

Chapter 3.15

Migration of Legacy Information Systems

Teta Stamati

National and Kapodistrian University of Athens, Greece

Panagiotis Kanellis

National and Kapodistrian University of Athens, Greece

Konstantina Stamati

National and Kapodistrian University of Athens, Greece

Drakoulis Martakos

National and Kapodistrian University of Athens, Greece

INTRODUCTION

In recent years, the accelerated competition in the global marketplace rendered the corporate environment more volatile than ever. The businesses are heavily relying on technological advancements to deliver a vast array of initiatives across a variety of industries. The firms' main partner in this increasingly complex and unpredictable journey is considered to be their information systems. Although the relevant industry offers an unprecedented rate of technological innovations, nevertheless there are cases where the information

systems carry significant baggage from the past (Kelly, Gibson, Holland, & Light, 1999). There are aged systems that often form the central hub of the information flow within the organisation and are responsible for consolidating information about the business (Bisbal, Lawless, Wu, & Grimson, 1999; Sommerville, 2001) and thus they are called *mission-critical legacy information systems*.

The term "Legacy", according to the Oxford Dictionary, refers to any long-lasting effect of an event or process. The Legacy System describes an old system that remains in operation within an organisation. These systems often represent a massive, long-term business investment. Ulrich (1994) defined them as "stand-alone applications

DOI: 10.4018/978-1-60960-587-2.ch315

built during a prior era's technology, but they are perhaps more widely understood as software systems whose plans and documentation are either poor or non-existent" (Connell & Burns, 1993). Bennett (1995) referred to the legacy systems as, "large software systems that we do not know how to cope with but that are vital to the organisation", while Brodie and Stonebraker (1995) as "any information system that significantly resists modification and evolution to meet new and constantly changing business requirements". Finally, O'Callaghan (1999), drawing on the characteristics of legacy systems, described them as "a large system delivering significant business value today from a substantial pre-investment in hardware and software that may be many years old. Characteristically, it will have a long maintenance tail. It is, therefore, by definition a successful system and is likely to be one that is, in its own terms, well engineered. It is a business critical system which has an architecture which makes it insufficiently flexible to meet the challenges of anticipated future change requirements."

Legacy systems as a subject area is often overlooked in favour of areas such as new technology developments and strategic planning of information technology. In this context, the following sections present an overview of the legacy information systems problems in terms of their scale and definition. The legacy system issues include the required man-effort and costs of maintaining and evolving existing systems and the current methods of migrating complex legacy systems to new technology. It is shown that legacy systems present a critical area of study in both software engineering and business information systems. Taking into account that the role of technology is not merely supportive but affects the way enterprises conduct their business, it is shown that it is outdated to consider the migration process as the simple replacement of aged or problematic hardware and software. Thus, the migration should be approached as a planned change process that first and foremost requires an understanding and

a methodology that covers the range of issues and organisational entities involved.

BACKGROUND

Legacy Information Systems

O'Callaghan (1999) refers to the adoption of an informational culture within the organisations in which "point solutions" were developed due to the widespread use of computer technology over several decades. There are cases where different divisions of the same organisation have developed individual applications in order to meet their perceived needs in an application-by-application basis (O'Callaghan, 1999). In a similar way, there are applications in the same company that are running on different operating systems. Subsequently, such "point solutions", according to O'Callaghan (1999), became subject to localised optimisation, and uncontrolled maintenance, exacerbating the position further (Zou & Kontogiannis, 2002). These applications are unambiguously hard to maintain, improve, and expand because there is a general lack in their understanding. In addition, integration with newer systems may also be difficult because new business software may use completely different technologies (Wu, Lawless, Bisbal, Grimson, Wade, O'Sullivan, & Richardson, 1997). Due to the aforementioned reasons, there is a significant number of software engineers and practicing managers that consider the legacy systems to be potentially problematic (Bisbal et al., 1999).

On the other hand, according to Brodie and Stonebraker (1995), legacy systems do not always fit this stereotype. They propose that if a system was recently developed but cannot be readily modified to adapt to the constantly changing business requirements, then such a system can be regarded as a legacy system. Similarly, Randall (1999) stresses that "Legacy" is not just a problem encountered by organisations with aging main-

7 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/migration-legacy-information-systems/54804

Related Content

The Effect of Agency Problem and Internal Control on Credit Risk at Commercial Banks in Vietnam

Quoc Trung Nguyen Kim (2022). *International Journal of Asian Business and Information Management* (pp. 1-22).

www.irma-international.org/article/the-effect-of-agency-problem-and-internal-control-on-credit-risk-at-commercial-banks-in-vietnam/305114

The Impact of Corporate Social Responsibility Performance on Competitive Advantage and Business Success: A Case of Vietnamese Enterprises

Khuong Ngoc Mai and An Khoa Truong Nguyen (2021). *International Journal of Asian Business and Information Management* (pp. 1-15).

www.irma-international.org/article/the-impact-of-corporate-social-responsibility-performance-on-competitive-advantage-and-business-success/294095

Simulating E-business Innovation Process Improvement with Virtual Teams Across Europe and Asia

Kenneth D. Strang and Cliff E.L. Chan (2011). *Global Business: Concepts, Methodologies, Tools and Applications* (pp. 1023-1043).

www.irma-international.org/chapter/simulating-business-innovation-process-improvement/54821

Performance Evaluation of Teams in Chinese Professional Baseball League

Shao-Wei Yeh, Mei-Jung Chen, Cheng-Tien Chuang and Wen-Bin Lin (2018). *International Journal of Asian Business and Information Management* (pp. 39-51).

www.irma-international.org/article/performance-evaluation-of-teams-in-chinese-professional-baseball-league/193653

Classifying Different Levels of Customer Satisfaction With Vietnamese Hotel Services by Analyzing Customer Feedback

Ha Thi Thu Nguyen, Hung Nguyen Manh and Thoa Bui Thi Kim (2024). *International Journal of Asian Business and Information Management* (pp. 1-22).

www.irma-international.org/article/classifying-different-levels-of-customer-satisfaction-with-vietnamese-hotel-services-by-analyzing-customer-feedback/335855