Enterprise Architecture

A comprehensive Enterprise Information System report on DCSL Software Limited

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Abstract

The purpose of the report is to examine the core competencies of DCSL Software Limited by appraising in detail the Enterprise Information Systems used in the company. The report has identified main enabling technologies, assessed transformation, and developed a basic core diagram with the findings drawn on examining EIS of DCSL Software Limited. In order to undertake all such tasks, the use of a qualitative research method and secondary data collection instruments have been made. For analyzing the gathered data, the use of thematic analysis techniques has been made. The findings drew on analyzing the data reflect the wider use of Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), and Software as a service (SaaS) at DCSL Software Limited. The use of all these systems has created a significant transformation in organizational functioning, operations, customer relationship management, data management, and overall efficacy. The transformations concluded to bring significant transformation in the company in terms of high automation, cost reduction, greater operational efficiency, effectiveness, bespoke solutions to customers, technical and strategic capabilities. It is recommended to the company to organize the training sessions for employees, integrate a robust enterprise architecture and TOGAF frameworks.

Index

List of Illustrations

Introduction

In everyday life, the development and use of information technology are witnessed continuously growing. As an outcome of this, organizations have a large range of choices to determine information technology. In this context, today's era has witnessed an increasing use of Enterprise Information Systems (EIS), with the aim to design and realize enterprise's organizational business processes, structure, infrastructure, and information systems (Qurratuaini, 2018). In this context, the present aims at appraising in detail the EIS that has produced a significant transformation in the business model or process within an organization. The report assesses whether the transformation has led to reducing the IT costs substantially while improving the performance, the agility of business and enhance alignment of IT with the business goals or not.

Research

Organizations Core Competencies

DCSL Software is among the leading software development companies of the UK that design cost-effective, intelligent, and intuitive desktop, mobile, and web applications, which helps in streamlining the business processes, along with creating new revenue streams for the new, as well as established businesses. This is one of the key competencies of the company. Along with this, the company has renowned, trusted partners (such as BT, WaterAid, Ikea, Virgin Media, Lidl, and the NHS) who are playing a vital role in delivering software (DCSL Software Ltd, 2020).

DCSL Software provides professional services by assisting businesses in the methodical application of development skills (DCSL Software Ltd, 2020[1]). It enables companies to raise their capacity to deliver the services without putting any strain on management and departments. In this, DCSL relies on delivering development partnerships and standard development environments by

supporting the use of .NET and Microsoft SQL Server and employing Automated Testing tools and Microsoft-based Rapid Application Development. The company delivers codes which are developed by the in-house team of the company, transfer simply and completely the Intellectual Property Rights (IPRs), and provide an end-to-end solution to customers by supporting the cloud-based application. Even after the completion of a project, on-going support is provided by the company to its customers (DCSL Software Ltd, 2020).

Appraisal of EIS used in DCSL Software Limited

In order to thrive sustainably in today's competitive world, DCSL has made use of diverse EISs across diverse functions and processes of the business. Current circumstances of business demand innovative way of enterprises, for which the deployment of EISs has proved highly beneficial for the company to raise productivity, reduce IT costs and bring substantial transformation in the company in terms of improving agility, performance, and integration of IT with the business goals. In this context, at DCSL Software Limited, different types of enterprise information systems are used, as well as delivered to customers to provide bespoke solutions (DCSL Software Ltd, 2020[2]).

In order to ensure software development effectively from conception to final delivery, DCSL makes use of diverse EISs, such as Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), and Software as a service (SaaS). At DCSL Software, ERP/II is deployed which is also known as extended ERP (eERP), which offers diverse internet-enabled modules, including e-commerce, e-procurement, customer relationship management, Business Intelligence (BI), Advanced Planning and Scheduling (APS), Human Resource Management (HRM), Product Lifecycle Management (PLM) and Supplier Relationship Management (SRM). The use of all such modules are assisting the company significantly in managing tasks linked to electronic catalog, automation of business processes, better identification of customers, service management, complete product definition, and ensure effective management of human resources (Romero and Vernadat, 2016; DCSL Software Ltd, 2020[3]).

Further, the integration of CRM as the crucial EISs is examined to play a highly supportive role in sales activities, automation marketing campaigns, and ensure bespoke solutions to customers. In

parallel, the delivery mechanism of CRM ensures the delivery of effective solutions based on the architecture of client-server to SaaS and online delivery mechanism with high reporting and data mining capabilities (DCSL Software Ltd, 2020[2]).

In addition to this, the use of SaaS is acting as the crucial enterprise information system or Software that rented to the company and hosted in the cloud to provide easier accessibility of data across the organization, and it is accessed via the internet. The use of the SaaS model in the company is providing a large array of benefits to the company to grow, such as scalability, cost-effectiveness, flexibility, simplicity, and security. In this, cloud ERP evident to deliver cloud application services in the company under the SaaS paradigm and helps in delivering licensing options to customers on the premise solutions offerings (DCSL Software Ltd, 2020[4]).

Enabling Technologies of DCSL Software Limited

From the appraisal of the current enterprise information system used in the company, it is examined that ERP, CRM, and SaaS are the key enabling technologies that are ensuring effective management, smooth flow of operations, and bringing significant transformation in the company.

- ERP: It is one of the main enabling technology at DCSL Software which examined to play a vital role in establishing the link between the current resources and establish effective integration and flow of information exist in between distinct sections. Hence, it provides a collective database that helps in better organization, processing, and compatibility of data across all the organizational functions within the time (Aljawarneh and Al-Omari, 2018).

- CRM Systems: The use of this EIS has enabled the company to manage the customers effectively via integrating reliable processes, systems, and procedures essential for the company to collect a wide range of customer information and communicate it for commercial purposes. It assists the company in better targeting products and services to customers, managing customers' queries, and exploration of new markets (Aljawarneh and Al-Omari, 2018).

- SaaS: It includes a third-party provider, software, application, and supplying capacity with the help of the internet on the basis of pay-as-you-use. This provides the company cost-effective solution of installing and maintaining complex software and hardware, along with

providing ease of installation and customize solutions to cater to the needs of individuals and enhance innovation benefits (Lewandowski, Salako, and Garcia-Perez, 2013).

The transformation made by EIS in DCSL Software Limited

The use of ERP, an EIS based system, support the products of the company in becoming 'internet-enabled' that ensure workflow management functionality, helps in dealing and controlling the workflow by managing logistics aspects and processing duration. The effective integration of ERP and CRM solution in the company is playing a vital role in completely transforming the way in which the company interacts and satisfy the needs of customers. The use of them is examined to enhance operational efficiency, reduces costs, provide actionable insights of customers, presents business opportunities, and raise customer engagement (Bente, Bombosch and Langade, 2012).

At DCSL software, the use of ERP systems is examined to bring significant transformation in the company. These can be categorized into two parts, namely, technical benefits and strategic implications. Technically, the company is empowered with the capability to provide customized or tailor-made solutions to customers, improvisation in the business process, off-the-shelf solutions, reduction in customer complaints, better exchange of data and information across the distinct divisions of the company and raise the flexibility of the company. On the other hand, in strategic terms, the company has gained in financial terms as it added more revenue streams and raised organizational efficacy and efficiency. It enables the company to develop a responsible attitude to the market dynamics (Lewandowski, Salako and Garcia-Perez, 2013; DCSL Software Ltd, 2020[2]).

The use of the CRM system has brought a substantial transformation in the company in terms of recognizing and constructing interactional relationships with the customers. It acted as the crucial software system that enhanced the interaction of DCSL Software with the existing and potential customers by providing better service automation, marketing automation, customer service, sales force automation, and analytics. It improves the customer touchpoints essential to optimize greater satisfaction and address the issue of fragmented data of the customer. Using the CRM analytical abilities, the company has extended its data mining capabilities and integrate customer intelligence to address all their queries (Feiz, Khalifah and Ghotbabadi, 2011).

The use of SaaS is examined to augment greater productivity for greater responsiveness and efficacy, raise insights for making more assured decisions, raise the adaptability and flexibility of the organization by cutting costs and raising the speed of change, and provided the organization with a crucial partner for its long-term growth. This resulted in significant transformation in DCSL Software in terms of greater scalability, cost-effectiveness, flexibility, simplicity, and security (DCSL Software Ltd, 2020[4]).

Core Diagram with Findings

In order to serve every changing needs of the companies, the software companies are prompted to rethink their enterprises by allowing the interaction greatly with partners, customers, and employees at distinct touchpoints. At the same point, the proliferating advancement of information technologies such as Web 2.0, cloud computing, and business digitization are demanding significant changes in the enterprise management practices (Bente, Bombosch and Langade, 2012; Kotusev, 2018).

In relevance to this and examination made in respect to EISs in DCSL Software Limited, the following figures are designed to illustrate the basic core diagram of main enabling technologies in the company. In Figure 1, the ERP System of the company is presented, depicting the coordination and management of the enterprise operations, including financial, manufacturing of application, management of inventory, human resource management, and several others. All these are linked to the central database, which is monitored and audited on a regular basis. In Figure 2, SaaS is evident as a common model for diverse EIS, including CRM and ERP. It enables the company to deploy servers and enhance sharing by multi-users, which raise the reusability.

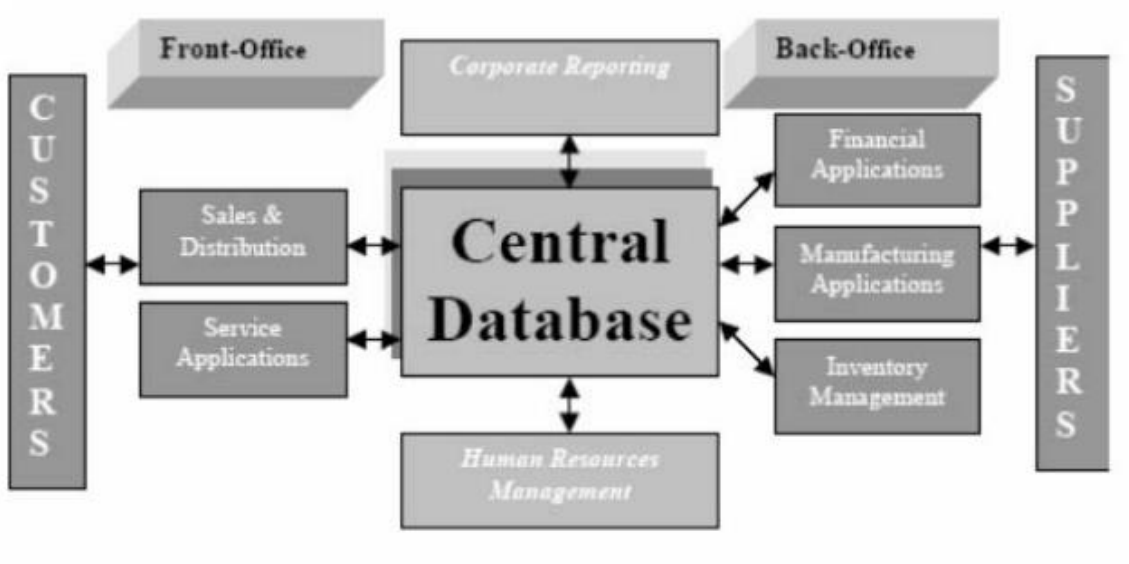

Figure 1 - ERP System at DCSL Software Limited

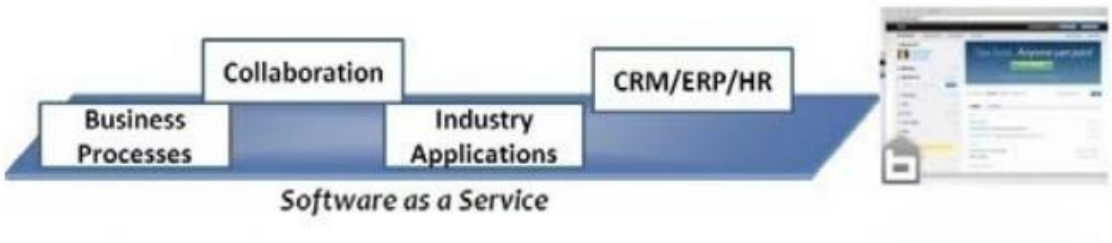

Figure 2 - SaaS at DCSL Software Limited

Analysis

In this section of the report, a detailed discussion of the gathered findings is made by analyzing it using thematic analysis and supporting it with literary evidence. In order to do so, distinct themes have been drawn in light of the aim and intention of the report that framed the objectives of it. The analysis of data is made below:

Core Competencies of DCSL Software Limited

Based on the data gathered, it can be discussed that the core competency of the company revolves around delivering effective services having high quality and made available within the timescales. The focus of the company on designing the cost-effective, intelligent, and intuitive desktop, open and transparent environment, and professional services to customers are some of the key competencies of the company. The company provides an end-to-end solution to customers by supporting the cloud-based application and have trusted partners to deliver high-quality services to customers. The literary evidence also revealed a range of competencies essential for software development companies to stay competitive and relevant in the current era. The organizations are significantly emphasizing, delivering cohesive, complete, reusable, and highly automated platforms to provide bespoke solutions to customers (Colomo-Palacios *et al.,* 2010).

EIS and its Enabling Technologies at DCSL Software Limited

From the data gathered and analysis made, it can be discussed that at DCSL Software, a focus on the use of EISs is made to ensure the right development of Software from the conception to final delivery. On examination, a range of EISs is examined to be deployed in the organization to ensure the smooth flow of operations and fulfilling the customers' needs effectively. In a link to this, a proliferating use of Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), and Software as a service (SaaS) has examined.

Under ERP, different modules are also analyzed to be employed in the company that provides the company with a collective for better organization, processing, and compatibility of data across distinct organizational functions within the time. Moreover, with respect to CRM systems and SaaS, it can be discussed on the basis of the findings that such systems have raised the scalability, cost-effectiveness, flexibility, simplicity, and security aspects in the company that is playing highly contributing role in providing customized offerings to customers. In support of this, the literary findings have also demonstrated that for integrating EIS, an increase of CRM and ERP is made in the current business process (Lewandowski, Salako, and Garcia-Perez, 2013). It enables greater automation of business processes, better identification of customers, service management, automation marketing campaigns, ensure bespoke solutions to customers, and ensure effective management of human resources (Romero and Vernadat, 2016; Aljawarneh and Al-Omari, 2018; Lewandowski, Salako and Garcia-Perez, 2013).

Impact of EIS on DCSL Software Limited

The proliferating use of EISs in the company is examined to bring significant transformation in the company in terms of cost, efficiency, effectiveness, technical, and strategic context. It can be discussed based on the findings that the use of ERP, CRM, and SaaS has brought significant transformation in the company in terms of workflow management functionality, managing logistics aspects, enhance operational efficiency, and reducing costs. It manages the widely fragmented data of customers, fosters a responsive attitude, flexibility, and more effective decisions. The literary findings also highlight the crucial role of ERM and CRM systems in the organizations in terms of improving decision-making process in organizations, bringing automation, greater flexibility, scalability, managing prospective and current customer base and increasing business performance and overall functioning (Narman, Johnson and Nordstrom, 2007; Bente, Bombosch and Langade, 2012).

Conclusion

Based on the findings drawn, it is concluded that in DCSL Software Limited significant focus has been made on the automation, effectiveness, and efficiency of business operations, due to which a wide range of enterprise information systems are deployed in the company. The main enabling technologies of EISs examined to be deployed in the company are ERP, CRM systems, and SaaS. The introduction of all these technologies has brought significant transformation in the company in terms of cost reduction, high automation, greater operational efficiency, effectiveness, bespoke solutions to customers, technical and strategic capabilities.

Appendix 1

Purpose of the Report

In consideration of the purpose, a leading and bespoke company of software development of the UK has been selected. The company adopts a unique approach to develop Software at a rapid pace focussing on fusing traditional methods with the new. In delivering the services, a comprehensive process and structure is adopted in the company; the appraisal of which is the key intention of the report that aimed to be achieved. In this context, the report aim or intends to examine the core competencies of DCSL Software Limited, appraise the Enterprise Information System used in DCSL Software Limited, identifies main enabling technologies, assesses transformation made by Enterprise Information System in DCSL Software Limited and develops a basic core diagram with the findings drawn on examining EIS of DCSL Software Limited.

Scope of the Report

The scope of the report is limited to the examination of the EIS of the chosen company. The company is of small size and employ a limited range of employees in the organization. In this, the examination of enterprise information systems and the transformation brought by it in the organization would create implications specifically for the company. However, in general, the report draws crucial findings for all organizations on the benefits or relevance of EIS to the organization and would highlight a diagram illustrating EIS.

Appendix 2

Enterprise Architecture

An enterprise architecture framework is explained as the way of creating and using enterprise architecture wherein six main components are outlined the EA documentation model, EA elements, future and current EA views, transition, and management plan. In addition, the framework consists of multi-level threads that encompass workforce planning, standards, and security (Hinkelmann *et al.,* 2016).

Enterprise Information System

Enterprise Information System (EIS) is a pivotal part of EA that contributes to managing a large amount of data, improving business processes through integration, and supporting large business enterprises. Additionally, it offers a technology platform that facilitates firms to coordinate and integrate their business procedures. As a whole, it is an individual system that is central to the business organization that ensures that important information can be transferred and shared across all management hierarchies. EIS contains information as well as operational functions through which data storage and reporting along with transaction-related functions are performed. Supply chain management, enterprise resource planning, and customer relationship management are some of the key enterprise systems. Information systems are extensively utilized for supporting business processes along with reinforcing changes in current IT infrastructure (Romero and Vernadat, 2016).

EIS is devised in such a manner that it supports and enhances the operational efficiency of the present business model and ensure accomplishment of main objectives. An agile EIS enables businesses to predict the need for future changes in current business processes and implement changes in an effective manner to further increase organizational performance amid a turbulent business environment. Customer relationship management (CRM) is one of the main Software within EA that comprise of procedures to manage prospective and current customer base. CRM

software examines key CRM data for planning target marketing, forming business tactics, and evaluating the success of CRM operations in terms of market share, revenue, profitability, and number of customers. Operational CRM, sales force automation, analytical CRM, and collaborative CRM are the main CRM software that improves organizational functioning at all level through robust customer management (Romero and Vernadat, 2016).

Further, Enterprise resource planning is one of the core information systems that include sales, human resources, marketing, procurement, logistics, and finance. CRM and ERP contribute to improving the decision-making process in organizations and increasing business performance. EIS software is the foundation of business management that not only manages HRM, project management, inventory management, planning, distribution, and accounting but also enable business entities to sustain in the current business environment and accomplish future goals. EIS software is a promising tool that extends business processes at the inter-organizational level and intra-organizational level in a global economy with a rise in international operations. Industry 4.0 and technological progression in EISs offered a feasible solution for meeting the increasing requirements of information integration in service and manufacturing sectors that support the operations o global networks (Narman, Johnson and Nordstrom, 2007).

As a whole, EIS and EA are deemed to be a fundamental strategic tool that constantly communicates amid rapidly changing business conditions, organizational maturity, technological maturity, and capabilities of software vendors. Collaboration is a key component of EIS that enables transparency, idea-sharing, and co-operation among main business actors and contributes to delivering quality services to customers (Hinkelmann *et al.,* 2016).

Appendix 3

Research Methodology

In order to carry out an in-depth investigation on any topic, the selection of suitable sources of data collection and method is the most crucial element. This is the key focus of the methodological section of the report aiming at determining and justifying the methodological choices made in the report. As per the aim of the report focusing on appraising and designing the EIS used in DCSL Software Limited, UK, the report focussed on performing a subjective inquiry on the chosen topic. In relevance to this, the use of the qualitative research method is found optimal in place of quantitative and mixed research methods. The rationale of using it in the report is its objective of producing illustrative and in-depth information to gauge a wider understanding of the distinct dimensions of the chosen problem (Leung, 2015). It concerned with examining diverse aspects of reality that cannot be accessed quantitatively, and thus, helpful in providing wider insight into the lives, experiences, feelings, and organizational functioning of the company by integrating distinct EIS. It helped in providing subjective meaning to the transformation produced by EIS in the organization and provided a naturalistic approach to perform an in-depth inquiry on the chosen context (Palinkas *et al.,* 2011).

In consideration of the qualitative method, interpretivism philosophy is used in the study that helped in understanding in detail the human experiences, meanings, voices, and events. From all these aspects, knowledge and insights have been gathered to provide effective meaning to the findings drawn. This further supports the subjective understanding of reality. In support of this, the use of an inductive research approach and exploratory research design is made with the aim to provide robust reasoning and framework to carry out the research on DCSL Software comprehensively (Leung, 2015).

In light of all these subjective methodological choices, the selection of suitable sources of data collection instruments has been made in the report. For examining the chosen context, the data collection instruments are broadly categorized into two parts, namely primary and secondary. According to the qualitative nature of the inquiry, the use of secondary data collection instruments

is examined most relevant and appropriate. The use of secondary sources has helped in obtaining a wider range of qualitative data available in the existing source of evidence (Palinkas *et al.,* 2011; Terrell, 2012). This helped in providing in-depth subjective insight into the enterprise information systems used in DCSL Software Limited, and the transformation led by these systems in the company. In order to collect secondary data, instruments including DCSL Software Limited Website, reports, journal articles, books, and credible online sources are used. This helped in collecting a wide range of data on the research topic, which is analyzed further to drawn crucial findings essential to draw a core diagram of EIS in the company. For analyzing the data, the use of thematic analysis has been made. The findings drew on analyzing the data are coded and interpret comprehensively under distinct themes using the thematic technique of data analysis (Morse, 2016).

Appendix 4

Recommendations based on Research & Analysis of DCSL

In light of the findings drawn highlighting the significance of enterprise information systems, the present section aims at recommending some effective solutions in context to strengthening current EISs in the company. The key recommendations in this context are:

- The company should provide more focus on organizing the training sessions for employees to make them aware of diverse information systems and languages.
- The company should follow an effective process to develop a robust enterprise architecture. This could involve steps such as initiation of the process, characterization of baseline architecture, development of target architecture, planning of architecture transition, and planning of architecture implementation (Armour, Kaisler and Liu, 1999).
- The company should use a robust framework to integrate an effective enterprise architecture. TOGAF frameworks should be used by the company that provides several advantages, including flexibility, process completion, the interconnection between layers, better integration of industry standards, and vendor neutrality (Qurratuaini, 2018).

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