International Journal of
Information Systems and Project Management
ISSN (print):2182-7796, ISSN (online):2182-7788, ISSN (cd-rom):2182-780X
Available online at www.sciencesphere.org/ijispm

Fused or Unfused? The Parable of ERP II

Moutaz Haddara
Kristiania University College
Prinsens gate 7-9, 0107 Oslo
Norway
moutaz.haddara@kristiania.no

Angelo Constantini
Kristiania University College
Prinsens gate 7-9, 0107 Oslo
Norway
angelo.constantini@gmail.com

Abstract:
One of the major visions is having one system that covers all business functions and satisfies virtually all the standard processes and routine transactions within organizations. In the last decade, several academics and practitioners have predicted the rise of what is called enterprise resource planning systems II (ERP II). ERP II was sought to be a digital platform that is capable of supporting timely decision-making through covering all business functions' processes through having preloaded modules that will minimize the need for external systems like separate customer relationship management (CRM), e-business platforms, and supply chain management (SCM) systems, among others. While ERP systems nowadays have matured, and several packages come with CRM modules and other solutions, however separate CRM systems are still widely adopted by organizations. Thus, this study investigates why organizations that currently have ERPs with CRM modules are still investing in separate CRM systems. Our results show that the current ERP systems did not reach the ERP II state as envisioned, as most organizations are inclined to adopt separate CRM systems. Thus, we have presented five main reasons for this inclination, which are: scoping during ERP implementations, costs, features and functionalities, user-friendliness and ease of use, and finally integration with e-business platforms.

Keywords:
ERP systems; CRM systems; ERP II; ERP selection; ES integration.

DOI: 10.12821/ijispm080303

Manuscript received: 8 November 2018
Manuscript accepted: 17 May 2020

1. Introduction

Enterprise Resource Planning (ERP) systems evolved in order to address the islands of information challenge, or what is known as *stovepipe systems* within organizations. Stovepipe systems are functional systems, which lack seamless integration between the different business functions in organizations. Thus, ERP systems were created to support and solve the integration challenges among the various business functions through using one logical database with several functional modules [1]. Because ERP systems are pre-designed to fit many different organizations, ERP systems come with pre-loaded and embedded best practices and industry standard processes [2]. ERP vendors and their key customers often jointly develop and define these best practices and processes. Hence, those best practices do not necessarily represent how the majority of enterprises conduct their business [2]. Due to their size and complexity, ERP systems' implementations require a substantial amount of resources and careful project management procedures [3].

Since 2000, several authors and practitioners have predicted that customer relationship management (CRM) modules, domain-specific operations, and e-business enablement will become standard solutions in future ERP packages [4]. They called it ERP II, as an evolution and extension to the traditional ERP. Indeed, major ERP vendors have responded to this vision and currently offer pre-customized domain-specific systems, e-business ready modules or interfaces, and CRM modules and applications. While most ERP systems have a CRM module included, such as the major closed source and open source ERP packages, however in practice, we still observe that a large number of organizations is still adopting stand-alone CRM systems. Thus, in this paper we attempt to explore the reasons why organizations are still investing in separate CRM systems, which might not even be integrated to other core processes of the company, instead of using the CRM module that comes with their ERP system. Hence, we have conducted a multiple case study in which we have interviewed informants from seven case organizations in Austria, Egypt, Norway, and the United Kingdom. In addition, in an attempt to capture a wider spectrum of different perspectives on the topic under-study, we have also interviewed various ERP stakeholders including implementation partners, consultants, and vendors. We would therefore like to explore the main reasons and motivations that lead organizations that are using an ERP system already, for adopting a separate CRM system. The results from this research may aid ERP vendors in identifying the current weaknesses of their systems (*if any*) and aid them in developing future full-fledged systems that can replace most of the organisational digital infrastructure and scattered applications.

This paper is organized as follows: the following section presents the study's background literature. In section 3, we introduce our target cases and research methodology. Research results and discussion are presented in section 4, and finally our conclusions and recommendations for future research are provided in section 5.

2. Literature Background

This research focuses on the observed phenomenon of organizations investing in a separate CRM system even though several of these organizations might already have a CRM module in their acquired ERP system. The authors have observed this trend in several companies in practice. Below, we introduce the basic concepts and background literature for this study.

2.1 ERP Systems

ERP systems are the largest type of enterprise systems. Enterprise systems are enterprise-wide applications, which are virtually used by the various business functions inside organizations. Other types of enterprise systems include CRM systems, supply chain management (SCM) systems, and any other enterprise-wide scale system. ERP systems handle basic corporate and business functions, such as finance, human resources, materials management, sales and distribution [5]. In the 1990s, ERP systems were proliferating among companies and turnovers of software vendors were high [6]. ERP systems were initially targeting large enterprises, however due to market saturation, vendors started to create lighter versions that can fit small and medium-sized enterprises (SMEs) [7]. With the current trend of moving into the "cloud" and the accompanying change to subscription-based payment plans [8], the business model of many software vendors has changed. The most popular players in the market today are SAP, a German company with customers in 190

countries and an annual turnover of ca. 25 Billion Euros [9], and Oracle, a US-based company, which is also known for their database management systems among other products, has ca. 420 000 customers and a current annual turnover of 37 Billion USD [10].

In general, ERP implementation projects involve several stakeholders including the internal IT staff and key business users from inside the organization, as well as, external consultants, or consultants from the implementation partners/vendors [1, 11]. It is recommended that adopting organizations should develop control mechanisms to ensure that the external consultants work in favor of the project and its goals [12]. ERP system implementation projects may differ from traditional system implementations in scale, scope, complexity, organizational changes, project costs, and the need for business process reengineering [13]. The percentage of ERP project failures is over 60% and half of all top-10 failures of all time are from market leading ERP vendors [14]. A more recent survey conducted by Panorama Consulting Solutions reports that 74% of the participating organizations in the survey have crossed their estimated ERP implementation budgets for several reasons, but one of the main reasons was due to unexpected changes in organizational or technical requirements [15]. In addition, 59% of the projects crossed their go-live schedules, mainly due to project scoping issues [15]. Moreover, the survey results also show that 56% of the organizations have suffered from production disruptions for varying time periods [15]. Software vendors have established so-called 'best practices'. These are primarily processes, which are supposed to be the ideal and standard practices in particular industries. Software vendors dedicated a lot of effort in investigating and identifying these practices from organizations and academic theories [16]. Many ERP packages are implemented using these best practices, meaning that the implementing organization adopts all or parts of these best-practices. This implementation type is called *"vanilla"*. When implementations are made which mainly use the suggested processes, most organizations need to commit themselves to some form of business process reengineering [16]. While this usually involves costs and efforts, Robey et al. [5] state that the primary benefit from implementing an ERP system might result from adopting new business processes.

In general, ERP system implementations are complex and resource-intensive projects [17], spanning from the *adoption decision*, the *acquisition* phase, the actual *implementation* phase to the *use and maintenance* phase, the *evolution* phase, and eventually followed by the *retirement* phase [18], as depicted in the figure below.

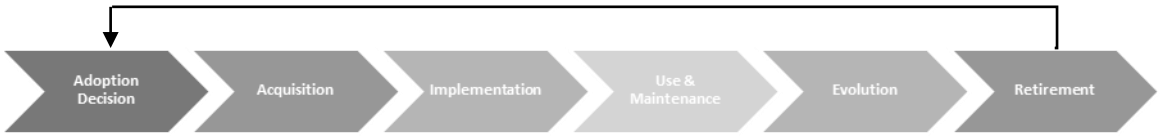

Fig. 1. The ERP lifecycle framework. Adapted from [18].

2.2 ERP System Selection

The selection of an ERP vendor and the respective product is a part of the acquisition phase in the ERP Lifecycle framework. Somers and Nelson [13] present several critical success factors (CSF) across the stages of an ERP implementation: they identified that besides architecture choice, the most important success factors in the selection phase are clear goals and objectives, partnership with vendor, top management support as well as a careful selection of the package. Especially the CSF "clear goals and objectives" and "careful selection of the package" seem at first glance to be two potential answers to the research question of this study.

During the selection phase, system and organization fitness is regarded as a crucial issue. Several information systems implementations fail due to the selection of a non-fitting system [1]. The fitting process happens between the ERP system and the organization needs, requirements, and expected future evolvement and scalability. The topic of "fit" has been regarded as of paramount importance and has been frequently discussed in IS literature in general, and specifically in enterprise resource planning domain [1]. A wrong ERP system selection would either totally fail the project, or critically weaken the system and negatively affect the company's performance [19], and also may lead to an early ERP

retirement in some cases [20]. When deciding on the desired functionalities in the potential ERP, it is useful and, in most cases also required, to separate the "nice to have" from the "need to have" functionalities [21], and to focus on the goals and objectives that are to be achieved with the system. In practice, consultants regularly conduct an evaluation of the requirements, often however, requirements are only inferred and indirectly suggested by the ERP adopting organizations [1].

In literature, several studies aimed at identifying factors that could potentially affect the ERP selection outcome in organizations, and provided recommendations and criteria to optimize the selection process [1]. For instance, a study presented several factors that may affect the selection criteria, which include the ERP-to-organization fitness as an important factor [22]. During the selection phase, it therefore seems beneficial to scrutinize the current processes, before matching the company's requirements with the features and functionalities of the potential system [1]. In addition, Deep et al. [23] developed a framework for the ERP system and vendor selection processes. The framework presents the various stages and phases in the selection process, which starts with the requirements and project planning, identifying potential vendors, evaluation, and finally ends with the selection of the appropriate ERP package. The framework also illustrates several iterative tasks to be accomplished by the project team at each stage. Thus, the ERP selection process is a challenging task. This is mainly due to the scarcity of available resources within organizations, the complex nature of ERP packages, and the various ERP system alternatives in the market [24]. In addition, Esteves & Pastor (1999) argue that the price of the package, training and maintenance services provided by the vendor, return on investment (ROI) estimation, and the contractual agreement are defined during the selection process.

In our theoretical background, we focus on the selection process of ERP systems. We do so, because we hypothesize that the main grounds for acquiring a separate CRM either lie in the selection process of the ERP system (in other words: has the wrong ERP solution been chosen?) or this happened due to other reasons, such as the ERP system's characteristics or issues that cannot be influenced directly (e.g. internal political decisions).

2.3 CRM Systems

Customer relationship management as such, is a comprehensive strategy, and includes the processes of acquiring, retaining, and cooperating with segmented customers in order to maximize the value for the organization and its customers [25]. This includes the full integration of marketing, sales, and customer service functions and processes in order to maximize efficiency and effectiveness in delivering customer value [25]. These processes can be supported technologically by CRM systems, which manage all the channels, interactions, and touch and contact points between the organization and the customers.

CRM literature points out the importance of a single-view of the customer across all contact channels [26]. In addition, CRM systems have been widely adopted and aided in helping organizations to reach and contact customers, and to generate comprehensive analyses of their customers by collecting, storing and analysing customer data [27].

CRM systems are typically considered a type of Enterprise Systems. Even though existing literature differentiates between the scope of ERP systems that mainly capture operational (internal) data, and CRM systems' scope of focusing and capturing customer (external) data [28], however most ERP systems nowadays include a customer relationship management module or related applications.

With many CRM solutions establishing themselves in the market, such as Microsoft Dynamics, Salesforce, SugarCRM, HubSpot and other providers, the CRM market has been estimated to a total of 12 Billion USD in 2019 [29]. According to Forbes [30], Salesforce is the current market leader and holds a market share of more than 19% of global share. Salesforce is a cloud-only provider, which, besides sales modules, offers modules for marketing, service desks, analytics, community (social networks) and e-commerce. In Reinartz et al. [26], they state that the use of CRM systems is projected to advance the ability of an organization to endure profitable customer relationships by enabling information to be integrated and shared smoothly. Customer relationship is assumed to be a people-driven process [26], meaning that building and enforcing customer relationships have to come from the organization and the people therein and software can only support this process. Prior research in this area found that by implementing a CRM system

without established processes and people in place, the actual customer relationship performance may drastically deteriorate [26].

2.4 ERP II

The ERP II vision refers to an extended version or the next generation of ERP systems [31]. In 2000, Gartner group defined ERP II as a business strategy and a set of industry-domain-specific applications, which optimize enterprise and inter-enterprise, collaborative-operational and financial processes, in order to build and maximize customer and shareholder value [32]. Thus, ERP II was envisaged to virtually provide all the related integrations among front- and back-office systems (ERP I), plus all system functionalities that are included within CRM, supply chain management (SCM) systems [4, 31], and provide business intelligence (BI) capabilities [33]. Most of these processes and functions would mainly be available through modular on-demand add-ons to the system, like CRM-related solutions, data warehousing applications, and web portals [33, 34].

Besides sales force automation (SFA) and cost (SFC) management, ERP II was also foreseen to integrate all e-commerce related processes with the corporate supply chain [33]. Figure 2 presents an overview of the organizational areas and processes that ERP II is intended to cover. The areas are CRM, PLM (product lifecycle management), SRM (supplier relationship management), HRM (human resource management), CPM (corporate performance management), and SCM. In addition, ERP II was envisioned to provide back and front-end applications to enable business-to-customer, business-to-business and business-to-employee operations. Moreover, ERP II should facilitate the enterprise application integration (EAI) with other systems [4]. Thus, due to their massive scale and coverage of the micro and macro environments' stakeholders, and the different business functions and operations, ERP II systems were and are expected to be very complex to implement [31, 34, 35].

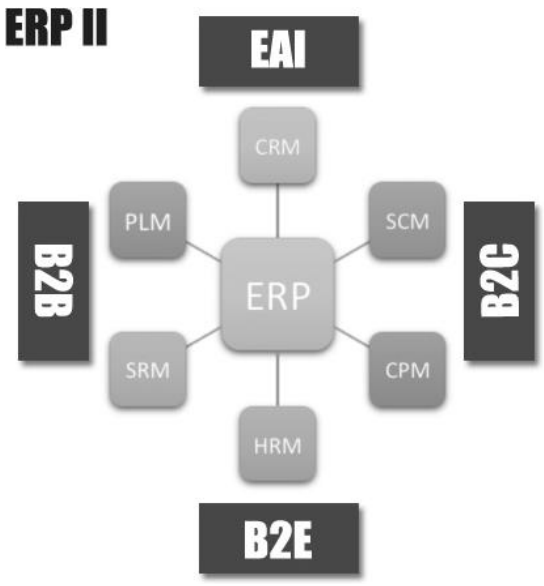

Fig. 2. ERP II Umbrella. Adapted from [33].

ERP II implementation projects should not be only regarded as IT projects, they rather should be considered as business projects. This is mainly due to the considerable time of business engagement of the various key employees from the various business functions within organizations in contrast to their IT departments' peers [34]. In the year 2005, Møller argued that Gartner's vision of the next generation ERP (ERP II) has been matched by ERP's vendors as major ERP

systems currently (in 2005) have several interfaces, modules, and add-ons to meet that vision [33]. Looking now, we can see that most ERP systems facilitate EAI within organizations (e.g. SOA), and their SCM related modules have satisfied the need for adopting separate SCM systems for many organizations, however, we argue that this is not yet the case when it comes to CRM systems. In general, the ERP literature lacks sufficient research on exploring the status of "ERP II" initiatives in the industry [33]. Based on the authors' experiences in the industry, it is hypothesized that organisations still prefer to have stand-alone CRM systems along with their ERP systems, instead of having all-in-one solutions. Thus, in this paper we attempt to test this hypothesis and explore the reasons why organizations are still investing in separate CRM systems, which might not even be integrated to other core processes of the company, instead of using the CRM module that comes with their ERP system.

3. Research Methodology

This research followed an explorative research methodology, which can potentially aid in providing a better understanding of the phenomenon or problem understudy [36]. In general, exploratory research is a satisfactory method for investigating and explaining why certain phenomena occur [37]. Exploratory research is usually undertaken for three main purposes, namely analysing a situation, assessment of alternatives and discovering new ideas and phenomena [38]. One of the foundations of this genre of research is the use of a hypothesis, in which the researchers test the viability of certain hypotheses or research questions [39]. Thus, the authors hypothesized and questioned the viability of ERP II in practice. Specifically, the authors conducted a multiple case study [37] with ten semi-structured qualitative interviews [36] in organizations, plus six additional interviews with other stakeholders. According to Yin [37], a case study research method is recommended when "how" and "why" questions are probed, when the researcher has diminutive control on the events, and when the focus of the investigator is on a current phenomenon that occurs in a real-life context. According to Thomas [40], case studies can include the analyses of events, persons, decisions, periods, projects, institutions, or any other systems that are scrutinised and studied holistically through one or more research methods.

The data collection process was conducted between February 2017 to June 2018. The interviews were carried out in various organizations working in different industries, and within various geographical regions. The industries included: banking, business consulting, construction building information management (BIM), retail, manufacturing, and telecommunications. Other interviews have also been conducted with ERP consultants, implementation partners and vendors. The participants included a mixture of stakeholders who have been involved in ERP and CRM systems implementations. Altogether sixteen interviews gathered information from these different stakeholders. The informants had experience in various local, international, and open source ERP and CRM systems. More details regarding the sampling and data collection process are presented in section 3.2.

In the following table, the informants' details from the eight target cases and other interviewees are introduced in more details. The company names are fictitious to preserve anonymity.

Table 1. Overview of cases and informants.

Case	Industry	Size	Location	Informant
Organization 1	Banking	Large	Norway	Customer service employee
Organization 2	Consulting	Small	United Kingdom	Marketing manager
Organization 3	Consulting	Small	Austria	Marketing employee Head of sales
Organization 4	Construction-BIM	Large	Norway	IT Application consultant
Organization 5	Clothing Manufacturer	Small	Norway	Sales manager
Organization 6	Retail & Food Manufacturing	Large	Egypt	Senior ERP Consultant

Case	Industry	Size	Location	Informant
Organization 7	Telecom	Large	Egypt	Sales employee Marketing employee
Organization 8	Banking	Large	Norway	Senior business support employee
Imp. partner 1	Implementation Partner	Large	Czech Republic	Senior SAP Consultant
Imp. partner 2	Implementation Partner	Small	Egypt	Junior implementation consultant
V	ERP Vendor	Medium	Egypt	General manager ERP senior consultant
Cons 1	Not applicable	Not applicable	Norway	Independent ERP consultant
Cons 2	Not applicable	Not applicable	Sweden	Independent ERP consultant

3.1 Interview guide and cases

The interview guide was developed by the authors in order to gather insights about the topic understudy. The authors used constructs from the existing body of knowledge on CRM, ERP, and ERP II, plus their practical experience as basis for the questionnaire development. The questionnaire covered several topics, including reasons and motivations for CRM adoptions, capabilities of the CRM vs. ERP´s CRM modules, challenges with current ERP and the CRM-related activities, CRM and ERP integration plans, and implementation costs. Moreover, we also asked about the status of ERP II from the points of view of our informants. In a column to the right of the questions, potential follow-up questions were listed. A sample of the pool of questions is presented below:

- What were the organization's motivations for investing in an ERP system?
- What were the organization's motivations for investing in a separate CRM system?
- Did you consider acquiring a single ERP II system instead of investing in multiple systems? Why/why not?
- In your opinion, what are the main challenges for implementing an ERP II solution?
- Is your ERP system integrated with the CRM system?
- Do you have other standalone systems (e.g. e-commerce platforms)?
- Are you planning on replacing your existing systems with ERP II solution in the near future? Why/why not?

Because of the adoption of an interview guide, there existed some systematic controls during the interviews [41]. The interview guide was sent to other peers in order to get feedback on the questions and clarity of the guide. Some important feedback was received about the vagueness of some questions, which were then enhanced. Later, the interview guide was again revised and enhanced after the first two interviews. The revision contained some rewording to some questions and also a change in the order of some questions, as the researchers learned what was more natural to ask consecutively during the interviews. More information about the target organizations is provided below.

Organization 1 is an international bank's branch located in Norway. The bank is a large bank with more than 20,000 employees worldwide. The bank operates in several countries around the world. Organization 1 offers offline and online banking services to its customers. The bank has a B2B platform available for its business customers. In addition to SAP ERP, the branch has a separate on-premise CRM system, and is currently in the process of evaluating other cloud-based CRM systems.

Organization 2 is a small consulting firm in the United Kingdom. The organization has ca. 30 employees and operates in several countries around Europe. The organization has various systems including ERP, CRM, plus a specialized lead-generation software. The organization operates in the area of business consulting focusing on aiding start-ups in establishing their businesses. The company implemented an Oracle ERP in 2015. Besides the ERP, the organization recently implemented a CRM system. In addition, the organization uses a specialized application that aids the sales

team to easily find information on the Internet for lead-generation purposes. This application is separate from the CRM system.

Organization 3 is a consulting company, located in Austria, which supports IT companies in the EMEA region by increasing their revenue in their indirect sales channels. Their main clients are market leaders in their industry. The company has approximately 35 employees, plus a network of approximately 20 independent partners (freelancers). It was founded in 2007 and implemented its first ERP System, SAP BusinessOne, in 2009. The system experienced a major upgrade to the latest available version then, in 2014. The decision to implement a CRM system was taken in 2015, after the company had used SharePoint and Excel Sheets to administrate their leads. The organization decided to use HubSpot CRM, a system provided by the US-based company HubSpot, which besides sales also offers solutions for marketing activities. The CRM system is free of charge, but has chargeable add-ons, especially in the area of advanced reporting and marketing. At the time of writing this paper, no add-ons have been acquired by the case organization.

Organization 4 is a large Norwegian company working in the area of building information management (BIM) for construction companies. The interviewee is an IT applications consultant and has around 20 years of experience in sales and 10 years of experience with digital business systems in the role of a product owner. The current position is described to be the bridge between the product owners of their many systems and the developers. The interviewee has in-depth experience with CRM systems since almost 20 years. The organization has a Visma ERP system, and Super office CRM system. Both are local Norwegian systems.

Organization 5 is a Norwegian company within the industry of manufacturing functional clothing. Originally founded as a start-up in Oslo few years ago, the company now has retailers in all Scandinavia, UK, US, Netherlands, Germany, Austria and Switzerland. We have conducted an interview with the Sales Manager, which was involved during the ERP and CRM implementations that the company had earlier. Currently, the organization has a Norwegian financial system (Tripletex) that has a CRM module.

Organization 6 is a retailer that deals with a various number of products, which are sold directly to customers through two outlets. The company has been established in 2005 in Cairo and is now one of the largest supermarket chains in Egypt. The organization is considered a large enterprise, and its current workforce consists of more than 2,500 employees. The retailing commodities vary from fresh food, fast moving goods, non-food commodities, textiles, and furniture. The company production mainly focuses on food manufacturing and packaging. Prior to the current ERP adoption, they had a previous Oracle JD Edwards ERP and the implemented modules were FC, Capital Asset Management, Manufacturing, Logistics, Procurement, and Sales & Distribution. The ERP went live in August 2007, and another upgrade was done in 2012. Recently, the organization has retired its Oracle JDE ERP and replaced it with SAP A1 ERP. The system went live in the mid of April 2017. The organization has also implemented an open-source CRM system (SugarCRM). We have conducted one interview with a senior ERP consultant that has been involved during the ERP and CRM adoption decisions, selection and implementations.

Organization 7 is one of the largest Telecom operators in Egypt. The organization has several systems and had several ERP implementations before. Currently, Organization 7 has an SAP A1 ERP and an on-premise Microsoft Dynamics CRM. We have conducted interviews with two personnel from the marketing and sales department. Both employees were key users during the ERP and CRM implementation projects.

Organization 8 is a Nordic bank located in Norway. The bank has presence in more than 15 countries worldwide, with more than 30,000 employees. Organization 8 offers offline and online banking services to its customers. In addition, the target organization offers open APIs (application programming interfaces) to its customers, in order to enable the integration of the customers' ERP systems with the bank's ERP to facilitate seamless B2B electronic transactions. The branch has a separate in-house developed CRM system, and an SAP A1 ERP.

Imp. partner 1 is a multinational organization and one of the largest ERP implementation partners and consulting firms in the Czech Republic. The organization implements several ERP systems including SAP and Oracle ERP systems. We have interviewed one of the senior SAP ERP consultants, which has been involved in several large implementations around Europe.

Imp. partner 2 is a small implementation partner and ERP reseller located in Alexandria and Cairo in Egypt. The case organization is specialized in implementing ERP systems and providing enterprise security solutions. The company operates in Egypt and the middle-east region in general. The organization mainly implements two international ERP packages. The ERP systems are Indian and Turkish packages. Both systems provide localized packages in Arabic for the Egyptian market. We have interviewed a junior ERP consultant that has been involved in few ERP implementations involving the Turkish ERP.

V is a local Egyptian vendor. The vendor provides an ERP system that targets medium to large organizations. The ERP can only be implemented on-premise; however, the organization is currently working on the cloud-based version. We have conducted two interviews with the organization's general manager and a senior consultant.

Cons 1 is an Oslo-based freelance and independent Enterprise Systems consultant that have been involved in more than twenty ERP and CRM implementations in several regions of the world. The consultant has also extensive experience with open-source ERP and CRM systems. In most of the ERP implementations, the consultant was mainly responsible for the sales and distribution of CRM modules.

Cons 2 is an independent Enterprise Systems consultant located in Sweden. The consultant has more than 20 years of consultancy experience with enterprise systems and data mining projects. The consultant has also been serving as a systems selection consultant for several international organizations with various sizes.

3.2 Sampling and data collection

The selection of target cases was completed through purposeful and snowball sampling methods [37]. First a small group of initial informants in organisations that have both a CRM and ERP system were identified. These potential informants were then contacted via phone and e-mail for interview requests. Some of the potential informants agreed to be interviewed, and others suggested other peers with more sufficient and relevant overview on the research topic. In addition, some informants suggested other target organisations which qualify for the research context. The target cases were therefore not preselected in this study. All interviews took between ca. 30 to 50 minutes. Fourteen of these were face-to-face interviews, and two interviews were conducted over the phone. All the interviews in the target cases were digitally recorded, and carried out with employees, which had deep knowledge about the technology (ERP & CRM) and the CRM related processes. In addition, all the interviews were conducted at organizations that have ERP with a CRM module, or/and CRM systems. Four interviews were conducted in Arabic language, one in German, and the rest were conducted in English. All the Arabic and German interviews were translated, and all the interviews were then transcribed.

It is important as researchers to envisage how many interviews are enough to reach data saturation. Data saturation is reached when the aptitude to gather additional new information is limited [42]. Thus, it is imperative to reach data saturation, as it directly impacts the content quality and validity [42]. The researchers experienced data saturation after the first five interviews in target organisations, that was confirmed when the remaining interviews were not yielding additional significant information. Therefore, recruiting more informants from user-organisations was deemed unnecessary, however, in order to have more insights over the research topic, informants from consulting and vendor organisations were then recruited.

The data gathering process was conducted over a period of ca. one year and a half. Two iterations of interviews were conducted. The first two interviews were the first pilot iteration. The reason for these two pilot interviews were conducted to enable the opportunity to listen to the interviews and evaluate in the first iteration in order to improve the interview guide if necessary, before conducting the rest of interviews. The data gathered represented the personal insights and opinions of the informants from the various stakeholders who represent the user, consulting, and vendor organizations.

3.3 Data and cross-case analysis

Data analysis and specifically cross-case analysis should preferably be used when searching for patterns among the various cases [43]. These patterns can be mainly identified by using three methods: a) the selection of categories and scanning for within-group similarities coupled with intergroup differences, b) the selection of pairs of cases and listing of the similarities and contrasts between each pair, and c) the classifying of data by data source to extract distinctive understandings from different types of data collection [43]. After the data collection process was completed, the data had to be electronically organized in order to be ready for analysis. Hence, the authors independently used colour coding [44] and tagging techniques, whereby the data gathered in each interview was classified according to the topic of discussion, and according to the question and interview guide's part in which it is situated. In addition, the authors also added notes, comments, and interpretations on some data segments. It was then possible to generate matrices, which can be classified by topic, interview, and/or case. This process eased the data analysis, because it enabled the authors to view the data related to the focus and theme per question and per interview. The colour coding system aided in visualising and the identification of patterns across the data.

With regard to the data analysis, several topics emerged during the discussions with informants in the interviews. Across all cases, data was usually analysed on the basis of topic and focus. For example, extracting the data from interviews that are related to challenges with using ERP system's CRM modules. In some other cases, the theme in the data collected has emerged, which is natural in semi-structured interview setting. Thus, two coding strategies were applied in this study. These can be classified as selective and theoretical coding [45], in which the categories were predefined and coded, and in other cases they were grounded and emerging from the data.

4. Results and Discussion

Based on the interviews and the findings, we were able to identify five main constructs that explain why our case organizations invested in separate CRM systems: scoping during ERP acquisition, costs, user-friendliness and ease of use, and the specialization on CRM-related processes (see figure 3).

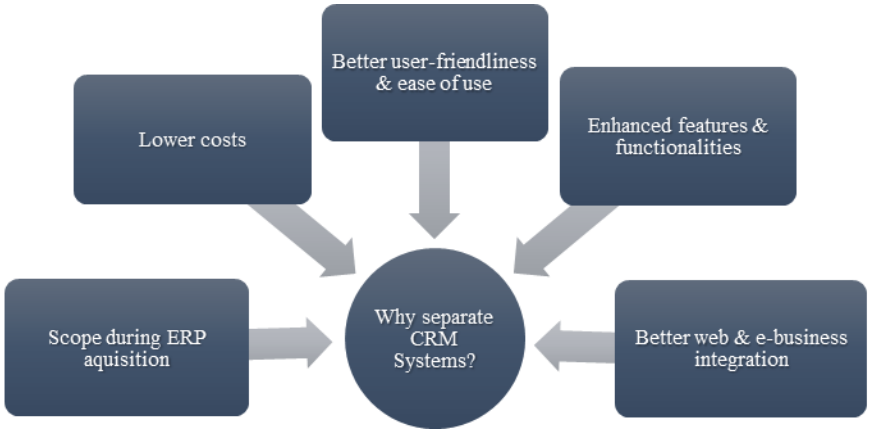

Fig. 3. Overview of results.

4.1 Scope during ERP acquisition

In many cases, organizations either start with an ERP implementation first and then implement a CRM system at a later stage, or vice versa. It rarely happens that an organization would implement both simultaneously. While several of our informants stated that they would have gone for a separate CRM system anyway, some also mentioned that they didn't think about it during the ERP selection for several reasons. "Both systems are huge and require a lot of resources during

implementations, and it is almost impossible to work on both projects in parallel, as they also have different focus." (Marketing manager, Organization 2). Another informant added, "the company did not really think about the CRM solution when they chose their ERP system. The ERP system had to be SAP, which was a requirement by the CEO, and the company only had eight employees at that time." (Head of sales, Organization 3). Some also related to this state because of the complexity of the project scoping. "While we knew that we need a CRM system/module, still CRM as such was beyond our scope during the ERP selection phase. There are many factors that play a role on the chosen ERP and these factors suppress the CRM selection, which has to be looked at in a separate and later phase." (Sales employee, Organization 7). "It is very difficult to implement both systems in one shot, the ERP alone is considered a large milestone". (Senior consultant, V). In addition, at the time of the ERP selection, customer relationship was in an early phase at some of the organizations, "sales was done mainly by using the former professional network of the company's founder, no one really made strategic sales in the beginning, so we didn't really consider a CRM back then [...], however, due to the unforeseeable growth and the importance of sales that came along with the growth, a different ERP solution with a proper CRM module from the beginning could potentially have saved the parallel construction." (Head of sales, Organization 3).

One of the senior informants (Senior consultant, Organization 6) mentioned that organizations tend to go for a separate CRM solution anyway, "based on my experience, regardless of which ERP they have, the majority of companies go for a separate CRM system". Likewise, one of the independent consultants confirms this view, "Usually organization go for the two separate solutions, as it is very complex to combine both in the same project [...], even if the ERP systems has an established sales & distribution module, or even a complete CRM module, organization usually prefer to buy best-of-breed in both areas." (Cons 1). Another reason for this separation could be related to the different focus of each system, "The ERP is more of an internal system, SCM and CRM cross the boundaries of the firm, they are very different in scope." (Senior consultant, Organization 6).

4.2 Costs

While the majority of our case organizations have on-premise ERP systems, several of them went for a cloud-based CRM solution. In addition, several of the interviewees from the implementation partners, consultants, and vendors mentioned that the majority of their clients prefer a cloud-based CRM, but not a cloud-based ERP. This could be related to the following statement: "In our organization, one of the reasons for adopting a separate CRM was the cloud option. Our ERP is on-premise for several reasons, but we wanted a cloud CRM, thus we went for Salesforce." (Senior consultant, Imp. partner 2). The arguments for cloud-based CRM systems are several, like availability and leveraging the systems administration to the vendor. One of the ERP vendors we have interviewed also has a cloud-based CRM, "yes, we have chosen Salesforce because it is cloud-based and available 24/7 with less administration efforts from our side." (Junior consultant, Imp. partner 2). On the other hand, several other informants mentioned that the overall costs of having a cloud CRM could be less than running a CRM module in the ERP system. "The current ERP system is an on-premise solution and only 8 licenses had been acquired, which was mainly used by accounting and people from the operations department. The organization evaluated to purchase additional licenses for the sales staff, however decided to not purchase them, as the cost was comparably high", (Head of sales, Organization 3). Likewise, the marketing employee at Organization 3 argued for the cost savings from a cloud-based CRM, "beside the high cost for CRM users on the ERP system, also the low costs of the new solution had an effect on the decision, in both technical and consulting costs [...], the CRM was ready to be used after 5 clicks and came with an out-of-the-box sales funnel which could be used almost right away. […] The fact that the CRM is in the cloud and that we therefore did not have to invest in architecture and server and so on, was definitely a main argument for us." Another informant also compared on-premise ERP and CRM systems, "the ERP systems are so monstrous, they have so many functionalities, so you need a specialist or somebody educated to be able to handle and adjust these systems, so it will be really expensive for the company, because you maybe need a full-time consultant for I don't know how long to just adjust the system, and if you want to do something you have to pay this consultant again and again for each time you want to do some changes and customization [...], cost is always an issue, and actually I think we save money by having another separate CRM system" (IT application consultant, Organization 4). In addition, informant at Imp. partner 1 elaborated on why they went for a cloud-based CRM system and was asked about how important costs are for his company, he stated "very

important, even though it's a huge company", (Senior SAP consultant, Imp. partner 1). On the other hand, other informants from large organizations mentioned that CRM systems, in cloud or on-premise, cost less in general, "separate CRM systems cost less in various ways, from training, learning time, consulting, maintenance, and errors-related costs." (Sales employee, Organization 7), "to buy 7000+ licenses from our ERP system vendor to use its CRM is very costly for us." (Senior business support employee, Organization 8).

4.3 User-friendliness and ease of use

Almost unanimously, our informants stated that specialized CRM systems' interfaces are by far more user-friendly than sales and marketing related modules or CRM modules in well-known ERP systems. "Current CRM systems in the market have very easy to use and learn interfaces, which take very little time for sales and marketing people to be able to use them efficiently", (Independent consultant, Cons 1). Other informants also mentioned that user-friendliness was one of the major reasons for acquiring a separate CRM system. For example, the head of sales at Organization 3 mentioned that the main features (administration of leads and opportunities) are similar in both solutions [ERP & CRM], however, the new CRM solution seems to be much easier to use, more intuitive and accessible from everywhere, and the data entry, therefore, is supposed to go fast and uncomplicated as the interviewees stated "This (user-friendliness) was a major, major, major reason! […] I didn't want it to be complicated." (Head of sales, Organization 3). "You can move things forward and backward in the CRM system […], but at the ERP system it is not that easy." (Marketing employee, Organization 3). One informant mentioned that some ERP systems have user-friendly CRM modules, however, still they are not as good as the modern CRM system interfaces, in his point of view, "I have seen very nice CRM modules in specifically some open-source ERP systems, however, they can't compete with specialized CRM systems." (Independent consultant, Cons 1). This view has been confirmed with another informant, "Salesforce and Soho and similar online-based systems are growing fast because they are easy to use, have easy to install plugins, and if you need extra functionality you can just add it and it will just work." (IT application consultant, Organization 4). "If a report needs change and new fields need to be added, every administration user can do the changes. Even though the system itself is free of charge, chargeable add-ons are available." (Head of sales, Organization 3). One of the ERP vendor's informants also confirmed this belief, "due to their smaller scale, specialized CRM systems are more intuitive and easier to use than ERP systems. If the ERP has the same process you want to do on a CRM system, it will be much easier to do it on the CRM." (General manager, V).

4.4 Features and Functionalities

While the main features and functionalities between CRM systems and CRM modules in ERPs are very similar, but by nature, CRM systems have a clearer focus on customer relationship related functionalities. Some features are only offered through CRM systems and this evidently had a strong effect on the decision to adopt a separate CRM system at our target cases.

Some of our informants stated that they went for a separate CRM solution, as the current sales and distribution module in the ERP is not sufficient. "We implemented SugarCRM as it is easily and fully integrated with our call centre system." (Senior consultant, Organization 6), "it was relatively easy to integrate our CRM system with the tele-sales system." (Senior business support employee, Organization 8). In addition, other informants stated that the current CRM-related modules in ERP systems are not really covering the whole sales or marketing full cycles. "It is not easy to create a campaign, assign a team, manage the team, and follow-up on the campaign in ERP systems, if they have these features in first place." (Marketing employee, Organization 7). Likewise, "Current ERP systems lack the full sales and marketing cycles, for example, it is not possible to monitor and measure the customers' churn rate, retention, happiness factors, and customer experience." (Senior consultant, Organization 6). Regarding the features of CRM systems, the marketing employee at Organization 3 mentioned that, "The CRM system offers us a lot of things that we haven't even explored yet, you can send e-mails and even call customers through the system… something that our ERP might never offer us". "There are many details and workflows not existing in the ERP and cannot be traced, and most of them are non-financial transactions, including marketing, presales, after sales support and warranty". (Junior consultant, Imp. partner 2). Similarly, the Marketing employee at Organization 1 mentioned that "the CRM module in our ERP was

considered very restrictive in comparison to our separate CRM application". In addition, one independent consultant stated that some ERP systems lack competence in their CRM solutions and modules, "several ERP systems have lousy CRM modules and lack core functionalities that sales, marketing, and customer service teams need. By the way, this is not restricted to CRM modules, for example, some years back, several organizations which I served as a consultant for, implemented separate human resource management systems instead of using the HRM module from SAP, as they have seen it as mediocre module, however, this is not the case anymore as this module has been totally enhanced after the acquisition of the SuccessFactors resource management systems by SAP." (Cons 2).

Since the CRM solution at Organization 3 is cloud-based, the system is available and accessible from everywhere and apps can be used on mobile devices to track activities, which makes it particularly attractive for the organization, "we actually liked the thought of having something that could be accessible everywhere. And then you look at all the add-ons that you can do with HubSpot […], you can even use it on your phone." (Head of sales, Organization 3). The same informant mentioned that if ERP systems' related CRM modules were comparably good with CRM systems, they would have gone for the one solution (ERP), "costs were definitely an argument, but if the (existing) ERP system had 10 times better features, we would, for sure, have bought additional licenses", (Head of sales, Organization 3).

4.5 Better integration with web and e-business platforms

Our main findings suggest that ERP systems of today are far from replacing e-commerce and e-business platforms. When our informants have been asked regarding this possibility, they have stated that this not attainable yet. "For sure our ERP system cannot replace the adoption of e-business platforms. We need sometimes several systems to act as our front and back-ends to our e-business platform." (Customer service employee, Organization 1). "In my experience, I did not see any ERP that is capable of replacing e-commerce and e-business platforms, not even decent store fronts. They definitely can be integrated with these infrastructures but will not provide all the functionalities that are usually needed by the marketing and sales teams." (Cons 1).

One of the main features of established and specialized CRM systems is the ease of integration with online and e-business platforms. For example, CRM systems facilitate the seamless integration with web marketing tools and landing pages of the companies', in order to potentially transfer a prospect into a lead, as stated by one of the interviewees: "When we implemented the ERP system, it was crucial to us to not only cover lead management, but also to administer lead generation and nurturing. […], in other words, we needed a system that could track when someone downloads a whitepaper from our website, a cold-lead so-to-speak, so that we could follow-up on their downloads and offer them our products. […], the combination of who downloaded, what, and when, and to be able to sell them something based on that, we simply didn't find that feature in our ERP." (Marketing employee, Organization 3). Also, the flexibility and the ability of CRM systems to integrate and import data in several formats are considered paramount advantages, "you can import contacts, you can import leads from *'XLS'* files or you can have automated leads from Internet directly into your CRM system. So, all these specialized functionalities are for me the basic reason why organizations chose to have a separate CRM system." (IT application consultant, Organization 4). Our informant from Organization 2 have expressed the difficulty of having the ERP system integrated with their website, "it can be integrated with our website, which is a lot of work, but it can't replace our need for online and e-business platforms". Correspondingly, another interviewee mentioned that the CRM module in ERP systems are troublesome to integrate with e-business platforms, "we have a complex e-business web portal that we provide to our business customers, which in part is connected to our ERP system, however, our CRM provides more control on monitoring the online platform and provides better tracking and reporting capabilities." (Customer service employee, Organization 1).

5. Conclusions and Future Research

ERP systems have, no doubt, matured greatly since they were first introduced. Most of the current systems provide several modules that could virtually cover all the needs and business functions in organizations. Modern ERP systems also provide several enterprise application integration solutions through APIs or service-oriented architecture platforms. This partially corresponds to Gartner's vision of ERP II, which projected how ERP II will replace almost all

organizational and cross-organizational systems. While earlier research suggested that by now (e.g. 2020) ERP II systems will be available, however, this vision seems to be non-realistic and difficult to attain. Via conducting interviews with clients, consultants, vendors, and implementation partners, we have attempted to elucidate their perspectives and opinions on why ERP II is not a standard yet. Our informants believe that the existing ERP systems are definitely more flexible and integration-ready than their predecessor versions, but still non-replacing for specialized systems like CRM, e-business platforms, or specialized SCM systems. In addition, it could be more economically feasible for enterprises to implement separate best-of-breed systems instead of one large system at once. This could be due to the fact that some of our target organizations prefer to have on-premise ERP and in-cloud CRM systems, or because of the better user-friendliness and features of specialized CRM systems. In addition, several informants mentioned that training, consulting, maintenance, and license costs related to CRM systems are dramatically lower than ERP counterparts, especially if the CRM is cloud-based. Moreover, the difference in project scope, focus (internal & external) and motivations between CRM and ERP systems make it troublesome and complex to implement both simultaneously. Also, the results show that the vision of having one ERP II system implementation at an organization could be severely difficult and complex to manage, which goes in-line with what has been suggested in earlier literature. Current ERP systems are mainly lacking the full sales and marketing cycles, and also, they lack several other important needed features, special reports and forecasts. Interestingly, all of our cases did not integrate their ERP and CRM systems *(yet)* process-wise, and some informants even argued that they do not see the process integration between CRM and ERP systems as a needed effort, as they have different scopes, purposes and targets within organizations. Having said that, most of the case organizations either integrate both systems on a data-level or use data mapping techniques to enable analysing the merged data from their ERP and CRM systems. In brief, the systems are coupled data wise, uncoupled process wise. In addition, one independent consultant informant stated that ERP vendors nowadays have a different approach from the earlier ERP II vision. This means that the current vendors focus further on providing more flexible and open systems that are ready for integrations with other systems (e.g. via SOA platforms), rather than building comprehensive systems that attempt to replace other enterprise systems.

Our study implies at least five suggestions for future research. Firstly, more research is needed on the viability of ERP II systems in other industries or contexts than the ones covered in this study. Secondly, more research is needed on how vendors envision the future of ERP systems and the idea of ‘one-system-fits-and-covers-all’. Thirdly, ERP vendors should work together with their customers to understand the needed features from the future ERP systems. Fourthly, researchers need to explore the process integration benefits between CRM and ERP systems, as our results suggest that some organizations view it as an unfeasible project. And finally, researchers and practitioners need to explore the topic of how ERP systems can replace e-business platforms, or at least ease their integration, which our findings suggest that they have failed in fulfilling this vision until now.

References

[1] M. Haddara, "ERP Systems Selection in Multinational Enterprises: A Practical Guide," *International Journal of Information Systems and Project Management,* vol. 6, no. 1, pp. 43-57, 2018.

[2] E. Hustad, M. Haddara, and B. Kalvenes, "ERP and Organizational Misfits: An ERP Customization Journey," *Procedia Computer Science,* vol. 100, pp. 429-439, 2016.

[3] S. Demi and M. Haddara, "Do cloud ERP systems retire? An ERP lifecycle perspective," *Procedia computer science,* vol. 138, pp. 587-594, 2018.

[4] H. Beheshti, "What managers should know about ERP/ERP II," *Management Research News,* vol. 29, no. 4, pp. 184-193, 2006.

[5] D. Robey, J. W. Ross, and M.-C. Boudreau, "Learning to implement enterprise systems: An exploratory study of the dialectics of change," *Journal of Management Information Systems,* vol. 19, no. 1, pp. 17-46, 2002.

[6] T. H. Davenport, "Putting the enterprise into the enterprise system," *Harvard Business Review,* vol. 76, no. 4, pp. 121-131, July-August 1998.

[7] M. Haddara, "ERP systems in SMEs: Exploring ERP lifecycle cost issues," Doctoral dissertation/M. Haddara, 2013.

[8] G. F. H. Raihana, "Cloud ERP–a solution model," *International Journal of Computer Science and Information Technology & Security*, vol. 2, no. 1, pp. 76-79, 2012.

[9] S. SE, "Inteligent Enterprise - SAP Annual Report 2017 on Form 20-F," 2017.

[10] Oracle, "Oracle Fact Sheet: Empowering and Accelerating the Modern Business," 2016 2016. [Online]. Available: http://www.oracle.com/us/corporate/oracle-fact-sheet-079219.pdf

[11] E. Bjelland and M. Haddara, "Evolution of ERP systems in the cloud: A study on system updates," *Systems*, vol. 6, no. 2, p. 22, 2018.

[12] J. Y. Chang, E. T. Wang, J. J. Jiang, and G. Klein, "Controlling ERP consultants: Client and provider practices," *Journal of Systems and Software*, vol. 86, no. 5, pp. 1453-1461, 2013.

[13] T. Somers, M and K. Nelson, "The impact of critical success factors across the stages of enterprise resource planning implementations," in *System Sciences, 2001. Proceedings of the 34th Annual Hawaii International Conference on*, 3-6 Jan. 2001, p. 10 pp.

[14] M. G. Morris and V. Venkatesh, "Job characteristics and job satisfaction: understanding the role of enterprise resource planning system implementation," *MIS Quarterly*, pp. 143-161, 2010.

[15] P. C. Solutions, " 2017 Report on ERP Systems & Enterprise Software," 2017. Accessed: 07-03-2018. [Online]. Available: http://go.panorama-consulting.com/rs/603-UJX-107/images/2017-ERP-Report.pdf

[16] M. Markus, L and C. Tanis, "The enterprise systems experience-from adoption to success," *Framing the domains of IT research: Glimpsing the future through the past*, vol. 173, pp. 207-173, 2000.

[17] M. T. Kotb, M. Haddara, and Y. T. Kotb, "Back-propagation artificial neural network for ERP adoption cost estimation," in *Enterprise information systems* vol. 220, M. M. Cruz-Cunha, J. Varajao, P. Powell, and R. Martinho Eds.: Springer, 2011, pp. 180-187.

[18] J. Esteves and J. Pastor, "An ERP lifecycle-based research agenda," in *Published in: First International workshop in Enterprise Management and Resource. Planning: Methods, Tools and Architectures,EMRPS*, 1999, vol. 99, pp. 359-371.

[19] D. Aloini, R. Dulmin, and V. Mininno, "Risk assessment in ERP projects," *Information Systems*, vol. 37, no. 3, pp. 183-199, 2012, doi: http://dx.doi.org/10.1016/j.is.2011.10.001.

[20] M. Haddara and A. Elragal, "ERP Lifecycle: A Retirement Case Study," *Information Resources Management Journal (IRMJ)*, vol. 26, no. 1, pp. 1-11, 2012.

[21] P. Rikhardsson and P. Kræmmergaard, "Identifying the impacts of enterprise system implementation and use: Examples from Denmark," *International Journal of Accounting Information Systems*, vol. 7, no. 1, pp. 36-49, 2006. [Online]. Available: http://www.sciencedirect.com/science/article/B6W6B-4J8KNNG-1/2/11484260aa0a44812f1c49c7741d08cb.

[22] O. Velcu, "Strategic alignment of ERP implementation stages: An empirical investigation," *Information & Management*, vol. 47, no. 3, pp. 158-166, 4// 2010, doi: http://dx.doi.org/10.1016/j.im.2010.01.005.

[23] A. Deep, P. Guttridge, S. Dani, and N. Burns, "Investigating factors affecting ERP selection in made-to-order SME sector," *Journal of Manufacturing Technology Management*, vol. 19, no. 4, pp. 430-446, 2008, doi: doi:10.1108/17410380810869905.

[24] B. Molnár, G. Szabó, and A. Benczúr, "Selection Process of ERP Systems," *Business Systems Research*, vol. 34, no. 1, pp. 36-48, 2013.

[25] H. de Juan-Jordán, M. Guijarro-García, and J. H. Gadea, "Feature Analysis of the “Customer Relationship Management” Systems for Higher Education Institutions," *Multidisciplinary Journal for Education, Social and Technological Sciences,* vol. 5, no. 1, pp. 30-43, 2018.

[26] W. Reinartz, M. Krafft, and W. D. Hoyer, "The customer relationship management process: Its measurement and impact on performance," *Journal of marketing research,* vol. 41, no. 3, pp. 293-305, 2004.

[27] T. K. Huang, C.-Y. Liao, Y.-T. Wang, and K.-Y. Lin, "How Does Social Media Interactivity Affect Brand Loyalty?," in *Proceedings of the 51st Hawaii International Conference on System Sciences*, 2018.

[28] H.-J. van Roekel and M. van der Steen, "Integration as unrealised ideal of ERP systems," *Qualitative Research in Accounting & Management,* 2019.

[29] I. Zajačko, I. Klačková, and I. Kuric, "CRM systems–from theory to practice," *Innovations,* vol. 7, no. 3, pp. 97-100, 2019.

[30] L. Colombus, "Salesforce Now Has Over 19% Of The CRM Market." [Online]. Available: https://www.forbes.com/sites/louiscolumbus/2019/06/22/salesforce-now-has-over-19-of-the-crm-market/

[31] W. F.D.Ted, Jr., "ERP II: The extended enterprise system," *Business Horizons,* vol. 46, no. 6, pp. 49-55, 2003/12// 2003. [Online]. Available: http://www.sciencedirect.com/science/article/pii/S0007681303000880.

[32] B. Bond, Y. Genovese, D. Miklovic, N. Wood, and B. Zrimsek, "ERP is dead-Long live ERP II," *Strategic Planning,* no. 4, pp. 12-15, 2000.

[33] C. Møller, "ERP II: a conceptual framework for next-generation enterprise systems?," *Journal of Enterprise Information Management,* vol. 18, no. 4, pp. 483 - 497, 2005.

[34] R. Beatty and C. Williams, "ERP II: best practices for successfully implementing an ERP upgrade," *Commun. ACM,* vol. 49, no. 3, pp. 105-109, 2006, doi: 10.1145/1118178.1118184.

[35] C. Møller, P. Kræmmergaard, and P. Rikhardsson, "A comprehensive ERP bibliography 2000–2004," Department of Marketing, Informatics and Statistics, Aarhus School of Business, 2004.

[36] I. Rubin and H. Rubin, *Qualitative interviewing: The art of hearing data*. Sage Publications, Incorporated, 2011.

[37] R. K. Yin, *Case Study Research: Design and Methods*. SAGE Publications, 2009.

[38] W. G. Zikmund, "Business Research Methods Florida," ed: The Dryden Press, 1997.

[39] R. Fellows and A. Liu, "Research methodology for construction," ed: Oxford: Blackwell Science Ltd, 2003.

[40] G. Thomas, *How to do your case study: A guide for students and researchers*. Sage Publications Limited, 2011.

[41] A. Bryman, *Social research methods*. OUP Oxford, 2012.

[42] P. I. Fusch and L. R. Ness, "Are we there yet? Data saturation in qualitative research," *The qualitative report,* vol. 20, no. 9, p. 1408, 2015.

[43] K. M. Eisenhardt, "Building theories from case study research," *Academy of Management Review [AMR],* vol. 14, no. 4, pp. 532-550, 1989.

[44] K. A. Knafl, D. C. Webster, J. Q. Benoliel, and J. M. Morse, "Managing and analyzing qualitative data a description of tasks, techniques, and materials," *Western Journal of Nursing Research,* vol. 10, no. 2, pp. 195-218, 1988.

[45] B. G. Glaser, *Doing Quantitative Grounded Theory*. Sociology Press, 2008.

Biographical notes

Moutaz Haddara
Haddara is a Professor of Information Systems and program manager of the Digital Business Systems master specialization and e-business bachelor's degrees at Kristiania University College in Oslo, Norway. Haddara is also a visiting professor at TIAS School for Business & Society, Utrecht, Netherlands, SP Jain School of Global Management, Dubai – Singapore – Sydney, University of South-Eastern Norway, Hønefoss- Horten, Norway, and the American University in Cairo, Cairo, Egypt. Formerly, he has been an associate professor at the Department of Computer Science, Electrical and Space Engineering, Luleå University of Technology (LTU), Sweden. Haddara holds a PhD in Information Systems from University of Agder, Norway. He has more than 60 publications in the areas of enterprise systems, big data, IoT, cloud computing, benefits management, and query optimization techniques. Haddara serves as an editorial and review board member for several international information systems journals and conferences. He also works closely with the industry and serves as an advisory council member for the Microsoft Dynamics Academic Alliance in the EMEA region. Haddara also serves as a researcher and consultant for several other international institutions, governments and NGOs including the European Union and the Norwegian government.

Angelo Constantini
Constantini has worked for over nine years at an Austrian consulting company delivering services in the area of sales enablement and developing online platforms to a major German ERP software provider. After that, he has worked as a project manager and integration manager at a medium-sized provider of a Central Reservation System (CRS) to the Nordic and European market in Sweden. He obtained his bachelor's degree at the AACSB accredited University of Applied Sciences Management Center Innsbruck (MCI) in Innsbruck-Austria, majoring in Business and Management, and his master's degree at the Westerdals School of Arts, Communication and Technology in Oslo-Norway (now Høyskolen Kristiania) in Information Systems - Digital Business Systems major.