corbett 2007; Gargeya and Brady 2005; Holland and Light 1999a; Ifinedo and Nahar 2007; Jing and Qiu 2007; King and Burgess 2006; Law and Ngai 2007; Legare 2002; Mabert et al. 2003; Mandal and Gunasekaran 2003; Marsh 2000; Motwani et al. 2005; Motwani et al. 2008; Muscatello et al. 2003; Nah et al. 2001; Ngai et al. 2008; Nguyen et al. 2008; Noudoostbeni et al. 2009; O'Leary 2000; Parr et al. 1999; Plant and Willcocks 2007; Saini and Nigam 2010; Sarker and Lee 2003; Shanks et al. 2000; Skok and Legge 2002; Soja 2008; Somers and Nelson 2003; Somers and Nelson 2004; Sumner 2000; Taube and Gargeya 2005; Trimmer et al. 2002; Tsai et al. 2004; Tsai et al. 2010; Umble et al. 2003; Verville et al. 2005; Wang et al. 2008; Willcocks and Stykes 2000; Wong et al. 2005; Woo 2007; Xu et al. 2002; Yang and Seddon 2004; Zhang et al. 2005; Leandro 2017;Thompson 2018
Team members' knowledge	
Good relations between project team and users	
Build team morale and motivation	
Full time team members	
Balanced and cross functional project team	
Staff retention	
Empowered decision makers	
Deep understanding of key ERP implementation issues	
Organizational experience of major change	Allen et al. 2002; Bradley 2008; Davenport 2000; Doom et al. 2010; Gargeya and Brady 2005; Ho and Lin 2004; Mabert et al. 2003; O'Leary 2000; Parthasarathy et al. 2007; Saini and Nigam 2010; Taube and Gargeya 2005; Yusuf et al. 2004; Leandro 2017;Thompson 2018
Former major organizational change experience	
Having in place advanced technology	
Former major IT change experience	
Acceptance control	Al-Fawaz et al. 2010; Al-Mashari 2003; Al-Mashari et al. 2003; Al-Mudimigh et al. 2001; Bradley 2008; Dowlatshahi 2005; Falkowski et al. 1998; Francoise 2009; Garcia-Sanchez and Perez-Bernal 2007; Holland and Light 1999a; Kansal 2007; Loh and Koh 2004; Mabert et al. 2003; Murray and Coffin 2001; Nah and Lau 2001; Nah et al. 2003; Nah et al. 2001; Nguyen et al. 2008; Olson and Zhao 2007; Remus 2007; Soja 2008; Tsai et al. 2004; Umble et al. 2003; Welti 1999; Woo 2007; Yusuf et al. 2004
Monitoring and evaluation of performance metrics	
Monitoring progress against clear milestones	
User acceptance feedback management	
Education and training	Al-Fawaz et al. 2010; Al-Mashari et al. 2006; Al-Mudimigh et al. 2001;Davenport 2000; Dowlatshahi 2005; Esteves and Pastor 2000; Gupta 2000; Ifinedo and Nahar 2007; Jafari et al. 2009; Jing and Qiu 2007; Kalling and Selander 2007; Kumar et al. 2003; Lee and Lee 2001; Legare 2002; Mabert et al. 2003; Mandal and Gunasekaran 2003; Muscatello et al. 2003; Noudoostbeni et al. 2009; O'Leary 2000; Osman et al. 2006; Plant and Willcocks 2007; Rao 2000; Remus 2007; Robey et al. 2002; Saini and Nigam 2010; Shanks et al. 2000; Soja 2008; Somers and Nelson 2004; Sumner 2000; Sumner and Bradley 2009; Trimmer et al. 2002; Tsai et al. 2004; Umble et al. 2003; Welti 1999; Wong et al. 2005; Woo 2007; Yusuf et al. 2004; Zhang et al. 2005; Leandro 2017;Thompson 2018
Education and training of technical and support staff	
Education and training of end users	
Education on future business processes	
Developing a clear education and training plan	
Vendor	Akkermans and van Helden 2002; Al-Fawaz et al. 2010; Amoako-Gyampah 2004; Bingi et al. 1999; Chung et al. 2008; Colmenares 2004; Davenport 2000; El-Sawah et al. 2008; Esteves and Pastor 2006; Gargeya and Brady 2005; Ifinedo2007; Jing and Qiu 2007; Kansal 2007; King and Burgess 2006; Mabert et al. 2003; Nah et al. 2001; Ngai et al. 2008; O'Leary 2000; Plant and Willcocks 2007; Palaniswamy and Frank 2002; Reimers 2003; Skok and Legge 2002; Somers and Nelson 2003; Somers and Nelson 2004; Stefanou 1999; Sumner and Bradley 2009; Taube and Gargeya 2005; Trimmer and Wiggins 2002; Tsai et al. 2004; Tsai et al. 2010; Verville et al. 2005; Wang et al. 2008; Wei and Wang 2004; Yusuf et al. 2004; Zhang et al. 2005; Leandro 2017;Thompson 2018
ERP vendor characteristics	
Partnership with vendor	
Vendor support	
Use of vendors' tools	
Keeping suppliers and customers informed	
External Environment	Bradford and Florin 2003; Buonanno et al. 2005; Chan 2008; Davenport 2000; Holland and Light 1999b; Hsiao et al. 2007; Huang and Palvia 2001; Hung et al. 2004; Koh and Saad 2006; Lee and Myers 2004; Mabert et al. 2003; Raymond et al. 2006; Santamaría et al. 2010; Seethamraju and Seethamraju 2008; Shanks et al. 2000; Stafyla and Stefanou 2000 ; Stefanou 2001; Tsai et al. 2010; Umble et al. 2003; Verville et al. 2002; Wu and Wang 2007; Zhang et al. 2005; ; Leandro 2017;Thompson 2018
Opportunities for growth	
Competition in industry	
External pressure	
Competitors`' adoption of ERP	
Uncertainty about environment	
User involvement	Al-Fawaz et al. 2010; Barker and Frolick 2003; Bhatti 2005; Davenport 2000;
User participation in the overall process approach	Dowlatshahi 2005; Esteves and Pastor 2000; Francoise 2009; Garcia-Sanchez and Perez-Bernal 2007; Gefen 2002; Holland and Light 1999; Holland and Light 1999a; Kansal 2007; Lee and Lee 2001; Olson and Zhao 2007; Plant and Willcocks 2007; Remus 2007; Skok and Legge 2002; Somers and Nelson 2003; Somers and Nelson 2004; Verville et al. 2005; Woo 2007; Yusuf et al. 2004; Leandro 2017;Thompson 2018
User participation in defining new processes	
User uses the system according to guidance	
Enhance users' trust	
Using ERP to fulfill cross functional areas	

1.3 Theoretical Background of factors contributing To ERP Implementation Success in a specific phase of the ERP life cycle.

There are few studies investigating CSFs for a specific ERP life cycle phase which are presented in Table (2). Although the examination was detailed, the importance of the CSFs across the life cycle varied considerably when comparing the overall importance of CSFs for the entire ERP life cycle (Esteves and Pastor 2006).

Table 2 Studies investigating CSFs in terms of a specific ERP life cycle phase

Study	Phase	Short Definition
Dawson and Owens [2008]	Chartering	"Ideas to dollars" – Decisions defining the business case and solution constraints.
Gunson and de-Blasis [2001]	Planning	The outset of the project implementation with a transformation toward new business paradigms.
Al-Mashari et al. [2008]	Selection	Setting vision and direction for the business, harnessing employees' energy and creativity and implementing modern concepts
Livermore and Ragowsky [2002]	Selection (mainly)	A detailed examination and definition of business needs, company capabilities, constraints and modules of the core system to support critical business practices and partners.
Olson and Zhao [2007]	Upgrade	To take advantage of new technologies and business strategies to ensure that the organization keeps up with the latest business development trends. The decision is usually not driven by code deterioration or anticipated efficiency alone.
Verville et al. [2005]	Acquisition	Acquisition team operates information search, screening and evaluation of technologies and vendors, pre-selection, final plan and negotiation.
Stefanou [2000]	Selection	Selection of the specific modules of the core system that support critical business practices and any additional applications the enterprise may need in view of requirements analysis.

Some of the studies conducted focus on the selection (Preparation phase) while others focus on the implementation phase only. CSFs for ERP implementations were analyzed in terms of the selection and purchasing process of an ERP system (Stefanou 2001; Brown et al. 2000).

Umble (2003) specifies the most prominent critical success factors during the pre implementation phase which are: 1. Clear understanding of strategic goals. 2. Commitment by top management. 3. Excellent project management. 4. Organizational change management. 5. A great implementation team. 6. Data accuracy. 7. Extensive education and training. 8. Focused performance measures. 9. Multi site issues. One of the objectives of an ERP implementation may be to increase the degree of central control through the implementation of standardized processes. Also, **Tsai (2012)** found that consultants' involvement, flexibility in adjusting demands according to business requirements, systems with ease of use capability and the degree of computability between the system and

business process are the key factors for ERP implementation success.

Nah (2007) investigates factors influencing the success of ERP implementations in multinational manufacturing companies in the Malaysian Free Trade Zone. The results indicate that enterprise-wide communication and a project management program are key factors influencing the success of ERP implementations, while other factors such as top management support as well as teamwork and composition are not as critical to the outcome. Organizational culture is a moderator of the relationships between enterprise-wide communication, a project management program, and the success of ERP implementations.

On the other hand **, Bahatti (2005)** focus on the critical success factors during the implementation process in which the study concluded that the critical success factors are project management ,process redesign ,user training, change management ,top management support and user involvement .

The researcher found that there are only few studies conducted about the critical factors for ERP successful implementation focus on specific phase of ERP life cycle as in order to study the successful ERP implementation the researcher must go through factors along the ERP life cycle.

1.4 Theoretical Background of factors contributing To ERP Implementation Success through the project life cycle

The ERP life cycle covers five fundamental phases which are frequently cited in the literature: planning, implementation, stabilization of the ERP system into normal operation, enhancement, in which the business process is continuously improved and additional user skills are delivered (Markus and Tanis 2000). Three sub-phases of enhancement termed backlog, new module and major upgrade were further defined; it was pointed out that these sub-phases are unique and the post implementation periods and their activities. Although they are sometimes viewed a similar to those in the initial implementation period, they still are carried out in the different reality of the current operating system. Specifically, the new module phase considers the major additional capabilities that are integrated into the ERP when the ERP system has already become the backbone of the organization and can change and extend organizational boundaries, leading to significant benefits such as business process improvements, customer responsiveness and strategic decision-making (Bharadwaj et al. 2007).

Although ERP systems offer broad functionalities to support all the core functions of an organization, many expected benefits of ERP do not materialize for a variety of reasons such as environmental changes and users' increased requirements during utilization because of positive perceptions of their legacy and in-house developed systems (Gargeya and Brady 2005). Therefore, there is still a need to continuously adapt and enhance an ERP after its first implementation to resolve users' dissatisfactions regarding expectations and the requirement backlog given the gap between actual functionality and benefits promised by the ERP (Motiwalla and Thompson 2009).

An examination of CSFs across the ERP life cycle is essential for several reasons. First, it differs from attempting to define CSFs for each phase of the

implementation life cycle (Esteves and Pastor 2006). Second, in terms of effective project monitoring, it identifies, anticipates, and allocates time and resources across those factors that require attention. Third, it provides an understanding of the factors, their varying meanings and importance across the entire ERP implementation life cycle, guiding all parties in the entire implementation process (Somers and Nelson 2001). Fourth, such an examination can provide a better grasp of how to make sure the ERP implementation avoids failure (Guang-hui et al. 2006).

Several studies have addressed both the identification of CSFs and their relevance over the entire life cycle of ERP system implementation as presented in Table 3.CSFs analysis is also crucial in the context of post implementation as a company may go through several processes. First, the company can experience a three to six month productivity decline. It can overcome this by redefining jobs, establishing new procedures, fine-tuning ERP software, and managing the new streams of information created by the ERP system. Second, it can become involved in skills development, structural changes, process integration, and add-on technologies that expand ERP functionalities (Nicolaou 2004). In addition, research on CSFs in ERP system implementation has revealed some of the complexities that can affect planning and implementation, the two major stages in the ERP life cycle (Mandal and Gunasekaran 2003). Moreover, critical issues and factors were analyzed not only during the initial phases of implementation, but also for the successful upgrade of packaged ERP (El-Amrani et al. 2006).

Table 3 - Studies of CSFs across the life cycle

Study	Phases discussed	
[Esteves and Pastor 2006]	1. Project planning 2. Business blueprint	3. Realization 4. Final preparation 5. Go Live
[Fulla 2007]	1. Pre adoption 2. Adoption 3. Pre-implementation	4. Pilot study 5. Implementation 6. Post implementation
[Ahituv et al. 2002]	1. Selection 2. Parallel definition	3. Development and implementation 4. Operation
[Akkermans and van Helden 2002]	1. ERP vendor Selection 2. Implementation	3. Going alive 4. Operation 5. Improvements
[Al-Mashari et al. 2003]	1. Setting-up 2. implementation, revisions and	re-implementations 3. Evaluation
[Chang et al. 2001]	1. Initial implementation	2. Subsequent 3. Maintenance
[Somers and Nelson 2001] [Somers and Nelson 2004]	1. Initiation 2. Adoption 3. Adaptation	4. Acceptance 5. Routinization 6. Infusion

Study	Phases discussed	
[Guang-hui et al. 2006]	1. Programming 2. Executive	3. Stabilization 4. Ascending
[Loh and Koh 2004]	1. Preparation, analysis and design.	2. Implementation. 3. Maintenance
[Mandal and Gunasekaran 2003]	1. Pre-implementation 2. Implementation	3.Post-implementation
[El Amrani et al. 2006] [Kumar et al. 2003] [Markus et al. 2000] [Nah et al. 2001] [Nah and Delgado 2006] [Wong et al. 2005]	1. Chartering 2. Project	3. Shakedown 4. Onward and Upward
[Shaul and Tauber 2011]	1. Planning 2. Implementation 3. Stabilization	4. Backlog 5. New module 6. Major upgrade
[Parr and Shanks 2000]	1. Planning 2. Setup 3. Re-engineering 4. Design	5. Configuration 6. Testing and installation 7. Enhancements
[Plant and Willcocks 2007]	1. Pre-implementation	2. Post- implementation
[Shanks et al. 2000]	1. Planning 2. Implementation	3. Stabilization 4. Improvement
[Stefanou 2001]	1. Business vision 2. Selection 3. Implementation	4. Operation, maintenance and Evolution
[Tsai et al. 2004]	1. Pre-implementation	2. Post-implementation
[Ward et al. 2005]	1. Project	2. Service (support)
[Yusuf et al. 2004]	1. Strategy and direction 2. Planning	3. Implementation 4. Waves

Holland and light (1999) identified the scale and strategic importance of ERP systems and the problem of ERP implementation is defined. Five company examples are analysed using a Critical Success Factors (CSFs) theoretical framework. The case analysis identifies different approaches to ERP implementation, highlights the critical role of legacy systems in influencing the implementation process and identifies the importance of business process change and software configuration in addition to factors already cited in the literature such as top management support and communication.

The researcher specified that the critical success factors can be divided between the planning (strategic) phase and the action (tactical) phase of the project. Strategic issues specify the need for a project mission, for top management support and a project schedule outlining individual action steps for project implementation. These issues are most important at the beginning of the project.

Tactical issues gain in importance towards the end of the project and include communication with all affected parties, recruitment of necessary personnel for the project team and obtaining the required technology and expertise for the technical action steps. User acceptance, monitoring and feedback at each stage, communication to all the key project people and troubleshooting are also classified as tactical issues. However, Strategy and tactics are not independent of each other and strategy should be used to drive tactics.

Also, Esteves and Pastor (2000) classify critical success factors into Organizational and Technological, and then further sub-divide them into strategic and tactical factors By cross-referencing each of the factors with its citations in the literature. Esteves and Pastor (2000) derived the ERP implementation success matrix (also termed unified critical success factors model) while **Somers and Nelson (2001)** identified 22 critical success factors presented and evaluated them across stages of ERP implementation. The top six factors across the stages are: (i) top management support, (ii) project team competence, (iii) inter-departmental cooperation, (iv)clear goals and objectives, (v) project management, and (vi) inter-departmental communication. **Somers and Nelson (2002)** used an information theory approach and analyze the fit between their importance, as noted in the current literature, and the experiences reported by a cross-section of 116 organizations that completed an enterprise system implementation experience. The results suggest that the early literature- and case-based research on enterprise systems does not take into account the importance of several key variables.

Another comprehensive examination of the critical success factors of ERP implementation was carried out by Nah and her colleagues (Nah, et al., 2001; Nah, et al., 2003; Nah & Delgado, 2006). the top six critical success factors identified by Chief Information Officers of Fortune 1000 companies are: (i) top management support, (ii) project champion, (iii) ERP teamwork and composition, (iv) project management, (v) change management program and culture, and (vi) effective enterprise-wide communication (Nah et al., 2003). Hence, top management support, project management, and enterprise-wide (or inter-departmental) communication are three common factors in Nah et al.'s (2003) and Somers and Nelson's (2001) "top factors" lists, whereas "ERP teamwork and composition" in Nah et al.'s (2003) list captures key aspects of project team competence and inter-departmental cooperation in Somers and Nelson's (2001) list. Therefore, we selected this set of four factors—top management support, project management, enterprise-wide communication,

Nah and Lau (2001) conduct a comprehensive review of the literature, a total of 11 critical success factors for ERP implementation have been identified, based on a review of the ERP literature. Teamwork and composition in the ERP implementer-vendor-consultant partnership is a key factor influencing ERP implementation success. Good coordination and communication between the implementation partners are essential. Another very critical factor is change management program and culture. Furthermore, user training, education and support should be

available and highly encouraged. Other critical factors include top management support, business plan and vision, BPR and minimum customization, effective communication, project management, software development, testing and troubleshooting, monitoring and evaluation of performance, project champion, and appropriate business and IT legacy systems.

Finney and Corbett (2007) reviewed 45 articles to discover 26 CSFs using the content analysis technique. In another study, 19 factors were determined to be critical using literature review approach (Upadhyay & Dan, 2008). An extensive review of literature covering 341 articles revealed 94 CSFs in 20 dimensions (Shaul & Tauber, 2013).

A case study research by **Shanks (2000)** revealed that only 11 factors were critical for ERP implementation. Categories relating to CSFs for ERP implementation were extended to include people, vendor and culture using the partial least squared technique to rank these factors (Zhang, Lee, Zhang & Banerjee, 2003). **Somers and Nelson (2004)** explored 111 organizations that had implemented ERP to discover 22 CSFs. Structural equation modelling technique was employed to ascertain relationships between CSFs, project implementation success and post-implementation performance (Ram, Corkindale & Wu, 2013). **Parhizkar and Comuzzi (2017)** implemented a framework for conducting the impact analysis of ERP post-implementation modifications.

Thompson et al (2018) uses the advanced impact analysis (ADVIAN®) method to derive critical success factors (CSFs) of enterprise resource planning implementation in higher education institution. The ADVIAN® method classified 20 factors into categories of integration, criticality and stability as well as ranked them by measures of precarious, driving and driven. The results of the classification and ranking show five factors that are ideal for intervening activities which are vendor support ,top management involvement, project plan, project management and leader (driving factors) and 5 factors that should be observed as indicators of successful interventions which are change management ,post implementation evolution ,software testing ,user training and user involvement (Driven factors) as well as two critical factors are organizational culture and implementation strategy. Eventually, 12 CSFs were found that provide managers of higher education institution with a reference point to improve ERP implementation.

Leandro et al (2017) identify the Critical Success Factors (CSF) for the implementation of ERP systems. A literature review, where 30 CSF used in scientific articles were identified, has been prepared as shown in table (7). Based on the found CSF, 20 were selected to compose a questionnaire constructed with the Likert scale and applied to 70 ERP systems specialists in educational institutions, in order to get the perception of the most CFS relevant during the pre-implementation, implementation and post-implementation phases. As a result of this field survey, a ranking of the degree classification “very important” for 20 CFS was drafted by percentage in the ERP lifecycle. This work intends to contribute with a comprehension in terms of what CFS needs to be observed during each phase of the ERP systems implementation in educational institutions.

Ashja *et al.* (2015) developed a work whose aim was to identify the ERP

system life cycle and find the CSF that stood out at every point in its lifecycle. Ashja *et al.* (2015) proposed the classification of the ERP system life cycle in three essential stages in that all information system goes through pre-implementation, implementation and post-implementation processes. According to Ashja *et al.* (2015), the pre-implementation stage begins when the organization understands that the ERP system is the best solution to enhance and develop its business. This phase involves the financial question and selecting the appropriate ERP system package. On the implementation stage, these authors assert that this phase includes providing an action plan for implementing the ERP system, the application of the software package, users training and the execution system. Ashja *et al.* (2015) claim that the last stage, post-implementation, includes two main stages: first, stabilization and, secondly, improving and updating. The authors state that, in this step, users' problems and difficulties stand out and, in addition, the project team must be ready for the correction of possible bugs and system settings for better performance, until all organization operations happen within normality. For these authors, the system improvement and upgrade are crucial.

Adam (2009) reports those ERP experiences of Malaysian and the USA companies. The aim of the research is to examine the critical success factors needed to ensure success of ERP implementation and to explore the impact of ERP on various operational performance measures this research provides a better understanding of ERP practice across cultures, particularly for multinationals operating in Malaysia and the USA.

Hasibuan (2012) specified the main critical success factors for ERP implementation a long ERP life cycle which are project preparation, technology selection, project formation and implementation in which effective communication is the most important factor in project preparation, strong ERP product in technology selection, integration in the project formation and user training in the implementation phase.

1.5 Theoretical Background of factors contributing To ERP Implementation Success through developing ERP taxonomy

3.4.3.1 The Need for Taxonomy

The recent literature emphasised that ERP implementations differ significantly with respect to their motivation, and that these difference in motivation affect the proposed scope, design, and approach to the ERP implementation. There are significantly different motivations for implementation of ERP and these motivations may result in widely differing projects. Also, the type of ERP implementation whether it's comprehensive, middle road or vanilla method affect on the ERP implementation and there is agreat need to study the factors affect on the ERP implementation not only along ERP life cycle but also making an evolution after the ERP implementation to determine its degree of success.

Samler and Lewellen (2004) stated that taxonomy can help make searches easier by assigning concepts to a category and defining relationships between those categories. Sravanapudi (2004) believed that taxonomies matter because they help us organize our knowledge. Of the many attributes of a good taxonomy, two of the most important qualities are: (1)

Structure: A logical and disciplined hierarchical structure of categories that make sense to the business. Good taxonomies are not too deep or too wide. They sum up the rigour of a knowledge worker and enable it to be reused without requiring the same discipline of the users. (2) Completeness: A good taxonomy contains all the terms used to describe the business, i.e. the "language of business." Consider a global automobile manufacturer. By analyzing all the CFSs mentioned in the literature during the last ten years (1999-2008), taxonomy of CSFs for ERP implementation is formulated.

The Taxonomy

The taxonomy consists of implementation categories and implementation characteristics. The three categories are Comprehensive, Middle-road and Vanilla. Comprehensive is the 'full ERP' method involves implementing all the required ERP modules and then linking the whole ERP to the legacy systems. An ERP such as SAP R/3 for example consists of 12 main modules, each with a range of sub-modules. The complexities imply large resource allocation. The middle road is, as the name suggests, mid-way between a Comprehensive and a Vanilla implementation. Characteristically, there are multiple sites (although there may be only one extensive site), and a major decision is to implement a selection only of core ERP modules. For example, with the SAP R/3 system it might be decided to implement Financials, Controlling and Asset management and Project systems. Such systems may take 3-5 years to implement, and cost about $A3M. Vanilla is the least ambitious and least risky implementation approach. Typically, the implementation is on one site only, and the number of prospective system users is small (less than 100). A decision is made to have core ERP functionality only, and to do minimal BPR in order to exploit fully the process model built in to the ERP. This decision essentially is a decision to align company processes to the ERP rather than modify the ERP to reflect unique business processes. These systems are the least complex, and typically they may be implemented in 6-12 months, and cost $A1-2M.

Al-Mashari et al (2003) presents a novel taxonomy of the critical success factors in ERP implementation process. ERP benefits cannot be fully realised unless a strong alignment and reconciliation mechanism is established between technical and organisational imperatives based on the principles of process orientation. Upon this premise, the taxonomy is based on a comprehensive analysis of ERP literature combining research studies and organisational experiences. The taxonomy reflects the essential features of ERP systems, as being built based on the principles of business process management. Furthermore, it illustrates that ERP benefits are realised when a tight link is established between implementation approach and business process performance measures.

The taxonomy represented in Figure 1 is a means for illustrating on the one hand the inter-relationship between core business strategy aspects, and on the other, the role of IT and associated systems can play in supporting the effective deployment of key business imperatives through process improvement and management and through regular performance monitoring and review.

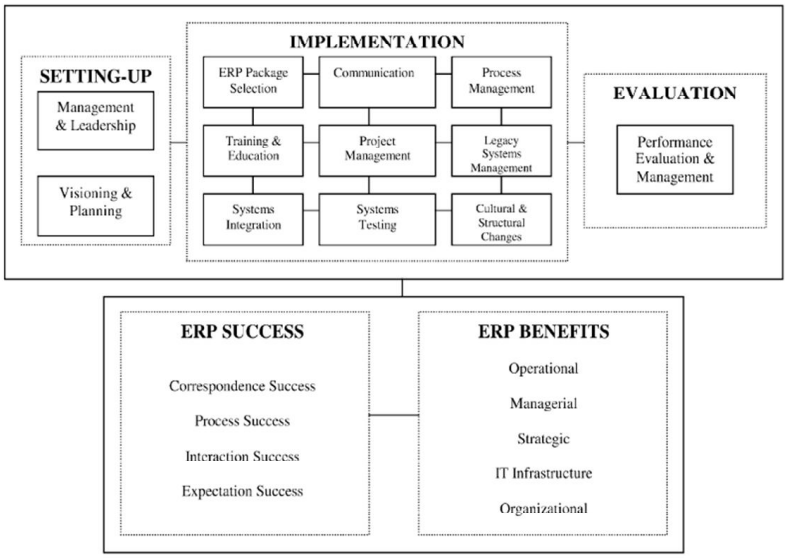


Figure (1). Research Framework: A Critical Success Factors Model of Implementation (Al-Mashari et al ,2003)

Dezedar (2009) compiles literature that highlighted possible references to CSFs for ERP implementation projects. In total 17 CSFs were identified, which is then categorized into five main categories Taxonomy of CSFs for ERP implementation. (figure 2)

This study categorized the ERP implementation CSFs into five main factors of an ERP implementation projects, i.e. "ERP software, ERP expertise, ERP user, ERP project, and ERP adopting organization" Because this kind of classification gives a chance to stakeholders of ERP implementation project to highlight the area in which problem may occur and evaluate ERP implementation success from five collective points of view. From a practical point of view, understanding the determinants of ERP implementation will be of benefit to both adopting companies and software vendors. Decision makers will be able to formulate better strategies to enhance ERP implementation, while vendors will build ERP products that satisfy their customers, and, therefore, they can make more profit.

The literature in ERP implementation has a heavy emphasis on companies in the developed countries from Europe and North America. Little work has been done on companies in developing countries. Research shows that ERP technology faces additional challenges and increasing dependencies in developing countries (Al-Mashari et al., 2006).

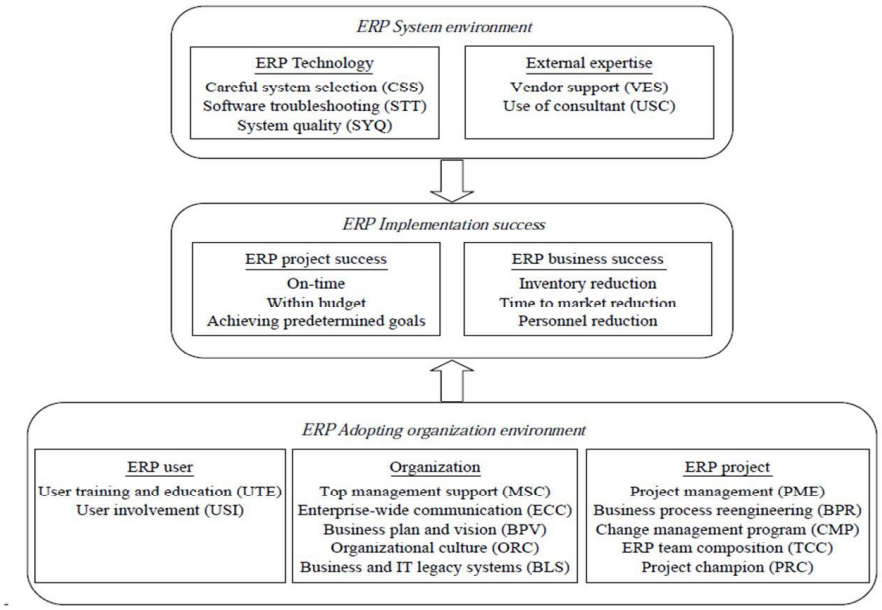
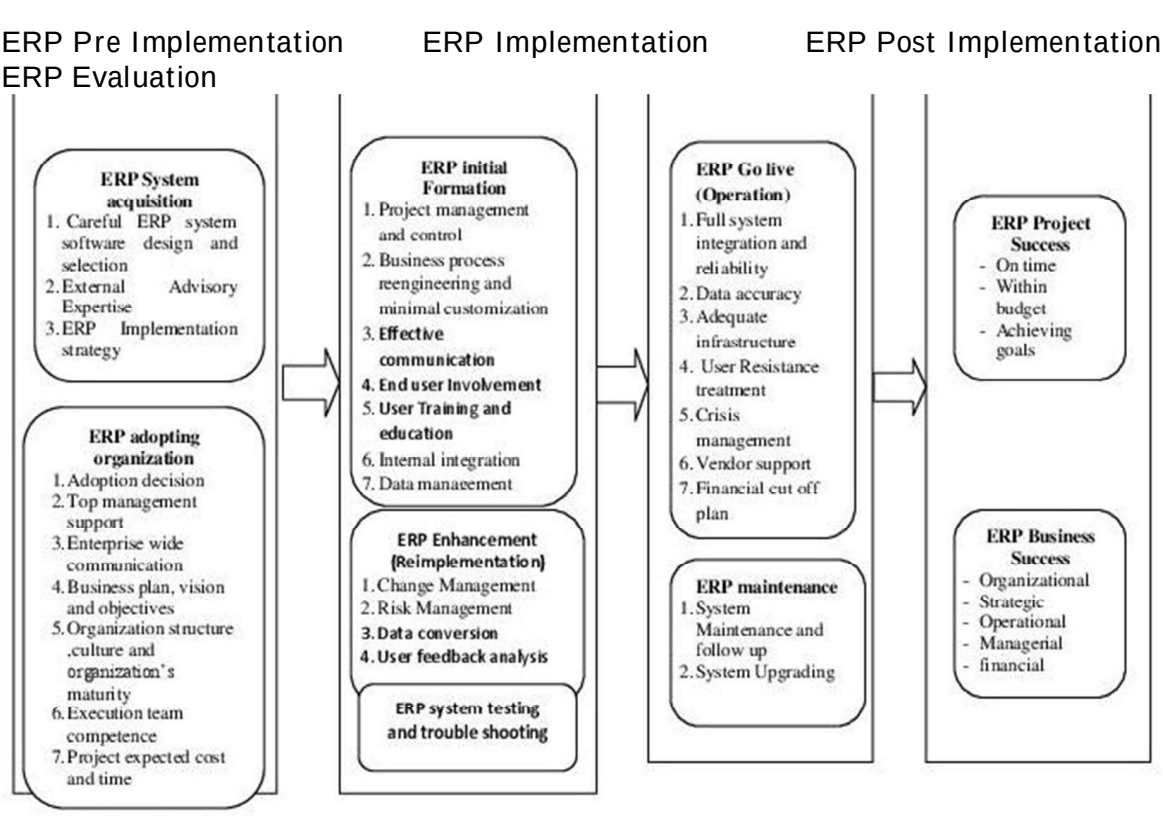


Figure (2) ERP Taxonomy developed by Dezdar 2009

Dezdar (2012) developed a proposed taxonomy based on strategic and tactical success factors. This study uses the expert judgement approach (Kalema et al. 2014) to validate the 20 CSFs identified from the literature to ensure the contexture relevance of these factors. The study concluded that the key strategic success factors are top management support ,project management and business process reenignerring while the key tactical success factors are enterprise wide communication ,user training and vendor support.

1.6 Proposed Taxonomy for the ERP Critical Success Factors (CSFs):

By analyzing all the CFSs mentioned in the literature, taxonomy of CSFs for ERP implementation is formulated. This study divide the CFSs into three categories "ERP Pre implementation ",ËRP Implementation "and" ËRP Post Implementation "and these categorisation divides into subcategories as presented in the figure below



ERP evaluation contains two parts variables presented brief as follows:

1- **ERP Project Success**

ERP project success can be measured in terms of time, cost and goals as usual information system contexts applied.

a)User Satisfaction

User Satisfaction is a second dimension to assess ERP implementation success by getting responses to some questions from respondents about ERP system as well as the degree of overall satisfaction with the system. Bailey and Pearson defined the user satisfaction as the sum of one's feelings regarding an IS and as a good surrogate measure of IS success. In addition, Ginzberg(2002) adopted user satisfaction to measure IS implementation success. b) **System and Information Quality, ERP Performance**

The quality of ERP is important criteria of ERP project success according to the D&M Model, they concluded the project IS success such as ERP system depends on the System, Information and performance Quality dimensions in their models, to improve user satisfaction and business benefits. These items of questions below summarized from D&M model and others in same model. Moreover, Chang (2008) proposed a model for measuring the performance of the information systems function. The model consists of three dimensions i.e. systems performance, information effectiveness, and service performance and emphasizes the comprehensiveness of the Information Systems Function Performance (ISFP) construct. He found out that the ISFP measures were positively related to improvement in

business -processes and organizational performance.

1- **ERP Business success:**

The measurement of impacts of ERP is hard same as measuring the success of information system. From literature reviews the authors addressed six groups of benefits that important and relative impact points of ERP system as follows.

a) Operational Benefits
The principal benefits of ERP system are the ability to integrate business processes, effectiveness in reducing inventory costs, improving efficiency and increasing profitability.
b) Managerial Benefits
Managerial benefits can be measured by asking some questions relative to management operation to the user of ERP. According ERP systems are designed to support business process improvements of this nature, thereby enhancing information quality, decision-making and firm performance. The efficiency of decision-making is improved.
c) Strategic Benefits
While ERP installations often help small and midsize manufacturers there are several reasons why some firms are not rushing to install the systems for these reasons improve their strategic and competitive capabilities. Furthermore, to exploit benefits fully, IT projects should form part of a larger business vision and strategy and be driven by that strategy.
d) Technology Benefits
Technology benefits bring flexibility to the business and give global access to other institutions and help in next generation of software.
e) Organizational Benefits
In this regard, Shang and Seddon (2002) showed the following six dimensions of organizational benefits: changing work patterns with shifted focus, facilitating business learning and broadening of employee skills, employee empowerment, building common visions, shifting work focus, increased employee morale and satisfaction.
f) Financial Benefits
When the financial measurement is applied on benefits of ERP to users, the authors determine some financial indicators depend on previous studies which asked to respondents.

Summery and conclusion:

Bullen and Rockart (1981) define critical success factors (CSFs) as "the few key areas of activity in which favourable results are absolutely necessary for a particular manager to reach his goals." They point out that an incredible number of things can divert a manager's attention. Banfield refers to critical success factors as those activities that make "the difference between success and failure - or at least the difference between incremental results and breakthrough results (Banfield, 1999)."The ERP System is different from any information technology since the ERP package involves configuring and adapting the generic functionality to fit organizational structures and processes developed by vendor and only customized by the client rather than programming .Unlike the traditional view of operational information systems that describes a system life cycle in terms of development, implementation, and maintenance, an ERP system life cycle starting from planning and designing, implementation, stabilization, post implementation ending up with enhancement and modification.

The researcher concluded that a few studies made regarding the ERP critical

success factors in specific phase along ERP life cycle whether in the selection phase or the implementation one. These studies represent an incomplete picture as the process of identifying ERP implementation success factors should covers all the phases from the preparation until the post implementation. On the other hand, a lot of studies made in regarding the critical success factors of ERP implementation long ERP Life cycle whether divided them according the ERP phases (setting up ,implementation, post implementation) or according to the key players (Sommers and nelson 2004) or classify these factors into two groups strategic and tactical factors (Holland and Light 1999;Finney 2007).

Recently, Few studies found that ERP system is not a an ordinary information system that the expected benefit achieved after its implementation ,it is a comprehensive system that need to be evaluated after the implementation and there are critical factors during the post implementation phase that affect the optimal usage or getting the best from these systems as it's a evolving one This is what we called ERP taxonomy .There are six studies that develop a taxonomy for the critical success factors of ERP implementation but only three of them represent a real taxonomy that study both the critical success factors along ERP life cycle as well as conducting evaluations after the ERP implementation whether the evaluation in terms of ERP success and ERP benefits (Al-Mashari et al 2003) or business success and project success (Dezdar 2009) or ERP implementation success and its impact on business management (Mareai 2012). These three taxonomies represent actual one while the other three are not as Dezedar 2012 represent an extension for the factors in the study made in 2009 through making a classification to these factors into strategic and tactical factors while others like Holland and light(1999) and Somers and nelson (2004) is not a real taxonomy as it study the factors along ERP life cycle only without evaluations of the ERP system after implementation .the researcher proposed a taxonomy for the critical success factors over the ERP life cycle as well as make an ERP evaluation for both business success and project success. The research recommend a future study made on testing these proposed taxonomy on an organization that start to apply ERP and use that taxonomy over ERP implementation from the reimplementation phase to post implementation phase then made ERP evaluation.

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