



Peeking at the ERP Decline stage: Japanese empirical evidence



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ABSTRACT

This research located and analyzed forty case studies in Japan related to Enterprise Resource Planning (ERP) switching, and specifically discussed the Decline stage of the ERP Life Cycle which has not been concerned enough in the academia. Qualitative data was mainly collected to answer the research questions fully. The results indicate the Decline stage does exist empirically. The prior studies explore the ERP failure cases which usually happen soon after the kickoff. This research finds empirical evidence that both Large Enterprises (LEs) and Small and Medium Enterprises (SMEs) have experienced some kinds of declining in system performance and business performance, and had the urges and needs to retire or upgrade the current ERP system. Based on the findings, the causes of ERP termination, the two strategies which organizations adopted to deal with the current ERP systems, and the five events after the decision-making point were summarized and discussed. The findings also revealed three ambiguous issues that need more efforts. The results of this research fill up the blank in the ERP life cycle theory for more than one decade. The findings from a relatively large sample can also help practitioners and researchers to explore the shifting period more thoroughly and to build tools to solve current and potential problems in order to prepare and assist organizations.

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1. Introduction

The roots of Enterprise Resource Planning (ERP) system may go back to half a century ago. ERP system is a software architecture that facilitates information flow between all business functions and manages business activities. With the development of information technology (IT) and the demands of organizations, ERP which originated from manufacturing cores has covered nearly all essential processes and functions of organizations. As one of the most rapidly spreading terms, ERP has gotten various definitions in which three common factors—integration, packages, and best practices—are usually included [4]. In the early 1990s, SAP (Systemanalyse und Programmentwicklung) has taken the ERP market by storm only in the last two or three years, due to the client/server (C/S)-based product—R/3 [6]. Along with the SAP, the whole ERP software vendor market has experienced rapid growth since then.

Some shifts happened during these years, according to Columbus [10], in spite of the worldwide ERP software market share in 2012 shows that the SAP is still leading the worldwide market with 24.6% market share, new ERP vendors with tremendous growth indeed pose a potential threat. Meantime,

the worldwide ERP market experienced slow growth of 2.2%, yet quoted from Columbus [10] ‘Software-as-a-Service (SaaS), financial management, and Human Capital Management (HCM) applications showed potential for breakout growth.’ The ERP report of Panorama Consulting Solutions [34] points out that the traditional ERP software was chosen by the majority of 61% with an increase of 3% over 2012, and 26% of respondents selected software as a SaaS and cloud ERP. The modern trends in ERP are also concluded by scholars. Powell et al. [37] identify ten key trends, such as Reduction in cost and implementation time, Consolidation, Vertical solutions, A move towards Small and Medium Enterprises (SMEs), Customizable ERP, Collaborative ERP, Software as a service (SaaS) and Cloud Computing, Web-enabled ERP, Mobile ERP, and Real-time ERP. To put it bluntly, traditional ERP in organizations, such as on-Premise ERP, has already been increasingly impacted by emerging information technology, such as cloud services and social media technologies. A recent survey conducted by Gartner group—the world’s leading IT research and advisory company—in 2013 reveals that 47% of the organizations planned to move to cloud-based systems within the next five years [38]. They also made some ERP predictions in 2014 [39] to highlight that a shift towards SaaS model to be unstoppable.

Nevertheless, a huge gap in ERP life cycle theory, the ending stage, remains. Not only limited empirical evidence is found to support this stage, but also, the existence of this stage is not

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acknowledged by the majority. In general, ERP implementation project contains three major phases—the pre-implementation phase, the implementation phase, and the post-implementation phase. The post-implementation phase, in which ERP system is operating in the organization, can be divided into four stages: the Diffusion stage, the Utilization stage, the Enhancement stage, and the Decline stage [23]. According to Huang and Yasuda [22], there are only four original ERP models that contented the decline stage. The most quoted one is the “Retirement” stage of Esteves and Pastor [17]. Klee [26] called this stage “Declining Value”, and so as Bento and Costa [7]; Ahituv et al. [1] did not name this stage separately, but put it into the Operation stage. However, almost every scholar that studied the literature of ERP along with the ERP Life Cycle has stressed the fact that there is no research in the last stage of ERP Life Cycle. There may be two reasons lead to this result. First, there are not enough organizations that reach this stage. It is hard to get the data since organizations tend to deny any negative information about them. There is also no standard for estimation. Second, there are bigger issues in other stages. Admittedly, the Implementation phase has been the center of worldwide researchers’ attention since two decades ago. As many researchers stressed repeatedly, the Post-Implementation phase, the longest period, is considered to accompany the organization for more than twenty years. It is impossible that the issues in this phase are less or less important than other phases. Moreover, since the last stage of the ERP Life Cycle is still short of theory support and data support, organizations which are or will be at this stage may have bad little help to deal with what is going to happen soon. If decade ago was not the time to care about the last stage, it will be the right time to think about it now. As academic researchers, it is our responsibility to define and predict the Decline stage as well as to collect the relevant data for deeper analyzing. Hence, this situation leads to our research questions:

Q1: Does the Decline stage exist?

Q2: What are the matters in the Decline stage?

In order to answer all the above questions, this research intends to collect and analyze relevant case studies to provide empirical evidence. The results of this research fill up the blank in the ERP life cycle theory for more than one decade. The findings from a relatively large sample can also help practitioners and researchers to explore the shifting period more thoroughly and to build tools to solve current and potential problems in order to prepare and assist organizations.

2. Overview of the current ERP life cycle reserach

Over the last decade, research referred to ERP Life Cycle has been in full flourish. The dominant research method of ERP Life Cycle is process model deduction. Usually, there are three ways to construct the process model of ERP Life Cycle. The first one is deducting from the traditional Systems Development Life Cycle (SDLC) model since ERP system is one of the information systems (IS). The second way is modifying previous ERP Life Cycle models. The third way is analyzing empirical data from case study or survey to build the process model. Apparently, the last way is used frequently by vendors and consultant companies, and the others are more common in the academy. Huang and Yasuda [22] have conducted a comprehensive literature review related to the models of ERP Life Cycle, in which twenty-six models are accumulated and discussed. Among the twenty-six original models, there are nine models [7,8,14,27,28,32,36,45,47] that have two stages during the post-implementation phase; eleven models [1,3,5,9,11,15,20,35,40,46,49] that do not have partitions; four models [17,26,30,41] that have three stages or more, and there are also two models [2,6] that do not cover the last phase.

However, without a clear definition, the above tradition ERP Life Cycle models are more likely to be an ERP implementation life cycle models similar to the SDLC. The ERP implementation life cycle focuses more on the periods before an implementation and during an implementation. The real beginning of an ERP system, the start of the post-implementation phase, is ambiguous. Based on a granted review of life cycle theories in multiple fields [50], the term of ERP Life Cycle is defined as “the period of the substantial ERP system’s development which repeats from go-live to withdrawal with distinguishing stages in every generation” [23]. A conceptual model of ERP Life Cycle [23] from go-live to withdrawal is proposed (Fig. 1). The Diffusion stage starts at the go-live point, which means the staffs can recognize and use the ERP system through their computers, and ends at the Stabilization point. The Utilization stage is expected to begin once the performance reaches its first steady state. Staffs can use the ERP system as any other usual software. The Enhancement stage is accompanied by the first reform action. People are familiar with the ERP system and try to explore more value. The Decline stage will happen when the performance of the current system cannot reach a higher level; it starts at the turning point and ends at the withdrawal point.

Comparatively, there are only four original ERP models that contented the Decline stage. The existing of issues represents the existing of major activities that may happen in the decline stage. To date, empirical data of the decline stage has not been gathered in the academic world. One decade ago, most researchers that study on the process model of ERP Life Cycle even did not consider the decline stage to be real. Esteves and Pastor [17] make some conjectures in the decline stage. They point out that although most organizations were in or just after the implementation stage, there are cases that ERP systems had been abandoned or replaced for some reasons. Regretfully, they could not found any published data during the survey of literature review in 2001 and 2007. Ahituv et al. [1] compare the step of system termination to the termination activity of the traditional SDLC and stress that it is more complex and difficult to replace ERP system than normal applications. As a practitioner, Klee [26] makes his points through four keywords. They are ability; business; technology; and cost. When the current ERP system becomes old with a bad solution and costly; new business requirements are rising; and new technologies are emerging; there is no reason to not join the new life cycle of new ERP system. Bento and Costa [7] also discuss and agree above opinions. When the ERP system no longer responds to the organization’ new demands or the inadequacy of the ERP system [1,7,17], the performance drops quickly; the needs of an organization cannot be satisfied although the system itself has little errors. The users will begin to complain about the system; and new arrangement will be scheduled gradually. Upgrading is now nearly as costly as implementing a new ERP solution [7,26], the current system will be reformed completely in the end which can be recognized as the Withdrawal point. Meanwhile; the high costs inherent in the updating ERP’s process is certainly also an opportunity to evaluate other vendors and other technologies [7]. The support from the third party increases and the consultants’ support will be more important if facing changing vendors. When the organization cannot recognize this variation; this stage may be

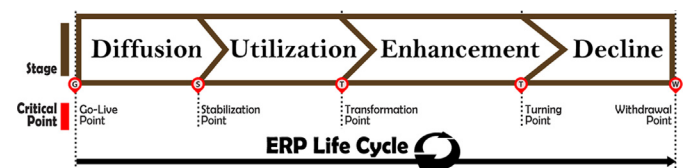


Fig. 1. Conceptual model of ERP Life Cycle [23].

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