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The Critical Success Factors of Cloud ERP Implementation within SMEs

A graduation thesis for the degree of Master of Science in Business Administration

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لاَ يَشْكُرُ اللَّهَ مَنْ لاَ يَشْكُرُ النَّاسَ ﷺ

“He who does not thank people (for their favors) has not thanked Allah.” Prophet Mohammad

I am very thankful for the good things I was blessed to achieve in the last few years, most importantly, to finish this master of science program. This was a rough yet very interesting journey.

*

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List of abbreviations

CFO	Chief Financial Officer
COO	Chief Operation Officer
CRM	Customer Relationship Management
CSFs	Critical Success Factors
ERP	Enterprise Resource Planning
FTE	Full-Time Equivalent
IS	Information Systems
MT	Management Team
PSA	Professional Service Automation; the cloud ERP studied in this research
SIG	Software Improvement Group; the case study of this research
SMEs	Small and Medium-Sized Enterprises
TA	Thematic Analysis
TAM	Technology Acceptance Model
TRA	Theory of Reasoned Action

Abstract

As on-premise Enterprise Resource Planning (ERP) systems require considerable investments in internal resources, organizations have recently considered implementing cloud-based ERP (cloud ERP). To ensure the success of cloud ERP implementation projects, critical success factors (CSFs) should be carefully considered. The objective of this research is to give SMEs managers practical guidelines on how to ensure the success of cloud ERP projects in their organizations

This research is based on a qualitative research, which was conducted through a single case study within a middle-sized consultancy enterprise where a cloud ERP implementation project has recently taken place. Primary data was collected from 20 semi-structured interviews. The participants' sample included both end-users and managers to ensure both perspectives are considered.

The findings identified seven CSFs of three various categories; technical, process-related, and sociotechnical. Technical factors include (1) the selection of cloud ERP and supplier, (2) the technical expertise and knowledge required in the process, (3) system customization, and (4) system quality. Process-related factors include (5) project management, (6) communication, and (7) user training. Most importantly, the sociotechnical factors; which factors include (8) users' acceptance of the new system, (9) change management, and (10) top management role. These factors should not be overseen or neglected due to the technical focus. To ensure a successful implementation for cloud ERP system, these factors should be given significant attention. Other findings emphasize the importance of delivering added value to all stakeholders, ensuring a unified vision and understanding of the system's role and its proper usage.

This research has some limitations, firstly, the case study was chosen due to convenience approach, which has its limitation in terms of generating the findings of this research. Other limitations that have to do with the case, are the size and demography distribution of the sample; all data was internally collected, no external experts were interviewed. Other practical considerations such as conducting interviews via video conference calls and with non-native speakers are also discussed.

This research contributes to the body of work dedicated to CSFs of Information Systems (IS); more specifically, the cloud ERP implementation projects within Small and Medium-sized Enterprises (SMEs). This will help managing the implementation project more effectively, and allocate resources that are required to ensure the implementation success.

Further research could define the most important CSFs per project stage, investigate the organizational benefits gained from the proper management of these CSFs, and produce measurement tools to the return on investment of the implementation.

Keywords: Critical Success Factors (CSFs), Enterprise Resource Planning (ERP), Cloud Computing, Sociotechnical Factors, Technology Acceptance Model (TAM).

1. Introduction

Information Systems (IS) bring significant productivity gains to organizations, which can deliver competitive advantages in the long term (Chang, 2006; Johnston & Vitale, 1988). When used properly, IS can help managers in making beter decisions and gain instent and future insights of organization's progress (Hong & Kim, 2002). In management related reserch, Enterprise Resource Planning (ERP) is a widely studied subject. ERP refers to "integrated, enterprise-wide, packaged software applications that impound deep knowledge of business practices" (Shang & Seddon, 2000:1005). Due to its fundamental added value to organizations, ERP might be seen as a necessity in nowadays organizations (Holsapple & Sena, 2005).

In the last decade, cloud computing became more interesting to Information Technology (IT) practicinars due to the various services and possibilities they introduce. Cloud computing refers to "an information technology service model where computing services (both hardware and software) are delivered on-demand to customers over a network in a self-service fashion, independent of device and location" (Marston, Bandyopadhyay, Zhang, & Ghalsasi, 2011: 177). Therefore, deploying ERP system using cloud services brought new advantages to - and solved many shortcomings of - the traditional on promise ERP. Which made cloud-based ERP[1] systems become a new trend in this field (Yang & Tale, 2012).

Nevertheless, ERP implementation projects have their challenges, such as long implementation periods, mass customizations required to fit the organizational needs, and their high operational costs (Alshawi, Themistocleous, & Almadani, 2004; Holland, Light, & Gibson, 1999). As a result of their complex nature and the challenges they introduce, ERP systems have shown a low implementation success rate across organizations (Mahmud, Ramayah, & Kurnia, 2017; Sarker & Lee, 2003; Somers, Nelson, & Ragowsky, 2000). Reviews of literature on ERPs have shown that ERP implementation failures could be prevented if crucial factors were properly managed, which can be learned from prior implementation experiences (e.g. Esteves & Pastor, 2000; Moon, 2007).

This viewpoint led to investigate the Critical Success Factors (CSFs) of ERP implementation (resources). The CSF research, however, is still limited to the identification and management of these factors, which is typically concerned with technical factors; e.g. system quality and customization, and process-related factors; e.g. project management and training (Kateb, Swies, Obeidat, & Maqableh, 2015; Somers & Nelson, 2004). Accordingly, research, to a large extent, "focuses primarily on the delivery of a technical artefact, and rather ignores, or underplays, the need for complementary organizational change, upon which the realization of business benefits is dependent" (Doherty, Ashurst, & Peppard, 2012: 4). This approach neglects the role of sociotechnical2 factors (i.e. shared beliefs and social constructs of users about the system), whereas these factors can dominate the acceptance and adoption of the new system (Lyytinen & Newman, 2008). These sociotechnical factors can have more influence on the implementation project success, since they are directly related to the proper usage in the workplace, and therefore the organizational benefits gained from the system (e.g. Pai & Tu, 2011; Yi & Hwang, 2003).

The lost investments and failures in meeting implementation projects objectives underline the emergent need to translating CSFs into actionable process actions (Zwikael & Globerson, 2006). We also know little about the interactions between the known CSFs of ERP projects, and whether CSFs can reinforce each other to produce a successful implementation project (Bradley, 2008). Furthermore, there is no explicit linkage of implementation success to the organizational benefits. For these reasons, scholars encourage to investigate the CSFs in different contexts, since the outcome may vary accordingly (Reitsma & Hilletofth, 2018). Hence, to gain a better understanding of ERP projects'

[1] Hereafter referred to as cloud ERP
[2] Refers to interrelatedness of social and technical aspects

success, it is important to investigate how the perceived success of ERP projects differs across implementation partners and stakeholders (Nah, Lau, & Kuang, 2001).

To approach cloud ERP implementation projects effectively, managers should consider a CSF method to achieve their goals successfully. Even though CSFs of IT projects is a well-studied subject in the literature (e.g. Somers & Nelson, 2001; Summer, 1999), the cloud aspects are seldom included in such studies[1]. This promotes an emergent necessity to investigate the benefits and challenges of cloud systems, and the web-services in general (Costa, Ferreira, Bento, & Aparicio, 2016; Menon, Muchnick, Butler, & Pizur, 2019).

The scope of the study will be limited to the adoption of cloud ERP within Small and Medium Enterprises (SMEs), as the researcher believes that SMEs have certain partricularity compared to large enterprises. This particularity is due to SMEs main characteristics such as the limited resources and relatively flat hierachy structure that they have. Therefore, SMEs are more sensitive to financial risks, have less investment margins, and usually adopt an informal management syle internally compared to large enterprises (Sultan, 2011). These characteristics are believed to reflect on the CSFs of cloud ERP implementation as they make the success of such projects harder to achieve within the limited posibilites.

Depending on these arguments, the researcher is interested in this research for couple of reasones. On one side, cloud computing is important to SMEs as this category can benefit from the cost efficiency and reduction of cloud computing (Salum & Rozan, 2016). On the other side, the failure of ERP implementation projects can be fatal to these organizations due to the waste of enormous amounts of resources and the destruction of the competitive advantage in the long term (Hong and Kim, 2002). Finally, even though these particularities are interesting to investigate, however, research in the cloud domain is still limited in the context of SMEs (Peng & Gala, 2014).

The objective of this research is to give SMEs managers practical guidelines on how to ensure the success of cloud ERP projects in their organizations. To approach this objective, the researcher investigates the CSFs of cloud ERP implementation project within a middle-sized consultancy enterprise. This research addresses three different categories of CSFs; specifically, the technical, process-related, and sociotechnical factors. These CSFs can be relevant in different stages of the ERP implementation project. This category distinction is important as it is presumed that each category has different characteristics, and thus requires a relevant approach to be handled properly.

The approach adopted to achieve the research objective is twofold: to explore the critical factors that ensure the success of a cloud ERP implementation process, and to investigate the organizational benefits acquired from the system usage. The researcher builds on the CSF research in the literature (e.g. Françoise, Bourgault, & Pellerin, 2009; Saade & Nijher, 2016; Somers & Nelson, 2001), and the literature of the Technology Acceptance Model (TAM) (e.g. Ajzen, 2011; Davis, 1986; Venkatesh & Davis, 2000) in conducting an empirical research using a single case study. The TAM is used in this research merely as a reference framework in explaining the interaction between the CSFs studied, and to investigate the sociotechnical factors involved in the cloud ERP implementation.

The following main and sub- questions will be handled to tackle the research problem:

What are the CSFs of cloud ERP implementation projects within SMEs?

- What are the *technical* CSFs of cloud ERP implementation projects within SMEs?
- What are the *process-related* CSFs of cloud ERP implementation projects within SMEs?
- What are the *sociotechnical* CSFs of cloud ERP implementation projects within SMEs?

[1] According to the researcher own literature study

Although IT implementation success is widely investigated in the literature, there is, however, no scientific consensus on the definition of success in this context (Dezdar & Ainin, 2011). Project success is, typically, achieved when a project is completed in time, within budget, and by achieving project objectives with minimum deviation. However, in the IT contexts, the success evaluation should rather focus on the organizational gains (e.g. efficiency and cost reduction) the new system creates (Schniederjans & Yadav, 2013). More specifically, success can be measured by the benefits realized by the implementation of a given system, which might be realized long after the implementation project is ended (Doherty et al., 2012).

Therefore, the definition of success adopted in this research is 'to achieve the project objectives within the planning timeline and the estimated budget, and to gain the intended organizational benefits from the implementation'. Further, CSFs refer in this research to "the few key areas of activity in which favorable results are absolutely necessary for a particular manager to reach his goals" (Bullen & Rockart, 1981: 3). Accordingly, a success factor is considerd 'critical' in this research when the stakeholders involved in the implementation project consider it as 'essential for the success of the projct'. Conversely, if the given factor has a direct impact on the failure to meet one of the project objectives, it will also be considered a critical factor for the project success. The evaluation of the ERP project are discussed with the managers and implementation team involved in the project. Other matters related to the implementation and the actual usage of the system are discussed also witht different user groups. Furthermore, the researcher adoptes the SMEs' defenition of the European Commission (2003)1. This definition gives insight of the partricularity of SMEs mentionend earlier, compared to large enterprises. Finally, when the term 'top managers' is used in this research, it refers to the 'C-level' managers (e.g. COO, CFO) that are mainly responsible to the strategic choices in the process. Whereas the term managers refers to excutive managers involved in the implementation proces. These resposibilities can overlap, though, in the positions of C-level managers within SMEs due to the flat hierachy and the informality of the management style.

This research has some ethical considerations due to the close relation the researcher has with the case study. This allows to gain deeper insight into the case. However, this situation can cause biased judgment and interpretation. To mitigate this risk, the researcher added evidences from the interviews, in the form of quotes when possible. Qualitative methods have also their known ethical concerns, such as ethical responsibilities between interviewer and interviewee (Banister, 2011). The researcher stayed objective as he could when selecting and including text out of the interviews, and kept assumptions to the minimum when interpreting the used quotes. Hearing different participants perspectives and reading secondary data, keep this process balanced. No conflict of interest is expected as the researcher did not have any kind of restriction in the process of collecting and analyzing data, and the findings included in this report. the researcher promised to make a report of the basic findings and practical recommendations to his employer, which will be excluded from this research report.

This research contributes to the literature as it enriches our understanding of the perception of the success of ERP implementation projects in general. More specifically, to identify technical, process-related and sociotechnical factors that are critical to successfully manage cloud ERP implementation projects within SMEs. The findings of this research give insight into the interrelations between these CSFs, and their effect on the organizational benefits gained from the system implementation on the long term. Moreover, the findings help managers who consider cloud computing in the selection criterium, since the complexity and cost surrounding such a process is often a huge barrier to adapting cloud ERP.

[1] The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million.

This research is structured as follows: after this introduction, a brief literature review on the main concepts covered in this research is introduced in the second section. In the third section, the research methodology, data collection and data analysis are discussed in detail. The fourth section contains the results of the analysis, and in the fifth section the research results are discussed. The discussion section also includes the research conclusion, practical implications, limitations, and recommendations for future research.

2. Literature review

In this section, three main subjects will be coverd as they are considerd the most relevant to the research questions. Firstly, an introduction of ERP implementation projects and cloud computing. Secondly, a brief review on the CSFs of ERP implementation projects. Lastly, a short bachground of the TAM is introduced. The latter is concerned with understanding the sociotechnical factors and will be used in the interpretation of the related results.

2.1. ERP implementation projects

IS have evolved over time, as systems became more specialised and integrable. Stand-alone[1] systems could be integrated into one system, operating with one database, which led to increased efficiency in various aspects; e.g. eliminating activities required to keep different systems synchronized, and reductions in the operating and ownership costs (Hong & Kim, 2002; Moon, 2007). In business contexts ERP systems are widely implemented as they can raise clients' satisfaction, endorse strategic and performance management and have a significant positive impact on organizational results (Chang, 2006; Chiarini, Vagnoni, & Chiarini, 2018).

The multi-disciplinary and complex natures of these systems led to an increase of research studies and publications in several business domains (e.g. Mahmud et al., 2017; Sarker & Lee, 2003). Having a single integrated system is a legitimate objective for managers, due to its various advantages such as eliminating redundant activities, raising efficiency and reducing operating costs (Shang & Seddon, 2000). There is a substantial connection found between enterprise systems and decision support, which can be justified by the unique characteristics of ERP, e.g. better knowledge processing, decision reliability and the interrelated decision responsibilities (Holsapple & Sena, 2005; Petter, DeLone, & McLean, 2008).

The success of ERP implementation projects is not always related to technical aspects, other factors such as expectations management, and supervisor encouragement were also found to have great impact on the individuals' performance during ERP implementation projects, and consequently the overall success of the project (Avlonitis & Panagopoulos, 2005). Users' behavioral intentions and attitudes toward the system usage were also found to have an impact during the implementation process (Arnold, 2006). It is discussed that the success of implementation projects can be determined by the actual, and proper, usage of the related system (Amoako-Gyampah & Salam, 2004; Gorla, Somers, & Wong, 2010).

Despite their fundamental advantages to management and organizations in general, ERP systems usually require long implementation periods and mass customizations, which raise their implementations projects' risk of failure and drifting from their original objectives (Alshawi, et al. 2004; Sarker & Lee, 2003). After the implementation project is done, traditional i.e. 'on-premise' ERPs requires companies to invest in various internal resources (e.g. locations, IT personnel) to maintain and improve the software package and the IT infrastructure needed (Peng & Gala, 2014). This can be a major drive for SMEs to outsource their IT departments to reach scalability benefits, and avoid big investments needed for system maintenance and development (Dhar, 2012).

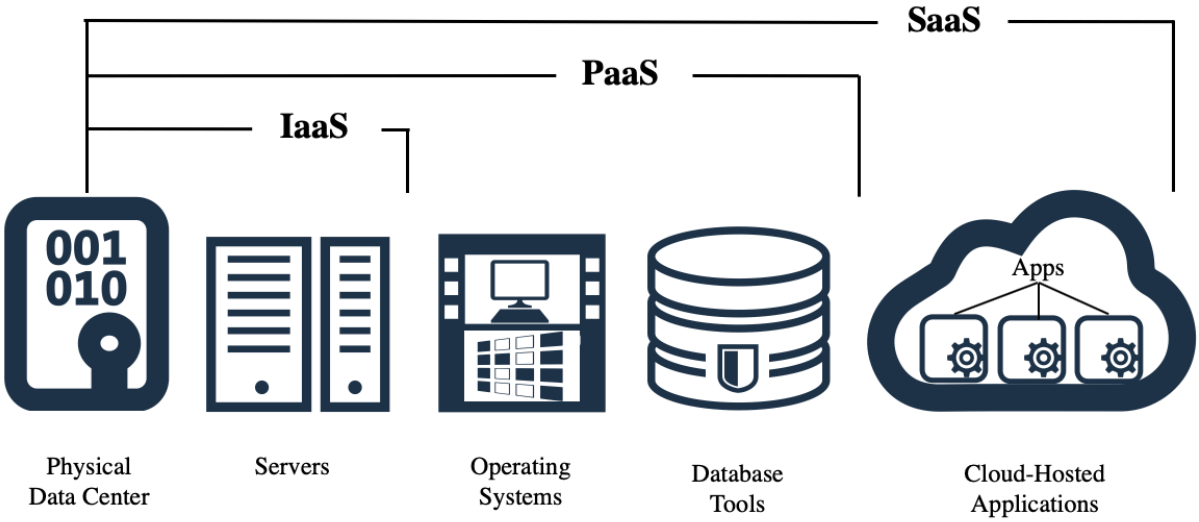
[1] Loosely coupled

In the last decade, cloud computing has become one of the focus areas in IT research. Since 2008, the number of peer-reviewed journal articles has increased substantially (e.g. Boillat & Legner, 2014; Sun, Dong, Hussain, Hussain, & Chang, 2014). This is due to its potentials to reshape the way IT services are consumed (Chen, Liang, & Hsu, 2015). Cloud services has become an emerging model that promotes the use of services through the Internet network in order to provide companies with on-demand and scalable IT resources (Sultan, 2011). Cloud computing can be viewed as a cluster of service solutions, which involves making data access, data storage, and software services available via the Internet. Therefore, cloud computing offers many advantages, such as lower operating costs, no initial capital investments, scalability, and additional services and solutions that are not possible in the traditional on-premise computing (Marston et al., 2011).

Furthermore, cloud services provide diverse levels of adoption within the organizations, which suits various organizational needs and preferences, and match the strategic IT choices of these organisations. This make cloud-based ERP very interesting to IT managers and practitioners (Peng & Gala, 2014). Cloud computing is generally divided into three service models:

A. Software as a service (SaaS): in this model, a software system is developed and installed on cloud servers by a vendor and provided to end user over the internet
B. Platform as a service (PaaS): this service gives users the ability to install, use, control and configure an online platform on their own. In this model, the client is able to develop and run its applications at the software layer
C. Infrastructure as a service (IaaS): which facilitates external full computer resources allowing for administration over processing, storage, and network, among other services. Offered as an on-demand, pay for usage model (see figure 1).

Figure 1, Cloud computing service models



Even though cloud services can be very interesting for managers, the decision making of this process is not straightforward. Managers should analyze the benefits of moving to cloud computing and what the short- and long-term benefits for the organization (Dhar, 2012). Scholars have investigated determinant factors for taking cloud provider and service selection, such factors could be related to the company technical complexity, the technology used, or the vendor service capability (Schneider, & Sunyaev, 2016). Misra and Mondal (2011) introduced a practical model to help managers in the decision-making process of the company suitability to the cloud, based on financial perspective. These factors include for example; the size of the IT resources and the sensitivity of the data handled within the organization.

Cloud computing also has its challenges; these include dependency, confidentiality, reliance on the cloud service and internet providers, uncustomizable features, and limited transparency (e.g. Nah et al., 2001; Sun et al., 2014). Data security and privacy are also two of the most investigated cloud challenges in the literature; they are widely considered as main barriers to adopt cloud services (Peng & Gala, 2014; Wu, 2011). Another challenge of the cloud services is the 'vendor lock-in', which refers to the situation where changing a cloud provider becomes almost not possible due to various reasons; e.g. complicated cloud infrastructures, transferability[1], legal restrictions, and integration issues[2]. This situation can prohibit companies from changing cloud vendors even if they are dissatisfaction with the cloud service (Liu, Chan, & Ran, 2016). Besides, vendor lock-in raises obstacles when companies tend to acquire a new service from different provider, e.g. compatibility and integration issues (Opara-Martins, Sahandi, & Tian, 2016).

Cloud ERP systems has many advantages compared to traditional on-premise systems; these include flexibility, reliability, cost-effectiveness, network access and abstracted infrastructure (Buyya, Yeo, & Venugopal, 2008). These advantages encourage organizations to adopt cloud services in order to reduce costs, mitigate IT risks and achieve scalability. Nonetheless, as a result of their complex nature and the challenges they introduce, ERP system have shown a low implementation success rate across organizations (Mahmud et al., 2017). This urged scholars to investigate the CSFs of ERP implementation projects, that are learned from previous experiences.

2.2. Critical success factors in IT

The approach of CSFs in management studies is not a recent one, the term has been widely used in the both academic and business contexts. Originally, the CSF methodology refers to the procedure that attempts to make explicit those few key areas that dictate managerial or organizational success (Boynton & Zmud, 1984). This concept is particularly relevant to managers as "the key to success for many managers is to focus their most limited resource (their time) on those things which really make the difference between success and failure" (Bullen & Rockart, 1981:12). Similarly, understanding and managing these factors is essential to increase the chances of ERP implementation projects' success (Ngai, Law, & Wat, 2008).

With all the knowledge and research on CSFs, IT projects still fail dramatically. Scholar argue that predicting ERP success can be very hard as there is no consensus on the measure of ERP success. An IT project success is often judged, by project IT teams and management, solely in terms of technical product delivery. Accordingly, an ERP project is considered successful when it complies with the technical requirements, is timely delivered and within the estimated budget (Doherty et al., 2012). As a consequence, the literature of ERP projects' success has also typically adopted a short-term perspective, which assumes that the success is evaluated once the implementation project has been completed.

[1] The time-consuming process of moving data
[2] E.g. mobility of data between applications

DeLone and McLean (1992) indicated that ERP success is a multidimensional construct and that it should be measured as such. To ensure ERP project success six CSF categories can be considered: system quality, information quality, use, user satisfaction, individual impact and organizational impact. Somers and Nelson (2001) introduced one of the most cited work on CSFs. They defined 22 CSFs of ERP projects that have the most significant impact on the implementation (see table 1, factors 1-22). This list is meant to advise managers on utilizing the organizations' resources and effectively monitoring the ERP projects, depending on the critical factors in various phases of the implementation process. Scholars from different business contexts and sectors used this list as a basis for many studies, (e.g. Barth & Koch, 2018; Bradley, 2008). In table 1 an illustration of the findings of studies reviewed in the literature is shown.

However, there is still no consensus of CSFs that fit every ERP implementation, which might have to do with the definition of success itself. According to Remus and Wiener (2010), "members of the implementation team define success in terms of completing the project plan on time and budget, whereas adopters and users rather look at a smooth transition to stable operation with the new systems and achieving business improvements" (p: 28). Generally, the CSFs studied in the literature can be categorized in three main categories, namely; technical factors, process-related factors, and sociotechnical factors.

2.2.1.Technical related factors

Technical factors refer to the factors related to the technology used in the project, the system implemented, and other specific areas that relate to the IT context. Depending on the reviewed literature, this category includes (a) vendor support, especially when new modules or versions of the system are installed (Fortune & White, 2006), this factor is crucial to the ERP success during and after the implementation project. (b) Careful package selection, which refers to the decision-making process needed to select the best suitable system to the company's needs and processes (Reitsma & Hilletofth, 2018). (c) Data analysis and conversion; one must insure importing accurate data to the new system, and avoid long-lasting data compatibility and converting problems (Somers & Nelson, 2001). (d) Minimal customizations are strongly recommended to meet the basic functionality needs of the company. These customizations should be limited due to technical related costs and system compatibility risks, which will also allow the organization to benefit from vendors' future support and version updates (Françoise et al., 2009). (e) Architecture choices need to be thoroughly considered, since they usually have a long-lasting impact on the system workflow and processes. (f) Partnership with vendor was also found to be important in successful implementation projects when this involves technical maintenance (Akkermans & van Helden, 2002). (g) Use of vendors' tools, such as business-process modeling and industry-specific templates can ensure well conducted transformation and significantly reduce costs (Somers & Nelson, 2001).

2.2.2.Process-related factors

Process-related factors include all the aspects directly related to the implementation project lifecycle, which start with the initiation stage and ends with the go-live, and thus the official end of the implementation project. Depending on the reviewed literature, this category includes (a) Project team competence, such as the skills, knowledge, and experience of the project team members can be essential to the project progress (Fortune & White, 2006; Reitsma & Hilletofth, 2018). (b) Interdepartmental cooperation is a key factor for the success of ERPs due to the cross-functional and interdepartmental boundaries of these systems (Plant & Willcocks, 2007). (c) Defining clear goals is particularly important as it determines the measures of project's success. These goals can be related to the project's scope, timeline, budget, which should meet the initial organizational needs (Holland & Light, 1999;

Saade & Nijher, 2016). (d) Project management is found to be the main defining factor of ERP projects' success; this aspect can include numerous activities and practices, from the initiation stages of the project to its end (Reitsma & Hilletofth, 2018). (e) Interdepartmental communication is essential to keep all stakeholders and users from different teams actively involved in the processes (Amoako-Gyampah & Salam, 2004). (f) 'Dedicated resources' refers to the financial, human and technical resources needed in the process, until the final stage of the implementation (Somers & Nelson, 2001). (g) Use of steering committee was also found to be crucial to success; this refers to the group of 'superusers' of key-users from different divisions and positions of the company, who have continuous contact with ERP implementation stakeholders, including the vendor and external consultants. (h) The lack of user training on the new software can produce major problems in the process, and can eventually cause project failures (e.g. Sumner, 1999). (i) Business process reengineering is crucial to ensure compatibility between the system's workflow and features, and the organizational processes (Hong & Kim, 2002). (j) Education on new business processes is also particularly important since the process reengineering needed to implement the new system can hinder users' efficiency, which requires well explanation and description of the new processes and workflows (Dezdar & Ainin, 2011). (k) Use of external consultants can be helpful in different stages of the implementation process; these consultants with comprehensive knowledge and specific level of expertise of ERP implementation can avoid the company great losses resulting from making the wrong decisions during the ERP project (Akkermans & van Helden, 2002).

2.2.3. Sociotechnical factors

Sociotechnical factors are aspects that directly affect and shape the social constructs and shared beliefs of users about the technical aspects of the system mentioned earlier. Depending on the reviewed literature, this category includes (a) top managers, which can have an impact on the ERP project from the planning phase. Top management support includes developing the scope, setting project's objectives and limitations, and it continues throughout the process in the form of monitoring progress and facilitating support. Top managers practices can promote the new system and facilitate a supportive culture to adopt the new system (Barth & Koch, 2018; Dezdar & Ainin, 2011). (b) Management of expectation can be the implicit reason behind projects' failures. The deviation from stakeholders' expectations is not always due to bad results, but rather bad management of these expectations during the process (Plant & Willcocks, 2007). (c) Project champion, which refers to the crucial role of leadership in the implementation process; this represents the role of change leader in the project, usually an executive-level individual with comprehensive knowledge of the organization context (Akkermans & van Helden, 2002). (d) Change management is also a primary concern for each implementation project; more specifically ERP projects, due to their large-scale influence on company's departments and employees. When change is well-managed during the ERP project, this will reduce users' resistance, and the confusion they experience, which will result in more involvement and lower error margin (Françoise et al., 2009; Nah et al., 2001).

The importance of the sociotechnical factors comes from their direct impact on the proper usage of the new system in the workplace, which is a well-studied subject in the IT literature (e.g. Pai & Tu, 2011; Yi & Hwang, 2003). When planning to implement a new system, managers seek to predict users' acceptance and usage of the system, in order to timely define the enhancement areas needed to redesign the new system accordingly. This urged many scholars to investigate the acceptance and usage of IT, and the related social factors that affect this phenomenon (Davis, 1986; Venkatesh & Morris, 2000), with the aim to improve users' acceptance, and motivate them to use the system properly (Amoako-Gyampah & Salam, 2004).

In later stages of the implementation process, system adoption becomes a fundamental challenge for organizations, mainly in terms of IT governance and IT business alignment (Yang & Tale, 2012). This urged scholars to investigate the acceptance and usage of ERP as it can explain the social processes and interactions users experience when dealing with a new system (e.g. Hewavitharana, Nanayakkara, Perera, & Perera, 2019; Menon et al., 2019). In the next section an introduction of the most important user acceptance theories is presented.

Table 1, CSFs found in the reviewed literature

nr.	The CSFs order is according to Somers & Neslon, 2001	**Somers & Nelson, (2001)**	Akkermans & van Helden, 2002	Al-Mashari et al., 2003	Amoako-Gyampah & Salam, 2004	Barth & Koch, 2018	Davenport, 2000	Dezdar & Ainin, 2011	Fortune & White, 2006	Françoise et al., 2009	Gargeya & Brady, 2005	Holland et al., 1999	Hong & Kim, 2002	Nah et al., 2001	Nah et al., 2009	Plant & Willcocks, 2007	Reitsma & Hilletofth, 2018	Saade & Nijher, 2016	Sumner, 1999
1	Top management support	✓	✓	✓		✓		✓	✓	✓	✓	✓		✓	✓	✓		✓	✓
2	Project team competence	✓	✓			✓			✓						✓	✓	✓	✓	✓
3	Interdepartmental cooperation	✓														✓			
4	Clear goals	✓		✓					✓			✓				✓		✓	
5	Project management	✓	✓	✓		✓			✓	✓	✓			✓	✓	✓	✓	✓	
6	Interdepartmental communication	✓	✓	✓	✓	✓		✓	✓	✓		✓		✓		✓	✓	✓	
7	Management of expectation	✓														✓			
8	Project champion	✓	✓						✓	✓				✓	✓	✓			
9	Vendor support	✓	✓						✓							✓	✓		
10	Careful package selection	✓	✓	✓	✓											✓	✓	✓	
11	Data analysis & conversion	✓																	
12	Dedicated resources	✓														✓			
13	Use of steering committee	✓					✓									✓			✓
14	User training on software	✓		✓	✓		✓	✓	✓		✓	✓				✓	✓	✓	✓
15	Education on new business process	✓		✓	✓			✓			✓	✓		✓		✓	✓	✓	✓
16	Business Process Reengineering	✓									✓	✓	✓	✓					
17	Minimal customization	✓								✓		✓	✓	✓		✓	✓	✓	
18	Architecture choices	✓					✓												
19	Change management	✓		✓		✓			✓	✓	✓			✓	✓	✓		✓	
20	Partnership with vendor	✓	✓															✓	
21	Use of vendors' tools	✓																	
22	Use of (external) consultants	✓	✓								✓					✓		✓	
23	Strategic decision making		✓	✓					✓	✓				✓			✓	✓	
24	Knowledge management									✓		✓							
25	Smaller scope																		
26	ERP - business process fit												✓						
27	Custormer acceptance											✓							
28	End user involvement								✓	✓	✓								
29	Former experiences with ERP																		
30	Adequate testing			✓							✓								

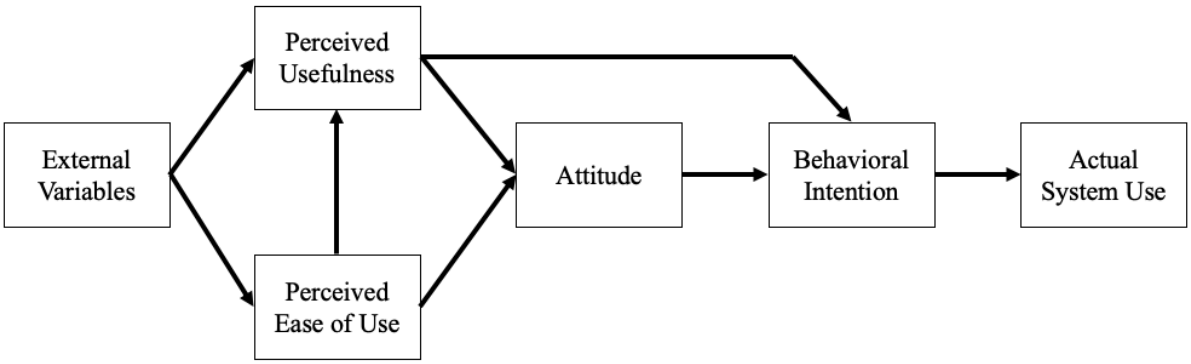
2.3. User Technology Acceptance

Davis (1986) introduced a pioneering work on users' acceptance and usage of a new technology, which is known in the literature as the TAM. The theory is an IT adaption of The Theory of Reasoned Action (TRA); a widely studied model from social psychology introduced by Fishbein and Ajzen (1975). TRA is concerned with the determinants of consciously indented behaviors. TRA theoretical model shows that the best predictor of behaviors is the intentions to perform these behaviors, depending on a sequence of systematic relations linking between beliefs, attitudes, intentions and behaviors. The TAM explains the effect of IT characteristics on user acceptance. This model provides useful information about the relative likelihood of success of proposed systems early in their development stage (Davis, 1989).

According to the TAM, a potential user's overall attitude toward using a given system is a major determinant of whether or not he actually uses it. In its basis model, TAM shows a relation between two key beliefs: perceived usefulness and perceived ease of use, and their impact on users' attitudes, intentions and actual technology adoption behavior (see figure 2). Perceived usefulness refers to "the degree to which a person believes that using a particular system would enhance his or her job performance", while perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989: 320). The shared beliefs regarding the usefulness and ease of use of the ERP are important in the formation of positive attitudes towards the system, which will determine the user acceptance of the system (Hartwick & Barki, 1994). Users' acceptance will, in its turn, lead to a better adoption and the ultimate usage of the system (Davis, Bagozzi, & Warshaw, 1989).

Since the introduction of TAM, a significant body of research has focused on testing the model within different contexts in order to reach a better understanding of IT acceptance and usage. TAM was, therefore, repeatedly tested, modified and extended and more independent variables were added to the model, e.g. ease of use and output quality (Davis, Bagozzi & Warshaw, 1992), and other social influence factors (Venkatesh, Morris, Davis, and Davis, 2003; Venkatesh, Thong and Xu, 2012).

Figure 2: The basic TAM



Literature reviews show that the TAM is a well-founded conceptual model to approach research on IT implementation project, as empirical research still shows that results are generally consistent, even when applied in different contexts (e.g. Hsiao & Yang, 2011; Sanchez & Hueros, 2010). However, the model only explains a low portion of IT usage context (Legris, Ingham, & Collerette, 2003). To broaden

its applicability, future research should thus engage diverse groups of users, like IT and business managers (Yassien, Alrowwad, Masadeh, & Madade, 2017), involve different stakeholders and other industries (Pai & Tu, 2011). Technology acceptance, therefore, is still a major concern within IT contexts (e.g. Hewavitharana et al., 2019; Menon et al., 2019). In this study the relations between the component of the TAM will be used as a reference to understand and explain the relations between the CSFs indicated by the participants.

3. Methodology

Even though there is disagreement over what precisely qualitative research is, this approach tends to be an open-ended research strategy that views theories and concepts as an outcome of the research process (Bryman, 2016). Qualitative research approaches enable researchers to understand how participants construct their opinions and beliefs about the implementation process (Esterby-Smith, Thorope, Jackson, & Jaspersen, 2018). Further, case studies research "arises out of the desire to understand complex social phenomena" (Yin, 2014: 4). The case study design can help in exploring the phenomenon by the direct stakeholders in order to develop a better understanding of the perspectives of the people involved (Eriksson & Kovalainen, 2016). Case study creates context-dependent knowledge and rich descriptions of new trends, which help reaching a better understanding of studied phenomena (Ridder, 2017). Further, qualitative case study has been used to investigate management related phenomena (e.g. Nickson, 2014), strategic change (e.g. MacKay & Chia, 2013), and social-related ERP studies (Sarker & Lee, 2003). Therefore, the researcher uses a qualitative study with a single case study approach. In the next three sections the case context, data selection and data analysis will be explained.

3.1. Case context

The case organization is Software Improvement Group[1] B.V. (SIG), an international software management consultancy company based in Amsterdam and established in 2000. Its roots can be traced back to the Dutch National Research Institute for Mathematics and Computer Science (*Centrum voor Wiskunde en Informatica [CWI] in Dutch*). The system of which the implementation is studied in this case study is Professional Service Automation (PSA); a cloud ERP application built on the platform Microsoft Dynamics 365[2]. It includes time and task tracking, CRM[3], invoicing, revenue record and financial administration. It is designed to assist professionals, such as auditors and IT consultants, with project management and resource projects.

With PSA, SIG keeps track of the progress of its projects; consultants book time and expenses, so that budgets can be properly managed. Managers can oversee ongoing projects and maintain visibility of business performance. Depending on access rights, the systems provides various functionalities, which resulted in different user groups of the system. Top managers (e.g. COO, CFO) have insight in total statistics, like gross revenue and profit margins.

The implementation of PSA has recently taken place[4]. The system has been actively in use since medio 2019, but new functionalities and configurations are still being added to it gradually. The company was selected due to a convenience sampling strategy. SIG meets the criteria of the targeted research population, as it is a Medium-sized enterprise in which a cloud ERP system has recently been implemented. This has some benefits e.g. beneficial in getting access to the data needed to perform this

[1] https://www.softwareimprovementgroup.com/
[2] https://dynamics.microsoft.com/en-us/
[3] Customer relationship management
[4] Go-live date 10 May, 2019

research, as SIG is the employer of the researcher. However, convenience sampling has its limitations when it comes to generalization of the study findings (Robinson, 2014).

3.2. Data collection

The research depends mainly on primary qualitative data, collected during interviews with managers and system users in the company. Semi-structured interviews provide space for interaction between the researcher and the participant (Banister, 2011), which allows the researcher to encounter with the overlooked themes in the literature. It also offers the opportunity to investigate the questions shaped from the reviewed theory and form a better understanding of the literature in order to tackle the research questions (Galletta, 2013).

Table 2, sample details

Department	Team	Position	Seniority	Analysis category	PSA license	Participant*
Dilevery	N/A	COO	N/A	Managers	Professional	M1
	N/A	PM	N/A	Staff	Professional	S1
	Tecnical	Principal	N/A	Managers	Basic	M2
		consultant	senior	Consultants	Essential	C1
		consultant	medior	Consultants	Essential	C2
		consultant	junior	Consultants	Essential	C3
		consultant	junior	Consultants	Essential	C4
	commercial	consultant	senior	Consultants	Essential	C5
		consultant	senior	Consultants	Essential	C6
		consultant	senior	Consultants	Essential	C7
		consultant	medior	Consultants	Basic	C8
	Public	Principal	N/A	Managers	Basic	M3
		consultant	senior	Consultants	Essential	C9
	security	consultant	senior	Consultants	Essential	C10
	research	researcher	senior	Consultants	Essential	C11
	US	principal	N/A	Managers	Professional	M4
	development	developer	junior	Consultants	Essential	C12
Finance	N/A	CFO	N/A	Managers	Essential	M5
	N/A	FA	N/A	Staff	Professional	S2
	N/A	Business cont	N/A	Staff	Professional	S3

* participants are referred to by the first letter of the user category and its order in the table.

The population of this study consist of 84 users, of which 5 users possess a professional license, 11 users possess a basic license, and 68 users have an essential license. Users with essential licenses have the least functionalities and rights in the system. Two departments were involved in the implementation: finance and delivery. The delivery department, which is the consultancy department, consists of five main teams specialized in different sectors of business. Each team has a principal (team lead), and the rest of employees are mainly consultants with three levels of seniority (junior, medior, and senior). To ensure that the sample participants are good representatives of the users and managers, the researcher adopted stratified sampling approach in selecting participants. The sampling

categorization is important in this case to involve all user groups, which will help reaching a complete understanding of the whole process (Robinson, 2014). Based on the groups of users and their positions, the researcher contacted 27 potential participants, 20 of which accepted the invitation. The sample demography is illustrated in table 2.

Twenty semi-structured interviews were conducted with the selected participants via video calls using the application Zoom[1], which lasted approximately 30 minutes each. The interviews were recorded using the Apple-application Voice Memo, except for one, because the participant requested not to be recorded. For this specific interview notes were taken during the interview, then written in a script form, which was later sent to the participant for verification and approval. The other 19 recordings were used in the transcription. The names of participants remain anonymous; a code is given to each interviewee depending on the first letter of the participants positions (e.g. C1, for consultant number 1). The list with full names and positions is available from the researcher. The participants in this case were later categorized in three main user groups: directors, staff and consultants. This will be further explained in the next section. See table 2 column 'analysis category'.

The main subjects discussed during the interviews were PSA implementation process, user experiences with the system, and the managerial and organizational benefits gained from the implementation. A mixture between open and closed-end questions was used. Primary data was also collected from the researcher's own observations. Secondary data was reviewed from implementation documentations, reports, internal webpages and communication channels[2]. This was important to for data triangulation, and to enrich the contextual information gathered about the system. Multiple data methods are typically used to secure an in-depth understanding of the studies phenomenon to add rigor to the findings (Denzin, 2012). The secondary data reviewed includes information about the general usage, and the internal technical support of the system e.g. the issues diagnosed, the average respond time on these issues, and the troubleshooting/solving time.

3.3. Data analysis

The collected data was analyzed through conducting a Thematic Analysis (TA) approach, which is "a method for identifying, analyzing and reporting patterns (themes) within data" (Braun & Clarke, 2006: 79). TA is particularly useful for gaining deeper insights into this implementation phenomena as it produces contextual real-word knowledge about users' behaviors, social structures and shared beliefs. The method of TA is empirically-driven and helps in detecting the most salient patterns of content in interviews (Harper, & Thompson, 2011). TA can also be used within a 'critical' framework, to interrogate patterns within personal or social meaning around a specific topic (Clarke & Braun, 2017).

This approach has many strengths, such as flexibility in terms of sample size, data collection method, and approaches to meaning generation (Clarke & Braun, 2017). This flexibility helps in capturing all the data extracts concerning with a specific sub-category/theme in the data set. This can ensure the systematic element characteristic of content analysis, and add the advantages of the subtlety of phenomenological approach (Harper & Thompson, 2011). The analysis process was conducted following the steps indicated by Braun and Clarke (2006) as briefly stated below:

3.3.1. Familiarization with the data and identifying items of interest

After reading the transcribed interviews individually, general subjects of discussion were conducted and registered. These aspects were concerning the new system (PSA) and the implementation process in general. The subjects that were repetitively mentioned in the discussions were registered in a separate list in the form of general categories which refer to data items in the interviews. The applications used

[1] https://zoom.us/
[2] Slack internal communication application and the internal Wiki page

in the data analysis are Word and Excel, developed by Microsoft, which were selected due to the familiarity and expertise of the researcher with these applications.

3.3.2. Generating initial codes

Each interview was reviewed to highlight participants' ideas and perceptions related to the general aspects identified in the first step. Afterward, an initial unique code was given to each relevant data item conducted. The researcher adopted the following understanding of codes: "codes identify a feature of the data (semantic content or latent) which is interesting to the analyst, and refers to 'the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon" (Boyatzis, 1998, quoted in Braun & Clarke, 2006: 881). The codes were inductive of nature and adopted from the content of the data in this stage. Transcripts were organized in a Word document, where a wide margin was added to the transcripts. Extracts were highlighted with different colors for the different subjects discussed; the applicable code was added to the margin with the same color of the extract of data coded.

3.3.3. Searching for themes.

The codes initiated from the previous step were collated and gathered into categories, depending on their meaning and description. Whenever applicable, the official (technical) terms were used. This step was done twice during the process, which helped to eliminate code repetition in different synonyms and statements. A list with all the used codes was inserted in an Excel spreadsheet; each code represents a sub-category of the subjects discussed during the interviews. According to Braun and Clarke (2006), a theme "captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set" (: 82). The categories of codes were clustered in themes relevant to the research questions and mainly contain the subjects discussed during the interviews (see appendix 1).

3.3.4. Reviewing potential themes

The entered data in the Excel spreadsheet was analyzed to investigate the most reported themes; this was a simple static aggregation of all codes (sub-themes) discussed by the participants, assuming that the most urgent or concerning themes are those participants repetitively mentioned. The 10 themes discussed most were taken into the further analysis, as they are considered the most relevant. The rest of the themes were excluded from the analysis.

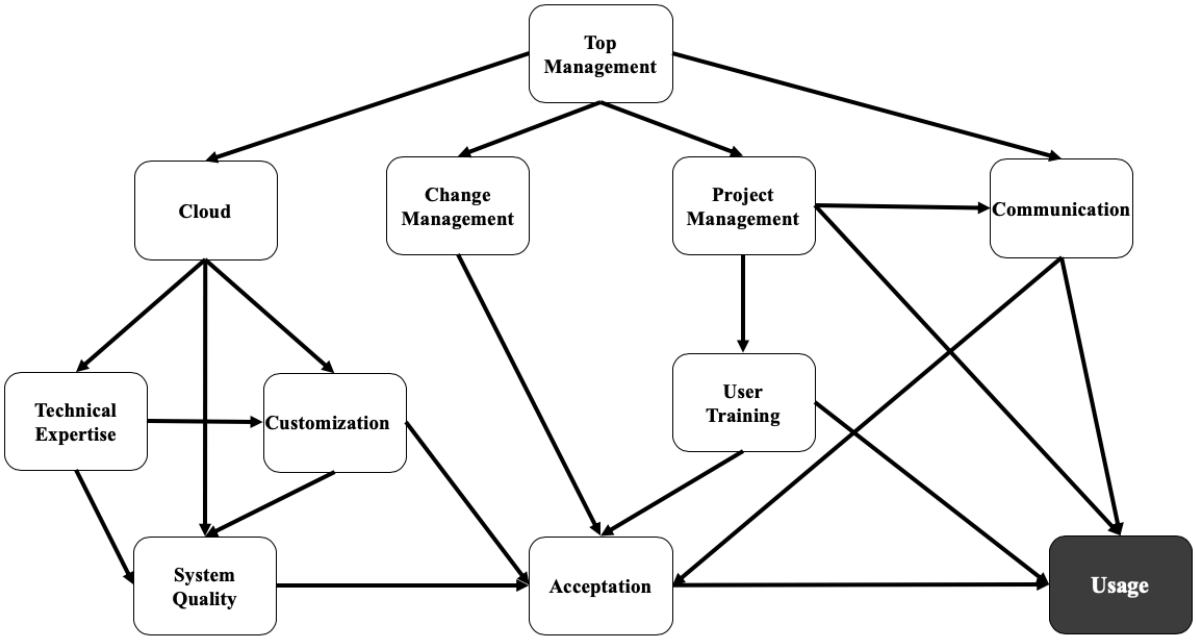
3.3.5. Defining and naming themes

The themes were refined on basis of the last review; these are renamed according to the previous research frameworks, models and studies in this domain (e.g. Davis, 1989; Somers & Nelson, 2001). For example, the theme 'Perceived ease of use' covered the codes "easy to use, intuitive, user-friendly". The themes are defined and described in detail in the results section.

3.3.6. Producing the report

The analysis was reviewed once again after the last step. The analyzed transcripts were reviewed for the selection of data extracts example (i.e. quotes) in order to support the findings of this analysis and answer the research questions. The themes used in the findings are illustrated in a conceptual thematic map (see figure 3).

Figure 3, Mind map used in the TA process



At the end of the analysis process, the findings introduced an important variation of participants' perceptions, mainly due to tasks and user interfaces they deal with. Therefore, the participants were divided into three main user groups, based on the position and the nature of system usage. This is believed to be important for the interpretation of the results. The variation of the usage experience and perceived benefits of the system, is reflected by the CSFs discussed with participants. The three user groups are defined as:

- Directors: includes users from the positions COO, CFO and Principals. These participants are considered 'light' users of the system and their system usage is limited to the following tasks: checking projects progress and the hours registered by their team members, and using forecasting sheet for planning purposes.
- Staff: includes users from the positions project manager, business controller and financial administrator. These participants work mainly with PSA, and therefore they are considered 'heavy/key' users of the system. The main tasks performed by this group are general data registration and alteration, generating reports, and importing data.
- Consultants: includes the senior, medior and junior consultants of all teams, which are the majority of the users in the company. However, they are also considered light users, as they currently use the system mainly for hour registration and their basic project administration.

4. Results

The aim of this study is to help SMEs managers to ensure the success of cloud ERP projects in their organizations. According to the definition of success adopted in this research, an ERP project success is determined by two areas, the delivery of the implemented ERP in the planned timeline, and within

budget, and to achieve tangible organizational benefits that are gained from implementing the system. To evaluate the success of the PSA project investigated in this study, and the eventual critical factors contributed to it, the researcher analyzed the interviews conducted with both users and managers. For managers were able to indicate whether the project was delivered as planned, and give insights on the gained benefits from the implementation. Further, users could give insights on the real-life experiences of the system and its benefits, and all the changes involved in the process.

PSA project was delivered within the planned timeline and budget, the quality of the system was accepted for a first version, but does not meet the expectations of the majority of the users. The benefits promised in the initiation phase were partially achieved, more specifically, the finance-related benefits (e.g. reliability and security) were met, however, the delivery-related benefits were not. Further, organizational benefits such as cost reduction and increased efficiency were not yet achieved due to the insufficient usage of the system. In order to gain these benefits, users should use the full extent of the functionalities PSA offers, and use the system properly in one unified generally way.

As mentioned earlier, 10 themes were selected for the data analysis (see illustration in figure 4). These themes were divided into three categories to meet the criterium of the sub-questions of this research. In the following, the results of the analysis are introduced according their categories; the technical themes, the process-related themes, and the sociotechnical themes.

4.1. The *technical* themes

Four themes were found related to technical aspects in the project. These themes were (1) Cloud; which includes all the factors related to the cloud service particularities, (2) Technical expertise; which refers to the specific expertise needed in the implementation, (3) Customization; which is related to the adjustments and configurations needed to make the system suitable to the company, and finally (4) System quality; which refers to the technical quality of the ERP implemented when it was put in use. These themes are discussed in the following, with evidence from the collected data.

4.1.1. Cloud

The participants referred to the cloud theme in many different aspects. A main aspect was the cost of ownership of cloud systems (e.g. purchasing, using and maintaining that particular). When implementing a new system, managers considered the cost of ownership as a weighting factor in the decision-making process of the selection. Such costs can be determined by the licensing and pricing structure of the cloud system. Which should be studied during the comparison between suppliers and platforms. Further, the license price is dependent on the license categories, which in its turn determine the functionalities and possibilities users get in the system and how they fit to the organization structure and core processes. In this case study, many functionality limitations of the users were referred to as licensing problems. As a participant reported:

> "This [limitation] has also to do with the licensing structure, and thus with money. The licenses we have are less than we want to because the price is too high. So, we gave the licenses to the people (we thought) they needed, or should have it" (C5).

The licensing structure is usually pre-defined by the supplier, depending on the workflow of the system. As SIG does not have the needed budget to grant all users the same privileged licenses, this resulted in twisting the work process internally to meet the fewer licenses purchased. For example, in the original structure of PSA, only specific license-holders can have the role of 'project manager' in the system, and thus, have the access rights which enable them to alter basic information of the project. This structure limitation does not comply with the internal business processes within SIG, where every lead consultant should have the access rights to keep the project administration of his/her project.

> "This is one of the things why the licensing structure doesn't work for us, because normally you have a project manager for each project, and we don't have that in our organization, we have lead consultants, which means basically a 'project manager' license in the system. That means that we need to have 50 licenses for project managers which is not affordable for us" (D1).

Another important factor related to the cost of ownership is the cost of maintenance. On-premise ERP can be costly compared to cloud ERP, as the former constantly require physical and human resources for maintenance. One participant (technical consultant) stated:

> "If you want to maintain a server yourself, you have to make sure that it is always up-to-date, secure, accessible etc. But if you switch to cloud solutions, then you don't have to do these things yourself at all" (C2).

One of the most discussed aspects in the cloud theme is the 'vendor lock-in' risk; which is related to the high barrier for companies to switch the cloud service or the supplier of this service. This situation can be due to the high technical dependency on the vendor or the extensive switching costs involved. In this case study, this dependency was a twofold concern; on one hand, the technical dependency on the system supplier:

> "When Microsoft Dynamics introduce new releases, the implementation partner needs to update their platform, but I don't expect big changes with the new releases… it is sometimes not easy to make changes in that platform" (D2).

> "If you buy a service that is not directly from Microsoft, such as PSA, you are very much depending on your vendor. Microsoft had a predecessor version of PSA that is no longer supported. The vendor has developed this PSA version, but now we cannot use all services that Microsoft Dynamics has because the tool [PSA] is no longer supported. Now, if PSA is put into the Dynamics platform directly, then things can break in PSA. It is then up to the vendor to update their self-developed application" (C2).

On the other hand, Microsoft Dynamics[1] is known for its closed ecosystem[2]. Microsoft makes sure to keep expanding into more services and features that are internally integrated with each other. This is particularly problematic when the organization has other IT services designed by other suppliers (e.g. Google). The integrations between those different services, from different ecosystems, are usually not possible.

> "Microsoft has a huge vendor lock-in, we have our mail and calendars from Google at SIG. This means we cannot make full use of PSA, because many of those features don't work until we also purchase Microsoft Exchange, One drive and SharePoint[3]. For example, in PSA we cannot email and send invoices directly from the system because there is no integration with the email application. In other words, once you are in the Microsoft ecosystem, you hardly get out" (C2).

The cloud theme was not a common concern for all participants. Rather, it was underpinned by the user groups staff and directors. This gives an indication of the importance of the cloud-related aspects for these two user groups, especially during the initiation and customization stages of the implementation process. Because the decision of switching to a cloud service is a strategic one, this has many impacts on the organization in the long term. In contrast, for end users, like the group consultants, it does not make a big difference whether they work with an on-primes or a cloud ERP, as long as they are satisfied with the system quality. Even when problems are indicated on their end, users do not directly relate them to the cloud factor.

[1] the platform PSA is built on
[2] collection of software apps that are developed and integrated in the same environment
[3] Microsoft services

4.1.2. Technical expertise

To ensure the success of an ERP system implementation, managers should rely on external expertise in this domain. This can be by hiring external consultants of outsourcing the technical support to professional suppliers. These external parties need to be involved in the implementation. This is particularly important in cloud ERP projects. This level of expertise is not only needed during the implementation period, but also after the system is put in use. The knowledge and expertise required are mostly system-specific and related to the platform the system is built on. During the initiation phase of the project, however, a different sort of knowledge is needed to make the right configuration choices that are best suited to the company context and needs. This knowledge relates to the core processes of the business, and the way they could be translated to system qualities and configurations, to get the right data into the system.

> "You need to make all kind of decisions in that stage [customization], and basically you depend a lot on the external consultants and the supplier. You may believe the expert consultant knows what she is doing, but you don't know if she tells you the best option. If she proposes A, B or C, you don't know which option will be the best for you in your situation. It could be what she advises, but I will not truly know at the time" (D5).

This technical expertise also includes data management and integration knowledge, and how this can be imported to the new system core processes and modules. This expertise is mainly needed during the initiation period. In SIG case, the financial knowledge is the core aspect in the process, and had the most impact on the progress of the system. Acquiring this expertise internally is found to be crucial during the implementation process.

> "As PSA has a huge connection with finance, not having that knowledge upfront, really hindered the implementation (…) We are still dealing with the results of the poorly imported data during implementation process. I really had a lot of trouble dealing with the data, especially dealing with accountants they come to audit" (S3).

After the implementation is done, users' need for technical and functional support rises; this demands continuous enhancement and maintenance of the system, which requires a high level of expertise in the software package. Maintaining cloud ERP requires specific (and usually advanced) expertise that is hard to retain internally due to the high investment costs. This drives many organizations to seek cloud hosting and support solutions. As an internal technical consultant explains:

> "Knowledge of the tool [PSA] itself is a problem. We still receive questions that we know no idea how to solve. You need a full FTE[1] in house only to support your PSA app and the Dynamics environment. Such knowledge is essential if you want to implement Microsoft Dynamics into your company and support it yourself" (C2).

4.1.3.Customization

ERPs can require heavy customization, which is very expensive and time consuming. However, in some cases, project success or failure can be determined by the right decision taken in this regard. In this case study, users expected to work with functionalities that are tailored to their job or the organization process. When the system functionalities did not meet these expectations, users felt that the new system does not fit to their job needs and organization processes. Participants reported their disappointment of no added functionalities or configuration after the go-live[2]:

[1] Full-time equivalent
[2] The first release date of the system

> "This was meant to be a first version of the system, and that more features would be developed as we move along, but they're still not done. I understand that you need at some point to release a first version, but extra features need to be added sometime afterwards!" (C10).
>
> "The configuration process ended by going live (…) till this moment nothing was changed for the consultants, the promise of course that new functionalities will be introduced into the system to make your life easier (...) but we didn't introduce that" (D4).

This factor was particularly important to the consultants, as they belong to the least privileged PSA user group in the company. These participants missed specific functionalities needed to perform their tasks in the system, especially the configurations that were promised before the introduction of PSA. These promises were regarding their need for a customized project management tool, to use in managing their projects' tasks and teams.

> "I really mis having a tool for doing what I call 'operational' project management" (C7).
>
> "I don't think that PSA is the best tool for this detailed level of project management" (D2).
>
> "As a manager you don't only want to know who has spent how many hours on a specific project, but also to see who is working on what!" (C6).

The need for a new project management tool and the urge for customization has led managers to work on a redesign project, which is regarded as a complementary phase to the implementation project. The objective of this phase is to solve all the shortcomings of the current version of PSA, and to tailor the generic process of the it to the work process of SIG projects.

> "I will try to minimize the complexity of the interface of consultants. As a consultant now I am complaining about too much selection (…) for me that's a lot of work" (C6).
>
> "I think that everybody would agrees that it's [PSA] not ideal right now, this need to be changed, the tool must be better tailored to our people" (D4).

4.1.4.System quality

The system quality was strongly underpinned by the participants during the interviews. This was an equally-shared concern by all the three user groups. Participants mostly reported interface issues in the system; these were mainly due to either unclear functionalities, or the overload of unneeded options e.g. tabs, options and menus:

> "Most of the functionalities are hidden behind the tabs and menus" (C2).
>
> "I just cannot explain the existence of all these tabs and options, it's too many" (C11).
>
> "It [PSA] is not the most user-friendly tool out there, once you try to use it you don't really get attracted to it and so you're not going to use it a lot!" (C6).

Complexity was also a repetitive complaint, not only by consultants but also by staff members. Consultants found this complexity unneeded to perform the basic tasks in the system, simply because they currently only use PSA for basic administration, e.g. recording hours and checking progress. Apparently, this does not meet the intended project objectives. One of the reasons of the customization during the implementation was to automate the processes involved in project delivery. Managers vision of the system that it will become the central system to use among all consultants when it comes to delivering and managing projects. This can be achieved when consultants use PSA not only as a time tracker, but also as a project management tool. This is not yet the case, mainly due to the technical quality of the system, and the unclear vision of the system purpose:

> "It is too complicated (…) If you want to find out something new, then it is hard, because you have all these options, tabs and lists! All these lists, and options I never use. Some functionalities are not even applicable in this system" (D2).

> "I would say I found it quite complex (…) I think we might have complicated the process and made it more complicated than it really is (…) So, PSA is now implemented and has all our requirements, but not in the most efficient way" (C6).
>
> "Did we make it too complicated by our way of configuration? maybe, but we were held by the defaults in the system that don't go along with our process" (D4).

The other main issue in this regard was performance, which was experienced in the form of lateness in response and 'clutter' in the system when moving between system windows and tabs. Many participants reported PSA to be slow, unreliable and inconsistent:

> "It [PSA] is very slow. For example, for a regular task like entering the hours, you need to click to make a box and then re-click again because it doesn't respond" (C10).
>
> "I don't see much benefit of PSA more that the last system we were using (Harvest). It is not better from performance point of view. PSA has much latency when kicking on the sheet, usually you have to wait for two seconds, so you can continue to the next step" (C8).
>
> "There are yet some issues with the performance latency of the program, sometimes you need to wait until to get the data you are looking for, especially when going back and forth between different windows" (C4).

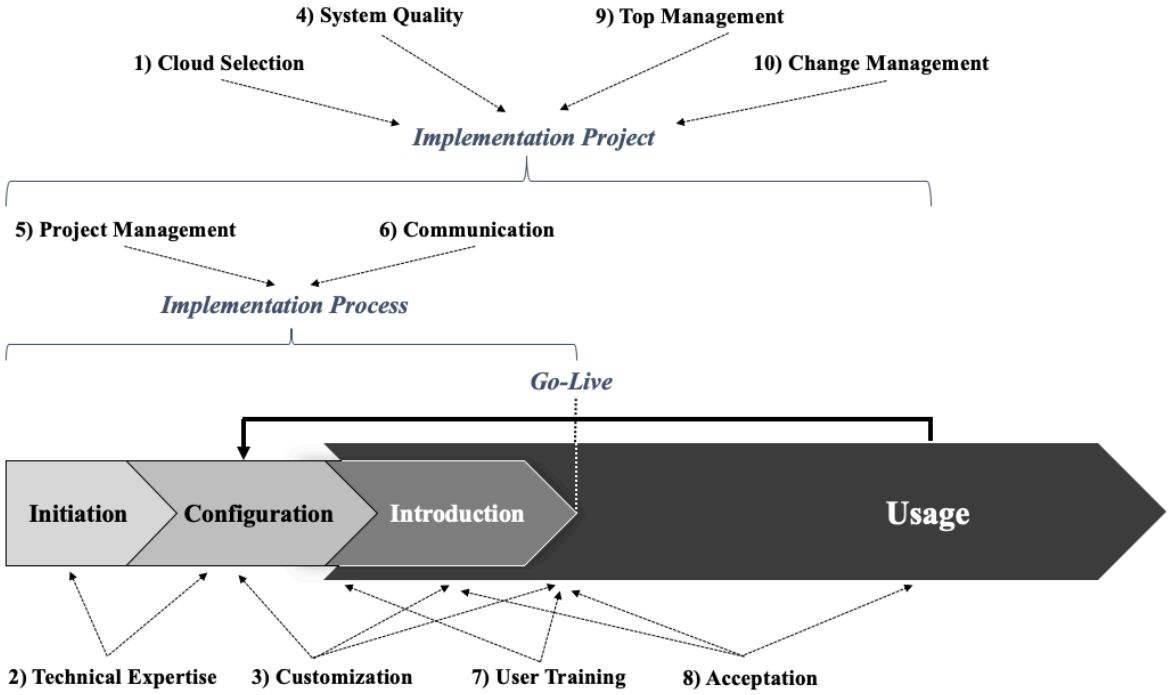
It is generally believed that cloud providers can offer powerful IT facilities and infrastructure to host cloud ERP systems and their data. However, from a vendor perspective, this mainly depends on the size of the client company (i.e. number of users) and the licenses costs the client pays monthly.

> "The problem with the performance is due to the platform provider, because Microsoft looks at customers' size, how many licenses they have, do they have enterprise or business users etc. Based on that they give them server capacity, and that's why it happens that your system is slow. If you have a small business, you get less capacity, that can be storage space, processor power, data through speed, etc. We all experience this problem in the sense of slowness" (C2).

Depending on the technical themes that were spotlighted by participants during the interviews, and building on the previous discussions, the technical success factors of the cloud ERP implementation project conducted in this study are:

1) **Cloud service selection**; top managers and other stakeholders should make strategic decisions about the sort of platform, its ecosystem, and the particular core processes it covers. This is crucial to prevent unwanted disappointments related to extra cost of ownership, low system quality or a lock-in position.
2) **Technical expertise;** managers should make sure the company has the right expertise in place to manage the ERP implementation project. This expertise includes specific knowledge related to the organization core processes, ERP integration, and data conversion expertise in ERP implementation.
3) **Customization**; basically, customization should be avoided as much as possible due to its technical consequences on the vendor dependency and system complexity. When tailored customization is done, it should mainly follow the standard workflow of the adopted system, and at the same time add value to all the users. This added value will motivate users to be more involved in the process, which will indirectly affect the quality of the implemented system.
4) **System quality**; this factor is a main concern for users and can influence their adoption and usage of the system dramatically. As mentioned, this factor is mainly influenced by the previous factors, and can be gradually enhanced during the implementation process in the later stages of the project. If not satisfied, managers can launch a new customization plan or, as it is the case in this study, a redesign project to enhance the system quality.

Figure 4, an illustration of the 10 CSFs during the implementation lifecycle



4.2. The process-related themes

Three themes were found related to implementation process itself in the PSA project. These themes were (1) project management, which includes factors related to project itself until the go-live date, (2) communication; which refers interdepartmental- and general communication towards the users and other stakeholders, (3) user training; which is related to the introduction workshops of the system, and other professional hands-on training sessions. These themes are discussed in the following, with evidence from the collected data.

4.2.1.Project management

Project management was the most discussed theme among all participants. Apparently, the aspects related to this theme concern all stakeholders of the implementation project. The most relevant discussions referred to the internal steering committee and the managers involved in the process. It was noted that the top managers did not assign an internal project manager to this project; rather, two executive managers (CFO and COO) were closely involved in the process. The progress of the project was reported to the management team and the principals (team leads) on a weekly basis. In this case study, the tasks of the project team were assigned to employees from different positions and teams as additional responsibilities, which eventually led to unstructured process. Some participants discussed the need for process formalization. A staff member underpinned the need for an internal project manager and a fulltime implementation team in such an intensive project:

> "They (managers) should assign a project leader, who should inform them and report to them in terms of budget planning time and risk. That means they should start doing things in a formal way

> (...)That would help you in delivering the product you promised with the quality you promised and also on time, without drifting away from your goal (…) you need to realize that the project is not fully implemented yet until now, after a year of its launch!" (S1).

Business process reengineering was also argued to be a crucial element during the initiation phase of the implementation process. Which can determine the workflow of the system, as well as the work processes surrounding it. One of the main critiques of the project team was that they adjusted the system structure depending on the organization's (current) internal processes, rather than focusing on the new system's workflow as a starting point. Looking back at the initiation stage, participants (from the groups directors and staff) believe that it is important to begin with the system workflow. This means to build the internal processes of the system depending on its core workflow, and afterwards, to reengineer the organization internal processes accordingly. Conversely, the team tried to enforce the previous organization's processes into the new system, which resulted in many insufficient technical workarounds in the final version of the system.

> "They (implementation team) have really made an old school fault. It seems that they have been pushing their way of working into the system. That's exactly the wrong way when you implement a new system! you should rather begin with the internal workflow of the new system, and then rearrange your processes around it" (S1).

> "I think you should adapt processes to the system, because you don't want a lot of customization in your new system, you want to stay in the system built-in functionalities as much as possible" (D5).

Another major critique was the introduction of many functionalities in one release[1]. The introduction of functionalities should rather be gradually phased, starting after the go-live. This had an overwhelming effect on users, which drove them to merely focus on the mandatory functionalities required from them. That resulted in unfamiliarity with the full-extend of the system functionalities and practical applications. This led to ambiguity and misunderstanding situations, which costed users unneeded extra time and effort to get familiar with the system.

> "I wouldn't release new features in one go, but I would say, we will add new features after we start using the main functionality, which is in this case our registration. Afterwards, we can introduce the invoicing into the process, and we do another basic training about it, and then you steer on that" (S1).

> "I would say start with finance let that run for like half a year or more, to find out what the system can do and find the bugs[2] and problems in the system and other shortcomings, and then get the consultants on board. So never move two departments at a time into the system, or try introducing a lot of functionalities and features in the same time" (D1).

One of the good elements mentioned about the project management was the steering committee and its role throughout the project, this representation of the stakeholders in the implementation team helped in reconsidering some decisions during the process, and thinking about the collective importance of the system.

> "I didn't join, but they made sure that consultants were involved in the implementation team (…) this is when you feel like your interests are being guarded. Well I believe that they have done a good job" (D3).

4.2.2. Communication

Due to its multidimensional nature, an ERP system requires an ongoing collaboration and communication across the involved departments. In this case study, participants have given relatively

[1] Distribution of a software version
[2] Technical issues

less attention to communication than they did to the majority of other themes. Looking at the results per category we find that staff members didn't mention communication at all during the interviews; however, the most discussion on this theme came from the consultants. Participants from this group reported two main problems in this regard. First, the lack of a unified vision of implementing PSA, which created ambiguity around the reason why the organization had to switch from the previous system (Harvest).

> "We still need to have a unified vision of what the tool [PSA] is for, and how it should be used (…) We need to sit together and talk this through, to have one vision about how we can take the most out of it and how we can make this system work for everybody" (C5).

> "Maybe people are not using it [PSA] now because it's not a hard requirement, but maybe if we can make it that way, people will start using it the right way, only then we can gain the benefit" (C4).

The second problem for consultants was that they missed a unified usage process of the system; i.e. a standardized way of entering data and managing projects using PSA. This resulted in different ways of using the system, which negatively affected data quality, and consequently, the quality and usefulness of the information produced by the system.

> "People have different opinions on the system and they are not all on the same line of the way they put data into it, like the recording hours for example" (D4).

> "I think we need to invest more, not in the tool itself, but in building concrete processes on how to work effectively with PSA and its functionalities and features. Everybody should be using this in the same way, and to cooperate as a team" (C6).

According to the researcher's own observations, communication between the users from the categories staff and directors is more easily done than with other departments. Staff members and employees of the financial departments have a daily contact. Their work desks are all located in one area of the building, they have regular meetings with managers, and most importantly they were all involved in the implementation process. This provides informal communication channels to discuss matters related to the system. Conversely, consultants have much less contact with staff members and the financial department, because they usually work by customers, or from other locations. The only way to reach this user category, of which the employees are the majority of the company, is via the formal communication channels, e.g. announcements, emails and meetings.

> "Again, the communication should have been better, done on a deeper level with the actual users of the system, and not on the higher level as we have done. This resulted in lower commitment and acceptance of the tool [PSA]. Well, this is partly because of the miscommunication or maybe the less communication we have done about the system" (D5).

When dealing with communication properly, users will follow a standardized way of using the system and dealing with data. This also has an impact on the unautomated process surrounding the system. As ERPs are meant to integrate different business functions and different organizational departments, communication and collaboration are at the core of implementation project progress; this factor is critical to all the stakeholders of the implementation.

4.2.3.User training

Most of the interviews included evidence of the importance of training in introducing a new system. More specifically, participants discussed three main categories related to this theme: the introduction sessions, the actual hands-on training, and the learning curve users have experienced. Proper explanation of the system functionalities and its usage were repetitively discussed with the participants in general. This subject was more relevant to consultants, as the initial stages of the projects were not shared thoroughly with all stakeholders, but rather directly managed by the COO and CFO. The

inadequate communication has also its impact on this matter, as discussed in the previous section. With inefficient communication and no proper introduction session, consultants in general missed a plenty of contextual information about the new system prior to, and during its implementation.

> "One thing the management could have done better is to explain the project management related tasks in the system a little better, those are not intuitive, so these need little more detailed explanation" (C9).
>
> "We got an email with use instructions, a few weeks later we had an introduction meeting with the team about the system (…) This is the only thing came close to a workshop, but nothing more rather than the online videos" (C3).
>
> "I still think that the system could've been better introduced (|…) People don't know how to use it properly, because we never told them how (…) Unfortunately, we didn't introduce the system well" (D4).

Participants from the groups directors and staff did receive a hands-on training during the implementation project, due to their extensive usage of the new system. Consultants, however, only had access to short online videos, which were focused on the main tasks consultants should perform using the system. This explains why most consultants reported that no training was conducted in that stage. Further, actual hands-on training was found more preferable to online training by most of the participants. Even though the task-related online videos were introduced prior to the go-live date, these weren't widely accepted and used.

> "We always say, it is important in project management to train your users on the new system, still we never really done that ourselves" (C9).
>
> "Well, videos told me a lot of stuff but not how to use it the way I wanted. There was no workshop nor training" (C5).
>
> "We did have an implementation team also with external consultants from the vendor side, but we didn't get a proper training, it was more like training-on-the-job thing" (S3).

Due to the absence of hands-on training and the proper explanation of the system, most users experienced a high learning curve after the introduction of the system. Many participants encountered an unneeded complexity and ambiguity after their first contact with the system, which led to extra time to perform their tasks properly.

> "It was like a 'just do it!' kind of thing. This resulted in more fraction and overhead of course, because it costed us more time to understand how things work ourselves" (C5).
>
> "We actually also struggled in the beginning with the tool, not only me but also other consultants, but now we got used to it" (C7).
>
> "It was really weird and incomprehensible to switch from Harvest to PSA, I recall that we had to fill in the activity type or something, when registering the working hours" (C11).

Depending on the process-related themes that were spotlighted by participants during the interviews, and building on the previous discussions, the process-related success factors of the cloud ERP implementation projects conducted in this study are:

5) **Project management**; this factor includes various practices and tasks performed during the implementation process, including business processes reengineering. Managers are advised to start from the workflow of the new system and reengineer their business processes, i.e. internal workflow, around it. The process in general should be dealt with formally. An internal project manager should be assigned to the project, along with a project team at full capacity to ensure the best process outcomes.

6) **Communication**; the proper and sufficient communication about the new system creates mutual understanding between all stakeholders of the purpose of the new system. Besides, communication contributes in establishing a unified vision for all users of the way the system will be used. This guarantees that the system is used the same way by all users, contains reliable data, and gives actual outcomes.
7) **User Training**; hands-on training can reduce the lost energy spent on exploring the functionalities of the system, and rather, focuses the effort on the way the system must be used. It also reduces the technical problems since they can be discovered directly by the users during the initial training sessions. Feature-focused, and advanced trainings can be given after a short period of actual usage, to enhance usage efficiency and data quality.

4.3. The sociotechnical themes

Three themes were related to sociotechnical aspects in the project. These themes were (1) user acceptance; which includes all the interrelated social constructs regarding the system (e.g. perceived benefits, perceived ease of use, and the adoption of the system[1]), (2) top management role; mainly in setting the right vision of the system and its proper usage, (3) change management; which is related to change - and expectation - management throughout the implementation. These themes are discussed in the following, with evidence from the collected data.

4.3.1. User acceptance

As mentioned earlier, PSA went live in May 2019, and the data collection was done after a year of its implementation. During the interviews, participants demonstrated a general negative attitude towards PSA which was manifested in various statements and remarks. This negative attitude is due to various problems related to their beliefs and perceptions about the system. In this section only the following aspects are discussed, namely; user expectations, perceived usefulness, perceived usability (i.e. ease of use) and added value (of gained benefits).

Many participants (mostly consultants) reported feeling disappointed after the implementation process was done. One of the reasons of this is the unrealized promises they had heard in the beginning phase of the project.

> "After almost a year it [a promised functionality] is still not there. So that is somehow disappointing (…) We were promised of some charts that will give more insight, still it took over half a year for those to be available. That is too long. We were told by the introduction, this is a first version, and very soon more features will be rolled out, but that never happened" (C10).

> "There was a lot said about what the new system allows us to do, and the functionalities it has. We were told of many applications of the system in project management and planning, but in the end, these were not implemented" (C3).

Some participants reported unpleasant emotions towards the system, e.g. frustration and irritation. These emotions reflect the general low acceptance and adoption of the new system among its users. Even after almost a year of actively using PSA, participants still feel that their needs are not fulfilled yet.

> "I honestly don't think that it [PSA] reflects the idea we had in mind, about how the system would look like after we finish the implementation. It is totally different from the end result, we didn't expect it to look like this!" (D4).

> "I must say I was a little bit frustrated with the system, but yeah, what can you do" (C9).

[1] Building on TAM

> "So, we kind of hate the way it was sat up" (C5).

When asked about the importance of the PSA to their jobs, participants gave largely-differed answers, this might be related to the relevance of the tasks they perform in the system, and how crucial these are to their jobs. As mentioned earlier, the tasks performed in the system differ per user group. For example, consultants only used PSA for working hours registration and basic project administration; the system had no direct impact on their jobs due the limited functionality used. For this user category the system is simply seen as an organizational necessity, and in some cases even a burden to their work.

> "[important] For my work? no, not really, it is necessary, let's call it like this, it is necessary for other parts of the company, but for my tasks not so much" (C10).

> "I was more thinking about the word headache! It's more like a burden to my job … it's actually hard to know what the problem is, I sometimes don't know why but I'm always cursing it" (C11).

In many cases, consultants indicated that the overall usefulness of the system related to the company basic administration and processes, as mentioned earlier, and was not relevant to their daily job as consultants per se. Managers were aware of the situation, but till the time of the study little was done to change that, due to business-related[1] reasons. Yet, the involved project team members were preparing a redesign plan to create more value to consultants.

> "This is one of the lessons to learn when doing any implementation process, you should start from creating value for everyone, we couldn't find that we couldn't provide that immediately for everyone. So, I know the theory about that, I know theory on where you need to be keen on and what to ensure you're in such an implementation to be able to get the acceptance of users" (D1).

Other participants showed that the system has brought them added value in their work, in means of efficiency and time saving, and fewer error margins. These benefits of the system are more realized by the user groups directors and staff, as they experienced a significant progress in their work efficiency. This can be reasonably expected since the new system is the first professional financial system these participants have worked with within the organization. PSA brought reliability to the quality of data and efficiency to the administrative work, among many functionalities and insights.

> "I believe that the quality is improved, and the waste of time is less" (S2).

> "This is a big improvement it [administration] mainly was managed by Excel sheets, which started small someday and slowly became unmanageable. The benefits are huge compared to the old style" (S3).

> "It is improving in the financial part, in other words the finance-related tasks. The operational project management part is not yet optimized. Which has the basic functionality for registering hours, but it is not complementary to other project management tasks" (S1).

The different context per department prior to the implementation, and the usage intensity of the system, can justify the variation of answers among participants. In general, most participants thought the system was not suitable for the company work process and its core business; even participants who were involved in the implementation process shared such perceptions.

> "I think that the business governance of the tool (PSA) is for different kind of companies. Companies with big projects, with a lot of people working on them. We have only small projects" (C5).

> "We figured out that PSA was not the perfect solution for our situation (…) It is based on a kind of projects that we don't do in SIG. So, it depends mainly on billable hours (…) While we have fixed fee projects with a start date and an in date" (D4).

[1] Internal issues and obstacles related to delivery

There is apparently an interactive effect between job relevance and output quality in determining perceived usefulness of the system to the individual's job-related goals:

> "If you look at the whole year since we implemented the essay, this is all the consultants are doing, only recording their hours. So, this doesn't adhere to the idea that you bring value to every user in the system, because consultant did get nothing from this, and they didn't have the reason to move with us in the process" (D1).

Further, although participants' opinions were partially split regarding the usability[1] of the system, most participants perceived the system as 'not user-friendly', because it was missing functionalities that enhance usability and improve user experience, especially when compared to the previous system (Harvest).

> "There are a lot of clutter and stuff that you don't need with the simple task I actually doing" (C9).
>
> "It is less friendly when compared to Harvest" (C3).
>
> "When trying to change something in it, the places of buttons will change, or slide. So, if you click on the same button in two different windows, it has a totally different function" (D2).
>
> "Most of the things are hidden, or at least you really need to know where to go to where things are and where functionalities are located so in that sense I wouldn't say that it is now easily usable" (C4).

The system still cost users extra mental effort to get their tasks done, look up information or when they try to explore more possibilities to make their job easier.

> "Every time I need to get a specific information, I need to figure it out again." (C3).
>
> "It's pretty inconsistent because sometimes it is insanely slow and a lot of times it is just quick" (C4).
>
> "It [PSA] does require a lot of mental effort to remember how one can perform tasks in the system even if you use it often" (S1).

Nonetheless, other participants were quite satisfied with the interface and the new lay-out of the system. This can be due to their previous experience in working with other less efficient tools, or to their low expectations of the new system. Apparently, directors had less problems with the system interface, since they are working with different interface of the system. This deviation is a result of the different licenses users have, depending on their positions, and the tasks they are required to perform in the system.

> "I have a different interface than the consultants, because I am a team lead, So I have more like an expert with you really (…) This is basically a richer interface and view with richer functionalities than the normal consultants to get to see and use" (D3).

The low acceptance and adoption of the system led to minimal usage of the system functionalities and processes. Consultants were basically performing the mandatory tasks required by their managers, e.g. time recording, which prevented the organization from obtaining the full potential of the system. In order to achieve the organizational benefits, the system should be put in good use among all users, especially consultants, which are the majority of the system users.

> "You can use PSA for many more things, which we are not doing currently. In order to be able to do that first of all the system needs to be integrated. People need to be trained, they need to understand how we consultants can use the system to our benefits in our operational role. So, it doesn't help if only one team is doing that alone (…) There is more in the system, there are more functionalities that can help you in delivering projects more efficiently" (D4).

[1] i.e. ease of use

4.3.2. Top management role

In this case study, the role of the top management was mainly recognizable in the pre-implementation stage of the project. Most importantly defining the project's objectives, the decision-making process of switching to a cloud ERP system, and the selection process of the system and the providers. In this stage, various solutions were reviewed to find the most suitable option to the company.

> "We had brainstorming session about what functionalities the tool should have, and milestones of our projects, the things we would like to have in the system. The decision was made by the MT[1]. When the package was selected, it was tried out by a small group, some testing was done, then went live" (D2).

The top managers' priorities were basically to meet the organizational requirements on the financial administration side, and to fulfill users' needs of an automated project management tool. Even though this are numerous tools available, all affordable solutions didn't match the company requirements directly. This led to a trade-off situation between hard requirements such as financial processes' security and reliability on one hand, and performance and lay-out preferences such as user-friendliness on the other.

> "I know that the interface is not attractive but I'm not really interested in attractiveness, as long as the system does the work (...) I believe that the benefits overweight the concessions" (D3).
>
> "Our main concern at the time was to make sure we remove our financial administration from the complex excel sheet, that was by far the most important drive we had (…) There were many tools out there which are user-friendly and very interesting, but they are not taking the whole process into account" (D1).

This is not the role of top managers that one expects in these situations, especially in large enterprizes, where the top management level is setting the vision and long-term strategies, and delegate the execution to executive managers. Within SMEs, however, these roles overlap depending on concerns or interests of the managers him/herself, and surely on the available resources. The role that was mostly missed was the management of change, and the expectations of the users along the process.

4.3.3.Change management

The role of top managers after the selection stage was limited to progress monitoring. The work done by the project team was mainly related to data imports, system configurations and company related customizations. These tasks reflected the highest priorities of the project team in that stage. However, management of change was not given a sufficient attention in the process. This could be one of the most important roles of managers in the process. Participants reported that change management was lacking during the implementation process, and could have been done more attentively.

> "Normally, I would write down the process, come up with instruction, work project-wise talk to people introduce it to people and do a training and repeat (…) Compared to pushing the whole system into consultants and tell them that it's the same as the old system, and just go for it!" (S1).
>
> "We need to ask ourselves how much we have invested in the people-change factor, giving more thought to how we can introduce the system well to people and let them know when and how they can make use of it" (C6).

It is generally known that change management is an important factor in each organizational change. In this case study, this factor was particularly crucial because the system users experience different levels of results according to their own work situations. More specifically, for the group directors, implementing an ERP was a matter of urgency. The organization had to transform from the old financial

[1] Management team

work process into a more reliable one, this was rather an emergent and strategic need. Further, the group staff were working in a very sophisticated and error prone situation before the implementation of PSA. Therefore, the system brought them significant advantages, among which reliability, usability and control. For consultants, however, this was perceived as a decline in both efficiency and usability, since the previous system (Harvest) was much more user-friendly and straightforward. According to the participants, more investment in organizational change management could have led to better sociotechnical results.

> "The implementation of the two need to be worked on two parts not only the physical selection and implementing of the data in the system but also how people going to deal with that change and how to help them change their behavior. So that's the difficult part" (C6).

Building on these themes, the sociotechnical success factors of the cloud ERP implementation process conducted in this study are the following:

8) **User acceptance** of the new system; managers should make sure the new introduced system creates value to all stakeholders. This added value will motivate users to accept the new work process brought by this system and will encourage them to fully stand behind it. User acceptance of the new system is strongly affected by the perceived usefulness and ease of use of that particular system. When employees use the system properly the full potential of use will be quickly achieved and the system will start bringing return of the investment of all the resources involved in the process.
9) **Top management role**; this factor covers all the decisions, tasks and measurements taken by the top management regarding the implementation. This was emphasized by having one clear vision of the existence of the ERP system, the unified work and usage processes surrounding it, and the communication about the trade-offs made during the decision-making process.
10) **Change management**; when dealing with IT implementation projects, managers should give sufficient attention to these aspects since users mostly go through stressful situations, involving changing of routines, system quality and working process. This should be not neglected due to the focus on technical-related matters.

5. Discussion

IS have evolved rapidly during recent decades; computer systems and services have become more specialised, sophisticated and problematic. Scholars have investigated the success factors of IT implementation process to reach a better understanding of the challenges involved in such a process. This will help managers in making the crucial decisions involved in the process, and allocate the needed resources to ensure cloud ERP implementation success. When an ERP system is well implemented and used, this will enhance the business impact and benefits gained from the large investments associated with implementing new IT within the organization. This research investigates the success factors of cloud ERP implementation. The study findings included three categories of CSFs, namely: (a) the technical factors; which relate to technology or system related factors, (b) the process related factors; which concern with the implementation project until the go-live date an actual usage of the system, and (c) the sociotechnical factors; which concern with the adoption and acceptance of a new system and the related (conceptual) antecedents. In this section a discussion of the results in the light of reviewed literature is presented.

The technical CSFs

Cloud computing is likely to be an attractive option for many SMEs due to its flexible cost structure and scalability (Sultan, 2011). However, this study showed that many aspects should be taken in consideration when selecting cloud service. These factors include the organizational - cloud ERP fit,

which is a determining factor for project success. The better adapted the organizational internal processes and workflow is to the cloud ERP system, the more likely the implementation will be successful (Hong and Kim, 2002). Other factor is cost of ownership, which has to do with the license structure on one hand, and the cloud service model selected; e.g. SaaS, PaaS (Sun et al., 2014). One of the most important aspects to consider in this regard is the vendor-lock in, which should be a strategic decision that fits the company's situation and services (Opara-Martins et al., 2016).

During the implementation process, and from the initial stages, managers should make use of experts' experience and knowledge (Liu et al., 2016). As suggested by this study, the needed knowledge and expertise can be related not only to technical system and cloud platform aspects, but also to core organizational processes, e.g. financial data conversion and imports. The decisions taken in the first stages of the implementation process, have a long-lasting effect on the quality of the system and its output (Sultan, 2011).

ERP require long implementation period and mass customizations (Alshawi, et al. 2004). ERP sometimes require heavy customization, which is very expensive and time consuming. But in some cases, project success and failure can be determined by the right decision taken in this regard. More specifically, because altering software source code in order to customize an ERP system can be problematic, most organizations do not add heavy customization to their ERP systems (Holsapple & Sena, 2005). Nevertheless, this study indicated that the system should be customized to users' needs, and that the functionalities promised at the begin of the project should be delivered or added gradually to the system. Otherwise, users will feel no added value is brought to their work, and will be demotivated to use the system. This does not align with some literature findings suggesting that system customizations must be limited (e.g. Somers & Nelson, 2001). This might be due to different interests of managers and users; while managers keep customization to the minimum to reduce technical costs and mitigate compatibility risks for future updates and maintenance, users, however, feel the system is not tailored to their needs, and therefore costs them more time and effort to adhere to their job tasks. A middle ground between these two situations should be sought. Akkermans and van Helden (2002) indicate that a period of poor project performance can be followed by a successful follow-up, if the right choices were made, such as adding the functionalities and customizations required to meet the company needs. This gives another purpose to stakeholders to continue working on the enhancement of the system by adding more modified functionalities and omitting the unnecessary functionalities and options. This will directly affect the perceived ease of use and usefulness of the system, and indirectly improve the quality of the work of users, as discussed in the last section. When users' requirements are respected, the system will be of better quality, easier to use, and less likely to stir up resistance (Esteves & Pastor, 2000).

In its basic model, TAM shows that system design and features do not have a direct effect on attitude or behavior; instead they affect these variables only indirectly through perceived usefulness and perceived ease of use (Davis, 1986). External factors, including the system's technical design characteristics (Davis et al., 1989), and system quality e.g. issues of data accuracy (Alshawi, et al. 2004) can affect the willingness to use the system (Hartwick & Barki, 1994). Whereas when the system complies with functionality, reliability, flexibility, and data quality, the intention to use and user satisfaction increases (Costa et al., 2016). As this study shows, system quality can be dependent on the IT infrastructure e.g. servers' speed and data storage capacity. This can be directly affected by the cloud solution selected. Such elements determine fast response time and high data processing speed. Failing to meet those requirements will lead to user disappointment, and may affect their efficiency in handling related business tasks. Cloud providers can offer much powerful IT facilities, to host an ERP system and its data, but this apparently depend on the size the client company and its licenses' costs (Peng & Gala, 2014).

The process -related CSFs

Project management is essential in every successful project; it includes the definition of the projects scope and its limitation, the systems involved, and the business process reengineering needed (Nah et al. 2001). Unlike many IT systems, ERP by its very nature requires simultaneous changes in the business processes it interfere with, which make it very challenging to implement (Amoako-Gyampah & Salam, 2004). As suggested in this study, steering committees can help in managing the implementation process, when representatives of all stakeholders take part in the system design and implementation, this allows users get more involved and committed to the process, and develop realistic expectations about the system (Esteves & Pastor, 2000). The successful project team should, however, be a cross-functional one, consisting of the most knowledgeable people in the organization (Nah et al., 2001). Another interesting finding of this study was that releasing too many functionalities in one release is not recommended; this caused confusion to users on one hand, and distraction to managers' efforts and focus on the other. It was advised to start with one module of the system, or one department users, put the system in production and gradually add more functionalities and modules.

Communication is considered to be a managerial intervention, aimed to support the implementation process and promote the new system (e.g. Amoako-Gyampah & Salam, 2004). Failing to build communication and collaboration channels will put the implementation in a vicious cycle of poor interdepartmental collaboration and communication, since these factors seem to reinforce each other in the process (Akkermans & van Helden, 2002). The beliefs of users about new technology are constructed and shared with their peers and superiors; these beliefs usually concern the benefits and importance of the new system. Based on TAM, communication can influence users' acceptance of a new IT, for it affects the shared belief about the benefits of the system. As suggested in this study, social expectancy was found to have positive effect on user behavior. The system will be easily accepted by users when someone with power and authority from within the company strongly advocates for conducting use of the system (Pai & Tu, 2011). Managers should invest time in communicating the switch benefits to endorse the perceived value of the system to all users. A low perception of value of a new system leads to user grumbling (Mahmud et al., 2017).

Training was found to be essential to cloud ERP implementation success, it provides the hands-on mechanism that allows users to explore the system, both from a technical standpoint as well as from a functional perspective, which helps them obtain first-hand information and experience with the system (Amoako-Gyampah & Salam, 2004). Therefore, the proper introduction of a new system and the user hands-on training are considered 'enabling factors' of actual use, as they enhance users' intention of use and allow technological problems to be quickly handled (Pai & Tu, 2011). The introduction of the system and the management of expectations about the new system lower the learning curve users need to go through when using a new system. This study suggests that these factors might be less effective after the system is put into use. As individuals gain direct experience with a system over time, they rely less on social information in forming perceived usefulness. Rather, they continue to judge a system's usefulness depending on the potential benefits resulting from use (Venkatesh & Davis, 2000). In this case study, the learning curve of the system was higher that it should be, mainly due to the lack of proper introduction and training workshops.

The sociotechnical CSFs

The more favorable the attitude and subjective norm with respect to behavior, and the greater the perceived behavioral control, the stronger should be an individual's intention to perform the behavior under consideration (Ajzen, 1991). Accordingly, system usage is determined by the intention to use that system, which is jointly determined by the perceived usefulness and perceived ease of use of that particular system (Davis et al., 1989). As found in this study, this process was not always convenient to all stakeholders, since users had different various perceptions regarding the system, due to the different

levels of usage (DeLone & McLean, 1992). Further, affect and emotions can serve as background factors that influence beliefs, and thus can have indirect impact on intentions and behaviors (Ajzen, 2011). The roles of perceptions and personal experience are found to positively influence the decision to use a new system, and subsequently the actual use of it (Yi & Hwang, 2003). In this case study, even though the system has been in use for almost a year, the system usage is still not optimal yet. The functionality usage level does not meet the project objectives top management had set in the initiation phase. Furthermore, one of the most important objectives of implementing ERP is increasing productivity (Holsapple & Sena, 2005), if users do not experience a significant enhancement of the new implemented system, they will not consider it a successful one. This will reflect on the intention to explore more potential functionalities and possibilities the system offers. Since system design (e.g. the lack of user friendliness) can strongly affect user acceptance, adding friendly interface functionalities and customizations will increase system usability, which is considered a key to system implementation success (Davis et al., 1989). This will indirectly influence the perceived usefulness and necessity of the system (Hartwick & Barki, 1994). Those factors will also determine the user acceptance of the system, which leads to a better adoption and the ultimate usage of the system. As this study showed, implementation success will only be achieved when the full potential benefits of the system are utilized, not only the basic functionalities.

If managers require employees to use an ERP system, they will certainly use it despite their negative attitude towards it (Mahmud et al., 2017). However, the quality and level of their usage might not be up to the standard expected by managers. whereas when managers help in evolving active user participation, and pay attention to system quality, then higher user adoption and satisfaction will be achieved (Costa et al., 2016). Further, when organizational leadership promotes, and explicitly support the ERP adoption, then the frequency of ERP usage will increase (e.g. Avlonitis & Panagopoulos, 2005; Françoise et al., 2009). These practices can improve users' acceptance and adoption of the new system (Pai & Tu, 2011). Looking at the work on CSFs in the literature, top management support was always regarded as one of the most important factors that determine the success of any implementation project (e.g. Barth & Koch, 2018; Dezdar & Ainin, 2011). However, this factor was not regarded as that important in this case study. This can be due to the two reasons: Firstly, the sample of participants can differ from the one used in this research. This study introduced perceptions of users from different positions and seniority levels). Secondly, the nature of SMEs implies, as previously stated, the informality of such internal projects, where processes do not have to take a long formal structure up to the top management level. This can shift the attention of participant interviewed to the importance of top management role.

Finally, change management was found to be critical to the success of cloud ERP projects. This is particularly important in the SMEs context (Misra & Mondal, 2011), where managers have rather an informal style of managing projects internally. As suggested by the findings of this study, managers should place far more emphasis on the importance of organizational change management; business processes and behaviors should be gradually and effectively transformed to accommodate the new ERP system (Doherty et al., 2012). Besides, managers must focus on the development of accurate expectations regarding the system usage and its benefits. That helps in shaping a clear picture of what managers expects from system implementation (Avlonitis & Panagopoulos, 2005). Effort and benefit expectation management has a positive effect on users' future behavior. If users feel that the system is easily learned and used, their willingness to employ it will be enhanced (Pai & Tu, 2011). This factor should be realized early in the process since the major problems related to ERP adoption occur during the implementation phase (Mahmud et al., 2017).

5.1. Conclusion

Due to its advantages compared to on-premise IT solutions, cloud computing is more suitable for SMEs. However, making the decision to adopt cloud services does not ensure gaining the benefits it promises. This requires more in-depth knowledge and expertise in dealing with the implementation projects of cloud systems. The finding of this study indicated that these are three CSFs categories to manage during a cloud ERP implementation within SMEs, these are technical, process-related and sociotechnical factors. Technical factors include: (1) the selection of cloud ERP and supplier, (2) the technical expertise and knowledge required in the process, (3) system customization, and (4) system quality. Process-related factors include: (5) project management, (6) communication, and (7) user training. Most importantly, the sociotechnical factors; which factors include: (8) users' acceptance of the new system, (9) change management, and (10) top management role. Managers should ensure that these factors are given a full attention. Other findings showed that these factors interrelate with- and in some cases enforce- each other. Further, all stakeholders should receive added value to their system related tasks, and should have unified vision and understanding of the system's role, and its proper usage. These factors should not be overseen or neglected due to the technical focus.

This research contributes to the body of literature dedicated to success factors of ERP implementation projects. Specifically, this research examined cloud ERP systems within SMEs with a focus on both managers' and users' perspective. The findings of this research shed light on the importance of the cloud factor, and the selection process related to the service and vendor. Besides, the importance of the sociotechnical factors in achieving the project objectives, mainly the organizational benefits was emphasized. This research has also a number of practical implications for SMEs which adopt a cloud ERP system. The findings can help managers to focus their resources and attention to the CSFs of cloud ERP projects, without neglecting the sociotechnical aspects. When implementing a new cloud ERP system, (top) managers should take in consideration the CSFs presented in this study, to ensure the implementation project is on the right track.

5.2. Limitations

This research has several limitations. Being employed by the case organization had many advantages for doing this research, such as the accessibility of data, the familiarity with the context and role players in the study case, the understanding of the whole work process and the convenience in the field work. Nevertheless, this situation has also some known pitfalls, e.g. in the terms of objectivity and information selectiveness.

Case study research has considerable problems in ensuring sufficient rigor and reliability. The researcher tried to limit personal biases by employing as many independent perspectives and sources of data as possible during data collection and analysis; e.g. different participants were interviewed from different departments and teams in the company, besides the user groups of the system were also taken into consideration. The company investigated in this case study was chosen due to convenience approach, which has its limitation in terms of generating the findings of this research. However, the participants sample was relatively representative to the case population as the researcher selected a stratified approach (Robinson, 2014). Other limitations that have to do with the case, are the size and demography distribution of the sample; all data was internally collected, since interviews were conducted with internal employees, no external experts were interviewed. That can be taken in consideration when generalizing the results of this research.

Even though different perspectives were involved in this research, still, social constructs (e.g. perceived usefulness and ease of use) are 'people's subjective appraisal of performance and effort', and do not necessarily reflect objective reality (Davis, 1989). Another limitation has to do with the measurement of success, which can differ due to when it is measured. There are examples of projects

that were successful in the short run but became unsuccessful in the long term (Remus & Wiener 2010). This research was conducted after 10 months of going-live. Results can differ if the research is conducted in another timeline.

Other practical issues could be related to the interviews conducted during the field work. Firstly, the interviews were conducted via an online video calling application, and not physically, due to the health situation related to Coronavirus. This can have its effects on the communication during such sections e.g. the body language and social experience (Iacono, Symonds, & Brown, 2016). Secondly, the interviews were conducted in English, where none of the participants was an English speaker. This is due to the fact that the participants come from different origins and don't speak any other mutual language with the researcher. This might have its impact on dealing with the interpretation of the data, other cultural and ethical considerations (Koulouriotis, 2011).

5.3. Future research

Future research can consider investigating business domains other than management and software consultancy within the SMEs category. Another research method can be adopted in the same context, more specifically the use of external participants samples, working in focus groups, or investigating several case studies. Research can investigate the redesign projects that serve as follow-ups to implementation projects. These projects could have different dynamic than the initial ones, and thus could introduce different CSFs and mechanisms to deal with them.

Another interesting area for further research is to define the most important CSFs per project stage. This can be also associated with defining the responsible stakeholders for managing these CSFs. Due to the particularity of SMEs (e.g. limited resources and flat hierarchy), many of these responsibilities rest by the top management, which can result in neglecting crucial elements in the process. Future research can investigate whether SMEs can overcome the major obstacles (e.g. under delivery, misfit between the system characteristics and organizational requirements) if they work with phased projects, such as agile projects.

Further, adopting the benefits approach would require to measure the success of ERP implementation projects in different phases and timelines. This could be also be interesting for future research, when studied on the long term, research can enrich the context of CSFs by investigating the long-term effect of CSF on achieving the organizational benefits of cloud ERP, or to measure the return on investment gained from the implementation.

References

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.

Ajzen, I. (2011). The theory of planned behaviour- Reactions and reflections. *Psychology & Health,* , 26-9, 1113-1127.

Akkermans, H., & van Helden, K. (2002). Vicious and virtuous cycles in ERP implementation: a case study of interrelations between critical success factors. *European Journal of Information Systems*, 11, 35–46 .

Alshawi, S., Themistocleous, M., & Almadani, R. (2004). Integrating diverse ERP systems: a case study. *The Journal of Enterprise Information Management*, 17(6), 454–462.

Amoako-Gyampah, K., & Salam, A. (2004). An extension of the technology acceptance model in an ERP implementation environment. *Information & Management*, 41, 731–745.

Arnold, V. (2006). Behavioral research opportunities: Understanding the impact of enterprise systems. *International Journal of Accounting Information Systems*, 7, 7–17.

Avlonitis, G. J., & Panagopoulos, N. G. (2005). Antecedents and consequences of CRM technology acceptance in the sales force. *Industrial Marketing Management*, 34, 355–368.

Banister, P. (2011). *Qualitative methods in psychology: A research guide.* . Berkshire (UK): McGraw-Hill Education /second edition .

Barth, C., & Koch, S. (2019). Critical success factors in ERP upgrade projects. *Industrial Management & Data Systems*, 119(3), 656–675.

Boillat, T., & Legner, C. (2014). Why do companies migrate towards cloud enterprise systems? A post-implementation perspective. *IEEE 16th conference on business informatics.* , 1,102-109.

Boynton, A., & Zmud, R. (1984). An assessment of critical success factors. *Sloan Management Review*, 25(4), 17–27.

Bradley, J. (2008). Management based critical success factor in the implementation of Enterprise Resource Planning systems. *International Journal of Accounting Information Systems*, 9, 175–200.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. . *Qualitative research in psychology*, 3(2), 77-101.

Bryman, A. (2016). *Social research methods.* Oxford: Oxford university press.

Buyya, R., Yeo, C. S., & Venugopal, S. (2008). Market-oriented Cloud Computing: Vision, hype, and reality for delivering it services as computing utilities. In High Performance Computing and Communications . *10th IEEE international conference on high performance computing and communications.*, 1, 5–13.

Chang, H. H. (2006). Technical and management perceptions of enterprise information system importance, implementation and benefits. *Information Systems Journal*, 16(3), 263-292.

Chen, C., Liang, W., & Hsu, H. (2015). A cloud computing platform for ERP application. *Applied Soft Computing*, 27, 127–136.

Chiarini, A., Vagnoni, E., & Chiarini, L. (2018). ERP implementation in public healthcare, achievable benefits and encountered criticalities - an investigation from Italy. *In. J. Services and Operations Management*, 29(1), 1–17.

Clarke, V., & Braun, V. (2017). Thematic analysis. *The Journal of Positive Psychology*, 12(3), 297–298, .

Costa, C. J., Ferreira, E., Bento, F., & Aparicio, M. (2016). Enterprise resource planning adoption and satisfaction determinants. *Computers in Human Behavior*, 63, 659–671.

Davis, F. D. (1986). A technology acceptance model for empirically testing new end-user information systems: theory and results, doctoral dissertation, Sloan School of Management,. *Massachusetts Institute of Technology*.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35(8), 982–1003.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, 14, 111–1132.

DeLone, W. H., & McLean, E. R. (1992). Information systems success: the quest for the dependent variable. *Information Systems Research*, 3(1), 60–95.

Denzin, N. K. (2012). Triangulation 2.0. . *Journal of mixed methods research*, 6(2), 80–88.

Dezdar, S., & Ainin, S. (2011). The influence of organizational factors on successful ERP implementation. *Management Decision*, 49(6), 911–926.

Dhar, S. (2012). From outsourcing to Cloud computing: evolution of IT services. *Management Research Review*, 35(8), 664–675.

Doherty, N. F., Ashurst, C., & Peppard, J. (2012). Factors affecting the successful realisation of benefits from systems development projects: findings from three case studies. *Journal of Information Technology*, 27(1), 1-16.

Eriksson, P., & A. Kovalainen. (2016). *Qualitative methods in business research, 2nd ed.* London: SAGE Publications Ltd.

Esterby-Smith, M., Thorope, R., Jackson, P., & Jaspersen, L. (2018). *Management & business research, 6th ed.* London: SAGE Publications Ltd.

Esteves, J., & Pastor, J. (2000). Towards the Unification of Critical Success Factors for ERP implementations, . *10th Annual Business Information Technology (BIT) Conference, UK, Manchester*, November, p. 44.

European Commission. (2003, 05 06). *Publications Office of the EU*. Retrieved from Publications Office of the European Union: https://op.europa.eu/en/publication-detail/-/publication/6ca8d655-126b-4a42-ada4-e9058fa45155/language-en

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research.* Boston: Addison-Wesley.

Fortune, J., & White, D. (2006). Framing of project critical success factors by a systems model. *International journal of project management*, 24(1), 53-65.

Françoise, O., Bourgault, M., & Pellerin, R. (2009). ERP implementation through critical success factors' management. *Business process management journal*, 14(3), 371–394.

Galletta, A. (2013). Mastering the semi-structured interview and beyond: From research design to analysis and publication. *NYU press*, Vol. 18.

Harper, D., & Thompson, A. R. (2011). Qualitative research methods in mental health and psychotherapy: A guide for students and practitioners. . John Wiley & Sons.

Hartwick, J., & Barki, H. (1994). Explaining the Role of User Participation in Information System Use. *Management Science* , 40(4): 440–465.

Hartwick, J., & Barki, H. (1994). Explaining the Role of User Participation in Information System Use. *Management Science* , 40(4), 440–465.

Hewavitharana, T., Nanayakkara, S., Perera, A., & Perera, J. (2019). Impact of Enterprise Resource Planning (ERP) Systems to the Construction Industry. *International journal of research in electronics and computer engineering*, 7(2), 887–893.

Holland, C., & Light, B. (1999). A critical success factors model for ERP implementation. *IEEE Software* , 16(3), 30– 36.

Holsapple, C. W., & Sena, M. P. (2005). ERP plans and decision-support benefits. *Decision Support Systems* , 38, 575– 590.

Hong, K. K., & Kim, Y. G. (2002). The critical success factors for ERP implementation: an organizational fit perspective. *Information & management*, 40(1), 25-40.

Hsiao, C., & Yang, C. (2011). The intellectual development of the technology acceptance model: A co-citation analysis. *International Journal of Information Management*, 31, 128–136.

Hwang, Y. (2005). Investigating enterprise systems adoption: uncertainty avoidance, intrinsic motivation, and the technology acceptance model. *European Journal of Information Systems*, 14, 150–161.

Iacono, V. L., Symonds, P., & Brown, D. H. (2016). Skype as a tool for qualitative research interviews. *Sociological Research Online*, 21(2), 1–12.

Johnston, H. R., & Vitale, M. R. (1988). Creating Competitive Advantage With Interorganizational Information System. *MIS Quarterly/June*, 153–165.

Kateb, M., Swies, R., Obeidat, B., & Maqableh, M. (2015). An investigation on the critical factors of information system implementation in Jordanian information technology companies. *European Journal of Business and Management*, 7(36), 11-28.

Koulouriotis, J. (2011). Ethical considerations in conducting research with non-native speakers of English. *TESL Canada Journal*, 1-15.

Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management*, 40, 191–204.

Liu, S., Chan, F. T., & Ran, W. (2016). Decision making for the selection of cloud vendor: An improved approach under group decision-making with integrated weights and objective/subjective attributes. *Expert Systems with Applications*, 55, 37-47.

Lyytinen, K., & Newman, M. (2008). Explaining information systems change: a punctuated socio-technical change model. *European Journal of Information Systems*, 17(6), 589-613.

MacKay, R. B., & Chia, R. (2013). Choice, chance, and unintended consequences in strategic change: A process understanding of the rise and fall of NorthCo Automotive. *Academy of Management Journal,*, 56(1), 208-230.

Mamud, I., Ramayah, T., & Kurnia, S. (2017). To use or not to use: Modelling end user grumbling as user resistance in pre-implementation stage of enterprise resource planning system. *Information Systems*, 69, 164–179.

Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J., & Ghalsasi, A. (2011). Cloud computing—The business perspective. *Decision support systems*, 51(1), 176-189.

Menon, S. A., Muchnick, M., Butler, C., & Pizur, T. (2019). Critical challengens in Enterprise Resource Planning (ERP) implementation. *International Journal of Business and Management*, 14(7), 54–69.

Misra, S. C., & Mondal, A. (2011). Identification of a company's suitability for the adoption of cloud computing and modelling its corresponding Return on Investment. *Mathematical and Computer Modelling*, 53(3-4), 504-521.

Moon, Y. (2007). Enterprise resource planning (ERP): a review of the literature,. *Int. J. Management and Enterprise Development*, 4(3), 235–264.

Nah, F., Lau, J., & Kuang, J. (2001). Critical factors for successful implementation of enterprise systems. *Business Process Management Journal*, 7(3), 285–296.

Ngai, E. W., Law, C. C., & Wat, F. K. (2008). Examining the critical success factors in the adoption of enterprise resource planning. *Computers in industry*, 59(6), 548-564.

Opara-Martins, J., Sahandi, R., & Tian, F. (2016). Critical analysis of vendor lock-in and its impact on cloud computing migration: a business perspective. *Journal of Cloud Computing*, 5(1), 4.

Pai, J., & Tu, F. (2011). The acceptance and use of customer relationship management (CRM) systems: an empirical study of distribution service industry in Taiwan. *Expert Systems with Applications*, 38, 579–584.

Peng, G., & Gala, C. (2014). Cloud ERP: a new dilemma to modern organisations? . *Journal of Computer Information Systems*, 54(4), 22–30.

Petter, S., DeLone, W., & McLean, E. (2008). Measuring information systems success: models, dimensions, measures, and interrelationship. *European journal of information systems*, 17(3), 236–263.

Plant, R., & Willcocks, L. (2007). Critical success factors in international ERP implementations: a case research approach. *Journal of Computer Information Systems*, 47(3), 60-70.

Reitsma, E., & Hilletofth, P. (2018). Critical success factors for ERP system implementation: A user perspective. *European Business Review*, 30(3), 285–310.

Remus, U., & Wiener, M. (2010). A multi-method, holisitc strategy for researching critical success factores in IT projects. *Information Systems Journal*, 20, 25–52.

Ridder, H. G. (2017). The theory contribution of case study research designs. *Business Research*, 10(2), 281–305.

Robinson, O. C. (2014). Sampling in interview-based qualitative research: A theoretical and practical guide. *Qualitative research in psychology* , 11(1), 25–41.

Rockart, J. F., & Bullen, C. (1981). A primer on critical success factors. *Center for Information Systems Research Working Paper*, (69).

Saade, R. G., & Nijher, H. (2016). Critical success factors in enterprise resource planning implementation. *Journal of Enterprise Information Management.*, 29(1), 72–96.

Salum, K., & Rozan, M. A. (2016). Exploring the challenge impacted SMEs to Adopt Cloud ERP. *Indian Journal of Science and Technology*, 9(45), 1–8.

Sanchez, R. A., & Hueros, A. D. (2010). Motivational factors that influence the acceptance of Moodle using RAM. *Computers in Human Behavior*, 26, 1632–1640.

Sarker, S., & Lee, A. S. (2003). Using a case study to test the role of three key social enablers in ERP implementation. *Information & Management*, 40(8), 813–829.

Schniederjans, D., & Yadav, S. (2013). Successful ERP implementation: An integrative model. *Business Process Management Journal*, 19(2), 364–398.

Shang, S., & Seddon, B. (2000). A Comprehensive Framework for Classifying the Benefits of ERP Systems. *AMCIS 2000 Proceedings*, 1005–1014.

Somers, T. M., & Nelson, K. (2001). The impact of critical success factors across the stages of enterprise resource planning implementations. *In Proceedings of the 34th Annual Hawaii International Conference on System Sciences IEEE*, (pp. 1–10). Hawai.

Somers, T. M., & Nelson, K. G. (2004). A taxonomy of players and activities across the ERP project life cycle. *Information & Management*, 41(3), 257–278.

Somers, T. M., Nelson, K., & Ragowsky, A. (2000). Enterprise Resource Plannin (ERP) for the Next Millenium: Development of an Integrative Framework and Implications for Research. *AMCIS 211*, (pp. 998–1004).

Sultan, N. A. (2011). Reaching for the "cloud": How SMEs can manage. *International journal of information management*, 31(3), 272-278.

Sumner, M. (1999). Critical success factors in enterprise wide information management systems projects. . *ACM SIGCPR conference on Computer personnel research*, (pp. 297-303).

Sun, L., Dong, H., Hussain, F. K., Hussain, O. K., & Chang, E. (2014). Cloud service selection: State-of-the-art and future research directions. *Journal of Network and Computer Applications*, 45, 134-150.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186–204.

Venkatesh, V., & Morris, M. G. (2000). Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior. *MIS Quartely*, 24(1), 115–139.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478.

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS quarterly*, 157-178.

Wu, W. W. (2011). Mining significant factors affecting the adoption of SaaS using the rough set approach. *Journal of Systems and Software*, 84(3), 435-441.

Yang, H., & Tate, M. (2012). A descriptive literature review and classification of cloud computing research. *Communications of the Association for Information Systems*, 31(1), 2.

Yassien, E., Alrowwad, A., Masadeh, R. M., & Madadeh, R. (2017). The impact of ERP system's usability on ERP project implementation success via mediating role of user satisfaction. *Journal of Management Research*, 9(3), 49–71.

Yi, M., & Hwang, Y. (2003). Predictingthe use of web-based information systems: self-efficacy, enjoyment, learning goal orientation, and the technology acceptance model. *Internation Journal of Human-Computer Studies*, 59, 431–449.

Yin, R. K. (2014). *Case study research, design and methods*. Los Angeles: Sage.

Zwikael, O., & Globerson, S. (2006). From critical success factors to critical success processes. *International Journal of Production Research*, 44(17), 3433-3449.

Appendixes

Appendix 1: TA initial themes and codes

Initial theme	Codes	Merged codes
Attitude	not suitable for our company work process	satisfaction (medium)
	disappointment	low willingness to use the system
	frustration	less satisfied with the interface
	low trust in data quality	less user friendly
	an organizational necessity	don't feel in control
	other	low (adoption) of the system
		comparison with the old system (features)
		less satisfied than (Harvest)
User training and education	no training	wiki page documentation
	no proper explanation	email announcement
	learning curve higher than it should be	after go-live and introduction session support is availabl
	other	training only for principals
		online videos's
System quality	interfaces issues	
	complexity	
	access right issues	
	flexible	
	low performance	
	not enough visualization	
	other	
Usefulness	makes team work better	only basic administration
	usefull for the company not for me as (consultant)	financial administration need/requirement/necessity
	doing my job better	limited perceived system usefulness
	ambiguity over the usefulness	usage is a must
	a way to call team member to account	
	other	
Ease of use	not intuitive	access to information
	know-how issues	does not make hour registration easy
	user-friendly	
	extra mental effort	
	other	
Project managememt	the process was well structured	
	dead-line/ time limitation problem	
	just do it!	
	other	
Business process reengineering	no unified usage process of the system	starting from the PSA process and then tailore our proce
	other	
Top management support	decision taken by the MT	
	other	
Inter-departmental communication	no unified vision on the role of the tool	enough communication
	other	informed/kept in the loop
		criticism onfinance (communication)
Management of expectations	unrealized promises	not enough involvement during the implementation
	other	the tool (promised) functionalities were not complete
Vender participation	the licencing structure	
	heavily relying on external parties (consultants)	
	other	
Use of external consultants	uncommitted external consultants	
	other	
SIG customization	no added functionalities/configuration on the first versi	misses SIG customization
	project management tool need	
	redesign	
	other	
Defining architecture	extra functionalities only for principals	
Data analysis and conversion	room for improvement	
Steering committee	consultants were represented	
	consultants involvement in the implementation process	
Ongoing vender support	enough support	
Cloud		

Appendix 2: Interviews

Notes from the interview 1
Participant: C2
Position: technical consultant
Date: 27-03-2020
Note: the participant refused to allow recording the session, thus the notes below were taken during the interview. The participant asked to review the notes before using them in the analysis and did minor changes to the text.

R: Since when do you use the system?
P: Since the day it was introduced, May 2019
R: How often do you use PSA?
P: Usually twice a week. This is better in my case as I like to be as concrete as possible, better that just once a week. In total I use it between 1-2 hours weekly.
R: What do you use PSA for?
P: The basic functionalities I use are recording hours, checking and monitoring my involved revenue and project management, in the sense of monitoring if we are on budget qua registered hours.
R: Do you have to use the system of is it optional?
P: For the first task of the three mentioned earlier it is a must, in other words; I have to record the hours. But the other two are optional, but are necessary for the projects.
R: Do you use a complementary tool to manage your tasks?
P: No, I don't. Sometimes I use a text editor to keep in mind what I have done through the week. This text I can use later on to fill in my hours in PSA. But no other tool than that.
R: How would you compare the functionality and interface of PSA to the previous application?
P: I would say that the previous one was easier to use because everything you need was visible in one screen. Besides, I was using that (previous) application daily ... but when you use it twice a week or weekly the same scenario becomes faster. Further, I think that the interface selection and user-friendliness is not optimal in PSA. It seems less intuitive, and not in the modern style. Old fashion interfaces I would say.
R: Do you feel that PSA helps you do your job better?
P: It is kind of helping me doing my job better, indirectly, based on this, I can make effort - and time -estimation. It also helps when evaluating the project with the team, regarding the hours spend per task and per person. Still, I believe this functionality should be used during the project and not only at the end of it! The way it is done now.
R: How do you score the usability of PSA in a s scale of 1 to 10?
P: I would say 7-8.
R: Can you explain more?
P: I can easily find what I need when it comes to my usual tasks, but if I try to search for deeper things it becomes harder. I need to spend more time thinking how to get to the information I need, or search more. The system is not that intuitive, most of the functionalities are hidden behind the tabs and menus.
R: Does the tool help you in your project management, as promised?
P: I think that the planning should be visible to all project members and not only for the lead consultant. The visualization of the system is not enough. Besides, there is no usage of the project management function Ganttchart, which can help with planning, maybe this is related to the number of hours planed for each project, which sometimes are not enough to plan if we are dealing with a one-month project… so you don't really feel in control for the number of hours spent and needed.
R: The introduction of PSA
P: How did the implementation process go?
At first, I believe that the decision of implementing PSA was taken by the management, depending on their own experience. In a later stage we (consultants) were involved in the process. We were asked to give input on customization for SIG related processes.
R: At several points, there were scheduled and unscheduled

P: communication involved. I recall like (I am not sure, though) there was a company-wide meeting with at least 3 emails; then, following the adaptation, Danielle came to the team meeting to provide further info. The responsible people (Danielle and Victor) were open for feedback all the time.
R: Was it hard to adapt to the new application?
P: At first it is normal to compare the old application with the new, but it didn't take me too much time to adapt. There are some minor features that I could do in Harvest that I don't here, but not that big deal. Now I am used to this system
R: Can you recall the implementation process of PSA?
P: I remember they did an introduction, there were in some point an announcement, still I thing people might have forgotten about it. I don't recall a training, maybe one happened but I don't recall. But it was a general process, we've done a team meeting, where Danielle introduced the system in more details and talked about the system, its functionality and afterwards we provided some feedback. It was a useful and necessary session.
R: Do you know where to go for support?
P: Yes, I do, I have the feeling that I know whom to ask but I don't have the big picture. But maybe this is the way it should be.
R: Any words over the management support?
P: I think they handled things fine. No issues cross my mind now, so that means they did well.
R: What are the most important factors in the cloud aspect?
P: The considerations are often cost of ownership. if you want to maintain a server yourself, you have to make sure that it is always up to date, security is kept up to date, access via the VPN. if you go to cloud then you don't have to do that at all. you can also save costs if you buy multiple applications from the same vendor. because you get a lower price (discount) if you buy multiple applications for the same platform. the user often doesn't like it if it is cloud or internally hosted servers as long as you do it right. so you either have to hire a person for support, or hire a third party, like what we did. Customization in dynamics costs is relatively possible, but requests a lot of knowledge in the tool itself, whereas google for instance is harder to customize, but does not need that much knowledge, as it is more intuitive.
R: What about the vendor-lock in?
P: If you buy a service that is not directly from Microsoft, such as PSA, you are very much depending on your vendor. Microsoft had a predecessor version of PSA that is no longer supported. The vendor has developed this PSA version, but now we cannot use all services that Microsoft Dynamics has because the tool [PSA] is no longer supported. Now, if PSA is put into the Dynamics platform directly, then things can break in PSA. It is then up to the vendor to update their self-developed application. Microsoft has a huge vendor lock in, we have our mail and calendars at Google at SIG, if we want to make full use of PSA, languages and teams, we cannot. because many of those features don't work until we also purchase Microsoft has a huge vendor lock-in, we have our mail and calendars from Google at SIG. This means we cannot make full use of PSA, because many of those features don't work until we also purchase Microsoft Exchange, One drive and SharePoint . For example, in PSA we cannot email and send invoices directly from the system because there is no integration with the email application. In other words, once you are in the Microsoft ecosystem, you hardly get out. you must necessarily use the exchange and run your own mail service. Knowledge of the tool [PSA] itself is a problem. We still receive questions that we know no idea how to solve. You need a full FTE in house only to support your PSA app and the Dynamics environment. Such knowledge is essential if you want to implement Microsoft Dynamics into your company and support it yourself.
R: I heard we have some performance issues in PSA, is that also due to the cloud factor?
P: The problem with the performance is due to the platform provider, because Microsoft looks at customers' size, how many licenses they have, do they have enterprise or business users etc. Based on that they give them server capacity, and that's why it happens that your system is slow. If you have a small business, you get less capacity, that can be storage space, processor power, data through speed, etc. We all experience this problem in the sense of slowness

Interview 2:
Participant: C10
Position: consultant – vertical: security
Date: 30-03-2020

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R: Since when do you use the system?
P: I'm using it since day one, I also used the old system (Harvest) before.
R: What do you use PSA for?
P: I am a regular user, in other words, I use it for recording hours and get an overview of the projects I am involved in, like how far we are in the delivery, and of course to check the involved revenue.
R: How often do you use it and for how long?
P: I would say, I use it weekly, I don't know, maybe once, and total of half an hour.
R: Tell me about your experience with using PSA
P: Compared with to the previous tool it is less user friendly, it takes more clicks to do anything, the interface is sluggish, it is very slow. For example, for a regular task like entering the hours, you need to klick to make a box and then re-click again because it doesn't respond, this kind of things, everything works but it's a bit slow, not really happy by that, but I am used to it.
R: Can you think about gaining more of the system? New functionality to help you in your work?
P: I don't expect this for the moment, I believe you get more features if you get to a management role, but I don't see myself doing that in the near future.
R: Does the system cost you extra mental effort?
P: Not that much, not for the current situation at least, because I do the same tasks every week. It is not that hard, it is not user friendly but you get used to it.
R: Does it help you with your work, getting more productive or efficient?
P: For my work, no, not really, it is necessary, let's call it like this, but it is necessary for other parts of the company, but for my tasks not so much.
R: And when you work as a lead consultant, does it give you more functionalities?
P: I do work as a lead but rarely, like two times per year, and haven't done any assignment since the introduction of PSA. Still I believe that other functionalities like the Guttchar are mainly used by the principals.
R: How would you evaluate the overall usefulness of the system?
P: It is very useful, I believe this kind of systems to be very useful for the administration. I can imagine doing business without having such a system. So, for SIG in general I see the use of it. But for me I wouldn't see it as useful. And it is a monitoring tool of course, if I write 20 hours a week, somebody will give me a call. Still, I use it for basic things, like looking up project's details, client details, how many hours we are allowed to spent, the budget.
Tell me about the introduction of PSA.
I was not involved by the selection process; the selection was taken by the management. But we were kept in the loop, let me say. we knew it was coming, why we're going into this change, and that we needed to make the life of the finance department easier. So basically, we knew the process, and I know that some other consultants were involved more heavily with the implementation process, but not me, I was involved in more high level.
R: Can you recall more context about the implementation process?
P: It started somewhere end of 2018 start 2019, and basically was driven by the finance department needs, we were told they need a better tool, so we were to implement this system, at some point we were told they were thinking about PSA, somewhere later we were told that PSA was chosen, and will be implemented by finance with the help of other departments and some consultants. This is what I heard about it until it was implemented. Afterward an introduction session was given to introduce the system and what it can do.
R: Do you recall a introduction session or other communication canal?
P: Yes sure, at some point there were enough communication. There was an online training, and there is a wiki page to go back to for more information and detailed things in the system. I recall there was some documentation.
R: Do you feel that was sufficient or did you miss anything?
P: There were somethings promised back then, like a mobile app, to record hours mainly, but this didn't come true. This is a functionality I miss. Still it has been a year and there is no app yet. We were also promised that it

will improve our declaration process (reimbursement), for our expenses, also an app that was supposed to be coming really soon. After almost a year it is still not there. So that is somehow disappointing.
The things that were there during the implementation are still there, they work and haven't changed, the documentation was also there, but the thing I can mention here is that this was meant to be a first version of the system, and that more features would be developed as we move along, but they're still not done. I understand that you need at some point to release a first version, but extra features need to be added sometime afterwards. We were promised of some charts that will give more insight, and it took over half a year for those to be available. That is too long. We were told by the introduction, this is a first version, and very soon more features will be rolled out, but that never happened.
R: Would you like to add anything in this regard about the role of the management?
P: Besides the things I already mentioned I think the implementation went okay. Like the introduction, the tool was working already, the videos, so no major things.
R: And the support and communication in general?
P: No, that also went well, so we have enough support and we know where to go to when we have questions.

Interview 3
Participant: C9
Position: consultant, vertical: public
Date: 31-03-2020

R: Since when do you use the system?
P: Since day one. I also worked with the previous system.
R: How often do you use PSA?
P: Two times per week in average, with total 20 minuets.
R: What do you use the system for?
P: To register hours, via the calendar view. I also check the dashboard, for the involved revenue. We use the system also to calculate the hours spent per (team member) consultant on a specific project.
It is also important to have an insight on how many hours per project per client. This is particularly important for some customers who ask for a monthly report of the hours spend (per project), so that we don't have any surprised at the end of the year, whether we either spend too many hours or not enough (way fewer than the planned budget).
R: Do you report then to the client directly?
P: Well, recently we started informing the client which are curious of the budget, but it is not reporting. It is important here to know if we are still within the limit boundaries of the contract, or do we have hours left (in the budget) to do this and that...
R: Are you allowed to perform these tasks because you are a lead consultant in the project?
P: No, I think all consultants can do that, but it is maybe a know-how thing, for example, if you want to know how many hours were spent per consultant per project, the actual steps require you to export hours worked on a project to Excel, were you get a (piffle) table, from which you can group the hours per consultant, then you get what you want!
R: Do you have other gains from the system?
P: From a delivery perspective, we can know how many hours are spent per project, and whether it is still profitable or not. For organizational perspective, it is important to know how much time people are spending on projects, and how much time they spend on non-project related, this makes it easier to know if people still have room to work on projects. This is not my goal, but still it is important to have this function.
R: Do these gains differ when being a lead in a project or just a consultant?
P: Well not really, because even when I am just a consultant in a project I like to look at the spent hours and the involved revenue, it is not that difficult task to do.
R: Do you call PSA a user-friendly application?
P: No not per se, the previous applications I used in my carrier for recording hours were better applications in this regard, they facilitated that process better, in terms of quickness, performance, like screen changes, which makes work easier to do. You don't need to dive into a lot of drop-down menus to choose different options you have. In PSA it's harder as you need to make multiple choices, for example, if you choose non-project hours, you need to change the selection from holiday to indirect hours in another option/drop-down menu.
And from a project management point of view, it could also be easier, for example, the only thing I would like to know is how much time everyone, (including myself), is spending on a project, so that still can be done know but with extra work needed.
R: Does the system require mental effort to recall how you perform specific tasks?
P: For now, it is pretty easy, but the learning curve is higher than it could be, so it is not intuitive I would say. You need now to go to the tab actuals, and make an excel sheet and make a table out of that in order to generate a nice graph and see what information you seek. It requires some time to understand how it works but once you have done it you can recognize easily what you're looking for.
R: Do you feel you need to reach out for somebody from support to get to know to perform a certain task?
P: I have never called someone for support, myself, whenever I do not understand how to perform a task in PSA I just fail, and stop, maybe hate it and then go do something else. There is this case, when you want to close a project because it's finished, but then you can't, because you don't have the rights, or if you want to reopen a project, if it's closed for some reason but the project is not done yet, you also can't do that, because you don't

have the rights. For that particular case, of reopening the project, I have asked couple of people, first my manager, then somebody from (PSA) support, and then this was done by them, but not always successfully. I got the impression that was done, so I went on recording hours on that particular project, but it did not work, because something else in the system went wrong, so I don't know what is going there.
R: The usefulness of the system, does it add to the quality of your work, or do you feel that is important for you?
P: Not particularly, no. not for my position at least. It is not a project management tool that helps me, it is also not one that hinders me. It's just there, recording hours is a common nuisance, PSA doesn't make it fun, but it was never really fun. The only downside is that it takes me a little longer to do what I need to do with other system. Also, it can be frustrating, when you are starting to work with it! I can only assume that it is really useful for our finance department and other departments within SIG.
R: Can you recall the implementation process of PSA?
P: I did not participate in the implementation committee, which is the consultants and other employees who were involved in the first phase, then the planning was to start using the system afterwards.
I recall that the external company was implementing the system, and several workshop sessions were hold with principles mainly, I think but also Jasper and Marina were involved back then. Setting up the system and migrating data from the old system (Harvest) to PSA, I wasn't really involved, but Jasper kept me updated. Truth is, he told me he was trying to make it as user-friendly for consultants as possible, but he also told me, be aware it might be less user-friendly than the system we have now. So, it was noted, and he was right about that, but I assume he's done his best trying that. When the system was released to consultants, there were some video's available explaining how things work. That was the only relevant video for me, how I register my (working) time. But I didn't know how to do project-specific tasks, like how many hours are spent on this project, how do I open or close projects, can I even do that, that was not clear back then. This required spending more time on the system than needed at first in order to do that. Maybe I missed some video's, I don't know. No workshop for consultants were given, only to people involved in the implementation process, a handful of people.
R: What do you think about the management role during the implementation process?
P: The time recording feature was introduced well, there was at some point a promise of an app with which we record hours on, but that never really got off the ground. The management was involved in the implementation process, and obviously they tried to communicate as best as they thought it was needed, about how to use the system. But from a consultant perspective, you can communicate as much as you like, still the system is (in my opinion) not supper great if you just want do time recording and project management. There are a lot of clutter and stuff that you don't need with the simple task I actually doing. It would be better for me if the system was dressed down a lot into the things I need, and maybe allow me to do easy things myself, like reopening the projects, that will be great, but I guess it is an organizational decision not to allow that. One thing I actually easily can do is to add project members to a project, but this should not be hard in general. Still it is an easy thing to do in the system.
One thing the management could have done better is to explain the project management related tasks in the system a little better, those are not intuitive, so these need little more detailed explanation, such as exporting to excel and getting a nice graph of our spending sheet. I must say I was a little bit frustrated with the system, but yeah, what can you do.
Management can see that, this is something we do every day, right. we can very critical on other IT projects, but we were never really involved in the implementation of the systems we inspect. The project management, the user training of a new system. We always say, it is important in project management to train your users on the new system, still we never really done that ourselves.
R: Any last words on the subject that you didn't mention in my questions?
P: What I would have wanted to do is to keep using the previous system, Harvest for the time recording, while also having the benefits of this PSA for the finance department. Now we have those two things one tool for some reasons, maybe financial reasons I wouldn't know. But this complex system must be more expensive than the previous, I'm not sure. And for the tasks I was doing, Harvest is much better. It should somehow be possible, somehow, to export the hours registered and import it to Harvest to PSA, also you can automate that. That would have left the consultants happy, and also made the financial department happy. I don't know if such options were explored before this decision, but this would have been the ideal situation in my opinion for both the consultants and the Financial department.

Interview 4
Participant: C5
Position: Senior consultant, utilities
Date: 31-03-2020

R: Since when do you use the system?
P: Since day one, also used the previous system
R: How often do you use PSA?
P: Using weekly, how much time depends on how busy you are with projects. I mainly use it for Time recording, of course. You need to spend a lot of time to be very accurate when registering the working hours, but most of the people don't because we don't see what the use of it.
R: What do you use the system for?
P: Time recording, as mentioned. Also, for the invoicing, controlling spending on the project. Also, I do some general project management administration, like adding people to a specific project or change that when things are not entered right, or when changes in team happen along the way. These are most important things for me. As a lead consultant invoicing is also important.
With the previous system we only did time recording and not finance. The idea of this system is to be more integrated, of course, the name indicates already that, Professional Services Automation means that you should integrate the process around the services, which is doing projects in our case. So, it makes sense.
R: Do you see any gains in using the system
P: In the past I have seen many companies from inside, because of my experience, and the problem in the senior positions usually is that you lack information, in order to do business better and improve, but how can you solve this problem? You need to get accurate information, usually with help with such tools like PSA. Which is a good thing, but then you have the challenge of pulling out the data, because people use tools differently. They register different things, make different rules on what and when to enter data, how much time to spend on it, etc. that is not really codified, which means that everybody has his or her way using the tool. With large amount of people, the average may be right but still the tool can look very accurate, but it is really not. If you depend mainly on the data in the system with making decisions, you can easily be wrong, because the data is not always true. Still it is better than having a tool at al.
R: Do you think PSA is User-friendly?
P: PSA is not of course, it is not designed with the ease of use in mind. But there are two things about it. How the tool is designed. I think that the business governance of the tool is for different kind of companies. Companies with big projects, with a lot of people working on them. We have only small projects. this (limitation) has also to do with the licensing structure, and thus with money. The licenses we have are less than we want to because the price is too high, So, we gave the licenses to the people (we thought) they needed, or should have it (as principles), but they are not managing project normally, so. We have this tool now and we try to apply it to our business model, but it is not optimal. Compared to the previous tool (Harvest), It was a good set-up for recording hours and easy and simple to use, we liked it as consultant, but still it was a partial solution. I don't think that this was done by finance by a good understanding of the psychology of the consultants! So now because the set up was from a financial point of view, how the department finance would like to have it, and not our point of view, so we kind of hate the way it was sat up. I even think that we don't use the full functions that finance made for us, like all these items you get in screen, there are dozens of them, it's crazy, but I never use them, like there is no value in them. With this amount of revenue, and this kind of projects, and the sales process, you can't expect people to be that accurate and eventually to gain accurate data out the system, consultants have a lot of responsibilities at the same time, we don't want to be more lost into details, that don't give a lot of information, but this is my take on it.
R: Does PSA add to the quality of you work?
P: Some integrated features are good to have, I appreciated from a higher perspective, but the PSA what we have is not the complete version of what these tools stands for. From a consultant perspective it is almost nothing. The overall usefulness for me as a senior consultant depends on how responsible you feel. If you don't feel responsible of keeping the margins in or getting business in, then it is not that important. This is then just a tool for

management to oversee us, we put some figures in PSA and maybe we get blamed on the figures. Maybe I should not say this but I don't think that everybody is putting the right figures in, because they are afraid to get punished. Not everybody would do this as such. Especially in a company like hours, if you have projects with fixed prices, you have a lot of overhead around it. I think people are not really aware of this, and even if they know about it they won't change a thing about it. The overhead is not only running the project, we also need to invent new projects, enhance the services, keep ourselves op top of the business knowledge etc. this is all things we need to do in order to keep the business running, but not every hour is payable. (billable). This drives us as consultants to record the hours management want us to do, in order to get to the billability percentage they aim for.
R: Can you recall the introduction of the system?
P: There were some mails about it, and learning video's in the academy, but those didn't really help me when I first try to use it. Well, videos told me a lot of stuff but not how to use it the way I wanted. There was no workshop nor training. It was like "just use it!" kind of thing. This resulted in more fraction and overhead of course, because it costed us more time to understand how things work ourselves. If we had had a workshop to get a unified vision of what expected from us and the way we should use the system, the same way, it might help us get the benefits of it. This was not the way it was done, they said, it speaks for itself, just use it.
R: is the system useful for performing your own tasks?
P: The overall usefulness of the tool is logic and clear. We still need to have a unified vision of what the tool is for, and how it should be used. This is something I miss, we talk about making the tool better, but this a secondary thing, optimize the tool is necessary but you can't make it perfect because that is not possible, basically because you have different kind of users, whenever you try to make one happy you let the others down. We need to sit together and talk this through to have one vision about it, how we can take the most out of it and how we can make this work for everybody. This is not what happened during the implementation process, this is not what we did, we basically gave finance the lead to define how they want to use it. And they looked at their main process and tried to apply it to the system. This made consultants hate it!
R: Can you tell me about the implementation process of PSA?
P: The tool was not complete from day one. We got rid of Harvest, we imported the data into PSA, which was not perfect. We struggled with that at first, and reporting was totally wrong. It was basically not there, as a project manager you won't really appreciate it. This is the kind of things you need to have in a project management too. Still such a tool is good for big projects, to analyze and streamline your processes. Of course, when you work in small projects you also need some automation around it. But if you formalize it, you just going to prove that it doesn't work. And what we do is not possible. Now we have kind of fraction, because most consultants are too busy, and have to do multiple things in the same time, and usually have not much time, so you have to do some overtime. So, it asks for flexibility from people, and people are quite flexible within SIG. so this fraction is not a big problem if we all deal with it in a cautious way, like when asking people to do some overtime, and when there is less work to take some time off, no problem with that when you ask it friendly. But if you make it formal, and ask to implement a formal project management tool, and plan it upfront, that won't work, because the situation that we deal with require to be flexible. This won't work when you work with a team where each team member has five to six clients at the same time, and what happens then when one of the clients for one project change their planning? Everything falls apart. Because you can't formalize this into much detail. This will be harder to accurately register in such a tool, but now, we do something very special, what we do is already efficient, maybe not all people see it this way, but according to my experience outside SIG, we do very well in project management within SIG. but not everybody appreciates this, because they believe there is always a better way. I think maybe there is a better way, then you need a perfect client. Many clients can control you planning and change it whenever they have to, this is not very uncommon, and surly not strange, when people have other priorities than software quality our planning gets pushed. That won't be helpful with a strictly formalized planning tool. I think people feel they are not in control because they have too much to do, and say no to more asked responsibilities, this should be not the drive, consultant who feel overwhelmed should talk to their managers to find a way to manage their time, some managers can be pushy and easily give consultants extra work they can't always manage. This should be discussed per situation and discussed thoroughly.
R: What do you think in the management support during the implementation?
P: Management always say, SIG's employees are smart, so they can do everything, so training is not a must, which is totally a wrong assumption, training is always needed to make you become more efficient, and have a unified

vision of things, while when you don't do it, people can go different ways. Well, maybe in the end we will know how to use it, but not in the same way, because, people have different visions of how data should be entered, and why. This "just use it" approach brings a lot of problems, these you only find later on, in the quality of your information, which is what we are using the tool for, information. This is not understandable for me!
After the implementation, in a few months, where we sat with somebody from support, we managed to come up with some reports to help us with project management, that was not even there at first. These were designed upon my own initiative. The information is just in there, but how can you make it reachable or visible to people is what matters. Now we like the outcomes and we put it in use for all consultant. So we can always complain on the tool, but you can also try make it better.

Interview 5
Participant: C1
Position: senior consultant, technical
Date: 01-04-2020

R: How often do you use PSA?
P: Daily use, usually, can differ per week, but usually daily in order not to forget the hours specification. On a weekly basis, roughly one to one and a half hour.
I use the system since the day it was introduced.
R: What do you use PSA for?
P: Record hours, check hours for both myself and other team members, and to check the involved revenue of myself.
R: Why do you use PSA?
P: Use it because it is mandatory, I'm used to recording my working hours, and this is just doing so, the difference is that in other companies, I used to get paid per hour, so I had to do it twice, for my own company and the company I worked with, but this is not the case within SIG, so it is kind of a relief I have to do it once!
The main reason is to check performance productivity, and also to cover the flexibility we have in the company, it is important to keep track on the hours spent per project, in order to know how we can get more effective.
R: Do you see any gains in using the PSA?
P: No, actually, not per se. It is maybe important to know if we are on budget or not, in the means of hours by looking at the dashboards, and maybe to see if it is fair or not, as I hear from colleagues that some hours can be unfairly put into the system. This is also important to have control on the involved revenue. What I find missing is the strict control on the recorded hours per project. Leads can do that, I am not a lead, so I don't have to. But I believe all leads should do that and have the four eyes principle in place, to verify whether the recorded hours are correct and fair per team member. It should not be that restricted, but it has to be accurate, and I don't think it is accurate as we might believe. If you go to assembling, and look at hours of different people, you see what kind of hours people put into the system, like working on a flight, or traveling. These should be counted as traveling hours and should not be counted for the involved revenue, this is my opinion. Because working together with people who don't have the luxury of the burden to travel, this people will not be able to register hours for being on a plane. This kind of things should be controlled better and at least looked at. Because you want to have accurate hours spent on the project, in terms of effort and productivity, not other things like logistics. We had that in Harvest but we don't have that in PSA now.
R: Not even when working in a lead position?
P: I don't usually get a lead position, as a technical consultant. If I was, I could check hours worked by other team members, but that is not straightforward, you have to export the hours into excel and work that out to get what you want. It is the lead's job to check the hours and use the outcome in the evaluation session, but that depends on the lead. If he/she doesn't do it, then I do it myself, even if I won't do anything about them. If I see the hours are spent where they should be, then that well erase my concerns, otherwise, I would raise that issue, like if I put the most hours into the technical work, still, I was in some cases the consultant with the least recorded hours on these specific projects! How can you explain that? Well, if you are crossing the country to see the client, and put those hours on the project, then you'll end up in such cases. There is no clear guidelines for this. This will affect the involved revenue of the other team member.
R: would you say the system is easy of use?
P: I've used PSA before, in 2008, an older version of it. For me I am familiar with it and I actually like the concept. I think it is straightforward, flexible to put hours in it and also to keep track on projects in the means of spent hours.
One thing to mention is, that you can't be that accurate in choosing the category of the task you're working on, the categories are not extensive or extended. Like if you want to meet with colleagues to discuss the project, or evaluation meetings, sometimes these hours are not counted as hours for the project.
So in general, for me it is easy to use, but for specific project not al hours can be filled in the right categories. Or at al. if you look at plan, for example, you see a lot of sub tasks, and these are a bit confusing, you can reduce

them to four, internal meeting and external meeting etc., not too much into details, like Kick-off or validation session. There is some room for improvement there.
R: do you find it useful, does it improve the quality of your work?
P: No, not really, it is just a time registration system. It does not add to the quality of my work. It's just a quantitative measurement of what I'm doing. It gives more control to management to know where consultants time is spent on, If it is used well.
R: What is your overall evaluation of PSA
P: I think it is better than the previous one, Harvest, maybe a lot of colleagues won't agree on with me. I think the usefulness and the flexibility and the fact that finance can add dashboards that enable you check the entered data. This gives more insights so you can check the productivity within projects, with more options to use. This can be done in both the level of consultants and management.
R: What can you tell me about the introduction of PSA?
P: There was an introduction of course, a presentation by Wouter, that they were planning to implement PSA and replace Harvest, but just that. Only a brief introduction of a new tool. The process was normal. But, no physical trainings were given, only the written guideline and presentation by the manager. As I am used to it, as I mentioned before, it was not a problem. There was an issue at first, that not everybody had license, so not be able to record their hours, so they had to keep them in an excel sheet. But that was a minor thing. So, this may be the only issue with the launch of the system. Of course, there are always people who have trouble moving from old systems to new ones.
R: Do you have any remarks on the role of management?
P: Maybe I'm too pragmatic, but it is just a time registration tool… so for me it doesn't really matter. But I think they could have explained more what the advantages of the new system has comparing to Harvest. For me it was not an issue.
R: Do you miss any functions that would make your life easier?
P: There are lots of things that can be used in PSA, but I am not using, like submitting expenses of the projects. Maybe it has a lot of other functions I am not using, so I am not sure, like the mobile phone app. But this need some marketing campaign to encourage us to do that. Apart from that, whenever I have questions I go to either Danielle or Victor and I get instant answers on them. So, the support goes well. I think if the tool is used more frequently, and to the full of its functionality, we (consultants) could gain more from it, as well as the management. Software consultancy team has internal hours, other than working on projects, but not everybody is looking at the comments we add in the written hours. Some distinction between giving or taking a training for instance would be helpful. When I give two hours training for colleagues, then is it support, internal training or what? It is not having a training myself, rather I am the one who give the training. If you know what I mean.

Notes from interview 6
Participant: C12
Position: Junior developer

R: for how long do you use the system?
P: Since the introduction of PSA
R: How often do you use it?
P: Once a week, about 5 -10 minutes per week.
Only register hours, as efficient as possible, via the timesheet, copy from the last week, as we work with two-week sprints, so every two weeks sort of look similar to each other, so I copy that and adjust it according to my calendar. So I was surprised when you asked me to participate in the research, because I don't really do much with it.
R: Do you only work on external projects?
P: No, I only work on internal projects, in development. Still we have multiple projects within the development team. Still, it is not really clear to us where exactly to registers the working hours. Like when we do coding and stuff, then it is easy, because we have projects for different products. But when we have meetings, we don't really know where to register that. I don't even think that anyone even looks at it. Sometimes I ask colleagues about this, and they say just do whatever. And no one ever says anything about what we put into the system. I usually report to my manager, but he doesn't ask about the category of the hours we book, as long as we book the total weekly working hours.
R: would you say there is an added value of gains you get from the system?
P: No, because I only use it for registering my working hours, and not like how consultants use it. For the development team, much of the tasks are not applicable, for instance, we don't work with clients, we don't have involved revenue.
R: What can you tell me about the user friendliness of the system?
P: It's not really user-friendly compared to what we used to have (Harvest). It used to do the same things, but there was this functionality where you can click a button and it would start timing, but I don't really need that in my work. So I pretty much use the same things but with less friendly than the previous one.
There is not much I can see in the system, so really not much for me to do in the system.
R: How can you describe the usefulness of the system to your daily work?
P: The system is just a must do thing for me. I need to use it, but it doesn't help me with my work. I don't even know what happens with the data I fill in. I should ask that. I do that even proactively. Like I feel my hours for the week to come, and at the end of the week I just check if it is right. Not the previous week or daily. Maybe it is useful for other colleagues who are higher in the hierarchy, as they can use it for aggregated views for all the hours put into a project, and maybe the planning too.
R: Do you have a need for a tool or added functionality to the system?
P: I don't think that we need a company-wide tool to use in order to keep track on our internal projects, because we have our own tool, Gitlab. That already has some nice features that we use for planning. But this is only used by the development team. We use that to plan our sprints. That makes it already clear to us, what we are doing right now and what we are planning to do. But we don't register hours there, only the planning. It is kind of hard to do that for us maybe, because you can't really plan what you do very accurately. The focus is on tasks, but not projects in our case.
R: do you have any remarks on the introduction process of PSA?
P: The decision was taken by management, we got a general announcement on slack and via the email. But we didn't get a presentation nor a physical training. Just the online videos.

Notes from interview 7
Participant: C7
Date: 02-04-2020
Position: Consultant, senior, commercial enterprises, general
R: How often do you use the system and what for?

P: Once or twice per week. Once per week I fill I my hours, the other time I check the invoice instalment, of this week, because they sometimes need to adjusted per week, according to the scheduled invoices, and whether they can indeed get paid out this week. The invoices are inserted by Danielle, and I just check them and adjust date if that needed. This is through writing a comment next to the invoice in PSA, and also send an e-mail to finance. So, I can't adjust it myself. This is a task I do whenever I am a lead in a project, because the lead consultant is in charge of handling the invoices. In addition to that I would check now and then if needed. I spend approximately an hour in total or so.
R: Do you see any gains of using to the system?
P: No, I don't, even if compared to not having any tool at al. I honestly feel that it almost doesn't add any value for me. It's more like an abandonment to my work than a support.
R: Does it help you in any way to improve your work?
P: One of the things this tool does, is to add alignment between finance and delivery teams, for example, to check on invoices that need to go out, it is a central registration tool. Because this was totally disconnected when we were using the previous tool. So we have more alignment there. But I have to be a bit carful when talking about PSA, because I am quite critical about this too, but I'll try to separate emotions form the facts and not get too critical. Of course, it does add a bit of value, but it does not add even closely to what it should or is expected from it. In many aspects it makes my work less efficient, in some aspects it makes it a little bit more efficient, because now there is this alignment between departments. But this is a SIG-benefit, and not really a consultant benefit. So, it is a higher-level argument, I would say.
R: Is it easy to remember how to perform tasks?
P: Not at all. This is one of the problems the system has. Of course, registering my hours is something I do every week, so it is quite straightforward. And it has a button in the main menu, so it is easy to reach. But there are other examples, like, when we finish a project, we need to evaluate how many hours each team member has put into that project. First of all, I need to click (very often) to get to the page I need to get that information. I have to say that recently, a new dashboard was added, that gives this information, so it has become easier, but previously, I had always to think how I could get to that information. It required a lot more mental effort that you expect from it. I also feel that the usability of the tool is extremely low (bad), you need to click very often and unnecessarily many times to get what I need. So that is frustrating, and really feels inefficient. I even feel that at least a part of the shortcomings that has been reported overtime have now more or less been improved, yet the only way I see them improving is when dashboards have been added. These dashboards show the projects I do, what the budget is and how many hours are already spent. And by dashboard, I mean a chart. It's not interactive, it's just a stacked bar, so to say. Such chart shows how many hours spent per team member per project. Still, this is not intuitive, because the names of the team members are not directly in the chart, you need to look them up in the legend, which is quite confusing. We have a table that now includes the involved revenue and order intake. That is quite okay, but I feel that the only customizations we've done so far is to add extra dashboards, in the form of charts. And not the functionalities themselves.
So, in order to summarize it, PSA is an administrative project management tool, but it doesn't support at all in operational project management. It doesn't help me to manage timelines, to distribute tasks among my teams to see my availability, to write down notes that I need to my project's execution etc. So, it mostly helps with the administrative alignments with finance, that is the key thing. But, with executing my projects, it doesn't help me at all. It only adds more work for me.
R: Do you use a complementary tool in order to perform the tasks you mentioned?
P: Yes, I really mis having a tool for doing what I call operational project management. We don't have anything for that, so what I have done is I created my own Excel sheet. It became a quite advanced Excel sheet I would say, but, when we go to clients, and see them using Excel to do their work, we always consider that a bad thing. So, I'm not proud of this, it helps me solve my problems quite a bit, but I also see this as very bad practice or as a smell.
I already mentioned this couple of times and communicated this with management somehow, in order to put them in picture. What makes the need for this bigger is that we do a lot of projects simultaneously, I think more than other consultancy firms. The other firms do more projects after each other. But for example, it is quite common for me in the last year to have between 8 to 10 projects that I am somehow involved in. not all at the same level of activity, like when I am QA for a project. But at least 7 to 10 projects where I am involved in. If this is what

expected from our people, then I don't understand that we don't have a tool that supports our way of working, I really don't. This annoys me because it costs me a lot of time, to manage this, simply because we don't have a tool to help me with that.
Harvest was not so much a project management tool, as far as I know, we only registered hours in it. In terms of usability that was much better than PSA, and I know that the management team used it at some point with the planning. Because in the Harvest suite we also had the application forecast, and the planning team used that for planning projects, but at some point, we stopped using that because, we didn't have accurate information or data in it. But in terms of usability in recording hours, it was much better, also in finding the distribution of worked hours among the team members, but as far as I know the tool didn't do much more than recording hours. So, it is not that comparable.
R: What can you tell me about the implementation process?
P: The decision was made by the management, that we'll going to use this tool, the first time I heard about it from the management team, it was introduced as a project management tool. And I already explained in my opinion what that is and how PSA differs from that. So maybe it is seen as an administrative project management tool, but in the operational project management side it does not help me. There was an implementation team, that was involved in transferring the data from Harvest to PSA and do the tests etc. I was not personally involved in the implementation team, so I don't know a lot of details.
In terms of training, I think Wouter and Jasper made introduction videos to explain how to record hours and so on. Those are videos between 2 and 5 minutes, but we didn't have any other training that that. We actually also struggled in the beginning with the tool, not only me but also other consultants, but now we got used to it. The thing is, we don't use a lot of functionalities in PSA, so we don't need a training for it. For the couple of tasks, I have in PSA I don't think I need training for that. I know the tool has much more functionalities, that we don't use. That is also may be due to the fact that we didn't invest more time in exploring the tool, maybe because it is not that straightforward. You need to program and implement whatever you need, so that's why we use a very limited version of the system. These abilities and functionalities I mentioned earlier, that are needed in operational project management, like planning and managing timeline etc.
If I can go back to the usability of the tool, one of the things is, when the project is finished and we want to evaluate it, the project should get closed in PSA. I can't do that myself, because I don't have sufficient right to do that, then I need to send an e-mail to my manager and asking him if he can close my project for me.
I feel that the whole way we use this tool consist of work arounds, to deal with usability problems of configuration problems or whatever. It actually has introduced a lot of additional process we need to apply in order to use this tooling. While I believe the tool should help us doing our work rather than giving us more processes to tell us how to use this tool.
R: How do you manage your operational planning then?
P: The tool should help me in making it easier to execute my projects. To ensure high quality of the project, this can be done by having functionalities like assigning task, setting up milestones, this makes alignment with the team better, which makes error margin smaller, like missing tasks and execute them too late, or miscommunication chance gets lower if you get the chance to register that. And of course, it will simply take a lot of information out of my brain into the system. I currently feel like there is an unnecessary high amount of information that I need to keep in my memory, which sometimes prevents me from doing efficient work. One of the things we can use the tool for is having checklists for executing projects, and the tasks that should be covered, like the QA process. This is one of the things that should happen, and instead of keeping that in the team members minds, it should be on a checklist. I have another tool, things 3, which helps me register my tasks, as this functionality is not available in PSA. I even made this tool, that make it possible for me to make a template for each starting project, with all the tasks that I have to do for this project, but my problem is, this is only visible to me, not the other team member, so if I write done we need to deliver this and that, I need to talk to the team member who should do that, and explain what should happen. It would be much better if I can register that task in a PSA so it can be visible to all team members. And there are plenty of tools available for this kind of work.

Interview 8
Participant: C3
Position: junior technical consultant
Date: 02-04-2020

R: Since when do you use the system?
P: Since day one, and I also worked with Harvest, of course.
R: How often do you use PSA?
P: I update the hours Multiple times per day! I use it for logging the working hours, check the total hours of the project I'm assigned to. Weekly use is less than an hour per week. I do check dashboards but not that often, only when working as a lead I need to check for other details
R: Do you see any gains of the system?
P: yes, I like to be able know how many hours were planned, how far we are with the budget. I
also like to check the dashboard of my involved revenue, to see how things are going. That feedback I like.
R: Does is add to the productivity and quality of your own work?
P: Hard to say, at least compared to Harvest it is harder to do the same task, fill out the hours, and get the project info correct. I don't know if we are still going to use the project phases, this was planned, or meant to be implemented, but it's not yet. Maybe then it might give more insight on where we are in the project. Maybe the answer on this question differs depending on your position in the project. but in my job now, as this functionality is not yet implemented, it is not helping me yet. At least not at the moment. Because it is just a mandatory hours-registration tool, with a functionality of checking some dashboard, but not some operational tool that is helping me doing my job.
R: You mentioned some functionalities to be added in the implementation period, what were these?
P: The possibility to select the right item, and activity, this is now possible, but not really used, it meant to be used, where it automatically sees how the project goes form phase to phase, but that is not possible yet. That is supposed to give us an insight on how many hours we spend on each phase and task. But that is not possible to do manually because PSA has the habit of throwing all filled in lines out. Then it is a lot of work to reenter the hours in that detail and get that information out. but if that functionality would be implemented, then the system will be more automated that that would indeed be useful and help. This was the message I got when the implementation plan was introduced.
R: Do you see PSA as a user-friendly system?
P: I like to fill in the timeline view so I am really happy that is possible. The timesheet view that one uses by dragging boxes, that one I don't like, the line view is useable, but as I said, the disappearing of lines, if you haven't filled in hours there, that is then a problem. What you do in Harvest, you would have your project that you're working on, and hours will be there, and maybe you just copy them to go the next week, or klick a button and they'll get there. So even if you haven't worked on a certain project this week, the lines (with zero hours) will stay there, and if you know you will work on that project next week, you can keep them there to use. So, the projects you work on will always be there. Now you can copy a week, but that is hardly the case. And if you try to but the hours used into zero and change screens, then the line/block is gone when you go back, because there are zero hours registered in. then you can't use it in this way. this is the main downside I see in the system. Otherwise it is quite useable. It is less friendly when compared to Harvest.
R: Does it cost you extra mental effort and remember how to do tasks?
P: I can't tell you now from the top of my head where to find a specific information. The system has a lot of tabs and features, where you can check a lot of information. So, every time I need to get a specific information, I need to figure it out again. That is relatively smooth, though.
R: Would you like to add some project management tasks to PSA? Like adding check lists, or assigning tasks to team members, etc?
P: I think that this kind of functionalities could be definitely beneficial. This is for instance what I personally use Keep for, making check lists for projects, for things like the bigger projects, and monitors we have Salesforce off course, for adding tickets and adding and managing your contacts there, so it is better to be linked together. But for older projects you need to figure it out via other ways, like Slack channels, emails, face to face meetings. etc.

there is no one big place where you have all that information. But I think this can easily be managed in PSA if we use it fully in the right and same way, then I would use that. I believe there is more possibilities to be used in the system.
R: What can you tell me about the implementation process?
P: I was not involved in the process, I heard about the system in an announcement. That it would replace Harvest, and I recall a period of time we didn't have Harvest anymore but we haven't had PSA yet. Then we had to keep our hours in Excel for two weeks. But the only time I knew what the system does and how it works was when it was introduced. We got an email with use instructions. A few weeks later we had an introduction meeting with the team about the system, how it looks like and where to klick, where Danielle answered our questions. This is the only thing came close to a workshop, but nothing more rather than the online videos made by Wouter. There was a lot said about what the new system (PSA) allows us to do, and the functionalities it has. We were told of many applications of the system in project management and planning, but in the end, these were not implemented. Maybe because the people who were involved in this left, and afterwards it was not clear anymore. There were a lot of functionalities to use but it was not clear what is useful to use in our situation, and what to be used. This lake of clarity prevented the system to be fully implemented and used, nor to be tailored to our situation. Maybe if we knew what to use and how to use it, it might have helped in the adoption of the system. Looking forward, we still can do a lot with the available functionalities, but we need to take the time and put in effort into it.
R: Do you have any remarks on the management support and involvement in the process?
P: Wouter made some videos about the app, this is kind of involvement. I don't think this is what expected from management. I just remember they told us that we had to use the system and what the deadlines were. But not more.

Interview 9
Participant: C8
Position: Consultant, commercial enterprises
Date: 03-04-2020

R: How often do you use PSA?
P: Mostly once per week, about half an hour to an hour, and I use it since day one.
R: What are the tasks that you perform in PSA?
P: Register working hours, check dashboards, but that is very limited.
R: Do you see any gains in using the system or do you use it because it is mandatory?
P: I think it's more towards the second. For me it is just an administration tool, rather than help me in my work.
R: Does is have to do with the quality or productivity of your work?
P: Not with the quality of it, but I would say I don't feel helped by the tool. It is more a mean of administration that is required for the management, not for myself. If it were to me, I wouldn't say I need it to help me.
R: What are the functionalities the system needs to do what it's supposed to?
P: I have to think about it, a bit. Maybe if we can get alerts or notifications when we are nearly over budget, and tell us how much budget we have for the week. Maybe once per week, or something like sending an email with a summary of charts from the projects you're involved in. Like milestones, with the statistics.
R: Do you use any complementary tool to manage you work?
P: I use google calendar to book meetings and set up reminders to perform some tasks, like sending an email to the client, these can be a way to have reminders of tasks after couple of weeks or a month, etc.
R: Do you consider PSA a user-friendly system?
P: I don't see much benefit of PSA more that the last system we were using (Harvest). It is not better from performance point of view. It has much latency when kicking on the sheet, usually you have to wait for two seconds, so you can continue to the next step. Interfaces also looks like the nineties style. It's not the most 'fancy' interface out there. The way I work now, whenever I do something for a specific project, I make a block in google calendar, and at the end of the week I put that in PSA using my calendar.
R: Can you tell me about the implementation process?
P: I think it was a company email, I don't remember exactly. No workshops or trainings were given. There might be materials, like guidelines or a manual on the wiki but I don't use it myself. I went and found my way in the system.
R: What do you think about the way the system was introduced?
P: Maybe a training could have helped. As far as I know, there was no training. I think there are a lot of benefits of the system, but these are more for the management, not the consultants.
R: Do you use a complementary tool to manage your projects, also with other team members?
P: We have face to face alignment meetings, with other members of the project. at the beginning we set up a goal for each person, and then we go on working on that, and align when needed. I don't have a need for a tool to help me in this regard, because the most projects I work on has specific responsibilities assigned for each person. Usually I have 3 projects on the same time, but this differs per quartal. In December I can have 10 projects running simultaneously.
R: Do you have any remarks on the role/support of management?
P: No, maybe not, I would say. The usability of the tool for recording hours is good, but whenever you need to do something else other than filling in the hours, you need to navigate and try out multiple things before you get to your destination, this is my feeling. I do know where to go to when I have a problem. There is a Slack channel for PSA related questions.

Interview 10
Participant: M2
Position: Principle, technical
Date: 06-04-2020

How often do you use PSA?
Daily, multiple times per day, roughly four to five hours.
What do you use PSA for?
Registration of own hours, checking dashboards to check whether all team recorded hours, that is for the whole team and not the project I am working on. (As a principle you manage a team of consultants regardless of the projects they are working on).
Sometimes (once monthly) check it for involved revenue. Also project basic administration, like assigning consultants, or myself, to projects. I use the forecasting feature, in the utilization timesheet, which shows how busy everyone is. Sometimes I export hours to see how much time each consultant is spending on a given project.
Could you give a score for the usability of PSA in a s scale of 1 to 10?
I would like to give a score from 1 to 10. 10 is very useful and 0 is not useful at all. I would say it gets a 6 or 7. Of course it is helpful for me, so I can check how everyone in my team is doing, what they are busy with. The timesheet is my priority, I monitor that everybody is registering the hours weekly. This way I keep track on the availability of my team members. For the most things needed there are generated view or charts I can use. I can't do that myself because it is too complicated. Victor is usually doing that. Utilization time sheet is something we started to pick up. We started filling in the Guntt charts. That is sort of useful, but it could be better still. That's why I give the whole system a 6 of 7.
What are the areas of features you feel they need improvement still?
I still think the interface is horrible, but that complain has other people as well. Also, if you use forecasting to do who is busy with what and when, this is for me easier done through directly asking people what their availability, and whether they are up for new projects. So, I think the utilization should be able to help me know who has too many projects and who's not, or who has some more time to be involved in new projects. This is hard to do from the system because, for monitor projects for instance, you get a period in the monitor when you are busy for the report for a whole week. But then you don't have anything to do for the rest of the month. But the system spread out over the whole project timeline. In all the weeks. This is not a realistic reflection of the workload. That's why the current feature doesn't really help.
This is how we use the tool from a planning point of view, but I hope we can start using more. We want to start formalizing the process, for each project, you are asked to check (or keep track) in PSA in which stage you are, every stage should be signed off by the lead or QA, for instance when a step or task is done, this should be checked in PSA also, take a QA session or a report, only when every step is properly done and checked in the system, the project could be closed. But that can't be done before we al start using the system in the proper way. This requires more people should be actively using the tool in the operational sense. Because then every step should be added or filled in, in the tool. It's a burden to do that, it's not fun, but it should, that is something that should be checked regularly of course.
Does it give you control on what you do?
Well I can do my work also without it. With an excel sheet, or a planning board.
Does it embrace productivity?
No, it does not, I also don't think that embeds productivity, it's just an administrative link to the side, it is just not linked to the productivity or to the process of doing projects.
What are your gains from the system?
The most useful thing for me, as a principle, is the dashboards. It keeps me on top of what's going on, so it collects lots of data, things on involved revenue, people can see their data, and I can as well, so everybody in the team has this shared view which enhance the communication.
Do you find PSA user-friendly?
From a scale from 1 to 10 I will give a 3 ish… or a 4 maybe. This might be strange for a Microsoft suite, but if I would like to make small things, like making a new item, and open a tab, when trying to change something in it,

the places of buttons will change, or slide. So if you click on the same button in two different windows, it has a totally different function. In the utilization sheet, if you need to seek information, or retrieve data, you need to click on different places. You need to click save in many places, even when not needed, and the save button will be placed in other places in each window. You can easily mis-click or forget to click save, and then all the changes you just made are lost, and you need to go over what you did again.
The performance is also a problem. I think it is slow, it runes on a server with a certain amount of memory and processing power, I assume that if you upgrade it to a more server with more CQ speed, (processing power) that the speed would improve, but in general, this is not a system that was optimized for many transactions, and with speed in mind.
It is not always easy to remember how to do things, so most of the time it is trail and error. After three times of failing then you remember. It is not intuitive, you don't do it riht in the first time. If you want to find out something new, then it is hard, because you have all these options, tabs and lists. All these lists, and options I never use. Some functionalities are not even applicable in this system. But in another, like the sick leave. We keep that in another system. Some tabs have the same functionality with other names. Like utilization, forecasting, planning.
How did the implementation process go?
We had two days of training in total with all the principles, because we needed to insert all projects we had in Harvest into PSA. What finance did is they printed the entire list, from the excel sheet we exported from Harvest, mostly the running projects. Also add the consultants working on them in the system, each was assigned to their projects. We first had a training with a demo environment, where we learned about the functionalities of the system, and select the sittings applicable to our situation. The second one was the real deal, where each principle had to insert the project of his vertical team.
Besides that, there are 16 different scenarios in PSA you could do, these were covered in a manual written by Jasper and Wouter, with detailed steps. This was internally develops out of own experience and some guidelines from the implementation part. But that was no official training.
You the PSA Hub and PSA Suite, and the Hub was indented for a simple use, with a few functionalities that you will need to run a project. but these functionalities were undressed.
I would say we did a step forward in switching from Harvest to PSA, because we only used Harvest for time recording. This functionality was easier to do in Harvest. Still, everything else we have in PSA wasn't included in Harvest; like invoicing, project management etc. we gained a lot of functionalities. Involved revenue was inserted locally in an Excel sheet, and know this is centralized.
Microsoft is known for a closed platform, you can't easily extend it or make customizations in it. You have to develop in it yourself, this is possible, but this is something we never advice our clients to do, let go doing it ourselves. There are lots of things to configure, like fields and options, but the real thing, like having a new interface, this is coding and won't be feasible to do. This is the package we bought and this is what we got.
Do you have any remarks on the process?
I don't have any complains about that, we were informed about the process early on. We knew we were heading to a new tool. We had brainstorming session about what functionalities the tool should have, and milestones of our projects, the things we would like to have in the system. The decision was made by the MT. When the package was selected, it was tried out by a small group, some testing was done, then went live. It was a gradual process, I don't have any complains about it.
Do you miss any functionality or a complementary tool to manage your team?
I use my own board, an excel sheet, for the pre planning, the new projects and the members who can be on them, which kind of projects would be used! everything important about it.
I don't think that PSA is the best tool for this detailed level of project management. So if you have a developer project, you will have the main projects you are working on in PSA and the detailed tasks would be put into another development tool. This kind of management should be separated, I would not put and registered the detailed project tasks into PSA. For this detailed level of management, I don't use any tool.
Do you have any other comments about the system in general?
I don't think that Microsoft Dynamics is the best tool to use, functionalities wise, it has a lot of possibilities as you can see. But it sometimes not easy where to make changes and how to do them. Maybe it's a matter of starting using the tool more and getting better in it with it. I really had hoped that Microsoft had done a better job in writing a good product, but maybe they have a different vision that I don't see yet. I honestly don't know which version

we're on now. PSA is just a layer on top of the Microsoft Dynamics product, so when MD introduce new releases, the implementation partner need to update their platform, but I don't expect big changes with the new releases. Maybe when we have integrated system, with one database, this would help with the usability. Now, if I change info for a user in PSA I need to do the same in talent.

Interview 11
Date 06-04-2020
Participant: C4
Position junior technical consultant, young

R: How often do you use PSA?
P: Are use it 3 to 4 times per week, depends on what I have to do in the week, normally I log the hours. I check the hours of others in the Project; check the project status and progress, only the projects I am involved in of course. That takes roughly half an hour per week Maybe an hour.
R: Do you see any gains personal gains of using the system for yourself apart from having that mandatory tool?
P: Well usually it is useful to check the details of projects which is something you also can get from the planning mail but this can't be something I normally do it was in the system. But at the moment I don't feel like I get anything extra from the tool
R: Do you think it is useful to your job?
P: I would say I am a little bit neutral in the thing in the meaning off if it's useful for the job we do or not it doesn't help actually but it doesn't really bother or hinders the quality of our work and the productivity just something that we need to do in order to keep our administration, right. I would say, Usefulness, Whether I do it in an Excel sheet or in PSA it's the same for me, so I wouldn't say it's an extra burden on my job or something I wouldn't say so. But, at the moment it doesn't do anything in the means of productivity for me
R: Can you tell me about the usability of the system?
P: There are yet some issues with the performance latency of the program, sometimes you need to wait until to get the data you are looking for, especially when going back and forth between different windows, Still I would say it's pretty inconsistent because sometimes it is insanely slow and a lot of times it is just quick, and to me that's totally random because it doesn't have to do with the workload how many people are logged in.
R: Do you feel that you need extra tool to perform your tasks or do your job?
P: Yeah probably yes, but that's may be because I don't know the full extent of what the system can do and what the functionalities and features it had. Especially now because I'm only using it for recording the hours and checking the hours and process in each project a while it should be a better way for me to keep track on all projects in which phase they are. So keeping track of the project phase and in what stage we are now what we have done and what needs to be done afterwards helps a lot especially when it we can know which consultant is doing what in the project, so for example like knowing what's going to be happening next week, so what tasks and especially the scheduling of course because I don't know directly what people are doing now and who can help me with tasks without asking other people, so because I don't know hoe their schedule look like this week or next week. So this functionality is very important but maybe as I just say it might be already there but I don't know about it, so when I spoke to other consultants about this they mentioned sometimes that they are using an Excel sheet to manage this. So of course everybody can go through notes or Excel sheet to know how to get this information of this over here but it would be a better of you have this in one place and everybody's using the same too.
So of course right now we know how many people and which people are working on which project but I also would like to know is, is my other colleague busy with something else now that I cannot bother him. Maybe also do you know about the availability of other people project wise so we can know what projects they have that's what they are doing. Of course I can directly ask people about that if one has an overview about that that would be no more helpful. So having this Availability overview, even only for myself, would help me I need my time better.
R: Do you thing PA is a user-friendly tool?
P: No, I don't see it as user friendly or easy to use, because now most of the things are hidden, or at least you really need to know where to go to where things are and where functionalities are located so in that sense I wouldn't say that it is now easily usable. But at least once you know how things work it becomes straightforward. But one of the very irritating stuff is still that when you are logging your hours, sometimes it switches to other timezone, so in order to fix that you need to dive into the freaking configurations in order to set that up well, so that the hours don't switch and jump into another timezone or country time. This is something you need to do yourself, so I cannot go back to support to ask them to do that For Me.

So if you don't see that well you don't have consistency with the with your looked hours but I had to spend like two weeks struggling with that until I figure out how to do it well.

One of the things that comes to mind now, that they would love to have an PSATs, is when you go to the project page when you have the list of all the project listed down here you can do I search for client name or system name, but if you search for the project name you don't get any results just something I would like to have in the tool to be able to search based on the project name. Again it is a minor thing still it is a weird thing that irritates the users.

R: Does it happen that your direct manager or project manager comes back to you to ask you about the specific it looked hours why did you do it too much or less then you're supposed to?

P: Oh, not at the moment it doesn't happen it almost never occurred, as I always ask beforehand where should I book my hours. But in the evaluation operationally wise in the evaluation of the project it sometimes happens it's not that precise but it depends on the project. Especially when we go over budget, then yes. But usually this kind of situation is mostly explainable because it appears that we had extra questions from the client side and we had to handle or something else. just like when you are working on your first project and it's totally normal that you go over budget with your hours because you have to get used to the way of work and the tools and song.

R: How do you think we can enhance the usability of the system?

I personally don't use all the functionalities and features the system provides so probably all these tabs options I have on my screen I don't need so maybe if you can reduce that, becomes easier to find the useful features I need. Maybe if we have a list of like the top five elements that everybody need to use or like to use apart from logging the hours that would be useful.

Can you tell me about the implementation of PSA?

P: I recall that we switch from PSA to harvest last year. Course the first. It's very hard you need to understand how to work the system works and how things are related to each other, also until all the minor bugs are soft and dealt with. I understand that the tool and the essay is more comprehensive and does more functionality and processes so that's why we switched from harves

So about the gains of the system I know that it is helpful if you want to talk about keeping track on projects who has done watch on a specific project but it's kind of functionalities you can also do with harvest even the forecasting for future activities so those two systems they don't see that they are not located on two different ends, but again I am not using it in to the full extent I'm not using all the features that are in the system so I wouldn't know what the whole difference is between those two systems.

R: Do you have remarks on the management role?

P: I wouldn't know if the management has done their job properly in the sense of implementation because I don't know what that supposed to do in such implementation process, But there is nothing I've noticed that would strike me as a bad or not appropriate thing.

The feeling that I have is that we are not even using 10% of the functionalities and the options that the system offers, especially when we are talking about looking back at what we have done in the project and then enhancing our way or fourth order process learning from our mistakes maybe analyzing the data we have put into the system, such data can be how much time we have spent on specific phase in the specific project and why... this kind of information we can use in future projects. What we can do in the future and I'm sure that we can do that at some point is I still look at how many hours are spent on a specific item when we are working on a project we are just logging the hours on that project without always selecting a specific item. But if we later on can know how much how many hours we have spent on intake for planning for an interview and we can use this kind of information and analyze it for future projects, so it's much more better, because we can for see how much time ours we need for a specific project with a specific kind and nominal price.

Another good way of using this information is to look into how many hours I spent for a specific project price and then when we are dealing with new projects we can see does this scale up there is this sustainable for the long-term or do we need to make any changes in our fixed prices for the projects. I think that we are now not even close to doing this. Now we are only looking at the total amount of hours spent per person per project, but not specifically looking at which hours are spent on which phase or item / task in the project. I know of course that is a very tricky thing to ask all consultants to be specific in lugging their hours depending on the task or the item, because that is a pretty annoying thing to do, but if you are selling this in a good way and you are doing it every day then it's taking you like 5 to 10 minutes max to define what you have done in a specific item and which time. I think this is a very important thing to do because not all Consultancy had this same way of looking hours the

last day for instants I was working with other consultant on a specific project that I have the habit of logging my hours specifically like the same amount of time with the specific items specific face and then this guy came back to me and said that you and Michael are you noticed that you are doing look in your hours in the very specific way but you don't have to do that so we doesn't matter just put the general category just intake or Planning or whatever and we don't have you don't have to do that because we don't do anything with it. But I said how come because of course it's so obvious that we can use this information somehow if we can analyze it. well Maybe people are not using it now because it's not a hard requirement, but maybe if we can make it that way and people will start using it the right way, only then we can gain the benefit from a data set in. This is also a good way to encourage people to critically look at their work what they have done and they want to do, i'm driving to spend your time in much better or more efficient way. It can also be a more measurable way to give feedback to people to ask them to improve their way of working and look into some enhancement areas if they are spending too much time on a specific item in many projects. especially compared with other employees or other consultants working on the same projects. So it can be a way of doing better forecasting for new projects and enhancing productivity of the consultants. Of course this is gonna be beneficial for the employee himself because if you can do more work in the same time, while you took 50% more time than other people performing the same task, this is going to improve your own productivity and review results (evaluation).

Interview 12
Participant: C11
Date:07-04-2020
Position: Senior consultant, team public

R: How often do you use PSA?
P: I use the system almost weekly most of the time the last period was more like in a monthly basis, but I try to use it weekly. Total of half an hour to an hour weekly
R: Since when do you use the system? And what for?
P: I use the system since day one, use the previous system Harvest.
Mainly using that for learning hours recording hours. Also when working on projects, we sometimes discuss the amount of hours that were spent on specific project, but it's never about "why you spent that much". Maybe sometimes we talk about the budget, but in the recent months. I've never been a lead consultant in a project so it wasn't really my desk to do that I did it as a team member. Entertains us without it and use the functionality of invoicing in PSA.
R: Do you feel like it contributes to the quality opportunity for work?
P: I was more thinking about the word headache!
It's more like a burden to my job, that's also partially because of my situation that is not a reason why I should look at my registered hours, these nuts these are not ours are billable for customers, maybe only when I am working on delivery, but that is just a small part of what I do. for me doesn't feel so useful, so it doesn't help, I use apple notes to make a sort of template there, because it's way easier to add notes and quicker. So if there is a threshold of inconvenience in this system, that make that makes me not very tempted to record my hours. So even for the spent hours, are use my notes in order to be honest with the hours I work for what, I never I am starting that in PSA are use these notes to be accurate. I also use Google calendar to manage small things between projects research projects so that I am on.
R: Anything to improve PSA you would love to have?
P: Well I will call myself a light user in the sense that I only record hours in the system, it has been a while since we used to harvest Lane but I really liked the harvest app, I had that happened when I was commuting back home to look the hours I've done in the same day with that I am working on a station or anything and as a user experience I will say this really helps me using that app and it would lower the threshold. So as it is known for you it was a promise that it will introduce after them for mentation but that didn't happen.
R: Do you think that the app plication is user-friendly?
P: No it's not, it's actually hard to know what the problem is, I sometimes don't know why but I'm always cursing it. How's the problem is maybe that I have to do it so I had that job, maybe that's not the fault of PSA probably.
One of the things I recall when I started using the system, is that I took snapshots when I was done with registering my hours, because I was convinced that PSA is throwing away my resistor that was the hours that I just entered, so I register some by my work hours for this week and when I come back later and they are gone. I thought that maybe its a memory problem, I thought that I was but apparently not.
R: What can you tell me about the implementation process?
P: It was a decision taken by the management, I heard about the tool, I don't recall if there was a training maybe there was, but maybe I just thought to myself at the time I can figure it myself. It was really weird and incomprehensible to switch from Harvest to PSA, I recall that we had to fill in the activity type or something, when registering the working hours. Which I didn't know, that it was obligate Tori fields, and it kept giving all kinds of errors that I didn't understand so I thought maybe something is broken.
My whole complains with the setting up of these Microsoft dynamics tools is that they feel me they make me feel stupid which of course I don't like. It is the very obvious in the interface I just cannot explain all existence of all these tabs and options it's too many I know why they bother what many of these steps order options so are you just suspect I'm just suspicious of all why they are there and whether they are useful. but the opinions about this differ within SIG.
The concept of recording hours per project is very clear to me I wouldn't complain about it I just have to do that desk, but all these additional details, I wonder if they are really useful. One of the things I wonder about is the

different type of tasks that we have each project, you need to select the project the fees and activity this is too complex, so if… We have is not correct as we don't always analyze the data then I don't see that his phone is so bad having these stages.
R: Do you have any other remarks on the system in general?
P: I understand the idea behind PSA, but I have certain doubts about it, there is a goal and of course it is a good goal, to be able to control and to measure more about measure our way of work and where we do business, I have nothing against that cool I understand it. But I also think that we have to learn from our experience and also other experiences that in any attempts to do that will not works because t a combination of factors. starting from the fact that our customers are ill behaved they don't follow the planning and then we move along our consultants are also maybe I'll be able to so they don't fill in all the details in the right way right spot so your measurements become unusable, and you cannot actually plan our work, the way we want now you can't really plan upfront you can plan it ahead, you just have to adjust and adjust. Of course, you can know in general that some people always take more hours, or some projects types always take more hours than planned on the budget, you can look at that, but I'm not sure that this is the most effective way. We always have to do more emphasis on the quality of the world, and sometimes I wonder if that has been lost a bit as they were quiet here for a long time, and if that was driving away some people, it's gone if I may focus on that, I would say there is a lot of stress on ours and they don't think that this really has a lot of added value.
For me PS it is not a problem because I have kind of understanding with my managers about the way I am working at the time I am spending so until now I don't have problems with it, but overall speaking I am really wondering if it is good for the company to try to get more control on that I wanna spend that much detail. We need to know that some consultants are very sensitive to our registration, and accuracy of that, do you know from the contacts that many consultants work overtime more hours that they have to and they going to use that each hour they work also that some managers are not very smart about dealing with hours the next consultants to feel that they are micromanaged ... if the discussion in the quarterly reviews are over hours then feel any shellfish they wouldn't like it, which doesn't give any appreciation knowledge meant contribution that is usually a intellectual this is contribution to help customers, and I would agree that the review discussions about hours are really unhelpful, make our company better.
R: Do you know where to go to need any support?
P: Not really actually. So you don't know whom to go to go to if you have questions and you don't know that there is a sectional available for questions about PSA. I would probably take it vantage and Daniela I starting points, I believe they are the main users of the output of the system, but not the tool itself.

Interview 13
Participant: S3
Date: 14-04-2020
Position: business controller/ finance manager

R: How long have you been working with PSA?
P: Since the day I was hired, the first of April, I was able to look at the test environment. Just before the introducing the system to the users.
R: How much time weekly?
P: About half my working time. As much as 20 hours a week. As it is the main application I work with.
R: Tell me about the tasks you perform in the system.
P: It is a bit strange, I am in the finance department, and as a lot of the things in PSA are finance related, and the output is invoices and revenue, which are two of the most important things in finance, but when I started working here we adopted, and implemented PSA, the people who were involved in the implementation process, went on doing their jobs again, and nobody in the company who was taking the time to get to know the PSA. As a relational database, you have to understand it (how modules link to each other). So I took my time to understand it and use it to see what it can do. So now, beside the financial side of the system, I turned into a database/system administrator kind of function. Because I know how the database works, and where the entities are, and how to change, things. So know I also add new fields, of add charts, or create reports. I also think about how to work things out if a consultant or a manager need to add something in PSA. This is not the way I should spend my time, but these are things need to happen.
R: Do you do this administrator tasks alone of with help of the supplier?
P: Usually I start working of them myself and I turn to the supplier when needed, as most of the things I can do alone, but not everything. I usually contact a consultant by the supplier (Illionix), which is actually Unit 4, and illionix is the support contractor, who has the Microsoft Dynamics 365 experts who have the knowledge to help us.
R: Do you use PSA personally? Like to record hours?
P: No, I don't. I am not a consultant so I don't have to book hours in PSA.
R: What are the other task categories you have related to PSA?
P: First of all the financial related aspect. Starts with checking whether the projects are correctly registered in the system. According to the VAT rules, as it is related to the invoicing process in the system. Checking the contract values (nominated prices). For every project we make we do invoice installments, and those dictate when we send invoices, so I also check that. And when it is necessary I make these invoices, to fill in for another colleague.
Every month we have the monthly closing, and I check the status and the hours and financial data to report the revenue depending on the progress in the running projects. So, I check with the leads of the projects about the progress, this also should be reported.
We also have an administrative software called Twinfield, this is important for the general entries we make in PSA, these are all copied to Twinfield for the further administration (basic administration), while PSA is mainly for projects. The output of PSA goes to Twinfield, and from there we make the reports.
R: Do you see any personal gains in the tool?
P: Yeah, a lot of gains, because comparing to the way SIG used to manage the financial process, this is a big improvement as it mainly was managed through Excel sheets. It started small someday, 20 years ago, and slowly it became unmanageable. The benefits are huge compared to the old style.
Of course, there are alternatives to PSA, mostly they do almost the same thing, and it's hard to compare PSA to other systems as we don't use those here.
There are some things related to how the system looks like of functions now. You need to understand that the decision was made by the management, still there were some decision had affected the implementation process, in other words, the implementation could have been done more thoroughly. I think if we had prepared more concrete what we wanted to implement PSA, we had had got better results. Because, somethings are not designed properly now. Which means the output is not the way you want it to be.
R: How do you know that if you weren't involved in the implementation process?

P: Well, first of all I have seen the result when I started, and I'm not really happy with it. We are even thinking of doing a redesign, because some results are just not good.
R: How would these unpleasant results have been avoided?
P: If I had worked here a year before, that it would have been avoided, because I would have been a part of the implementation team, but that was not possible because that kind of knowledge (finance) was not available at the time. The persons who were involved in the implementation (Wouter and Jasper), are good consultants, but they don't have the knowledge in the financial side. As PSA has a huge connection with finance, not having that knowledge upfront, really hinder the implementation.
An example of that is how to deal with the project value and its expense. If you add expenses (declaration) on the project in PSA, the value will go up with the amount you declared, which is not right. The project value should stay the same regardless of declared expenses. Also the way we've done the project templets, we have one-off and recurring templets. If you have a project which has both a one-off aspect and a recurring aspect, then you need to separate that in the system into two projects, one with the one-off template and another with the recurring template, otherwise you won't get the right data in the end. In such system you can choose one template for projects, with different items (one-off and recurring). So, in Salesforce it's one project, and in PSA it's two. There are other things that originate from easy made decisions, but not though very thoroughly or based on a financial knowledge. But now we practically use the system in our daily work, we can understand how things should have been done, but I don't want to disgrace the work of Wouter and Jasper of course. It was done for 60 to 70 percent good, but there is still room for optimizing. This can be done through a redesign. The process can be through first presenting a redesign plan for PSA to management, and decide whether we will go for it.
The redesign plan is important for finance as consultants only use and see very limited features of the system ... not only financially but also operation related features. I don't really know I need to know that I mean as a redesign they don't have to the consultants and I know that they are not really satisfied with the results but neither am I.
There are other things that we do in PSA we didn't have after the implementation one of them is the monthly recurring revenue this is something new that data I get outs or export from the system but still I need to export it to an Excel sheet to make the best wanted results out of it. Maybe way out when I am done with the current projects I will try to have the monthly recording even you also any PSA but that needs some extra work from my end.
R: Do you think that PSA is easy to use?
P: Once again, I don't think that the best choices were made during the implementation process, because the PSA implementation wasn't really made to have the most user-friendly interface for consultants that we cannot claim PSA for that we need to blame ourselves. Because because we didn't look into what the consultants would see from their end. I think it's not super user-friendly now but it can be, if we do a re-design we can make it better.
At the beginning I didn't know where to start with working with PSA, it wasn't clear for me where everything is, but personally I like figuring things out so I took my time in getting to know the system now I feel pretty comfortable with it actually. Now for me it is really easy to navigate because I know where everything is.
We did have an implementation team also with external consultants from the vendor site, but we didn't get a proper training it was more like training on the job thing. For me it was mostly doing it myself because I had to pick it up quickly from another external person who is doing my job previous to my employment. They will sell some documentation provided in PDF files that you can follow in order to work yourself in. So when I was employed I figured that nobody was picking it up and or was able to make a big dive into the system, so I made contact with implementation party, I support partner who has the experience level knowledge of the system. I had some meetings with them and they showed me some tricks. Like configuring the reports and some other things I can do with XML in order to change colors or work with dashboards.
R: do you feel like you have control on your job because of the tool?
P: Well the feeling is not there yet, maybe because of the way the data was imported into the system. So this data entry for the input of the data into the new system is very important that's why I say if you don't do that correctly then you get garbage as output. The data before hand wasn't as good as I had hoped, plus of course collected from Excel sheets. So in my opinion we also have put a lot of bad data into the system. So now I spent a lot of time dealing with the consequences of that. And I still have to do some things to get better. So now all the data entry is done correctly but we are still dealing with the results of the poorly imported data during implementation process. I really had a lot of trouble dealing with the data, especially dealing with accountants they come to

audit....so really it has been a huge pain for me not being able to rely on the data I get from PSA. So even if we are doing it about the redesign if you want to do that what should we do with the old data that was entered not correctly do we need to delete that and re-enter that all over again that's a huge amount of work. So that shows that there was not been a lot of thought put into how to enter the data into is it PSA. So we have learned a lot of that.

R: So you can configure everything you want in PSA yourself ?

P: Well we can do a lot of stuff ourselves in PSA, but still we need to work on some thing like the notification emails for making and generated from PSA to give us an insight about the process of the project then we need to go to the implementation or support party.

The management support and involvement:

But I think that the management involvement would have been better if they put more thought into the way data was imported into PSA. Besides I don't think that the system user friendliness was high on the agenda, The way I see it. They had a system before which was called harvest, and the way it was done is that a try to replicate harvest. So they just try to put the same thing they had in harvest into PSA they didn't think about how to do stuff easier because now when people compare to harvest do you say that harvest was easier. So they did have a deadline to go life and they just spent all the time they had to do it as good as they could but they were they were trapped with some deadline to go into using PSA. I didn't really think about what the consultants will see or how would they use it, so they were more concerned with the time issue then the consultants experience or user friendliness. It was an issue of priorities maybe.

Interview 14
Participant: S1
Date: 16-04-2020
Position: Project management operations

R: How often do you use the system?
P: I use the system almost daily, because I have a double job, two functions, I spent almost 80% of my time working on PSA. the rest of my time I work on salesforce for the marketing team. So I would say I use PSA in total 80% of my working days when I'm working for delivery.
R: Do you see any personal Gains?
P: I would say are use it of course because I have to in my own job, because my function requires me to stretch out for projects gain deals and work on the project set up in PSA. That cost me almost 20 minutes per deal but that's required assignment so I would say this is like what I have to do. Then I work with PSA to see how we can make consequently consultants see the process more efficient and make the work of consultants and principles easier. And make sure that finance get the right information from the system. So sometimes I do data cleaning etc. Like for example the last quarter I was busy with cleaning the contract states contact the dump projects that I'm not working on anymore. And of course are looking into how we can enhance endorse the procedures of doing that very standard way. So I'm not like the usual loser working more with the different levels of the system. So in order to go to enhance the process and test some functionalities are use a sandbox environment, so usually I work with the production that environment but when I need to twist some data and make some enhancements (along with finance) I start in the sandbox environment.
they started implementing the system in May last year, that was before I was employed, when I came onboard they were already using it in life environment.
If I can make a remark on the implementation, they have really made an old school fault so to say, as they have bought a new system and they try to implement their way of working in that system rather than looking into that new system and it can do and how come that enhance their way of working and starting redesigning that they work the processes around it not just copying the old system into a new one. If you ask the guys that were involved in the implementation process they wouldn't say that they did that they would say we tried to put much more thought into it with a new system and have it we can use it but it didn't work so we have to do it the other way like all work-arounds. but along with finance when I look into the data we know that that was not really the case.. It seems that they have been pushing their way of working into the system. That's exactly the wrong way when you implement a new system you should rather think about with this new system can bring it to the organization, and then rearrange your processes around it.
R: Do you think that the system is improving your work?
P: It is improving in the financial part of it, in other words the finance related tasks. At the operational project management part is not yet optimized. What has the basic functionality for registering hours, but it is not complementary to other project management tasks. Normally you would have a project management the operation a week you can look into which I face the project is in now and with all the tasks, So you can steer on managing tasks better, you can also steer on managing your budget better. This kind of tasks or processes were not implemented during the implementation process, that's why we are looking now into the system to see first of all if they are there so just contain these processes Or functionalities, and whether we can use them in our work. But the way it was set up we kind of lose it sometimes now with managing the data, but we are working on starting a new project a big one in order to do a re-design in the system. So basically this is a very good functionality for consultants, I am not a consultant so I don't have to register hours on projects.
R: Do you feel like you are in control when using the system?
P: But as long as we set a good data system when we are in control, but personally I don't feel really in control yet because my knowledge level is not up to the standard I would love to hit. Maybe because it is such a big system, specially when I Compare it to salesforce. salesforce is much more intuitive. End it is easier to gain knowledge about it. So now I'm more familiar with its processes, well PSA is really complicated for me, and not very user-friendly. It has this kind of old way of usability, it's not intuitive, there are different ways to click on the button to get to menus and one page you would klick a button click on the other page it's on the left. At one

place you click the right button of the mouse to get the information in other page you just flip left button on when I bought them to get the same info. saw that so there is no consistency in the usability.
R: Why is this problem in your opinion?
P: I don't think this has to do with the version of the system or adopting (lake of knowledge) the application in general, it has more to do with our processes in our company and how we have done the configuration of the system in the first place. That's what make it complicated.
R: Another question about the usability and this time over the mental effort the system requires tell me about that!
P: Well it does require a lot of mental effort to remember how one can perform tasks in the system even if you use it often, especially when I have to configure things in the system. Like making a new dashboard, or making a new field. So project set up is OK because I'm doing it more frequently and it's less complicated, and I wrote a whole instructions file to do the project set up, step by step. but when we are making new changes in the system that is harder to recall.
R: Tell me about the implementation process and your remarks on it.
P: What I normally do in an implementation process is, say we are talking about one functionality like registering hours, I would write down the process, come up with instruction, work project wise talk to people introduce it to people and do a training and repeat. Most likely repeat in 3 weeks time or four weeks time, so you see how things evolve, and after that you can start doing improvements. That is the way you do it but compared to pushing the whole system into consultants and tell them that it's the same as the old system and just go for it and use it, this is the work instruction just start using it, and say we will do some trainings, but you don't plan any training and don't gift training. So you should be very structured. Besides I wouldn't release new features in one go, but I would say, we will add your features after we start using the system with the main functionality which is in this case our registration. Afterwards we can start saying yes you have now another functionality or responsibility which is invoices, and then we can introduce the invoices or the process of it in the essay and we do another basic training about it, and then you steer on that. No we are for instants introducing a new functionality, which is the utilization sheets, for another group of users which are the principles. No we are telling them that they need to use that got shot and we introduce the process. So such an implementation process should be done step-by-step. and not in one go. And even if you want to release all the functionalities and functionalities and features in one go, you need to pick one feature at a time afterwards and do training on it and try to emphasize it by other users, and sit next to people to see how they are doing their job.
R: How can we work on improving the quality of the system
P: We are thinking now as I said about any design projects so we need to work on the system in another way, we should begin with making a template for projects that is complementary to the financial process so we can make sure that these two departments delivery and finance are related and complementary to each other. Which means that we need to start registering some data in another way. On the second hand we need to work towards complementary linkage with the system salesforce. So because we don't have integrated systems now, we are working on separate databases, we need to make the decision of where the leading database, in other words where the data generates. And how did that the flow goes where we want to do that manually and when we are starting to automate that. But it all starts with changing the project template which is something we all we can do at the end of the year, otherwise we're going to be a lot of dependencies and workload on the financial department.
What we are going to do now enhance the user experience especially the consultants we are going to change the project view in PSA, so it would be easier to see the things that you need as a consultant. We are also looking into adding the evaluations of the project to the TSA system and not doing it anymore with an Excel sheet. These are quick wins that would help the consultants. And once we start with the project after project of changing the templates in PSA then we're gonna work towards the usability and user friendliness for consultants, but still that would be on the long-term.
R: What do you think about the role of the management in the process?
P: I see the management as stakeholders, and we have two managers Walter for a prom operation and Yolanda from finance. Want to know is how it works because he helped setting it up, but Yolanda is this familiar with the system, And we have been pushing them to their position as stakeholders more and more. So one of the things that I have done with them is first of all to change the implementation partner, because they didn't really help us during the implementation, and also afterwards they couldn't support us enough in the system. We also change the contacts we have around PSA. So this is a way of working them in a position of proactively working on the

system that only in the functionalities and features it has and also another level like overseeing, planning and steering. Show management should do more in their position as stakeholders, and not only be involved as project leaders. They should assign a project leader, Who should inform them and report to them in terms of budget planning time and risk. That means they should start doing things in a formal way and now they are doing it too informal. Because They spontaneously say they need to do this, need to do that, that drives you away from the main goal you had in mind at the beginning. Do you have to do a proper project management implement a new system, that would help you in delivering the product you promised with the quality you promised and also on time, without drifting away from your goal. And even if you don't deliver on time then use it as a company and you decide whether it is good for our situation or not it doesn't go like on and on and on as a project you need to realize that the project is not fully implemented yet until now, after a year of its launch!. This is just basics in project management advice for our management now is to formalize the process and to assign a project manager. someone who has the skills and experience to manage this as a new business case.

The support is set up well now because we have contract with an implementation party it was just unit 4, a party we can go to for support, and we have a contract with illuonix, which is a consultancy party , they help us with their knowledge and experience when we are dealing with new changes, e.g. they can tell us about the business impact and technical impact of what we are planning to do.

Interview 15
Participant: C6
Date: 17-04-2020
Position: Consultant

R: How long have you using a PSA?
P: since day it was introduced, I was also involved in the implementation team I was one of the consultants helping in the process not so much, that we were supporting external advisors and giving them information about how to process internally works. I need to see year that I was sober for three months. Leave during the process so I spend some time helping the team and delay I had my leave and when I came back it was implemented it was life. So after I came back from my leave I wasn't involved in the support or limitation or the team was working on that.
R: How often do you use PSA and for how long weekly?
P: Not as much as I should apparently. first of all I use it for recording hours of course because that is a must we need to do that, I also open it when I whenever I need to get some information about the project, the status of the project, how many hours are spent already from the budget or what is the budget these are basic information about the project. For some of the projects are use I try to use the project you review in order to be able to insert some notes about the project and this helps me make it so make that the system a central place for him for all information about the project, this helps I'll share important information with the team involved, but it wasn't working that easily because people wasn't used to using the new system or at least not using it this way.
So weekly it's between one and two hours totally not more than that, so mainly for recording hours and a little bit of project management. which is basically the administrational information about the project, the budget the stage the hours recorded, the invoices. This data usually said it is inserted by the person who is responsible for setting up the project in PSA and normally is stacked after process in salesforce, usually that the principles.
In the previous system I was getting from time to time Acacian or an email whenever I am getting over budget by seeing as there's a limit. so be careful I'll keep that in mind but now with the new system I don't get any of these notifications. but I don't use a complementary tool for PSA, it is the basic tool I am using to give me the basic information about how we are doing.. still I don't feel that we are using that tool to the full extent, I believe that when I say one hour or two hours a week set a lot about that. maybe this has also to do with the nature of the projects we are doing, for some projects I am using an Excel sheet, for others I'm using the wiki app or notes when you have a project with many Sims systems many contact people many suppliers with different timelines, so I said the structure and the wiki one beach to give me an overview of the status of each one of the systems. But for normal projects we have certain goal in six weeks one client one system then I don't have that need.
R: Do you see any gains in the system?
P: Well I have to state it is not the most user-friendly tool out there, once you try to use it you don't really get attracted to it and so you're not going to use it a lot, but I do see the value or they need organizational need of it, so I don't know how is installation was before PSA. But I do see that the advantage of having all the system information that I need one centralized place, like the overview of the projects so yeah I think that it is useful.
R: Do you think that PSA is user friendly?
P: I would say I found it quite complex maybe. So when I am thinking about you as a friend and his age would I would think about an easy end very age I'll Akon yeah computer system call my dad to provide to you as just the information you need, but this is not what we have in PSA. What we have now is a very big and complex system which is a little bit slow also so it's not that flexible not very agile you, so we will have a lot of information but you are only using a small amount of it personally.
I don't remember doing anything for the system during the implementation myself the whole implementation work was done by the external party, our part was basically providing the external consultants with information about our company, our way of working, the processes internally and the data. I remember that I was personally involved with Jasper we were both thinking about how we can put the process the way it is now in the system thinking about the best process drives us to work to think about the requirements of the system then we contacted with external people about these requirements to to translate that to the tool itself. show the process as-is and we just imported that into the system.
R: Why do you think that we are not using PSA to the full extent of its functions and possibilities?

P: Well I think we started with the basic functionality which is our writings our recording but for the rest your know whenever you are introducing in your system for a new company, this is hard for the users change is hard, you go on usually communicating with your email , or putting information in a central file without thinking a little bit over the new system if you have available. But we need to ask ourselves how much we have invested in the people-change factor, giving more thought to how we can introduce the system well to people and let them know when and how they can make use of it.
R: What would you have done differently as a team of course if you go back to that time limitation process?
P: I think we might have complicated the process a lot the process itself made it more complicated than it really is, for instance, when I am working on a phase in the project I also need to insert the steps that are involved or included in this phase. The question is of course whether the people are using that part or not. I would hardly ever use it myself actually. And even if I insert submit information wrong I don't go back and correct it. The initial idea was to analyze these information, as it all is in the tool. But the way we try to air configure that into the system , it wasn't straightforward. So PSA has now all our requirements and implemented but not in the most efficient way. Example of that is when you're trying to work select the fees you are in project and then you have a sub phase or step, which you need to choose. It is not that intuitive so if you say. It requires a lot of thinking just to fill in the hours, and that also requires a lot of time. This part of the system is particularly complicated, so I don't know how many people actually use it. Not if not all the people are using it effectively, and then right away, that means that this is that means that the system is collecting incorrect data which is worse than not having any data at all.
R: If it was up to you and you want to resources what would you do order to make this right?
P: First of all I don't know why the store was selected, in the first place, I was involved on the implementation was about to start. But I don't know how to evaluation of the tool was done, and I thought we had other options. So this is one of the things I would do differently maybe a.m. taking the time and selecting the tool.
Another thing might be that I will try to minimize the complexity of the interface of consultants, as a consultant now I am complaining about too much selection, likes everything which project and which phase of the project, for me that's a lot of work. even trying to let my time between different projects I need a recording hours of course is too much. An hour and it's always been on time but also in order to register this I was in the right way. Even principles need to enter quite a lot of information in the system. Do you need to enter also all the QA check after each phase. I don't know how much that is working in practice. So at the time of implementation I was a little bit concerned that The principles will feel overwhelmed with the amount of information provided and entered in the system. You need to know that not all consultants has the pro license. So the principles who are responsible for different projects they are responsible for inserting entering the data into the system like opening a project adding people and closing a project. Delete they don't have the rights in the system to do that. So every time you need to open a project close a project or change the due date of the project you need to ask a principal to do that for you, that's not very efficient for us neither is it for the principles.
R: Which functions would you add to the system to make you feel you are doing a better job can help manage your tasks?
P: Our colleague Werner had a wish over inserting a checklist for the tasks of each project, for every phase, so people would not forget about that. But later something went wrong with the implementation because the system was not very flexible to implement it in the right way, and then I don't know what went wrong with the implementation with the process, maybe these checklists are in there in the system but hidden somewhere in the notes maybe or maybe they don't exist at all.
R: Would that also go with you assigning tasks to people?
P: Assigning tasks definitely yes, that is exactly what a management tool for.
As a manager you don't only want to know who has spent how many hours on a specific project, but also to see who is working on what.
There is one beige on PSA, for each project where you have the most basic information about the project, like the contact people from the customer side, The deliverables the due date, because we thought that people should be interested to see of the most important information in one page, which is available for everyone in the project, I don't think that in practice that people are really using that.
so I think there's two problems in the project, the first one is that the tool is not ideal, but that is not the real problem. Because we can't say we have a tool let's make the maximum use of it.So that's why I think we need to

invest more not in the tool itself but in building concrete processes on how to work effectively with PSA and its functionalities and features. Everybody should be using this in the same way, and to cooperate as a team. Because even if I just drink a very important information I got from the customer in the door, and nobody's using or checking up to so this is not useful. people should work in the same way with a more structured established processes on how to use with the tool during the project.
R: Do you have any remarks on the management role?
P: No not really, I think it was a nice initiative to have a one centralized system to manage our processes, pulling the information from delivery to finance sales, That is course efficient and the great.
No about the selection of the tour this election process I am not really convinced I don't know as I said how the system was selected call so maybe a bit more through a long investigation should have helped to know what exactly our needs were expect actually have a system like this.
I'm not sure if consultants did get any kind of training, I think that when I was training for principles, but not for consultants. Despise was definitely lacking, so The implementation of the two need to be worked on two parts not only the physical selection and implementing of the data in the system but also how people going to deal with that change and how to help them change their behavior. So that's the difficult part I don't think that you can do that with a single training or an online training, so the principles go to training maybe then you need to go to the project please I'm trending on the system and step-by-step and old project deliveries we need to train people to do things differently: because even if you have a two hours training, you wouldn't be willing to change your behaviors to deal with the tool the way you're supposed to.
At some point some features were added which were quite useful for us, but apart from that I'm not really following what has really improved at least I didn't notice so this initiative on a stick the channel is very great but on the other hand there's a lot of other initiatives in the company that you wouldn't be able to follow all lease changes so if these changes are only communicated to you that channel I wouldn't be able to see them. as it is hard to follow everything.
But I don't have the feeling that things has changed or in the sense that they have been improved in PSA.

Interview 16
Participant: D4
Date: 01-05-2020
Position: principal, + implementation team

R: Since when do you use the system?
P: I use it since day one, I was involved also in the implementation process.
R: How often do you use it?
P: I used systems almost 3 times a week mainly for registering my hours as it is the desk that all consultants are required to do.
As a principal I am also responsible for managing people who are doing projects so I use PSA in this case for other tasks. So, I try to monitor what this people at the consultants are doing how is that how they are doing as a manager, and I am also required to do use PSA as a consultant as I am still doing some projects myself. I do use PSA as a principal less than the normal principal in Europe because now I am in the US and we just started doing business here so that means that we have less projects than in Europe. So I am doing management tasks for the projects in the sense that are that you still on budget delivered in time etc. For which I check each group project once or twice per week.
So at least one hour for myself and one hour for other projects as possible total of two hours maybe. I still think that if the system is better introduced and better the functionalities involved in it then it would be operationally speaking that would be used daily for maybe couple of minutes A day to keep track on everything going on. As a principal I do not only register hours for projects I am doing but also for everything I do all we have this intention to track everything we are doing to analyze that afterwards. The initial intention was to integrate our way of work do use all the information we have about delivery and operations and to link that revenue with the financial data, that all in one system. So, for us sales engagements are not billable hours but however they still bring us revenue. So, when I am working with another colleague in the US are selling some projects then I am investing hours. So, I might spend eight hours bringing in a contract with a price of $50,000. So this is not something that you can invoice but it is something you can take in consideration for revenue. So it is very important for us not only to take efficiency Into consideration, what is the time we spent on getting in contract will help us finding that, how much time we spent on each engagement kind of tasks but also helps. So the sales activities and engagements should be taken into consideration when we are talking about revenue and we should register that in our bookkeeping. So I also register that in my hours when we are dealing with the sales activities maybe also other activities like innovation projects and managerial tasks.
R: Are you doing that right now? Is the management analyzing all the data that we have that we put into the system?
P: well this is also a thing because it all boils down to the adoption of the system. First of all you need to make sure that the data quality is up to standard, and that everybody wants to use it, even though people have different opinions on the system and they are not all on the same line of the way how we put data in, like the recording hours for example, but this is all part one. So if you have a high-quality data then you can run an analysis so are we doing that yes we are doing that for some thanks Victor is working on it from a financial perspective, Wouter is working on that from an operational perspective. The question is are we doing that every week every month every quarter and even will know but that doesn't have to do with something else ...There are too many things that need to be done. For us to do a proper analysis. First of all, we need to make sure that we have the good data in order to get to the data good analysis and then get the results that you can use in the future, and example of that how much time we do we do we spent on the project of IT due diligence which cost 50 thousand dollars. How do we do that Per region or per country.
R: So, do you have the feeling that the system is helping you in doing your job, managing your team or even managing your projects?
P: Well this is a difficult one to answer, because in theory yes, everything we need to make sense of the data in the system, but people don't know how to use it properly, because we never told them how, there was never a training it was introduced very quickly to focus on one thing and one thing alone and that's hours registration.

That's what was needed to be fixed very quickly. This urgency was originated from the difference that we had between the finance department administration process and what the consultants are doing on the floor.
So back to the question, is it helping me doing my job and managing my projects here in the US, well I'm only using a PSA in checking and my projects in the sense of the budget times the hours and if my initial gut feeling on the project is, yes, true.. which is very helpful I must say.. Because now I know that some projects take more time than they were expected to and I can reflect on why. So maybe we need to work on selling that in the higher price maybe we need to work on efficiency and maybe I didn't do my whole job well maybe I need to work with the date of consultant about something that could have been done quicker. So I would love to do no way to analyze that the only way to analyze that to look into that is through the system. So looking at PSA it gives me a my project the initial budget how I spent the hours which phase I am now it's all data that is in the system and should be used like that. But you can use PSA for many more things, which I am not doing currently. In order to be able to do that first of all the system needs to be integrated. People need to be trained, they need to understand how we consultants can use the system to our benefits in our operational role. So it doesn't help if only one team is doing that alone. So now we are still using PSA the old way we were using that on their system recording hours and as his own way of managing projects. but there is more in the system there are more functionalities that can help you in delivering projects more efficiently.
So even personally you can use the system to manage your own projects. personally, I have to use another tool to keep track on everything I am doing all the projects and that's all I use is Evernote, It's kind of a note keeping machine when you can throw a ball kind of notes in it. So I can for each project right for myself when I am in terms of giving with a customer but that's of course my own way of changing projects my own style.
Project management by SIG is currently very ad hoc, so it depends on the lead and his style of working on how the project is done and how the project is managed, this has also to do with expectations of the team members involved in the project. So I think when we create a standardized process of managing projects in such a tool, with tasks included, of course we don't want to micromanage, what do I get in a way that we can be a little bit flexible in it if that would help us doing a better job in terms of efficiency, that would be guarded by a process standardized process rather than a person who is doing it in a specific way. So are you doing it this way I believe it can help the consultants doing their job, is until I believe that consultants working by SIG very smart people and they are their own way of dealing with things, especially when they are doing some projects well they will ask if he's working why do I need to change my way of dealing with things, but if you show them when we are working with the tool doing it to the full extent of course that will help In making work more efficient.
R: What do you think about the ease of use of PSA?
P: Well, because I am a principal I have a different view (interfaces) in the system than the most consultants. I have this hub view which has a couple of tabs per project, and has all these graphs and dashboards, I think it is pretty easy to use so I can easily go to the correct place to get what I need. It took me sometimes though to know where to find the info we need, it is a different system of course Microsoft dynamics so it's like comparing it to working in Microsoft office word in a Macintosh.
So that's the Hub, but the other thing the desktop environment is something else. So as a principal I have access to everything so when I go there I have all these tabs and options and that is not easy at all.
R: Can you tell me about the implementation process?
P: I think the implementation went the right way at the time with the focus we had, and the problems we were facing, so as you may know, before PSA we were doing our financial whole administration with an Excel sheet. Well, excel is not a tool where you do your entire bookkeeping in, then it crashes a lot, you need more infrastructure basis in order to do bookkeeping. It was a lot of workload stress and a lot of mistakes were made. As it is prone to error. So we decided we needed to become mature in that area. So when you decide to do that in the formalized way professional way, and on the other hand you know that you are operational management project management in a very ad hoc way then you would like to look out there and see what are the options and solutions to manage these two major things we are working on. I was not a part of this process so I cannot give you an insight on how the decision was made. You can know more about the selection criteria from Wouter and Jolanda. But the core purpose, as I know, was to be able to integrate on financials with operations with delivery. So are they searched for system for finance (the bookkeeping) and delivery (a project management tool) for operations with our consultants. So at the end this election was made and PSA was selected as you know it because it is built on Microsoft dynamics, with Microsoft dynamics can do a lot to do so many things which is a lot for us,

and PSA is just application which is built on the platform of PSA. So after that we turned into the implementation process we started the team at that time I was added to the team which was the second week of taking that decision maybe, to help them define how we can standardize the process of implementing such a system, how can we make that usable for our consultants and can fit to our way of running projects. As we said, you might have 50 different tasks for a specific project, how can you structure that in order to be standardized in in one tool. So, we looked into the phases that all projects have in general, and then into each phase, or what are the main steps that each project has, of course within the steps there are multiple tasks that can be done, but we don't wanna go further in controlling that because it can change along the way, of course it's gonna depends on how the project goes. So, we focused on how we can map out that process, that begins with signing the contract, initiate the project, doing the analysis, doing the report, and then wrap up the project. for the recording projects we have a different way, so we have for the monitors we have one Sigrid, then you have multiple clients per year with whom you are working. we did find a way to structure that process, so a lot of time was spent on that., and make it not too complex or complicated. Then of course the challenge was; how we can configure that in the system? Then what we really figured out in that stage, everybody we and external guys that were working with us and helping us doing the implementation, we figured out that PSA was not the perfect solution for our situation. But why?!, well as you know, PSA is of course a project management tool, proved itself in helping consultancy firms with the management of projects, but, it is based on kind of projects that we don't do in SIG. So, it depends mainly on billable hours, whenever you are spending time on projects for a specific client you register these hours in order to become billable hours, what we do is something else. Because we have fixed fee projects with a start date and an in date, and they have all these steps in between, and we have fixed prices. The question was then how do you want to control the process in the system how do you want to make control on how the projects are done, so we figured that we have always these four phases I just mentioned in the project starting with planning/ initiating then the technical analysis etc. So, you're gonna write hours on each phase to know where you are in the process, how much time we are spending on each phase, when you have enough data we can benchmark that, and then we can look at how much time specific phase is costing us, and how much time it usually does, and then we can work on the budget of each phase in the project. So we started having weekly meetings to work on configuring that in PSA, this is where it went overwhelmingly, there it got complicated. Because what we wanted wasn't actually possible in the system, even though what we wanted wasn't even complicated in our thoughts perspective, you know we just do project work, based on the four phases we do in each project and each task these sub-phases or steps contain so the idea was whenever you finish a task is done you're finished you do that in the system and you go to the next step. Between those phases we want to have this quality assurance sessions. So we know we are on track, but once the quality officer says you are good to go, then we can go to the next phase, and it can only open the next phase when we are done with the QA of the previous one that was the initial idea. Meanwhile everybody is recording hours that's all data you can get and analyze in order to know where are the problems in the process and I will process where are people taking more time and why then you can analyze how to manage people based on the peak hours in people calendars, which helps you with planning. When we know for instants that the consultants (Jamal) is working on for projects we know roughly where you are in each project then we know which steps are coming up in the projects and we know how much time that would cost you working on that. So, if you were 40 hours gonna roughly speaking be booked we cannot staff you on new projects. This can be done by looking at all kinds of Gunttcharts that the system has that can't predict this. Well, this was the original idea that we have a tool that would help us with the planning, and resources in projects, ultimately we can do that, because all this data is in the system. The problem is that after the implementation was completed the system needed to be rolled out very quickly, because of the financial bookkeeping situation, it was a good GO-LIVE date when we need it to start doing all the financial bookkeeping, well, so we introduce the most crucial element of the system, and that was our registration. We needed to make sure that people know how to register their hours. Another important thing was reimbursement, this is something you can do when you have all these data in the system. No that was the planning year ashen did didn't take the steps yet why, well I don't personally know why. So the configuration process, which we have done in the system, ended by going live, when the system was rolled out for that specific functionality, and tell that moment nothing was changed for the consultants, they were used to book their hours using the system Harvest, and now they have to do it with PSA, with the promise of course that new functionalities will be introduced into the system to make your life easier, like managing the invoice is managing the projects operationally, etc. of course we didn't introduce that. I have also my personal one because

after introducing the system, I had to move to the US, afterwards I wasn't really involved so my involvement stopped after rolling out the system. of course, I talked with Walter about this, I said that we need to introduce the system to people, people need to be trained properly. So, the idea was that we wanna introduce the system will give it to these consultants, the smart people who love working on software, and ask them to see what the system can give us, before we didn't have anything to do that, and now we have something, and we have to structure our way of working around it, but, unfortunately, we didn't introduce the system well. So this is one thing introducing the system was one thing, the other thing was did we make it too complicated by our way of configuration, maybe, but we were held by the defaults in the system that don't go along with our process. So basically the boundaries of the system and how we can deal with it.
R: I have a question about the approach, did you start implementing our processes as-is, or didi you adapted to PSA processes?
P: The approach was taken by the project manager who is responsible for the structure of the implementation. So, this project manager was external, and we had also besides this implementation firm also external that they were helping us during the implementation process. Of course things happen during work, the person who was responsible for the implementation and the configuration of the system by SIG which was an external person, she left during the process, because she got a new job, and we had a new guy who needed to be completely re-introduced to the system and the situation, So that a hand over process was messy and didn't go so well. So, this person or two persons were involved from the implementation party that was helping us with configuring the configuration of the system, this is a party of Consultancy to have a lot a lot of knowledge in the in the system and about this kind of implementation processes, the other important person was the project manager person.
So in short, in my opinion, the whole process was well structured, we had a plan, we had six or seven weeks of workshops with the external parties, in which we discussed all the themes that were important in the system, and they would ask us questions about our way of working, our processes so not what why do you want to use the system but what do you do oh why is it what you do important work to be managed in this way. And they would come up with a way of how to impress that into the system in aware of configuring the system. So, the person who has done the majority of the work, which was the in the first four weeks, she left, and afterwards this new guy came up with almost no knowledge about what we have done and discussed in the first four weeks. Back then we had only three weeks to go all the weeks left before the go live.
So, to be honest it wasn't us the internal implementation team within SIG, but rather the externals who were doing the technical configuration and deciding which the best way was to do the configuration in the system, we were heavily relying on the expertise and knowledge of the external party who were specialist in Microsoft dynamics these were experience consultants working by experienced firms. So, what I can tell you is what I've done by his SIG within his SIG, that is the project management, how we've done things have we've managed the process. So basically we had this process of beginning from the selling the project by the sales team then into the financial processing of the of the situation, but in between that we need to know how we can manage the project, in order to manage the project well we need to defined the objective of this project, this is very important because sometimes these objectives change along the way, and if you don't have this stored defined somewhere then you wouldn't know about that later on. Well you know how the project interface and if you look like now, but this is not how we wanted it to be, we wanted to we wanted to visualize this for the consultant for the user. We want to defined that in very clear visualized way of moving phases, once you finish the first one the second phase started starts with all these QA sessions in between. So, you've got initiation you've got execution you've got learning, and then inside the execution you have multiple tasks, so this tasks they aren't even defined in the system still they are not really used because they are in the phase itself which is not visible to the consultants.
So what the original idea was that we are planning to breakdown of the project into phases these phases contain steps wish you can call steps in each step and you can have the option to cross off what you have done or check out what you have done in order to go further to the next this next step and then the next phase, this all in there now, but it's not used because first of all it was never introduced to people and second of all it's not logical the way it is now, there are almost 1000 different items in here, when we need to have a visual illustration of this. Such illustration should tell you in which face you are what steps or activities you need to take in order to complete this phase after you complete them then you are moved to the next phase doing that besides recording your hours I'll give you an insight whether you are on track behind schedule off budget etc.. All this information and options are in here in PSA, but people don't use them because this was not introduced to them well, so they don't see the

logic for them, this is because we never gave a training. Besides, looking at it now, it doesn't look ideal, it's not the way we wanted it to be. So there is lots what you have been hearing about the system it is a lot to come see about it, but this is what we could do giving the time and the complexity of the process, and also being confronted with the things that PSA cannot do well it was promised that it came good, maybe they did their selling job good maybe we didn't ask the right questions before hand, along with other surprises we had to deal with during the implementation process. Our main concern was the time sheet the main focus when we are talking about consultants the finances a different story of course, so we took the time in trying to configure the project and that way you can record hours in a good way this all took time. I clearly and honestly don't see that the idea we had in mind the way the system would look like after we finish the implementation is totally different from the end result we didn't expect it to look like this.

R: If you were able to go back in time and re-do the implementation process all over again or if you would like to make a redesign what are the things that you will do differently what are the lessons to learn?

P: We need to define how we're gonna do the project management this is the sense now we have no people in house who can be project managers and have done implementation process before, and they can also have all different kinds of opinions on that, but like then you're in implementation we didn't have that kind of knowledge of or expertise, we were consultants, so we need to be more specific and defining what we wanna put into the system what the end result would be and want to insert in the system. So, the lesson would be look at the system the new system, what can it do, how to process could be managed in and how it would look like before we start implementing. One of the things that this Microsoft dynamics consultants say to me please the way your context and process and workflow goes in your company, this is not really the way that PSA works, but I can make it work I can make it work around the core of what PSA can actually does. That's why I would rather suggest that people first of all look at the core of the business system look at the core of PSA what can I do how does flow how data flows and then yeah look into the processors around it and maybe make some changes. This way you would get an ordinary experience of PSA has a system rather than twisted implementation.
In our implementation team we had kind of split concerns so me, Wouter, Marina and Werner we were concerned in the Consultancy site while, the financial team was concerned on the bookkeeping functionalities. But as always within SIG, everybody has to do other stuff everybody was doing something else, So maybe we should've had 14 people working on this instead of assigning it as an extra desk people already has their own job.
Also ... Maybe we need to have a PSA training first before figuring that out, so you would expect that project manager and a Microsoft dynamics consultant can help us WITH THAT … but this is the results and I think that everybody got eight agrees that it's not ideal right now, this need to be changed, This week must be better tailored to our people.
I do have a lot of critiques, but I do really believe that that we are now in a situation better than before, and the way the system is now set up he's kind of the way that we are meant to have, but still it's not that intuitive and logical, it's still can't do what it should yes I think so, it's too easy to flame internal systems, to burn into ground, the fire critics add it, the challenge is how to use the system can be used at its most.

Interview 17
Participant: D1
Position: COO
Date: 28-05-2020

R: How often do you use the system?

P: I use it every day, couple of minutes today for registering my hours, and every day for checking on projects progress or things like that so this is like something I do every day. Every week we do the whole planning in the system planning of projects, for me that is via looking at the utilization timesheet in PSA, which is at least an hour working on it , this depends of course on the capacity of each consultant,
Yes, so this is something I use directly during the planning meeting, roughly 2 hours per week for that. I personally register my hours of consultancy, and also hours for overhead, as a COO, it's like QA sessions and the planning, we try to register everything in order to be able to analyze it afterwards, even innovation management and all indirect hours categories.

R: Do you feel like PSA is giving you any gains in your daily job?

P: well PSA doesn't really help me with my day-to-day tasks because I don't insert data in PSA, this is what people do for me I delegated all these tasks from entering data, generating dashboards etc. to other colleagues, but I use it of course and it helps me indirectly to do my other tasks which are planning novation, it also gives me a lot of insights over the financial status, revenue, overall administration of the projects closing and opening, also in the controlling part.

R: Do you consider it as an easy system to use?

P: nope, there are multiple reasons for that, the user interface has a lot of clutter in my opinion, if you try to reduce this in the hub and not in the other dashboard, so the other menu doesn't help you at all to be able to do your work, because all the tabs categories and all that clutter.
Of course even though the hub is another environment than the desktop also, they have both old type of interfaces. I would say, it's more like 90s interfaces, it's not that nice clickable kind of thing, and there is inconsistency in the overall design of the system itself.
One of the problems that we have in this regard is that you need to see the order of information you enter in multiple ways in different windows, because when you change the tab or your window and you want to save what you entered, in one place is that sometimes a floppy disk icon button, sometimes it's like a button in the right and the other times it is located on the left, but if you are working with a team whenever you enter the data it's automatically saved! which is weird because you don't have in this case to hit any button. Besides there are multiple of this kind of problems in the system, once you get used to it is kind of OK, but it makes the barrier of usage higher I would say, and user friendliness less. To be honest if I may cross over to the implementation process, and more specifically the selection process of the tool, there were many tools out there which are user-friendly and very interesting, but they are not taking the whole process into account when dealing with the data, they are not taking the whole project process from the purchase order and selling to the delivery, but only doing small parts of these processes, still we went for the less friendly interface in order to get the benefit of the whole process processing.

R: How high is the mental effort that you need in order to recall how to do certain functionality that you don't do daily?

P: I would say now it became medium, in the sense that I know where to go to when I need to get specific information, especially as a consultant, if you go to the hub menu when you see the information about projects,

the hours registration, that is easy to find but if you want to go deeper I don't think it's easy to do, we are still working on some improvement to make it easier for the consultants to do that, and to make it more understandable for users , we are also now working on a release, when consultants get a new chart when you can easily see what the projects you're on which hours have you spent, and how many hours you got left, are you on budget what are the invoices you entered and so on. Also we are trying to impalement checklists of the process steps and phases that we need to go through in order to finish a project, as a workflow guideline. technically we haven't done this in the system yet, this kind of stuff that we still want to do need a higher level of expertise and mental capacity in order to be able to do them, these are difficult stuff. also as a lead consultant you need to know how many hours spent on specific project per consultant and other information that you need to know in order to manage your project, these are still not easy to get, you need to go to multiple places in the system to gather this information in order to get the picture, these are the things that you should see at first sight in the system, but still it's not the case, this is not the way it should be. Now is the mental effort at the medium or even high level for must of the consultants. Basically we build this system in two environments, the first is the hub which is meant to the consultants who need to see and do basic stuff in the system, and the second one is the desktop environment which is meant to do users who have a higher level of rights and tasks to perform in the system which is more complex, because it has access to different features, we worked on scaling down all the features that are not needed for a normal user as a consultant and put that in the hub.
and it's not as intuitive as you like it to be, definitely.

R: Can you make any comparison between the old system Harvest and PSA?

P: of course, you can always make a comparison, which of course at first state that's apples and oranges, it's not the same system quality we are talking about and features. Harvest as a time recording system, is one of the easy intuitive and fast to use system, so the reaction of the activity of Harvest is quicker which is the performance in other words, it's easy to click around to move between windows tabs options, that's very good, but the negative thing was, which is the reason why we switched from Harvest, is that it doesn't do any more than that. it's registering your hours, but after that it doesn't have any real reporting tool, or give any other insight of the data, I can't see an overview of everybody's hours over the last month, which hours are missing who is not on course with recording hours this kind of insights are not available in Harvest, we needed always to place all this data in Excel and go on from there. everything that the finance was reporting from there was not in Harvest, it was being done manually in an Excel sheet. so it does one thing but very good where PSA does 100 things, but not that good so we said let's do it on the things which is the story of any ERP system.
this is a general disappointment within SIG if you go around and ask all these consultants, you will hear that they are disappointed to have to work with an ERP system, not one of these new cool tools that do project management. which was also covered in the implementation process, well did we do any common mistakes during the implementation process, will yes we did, they are there.

R: Do you think that what we have in PSA is the result of poor
configuration of SIG processes or is it the a PSA MD thing?

P: well actually as a consultant my answer would be both, little bit funny, maybe an annoying answer but it is true it's a little bit of both. of course we looked at the system and it was demoed to us and we thought wow this is what we need, external consultants said you can use it this way, some other things we could not do because it wasn't supported the way we thought it was supported, some of the things we didn't get into the system correctly as data because the work we've done with our implementation partner, as an example of that, in the overview we have done for the project, we have checkboxes in there, and our implementation partner indicated that that was not possible in the 'suite' as to say. but it is in the suite, they just didn't know how to do it, now we know how to do it, and we have put it into the suite, so we can use that. so generally there are interfaces themes, usability themes, that we can apply to make the system easy to use, so it is that knowledge developed from our side now which makes these kind of things possible in this system, however there are also things that we discovered we cannot do in the system, for instance, the expenses report from the app and exporting that directly to the system, and the link of that correctly to the general ledger. Besides, the various financial entities administration cannot be done in the

same way we expected. on the other hand I must say, when we are looking at PSA, we need to look at our starting point, for us the objective was to get the financial book keeping in order, we need to have the sales reports in place, we need to have the finance reports in place, and delivery will go with one of those, with all respect for the primal workflow we are doing, Our main concern at the time was to make sure we remove our financial administration from the complex excel sheet. that was by far the most important drive we had to go on with this project, after that we have done as much as we possibly can to get for the consultants administration.

R: How was involved in the implementation process please tell me why PSA?

P: The first reason is the complete landscape of the process administration , there are plenty of advantages in PSA it supports the basic workflows, and the method of working that we have in the company for the a long time, mainly it can deal with all the different financial entities that we have... and that's something not a lot of tools out there can do, we are talking here about intercompany billing, margin calculations across entities, this kind of things.. this is all in there in PSA. it has a built-in utilization and reporting view, which helps us to determine who is available in a specific timeline and who's not , which is something we didn't have before, we also try to stay in as few ecosystem as we could, that means that we looked in the pre-selection phase at all the workflow possible that we can have from begin to start. All other systems had the same problem as Harvest, they only do a small range of processes, and they don't integrate with each other. this tool can integrate with salesforce, our sales administration process system, this is something we have not set up yet but it is in the plan, this means that we can link it to our sales ecosystem, so the salesforce is meant to be for everything external from SIG, sales, opportunities, Academy, support desk etc, and then everything internal would be PSA, and it does have the option to do everything we need it, this completeness we haven't found in many other tools out there. again the most important thing in PSA is that it covers the whole landscape of our core processes. and more than that, it is based on a CRM-based system, so when we want to go towards one Eco system, we can let salesforce go and replace it with a system integrated in PSA, then we have everything in one relational database, along with all the possibilities with integration of Microsoft office/online these tools still provided by Microsoft dynamics.

R: Are you satisfied now with the current situation of the financial administration?

P: well I am, but Jolanda is not there yet, personally I think we can look at the where we were standing and what how far we came that I am pretty satisfied, but there is a big room for improvement in the operational side, because to be honest we haven't done a lot of steps towards the improvement of that process for the operation side, and we still have licensing issues there because we are dealing with a very expensive license modeling, which are necessary for the things we want to do a PSA

R: I hear from our people around me that the implementation process didn't go well why is that?

P: True no it didn't, One of the reasons of course that implementation party worked with add two consultants which both worked half way and then they left and this went wrong of course because the people who fill-in and pick this up further and they need to be get up to speed which didn't go as smooth as we want it. One of the problems from the external part is that the owner of the system which is Unit four the indicated to us that they don't have any implementation partners, and they left we are looking for forward to work with another external partner, but that was not the case, they just want to onboard a new one using us in that case, that went wrong already because this new partner didn't have the knowledge needed to implement such a system.

R: If you got the chance to do the implementation all over again, what would you do differently?

P: I would probably cut out some of the complexity that we tried to do with the delivery process in PSA, we are not using that at the moment anyway, but it was so difficult to get it in there and to get people to use it.
another thing is, if we had the time I would have done more sessions with the users.

One other thing I would love to change is how we deal with the process adjustment and the licensing issues can you place of solving the licensing issue directly, that word that I have put a lot of work on the principles, where that was not where it needed to be in the system, in other words, the principles are doing lots of work now that they shouldn't be doing themselves.
another thing is, to first get the financial part done in the system, and only then try to implement it also for the consultants so to phase the implementation process in stages. as you know I was one of the consultants involved in the implementation committee from the operational side, and we were trying our best to put our workflow and processes in the system as soon as possible, which could not be done at the time without having finance in the system up and running, the set up the configurations etc. because it's a renewed relational database and everything has to do with everything. but they were later in to the party unfortunately they have their configurations later on in the system, so I would say start with finance let that run for like half a year or more to find out what the system can do and find the box and problems in the system and the shortcomings, and then get consultants on board. so never move on two departments at a time into the system. so this also means introducing a lot of functionalities and features in the same time which is why she didn't go so well. again we were dealing with a deadline for the go live for finance which we didn't have on the operational side. of course we need to record the hours at the time, and if you look at the whole year since we implemented the essay, this is all the consultants are doing, only recording their hours. so this doesn't adhere to the idea that you bring value to every user in the system, because consultant did get nothing from this, and they didn't have the reason to move with us in the process. Where our plan was to get the word processes in the system, and then they get the Q&A sessions and checklists where you can move from my phase into another phase in the system, and then add the reimbursement in the app mobile app that we talked about when will you get a lot of extras for people to be interested and would it work with you on the implementation. so the first one recording hours is a must all need to do that, well they're going to see that PSA is less user-friendly than harvest, but they get two new functionalities with that which they didn't have before but only through using the new system. But then because of the time limit that we has, and that financial department wasn't up to speed yet in that regard, we had to let go of the other two for that time, but later they get pushed forward and forward and forward, which led to the fact that consultants had to do that what is promised in the new system that which is not so nice, and they didn't get the extras the benefits that were that they were not implemented, but we need to say that the benefits were for the management team and the financial team. this is one of the lessons to learn when doing any implementation process, you should start from value insurance value for everyone, we couldn't find that we couldn't provide that immediately for everyone. so I know the theory about that, I know theory on where you need to be keen on and what to ensure you're in such an implementation to be able to get the acceptance of users, but we were surprised and overwhelmed with the amount of issues we encountered on the financial side, all these quick fixes hot fixtures that we needed to do in the system in order to get our process in order, and to get the right information and reports out of the system, all this was way bigger than we have expected, all these things were not foreseen before.

R: Well as we cannot go back in time to redo all these things in a better way, is it repairable now?

P: I hope so yes, what I hope to do in the next releases is to make it clearer for consultants to see that the system is important for them, it makes their life easier, and that would be even better if you keep track on your hours and other administration in the system, not only for the project you're doing but also put on other things. stuff like that in for revenue, the budget, the intake, that's why I making these dashboards and we're getting better in doing that because of the knowledge we are gaining from using the system now we're trying to work on it to become more intuitive.
The second thing is that you add new functionality like a day project evaluation sheet, we will not be doing that in an Excel sheet anymore, we will ensure that in PSA, The form is just in there, this is one of the things that makes the life of consultants easier you don't have to copy all the data it's all in its answers for you just need to fill it in with the right evaluation information. this kind of customization gives value to the consultants to make them except the system more, meanwhile we are adding checklist and tables into the system so you can use operational project management using this system. example of that is their checklist of all the tests and steps you need to do in a specific phase in the project process.

R: Do you think that the end result we got in the financial system now is because of lack of a knowledge based experienced in financial systems integration?

P: well I don't know that, I definitely didn't have that knowledge, but we have people in sight like Jolanda who has financial knowledge, but I do believe that we are different from other consultants he organizations we do our job in a different way. maybe yes we didn't have the all the information we need to have about the system, we got surprised with some elements in the financial part, maybe because we had all our financial data in an Excel sheet, that was a mess so at the beginning point is a crab. The other part is because we are like kind of a different company, which is the way we do projects in the financial regard and also all these financial entities, and also in the project word project management board, this is one of the things why the licensing structure doesn't work for us, because normally you have a project manager for each project, and we don't have any project manager in our organization, we have consultants lead consult, which is basically a project manager in the system, that means that we need to have 50 license for project managers which is not affordable for us.

R: Do you think that the management could have done this in a better way if they assigned an internal project manager for the implementation process?

P: probably yes I think so, it is a SIG, we are more the way Nike mentality yes, just do it, and this is also how we did the implementation. we didn't make a big data conversion, we didn't do all these formalized processes, we just told the vendors to teach us how we can do it ourselves and we will get it done, and then we did this is that the best approach? Maybe sometimes but not always, but in this case it's not! it might have been better if all the consultants were involved. now we have an internal person who has more experience with working with projects, and can't keep up with all stakeholders in order to finish the implementation to get it done maybe it was a lack of this sort of knowledge.

R: Do you have any final recommendations for any new implementation project?

P: yes, I will start with the introduction part, be careful with the kind of futures you're going to introduce to the company in the system, more careful with the standards of these options so we're going to introduce which is more like a user friendliness part.
Besides, you need to remove as much as possible of the system, in the sense of configurations, tabs, menus, (required) options that you don't need in your processes, because all these extras are going to make the system complex and understandable for users even we have described this and talked about this with the other users along the way, still after a year of implementation we still have the same questions and the same complaints about some features in the system that are not necessary.
Besides you need to organize special training sessions for the core features that you have in the system, and the training needs to be hands-on training, this is it we didn't do, we expect people to be very smart and to learn it themselves, which you should be able to do go back on the type of people we hire, but that doesn't work that way, do you have to be very specific about these things, you'll give people a sense of how to work in your system do some stuff and test, so this assumption that people will figure it out because it's so easy, but little bit wrong so this just do it methodology doesn't go that well in this part.

Interview 18
Participant: D3
Date: 03-06-2020
Position: Principal

R: How often do you use PSA?

P: well I use it I use it daily, but I don't do much projects right now, so I am more of an overview guy, so roughly an hour per week. it's mostly quick look up's, when I am looking for something specific something in particular, I always know where to find it, quickly where I want to be. and then I stop.

R: May I ask you about the task you perform in PSA?

P: well I have a different interface than the consultants, because I am a team lead, So I have more like an expert with you really, with additional functionalities, related for example to invoicing and other functionality. this is basically a richer interface and view with Rachel functionalities than the normal consultants to get to see and use. Do usual use case I didn't perform is to look up a project in my sister, and my vertical,, and for example to look at the progress and hourly budget that is left, The team compensation, and basic information e.g. the project code. One of the most important things also is that I get to see, following the KPI's of the consultants, this is basically tracking personal and individual get the ice of that, personal goals, all this intake dashboards, and of course I use it personally to record my own hours. and I use it to track my lead my team members hours. so its is the PSA desktop interface, even when I am delivering projects myself, I also use the expert interface in this case, it makes it easier for me to perform all my death within this view, like the in voices call mother in both revenue, the budget, etc.

R: Do you see any gains in using the system for your own job?

P: well I believe that it is helpful, because it provides a comprehensive overview of all the projects we are working on, whether we are talking about the whole company, or the ones I am personally working on. it also gives an integrated all the hours entered into the system. well this integration we didn't have before, it used to be a separate app. so that is certainly helpful, and also integrated with the invoices nowadays, so there is a direct link between projects administration and invoicing to the clients so that's certainly helpful.

R: Does it help you with the productivity of your team, maybe in the planning?

P: I cannot find any difference between the prayers situation and now, say that my team is saving couple of hours per week because you think of the system I cannot see that because it's a very small portion of the time, considered with the 40 hours per week. but it does make them easier for sure, because of the overview that it gives of the consultants and it's their availability in the coming time. that is assuming that the date is correct, because you're looking at availability of this person, and planning to staff this person on a specific project and depending on M of her availability without asking them.

R: People try to compare between harvest and PSA, why is that?

P: harvest does amount of things, therefore very efficient , and PSA is the opposite, that is too much in there. so having too much functionalities usually is the trade off with usability still, I believe that's improvement what we have done, because we are relying on the quality of the data due to the integration between different apps.

R: Do you think that PSA is a user-friendly system, even without a comparison to Harvest?

P: well I think it is reasonably usable. maybe it's due to the fact that I am using a basic use cases, other consultants are working with different functionalities than I do, that's why I don't encounter these kind of problems. other people are also concerned with getting that Gunttcharts of projects, personally I delegated that to someone in my team, I think these are more complex that you have to do regularly, but well it's not my use keys right now so I don't have to do with these issues. I really cannot tail because I've dedicated it.

R: Did it take you long to get skillful in the system, and otherwise would you call it an intuitive system?

P: well now I wouldn't call it intuitive, no, it doesn't speak for itself, it requires some tutorial. as a consultant I also got two days of training when the system was activated, these have covered things that are used now.

R: Can you tell me about the implementation process?

P: I didn't join, but they made sure that in the implementation team . I think Jasper, wener, you now call my marina waiting for some operational perspective, this is when you feel like your interests are being guarded. well I believe that they have done a good job, of course it's not perfect still not but I mean we are using the tool everything everyone is in using it but maybe not for the full extent. there are or might be a lot of functionality so I'm not a weirdo but I wouldn't know if we are using PSA for the full extent.

R: Do you think we need to implement other functionality that help us in managing the project?

P: well I think that we need all users to use the system in the same way like one unified way if using the system in order to guard the data quality, and to be up-to-date. I personally use a complementary tool for the monthly recurring revenue, this is some thing I need because not all the KPI's are included in the system, I think you can get also some custom dashboards if you ask finance. I cannot guarantee that these concerts can replace the spreadsheets that you were talking about. I personally would like to add some easier way to get an overview about the extent to which my team members are logging their hours which quality accuracy, so maybe I can ask for such a gunshot like I don't call you to have done, and you can get it it is kind of adequate. so that tells me that the functionality is in there eventually, I just need to ask about it or maybe search for it but still I'm not using it so it's not being available to me.

R: Do you have any comments about the implementation process and the way the system was introduced?

P: I think that documentation went well, and I think that the adoption of the system is reasonably OK because it is reasonably used well. maybe it would be nice if we add the whole project workflow in there, from start to finish some PSA you should be able to record evaluations gradual evaluations and PSA so after the project is done we can also add the evaluation personal evaluation of each team member, finder… Forms in their store them with proper exercise of course, so people cannot view the individual evaluations, you can also put a link into the contracts from the sales process, this kind of things. I also know that they are working on the integrating off the QA sessions within guessing, and try to enforce it that people need to do it in the system in order to be able to go to the next phase.

R: Would you change anything in the implementation process we got to do it again?

P: well I think that implementation process went well, better than the implementation of Microsoft talent for instance, and I think that that was because all roles were represented in the implementation team. you know in the task force specially in the specialty to consultants and have users, that didn't happen with that talent introduction, the tool of HR. still I wouldn't know if anything would have been done better, because we are working in a very critically organization, highly educated and smart people can't always to be quite stubborn, it's always going to be a struggle, special year for the Conservative people we have. so this is something we need to deal with this is

something that happens everywhere from the heart implementation, still people are using it people are not complaining every day, at least not in my team, so apparently it works and it's helping us.

R: People are also talking about doing a redesign to make PSA more user-friendly to people,

P: what would you like to see in this new project?
probably focusing on the ease of use, I know that the interface is not attractive but I'm not really interested in attractiveness, as long as the system does the work, so system scampi attractive and not usable and other way around. I know that this is not a tractive, but it is usable, of course we have some problems some workarounds but still it doesn't work, you always make a trade off when you work with the computer systems like this, you can always build it yourself with all the beautiful sweetheart that we all know and we all advice not to do, and you can get it off the shelf and customize it a bit, and deal with the concessions, I agree with that approach. I believe that the benefits overweight the concessions. One of the common pitfalls is data quality, so the system need to be actual, I need to be updated, and people are people they tend to forget, so when we are looking at the capacity planning we are not seeing a proper a few because the debt is not always actual.

Interview 19
Participant: S2
Position: financial administration
Date: 10-06-2020

For how long do you work with PSA?
I work with this SIG since before then implementation of PSA, and I was involved in the implementation process in the sense of helping with inserting the data and basic administration from Twinfield and excel sheets into the new system.
How often do use the system?
Every day I use it the whole day it's the main system I am working on. All the invoices are you create I create them in PSA, so basically the finance process, keeping track on which clients are working with clients are overdue, all the notes about the tasks that I do I register in the system. But I do not record hours myself, I don't process that in the system, and also the info three new I don't do it this is done by Victor.
How did you manage to do your tasks before having the system?
It was almost the same but I didn't have a system to work on I want to end with a spreadsheet, so all the work I did then I have done manually, all the notes I have registered also where in that Excel sheet. Takes a lot of time, and also prone to mistakes and errors. All the projects that we had were registered in this Excel sheet, with a column for all the deadlines they do lions due dates of the invoices, I need to know which kind of what kind of invoices which are the invoices I need to send out this week, this is all registered in such a way that you just said in that are in a spreadsheet, but now with the PSA I have that all in one central place.
So, you do feel you got gains from implementing this system?
I do have a lot of gains using the system, it's easier to use for my desk, it's safe secure, all the information I have is in the center place where I can share with my colleagues, the financial team. I believe that the quality is improved and a waste of time is less, and example of that is like I had to check all the tasks I need to do also in the email sending emails to the involve people like the project manager of the project needs, and each email and each invoice I had to send a always had to check up with the project lead. This is a data latency thing. So all of that had to be done by email so I was always sending these emails in the morning the first thing I do in the morning and then wait until the deletes send me a response in order to do the actual work this is a lot of waiting and hoping that I will my colleagues will respond to me quickly, if I am not working I need to put some notes in this in the associate asking my other colleagues from finance to go on with my tasks. This is unfortunately not yet the way we want it to be, still not all the consultants are working on the same process that we give them we communicated with them, sometimes due to the fact that they don't know how to do it like know-how issues, and sometimes they just go just stubborn, so you always see that Danielle is communicating and sending emails to consultants to do their tasks in the system. The problem is that nobody really received some kind of training, like we had a training because you are working with the implementation, but only a very short training for specific people, and we learned the majority of what we know by hands on experience and on the job experience, we really learned by making a lot of mistakes.
Do you think that PSA is a user-friendly system?
I think it is user-friendly when everything in the process is implemented in PSA, and configured completely for SIG. for example, if I need to send reminder invoices, it doesn't work yet in PSA, so I need to make them manually, this is kind of frustrating for me because I need to make copies of all the invoices from the previous system, in words, and then I make a PDF out of them, and then I send that to the customers, I would like to have that in PSA implemented, I know that Victor is working on doing that now. If it has this functionality then it would be user-friendly for me.
Another thing which I find strange in the system is the access rights, there are different access levels to information that people have, most of the people use the simple version (the Hub) which I don't use, I use the desktop version, so I don't really know what they can see if they're logged in. But the desktop environment is efficient for me.
Does it cost you an extra mental effort to perform your tasks?
I think the system is truly not intuitive, I had to write down all the steps that I need to make and functionality, in order to learn that, when I started learning about the system, and still up till now there are some tasks that I find

annoying, like I have different clients in different countries with different kind of vat percentage. If I have a customer from the Denmark, then I know that the invoice should be sent from our company in the Nordics, where the VAT percentage is 25%, and not 21% like in the Netherlands. Still, I have to open a project for a client from a different country, I have to manually change the 21% into a specific VAT percentage, even if I register in his contacts and information sheet that he's from specific country, the system doesn't play yeah the appropriate VAT percentage, I need to do that manually in the system which I find annoying. I asked Victor to arrange that of a medical in the system, when a project is selected for a client from another country and we change the VAT percentage accordingly.

Is this something that has to do with the package or the way that we have implemented the system for SIG?

Well I don't know if that was explained to the external consultants during the negotiation sessions, these were with the external parties over selecting the package we want to implement. Of course, our management have mentioned that we have several entities and we need to deal with them separately financially. But I think many people would forget to mention the financial aspects.

Are you satisfied with the output quality that you get from PSA?

Well yes I am, because it makes planning for myself easier, as the other colleagues enter data from the purchase or selling process, like if Daniela entered and then invoice the new invoice for a project with 12 clients that I know that I need to send specific amount of invoices this week or this month.

So now I have more time to help her other colleagues from other department which is the sales department with the account payables. So you do the account payables in Twinfield, and accounts receivables in PSA. These two systems are integrated, so the data can be switching and flows from the one system to another, basically for the accountants Twinfield is the most important. I even have access to salesforce, which is more convenient for me because I don't have to go to colleagues and ask around and order for them to send me specific contracts and invoices and other information about the project, because as you know the project initiates in salesforce in the sense of administration or company is out of workflow goes. Nope I can look it in the system myself and get the information I need to go on for my administration and PSA.

So officially this system was introduced as it would make my job efficient, and I would have more time to help other colleagues other departments with administration financial administration. There are some functionalities promised during the implementation please delete introduction of the system to me, when they told me that I can send out all the invoices in one push, when I am busy with the invoicing on Friday, still this functionality doesn't work yet, I need to manually double check every invoice before I send it out.

Can you give an overall evaluation of the system minuscule from 0 to 10?

I would say seven, but still there is room for improvement, like if some of the features I mentioned are fixed in the system and the evaluation will go higher like eight or maybe nine. like that VAD tax percentage, the notifications and the reminders for the customers went over due, that would really help me in my work.

I remember that we said a lot of details about the financial process, but they weren't understood from the other side, from the external consultants, so for this new implementation projects it would be better if these financial details are discussed more thoroughly. Besides I don't think that the external party we worked with had sufficient knowledge and experience with finance.

What would you recommend for other implementation processes and projects if they go through the same situation as ours?

I would say I don't know who's task this would be somebody from the vendor party or somebody from the inside, but I would say somebody should train all the employees in a proper way. There are plenty of small things that I was doing in the system my way because nobody told me how to, then when I sit next to somebody else, and see them dealing with that, I get surprised how easy some tricks in the system are, that I don't know. There are many of them but, all these things that you have to figure out yourself, I need you to be mention to others also as well as our users. Even if we have the Slack channel, for PSA, as most of the time people don't read this or that you don't understand what's going there, many questions in there I don't understand, it is maybe because they have different interface in the system and they deal with different tasks.

Interview 20
Participant: D5
Position: CFO
Date: 11-06-2020

How often do you use PSA and for how long?
well I use it every day, but I don't actively enter any data, I just search and look up information for my department I also look at the status of our invoices, these invoices are entered by Natasha, on a less regular basis maybe once or twice a week I look at the billability, and the delivery hours.

why do you look at the operational site why do you look at the hours even if you are the financial manager?
well in our organization and availability and the hours have to do with the budget, because we work with a project with a fixed price, and that's with our billable hours, This means that we can forecast our revenue based on their logged in hours, these hours means to us the process how far you are in the project and delivery point of view, this is our base when we take the involved revenue into account. this is particularly important now because of the Corona situation, we need to use for forecasting financial forecasting, are used to use the registered hours for that. this is due the fact that we work with fixed fee projects. so if the project is finished and delivery process like 50% finished, then we take it 30% of the total price of the project as a revenue in for three minutes, 30% is based on a large amount of one hours. so I am not a heavy user are used for management information on forecasting.

do you do you think that PSA giving you any personal gains?
yes and no. Well as you know before PSA all our project administration and account under station and was all insert in one Excel sheet, this is not only how we do our financials but also how we used to forecast the revenue, also how we insert the invoices, it was all done in Excel, this is not doable, you cannot steer on that, and it's also not a good process in the terms of governance. so we had to do it for the governments issues, as our control asked that. so once I joined the company, with the trust to years ago, the first goal I had on my list was to implement and ERP system, so I wanted to start with the investigation which was already initiated by Walter, back then we had two options, we had the Microsoft dynamics option which is a very heavy variance of PSA, and we had also the light version, only for the project management and finance. well unfortunately three days before we start the implementation, the project manager was helping us, he quit so I had to change in my decision, so I said I'm not going to go on with the heavy version. I stop all that, I did a new investigation in order to use PSA, it's more a project management system and it's covers a broad landscape but it is not a full implemented ERP system. so we had the advantages of a pro landscape, and a professional management of our projects and financials, but we didn't have the big risks of implementing ERP. when we said we're going to work with PSA, we had an appointment with the supplier we had sessions for a demo when we have seen the possibilities are we said this is a system we can work with, So this perspective was because the system is a project management tool, it has also the financial aspect as it has the forecasting a aspects we were looking for, it's like resource forecasting and other elements.

Do you see benefits in this system?
Yes, as I told you, we have a lot of the benefits, going from Excel to PSA we had a lot of benefits of an ERP system, but the risk is less and we can after that make the step into for ERP system because nowadays are financial system is called Twinfield now we have an interface. But it is really light interface, so book keeping is Twinfield, only the invoices that Natasha make, she does register them in PSA, so she makes an invoice it goes to Twinfield, in Twinfield we process the data, and then it goes back to PSA. It's really light, but all the benefits from ERP system. I still think it's 80 percent of the benefits we want to realize, we could realize with PSA because we had nothing before it right?

Do you think that we need to settle with what we have?

Ja, I think in the future we will, but now of course the PSA was the go-live from date first of may last day, so we have now one year, so I think maybe 2021, 2022 will be able to make changes, but first we will go in looking at what we have implemented in this tool, because now we still have possibilities with PSA we don't use, so a more into let get PSA, because I think we will continue to did that later but I think we did somethings not so well and because of the things that we did not so well we still have a lot of gains to realize.

Do you think that PSA is a user-friendly system?
For me it is , but I don't do the hard stuff right, I just look at the dashboards and so I am not the data entry person who do that, but for me it is. I look to the dashboards that Victor makes, but I don't know how to make it myself, so for me it is a little bit difficult to answer this question because for me it is user-friendly because I only look at the dashboards.

What do you think about the implementation process?
I think it went well, only the thing that you have like a demos and you never know how these systems will work out for you, but I think there are some faults you can really hardly avoid, and because we work in a small company, the process is much more flexiable than big companies. So when Wouter (COO) and I (CIO) look at each other and we think we're going to do that, we just do it, at all gets a proper attention, of course. But it is not like how this works in a big company, or we have go to the board, and make a business case, so, Wouter and I decided it and then we said ok they trust us so it is in own hands.
So what we did which is like a bit of agile working, so we had a workshop every week, we worked directly with the supplier and an extra consultant who knows a lot about the system, we hired an external project manager, Wouter, myself and Jasper worked in a team, and sometimes other consultants were involved. we have defined all kinds of subjects related to the implementation. I think that was a good way, the only disadvantage of that is that you don't have knowledge about the system. This is something you realize during the sessions with the vendor and the external consultants, because of all the questions raised during the process. Thre started asking how you want it or how your processes are and they say oh you have to do it this way or that way. Here you need to make all kind of decisions, and basically you depends a lot on the external consultants and the supplier. We belief the expert consultant (she) knows what she doing, but you don't know if she tells you the best option if she has A, B or C, you don't know which will be the best for you in your situation. It could be what she advises, but I will not know at the time. so basically we did it the old fashion way, we started from hour process and tried to get these processes into the system. maybe it should have been better to have couple of workshops about how the system workflow is, before working on the implementation, and not only like a demo, but more hardcore, because now sometimes we made decisions that in we maybe have differently if we see how the original workflow of the system is, because you made decisions and basically you have like this because you don't know at the time what the results and outcomes would be. I think you should adapt process to the system, because we don't want a lot of customization in your new system, you want to stay in the system built-in functionalities as much as possible. because within the system you have different choices and if you don't know the system at all, how woud you be able to decide? I mean if you have seen two demos, you don't know how it works so we made decisions based on our gut feeling and based on the knowledge of the external consultants, but without knowing the system well. one of these decisions was the roles structure in the system, which has to do with the licensing level and structure. I had no idea about that, I mean, I don't know what that even means in functionalities means.
Other configurations we did like the setup of our revenue and the recurring contracts, we made it more difficult than what it should be. Victor was not there during the implementation phase, but he has really clear opinion about things we could have done differently, if he was gonna be like too much earlier then maybe we should have done things different, because he really has a lot of knowledge about it, and sometimes he says, oh the involved external consultant in the process doesn't know everything in the financial side, so she should have advised to make different choices.

So did we mis the kind of knowledge Victor has back at the time of implementation?
Ja, I think so. Victor is a business and project controller, and also you really depend it on the knowledge of the consultant. Also one thing, I think that we could have done better, I asked Wouter a lot of times to have more

presentation of the consultant, and of course Jasper was in it but the disadvantage in Jasper was that he was going to US.

What are the lessons to learn for this project?
Well, I talked to Walter, I told him we have like every Monday we need to sit with the principles to tell them about the progress in the implementation and the decision we have taken in the process so this is one of the things that we could have done better but these discussions with the principles were like in a meeting room and it is not the same as when you look at the system and see how the data is processed in it so these discussions somethings in them can be logical and then you make a decision about that and when you look into the system and see how things are done then you get a different idea about it so maybe in that particular side, we maybe have done less communication than we should've, maybe we were working on too high level in the implementation, where we should have done it a little bit deeper, maybe more interactive in the system. For both with the consultants and the principles so there we are lots of decisions we have taken in such decisions in the meeting room where we didn't see the outcome from the system real life, this means that people were sometimes surprised with the outcome they saw in real life we didn't do that of course because we have we had time limitations, and all that processing and discussing and trying cost a lot of time, but maybe we should have given the time needed in order to do that if the right way this investment of more time and implementation was impossible to the deadline we had, of course it was our own deadline but still, so this weekly sessions when we discuss everything with the principles it's not the same as the real participation with hands-on experience in the system maybe we should have had some kind of expert group with experienced users in the system. It should not be just a fill-in session about the implementation, like these sessions of 30-60 minutes, maybe should have been a couple of hours sessions a week. Something else was that one of the consultants who was involved in the process he had to go to the US, another consultant had to stop due to her vacation leave, so when we had to talk someone in and hold them accountable for the decisions were made that we didn't have anybody to go to in the office here in the Netherlands. Again, the communication should have been better to do on a deeper level with the actual users of the system and not on the higher level as we have done. This resulted in lower commitment and acceptance of the tool now this is partly because of the miscommunication or maybe the less communication we have done about the system.

Does this have to do with the introduction of the system?
Well, the system went live in May last year, then we had a couple of walking sessions like introduction about the system, then we had two online videos to teach you about the tasks you should perform in the system. so then we said that we need to add more videos where the all the functions and tasks you need to use and have as a consultant will be discussed in these online videos, but we never made these videos then the summer came in afterwards other projects then September and then we did a lot of projects and of course it was December and it never got done, though.

What should we do in terms of the adaption of the system?
In my opinion we still ask a lot of things from our consultants or principles with a good reason why, we never tell them why we need that from them, we never explained them properly. Like why do you have to make a project forecast. Why do I need to do that, so if I don't tell you why I need this from you, why it is important, then you will not be motivated to do that task.

I heard from other colleagues that we were busy with our redesign project what do you think about that it?
well I am partly with that I believe that it could be helpful for some parts of the system, I know that we were in previously in the session with the supplier unit four and we were one of the companies that are involved in the whole process that PSA supports and we told them that not every aspect in the implementation went the way we want it so we ask him for help again and for maybe doing more consulting work about the implementation again, this would help us in endorsing our process in the system, and input it would help the supplier also because we are one of the few companies that work with the whole landscape the whole system and using all the functionality is that the system supports so working on our process would help them improve their system also. This is because we run into problems that other companies don't have, because they don't use all the functionality of the available. So, this fact mean that we deserve some special treatment from them because we can help them improve their

system, because all of these problems we are facing. So the next week we will have this meeting and we will dive in a boat and talk about the financial aspect, but I also ask the Wouter that we need to make use of the situation and endorse the our registration process, so Wouter is going to make some snapshots about the process in the system and the functionalities and the way it is now, so the small difference is that they're going to make in the process will make things easier for the consultants. Many of these problems you cannot foresee because when they do the seals came in and they made a demo they showed all the nice stuff that we can do and I talked about all options so we can use and then we want to just think about it. But now after using the system and seeing all the shortcomings yeah we need to do something about it.

What would you recommend a new project to keep in mind well going through such a process?
I recall like one of the things that surprised the supplier and our consultant was that a voter and myself were involved in the implementation in the process, as a COO and CFO.
Of course I could have said I will get those because I don't have much time to do it, but this helps us to easily make decisions, this also helps because we are a small company, and we don't have this formalized processes that big companies go through, these formalization makes decisions making harder, which can take months is, still I believe that our situation was easier than other companies, because we had no system for the financial part, we went from an Excel sheet to an ERP system, but when other companies are going from a system to another this going to make it more complex of course.
Of course consultants were annoyed, because that they had a system, but that was only of our registration system and not finance, I know that they always raise the arguments that we replaced their last system with another complex system and they say it's a finer system but they see it as we have the benefits and they don't, and every time we have to explain much more about the advantages of the system.
I know that this is partly due to the special process management in within system within SIG, consultants always say that this is a work of a project manager a project manager should do this as a project manager do that, but within SIG we don't have project manager so we have consultants who work as a lead consultant in a specific project or leading projects. But those consultants are always mainly focusing on delivering the quality to the customers, which is OK which is perfect, but these projects need other work done delivering quality projects are about quality and about time. , These consultants are real driven by contents which is very important, but not feeling that they are doing a project manager job in managing the project, this is something I can fully understand of course because we hired these people because of the content, we didn't tired of these consultants to become project managers.
I Believe that we need to split some tasks in within SIG, when some consultants say I like to be focused on the content, where other consultants would be more interesting in the process management to become process manager or a consultant project lead. And that's why we have specifically written manuals about how consultants should work on the content, but we don't have anything formalized or unified about how the process should go how would you work process wise.
This is one of the issues that frequently raised by consultants and by managers, there is no one formalized process about how we should do our work no formal methodology about our processes, so we are busy with that as well.
Another thing is that we really had a little bit of a bad luck I would say, it was planned to go live in 1 May. The system was of course ready in the in April, and we have been doing some testing, but then both consultants we had the external consultants the female and a mail Consultancy we're working with us in on the implementation project they both had a new job, and the guy was a technical consultant helping us with the configuration and a female was the Microsoft dynamics expert. We did get a replacement of course from the vendor we were working with, but it was not the same of course because they weren't involved in the whole process and the whole project, and this female consultant was trying to do our best in her last days at the office trying to be committed but it was not a boss battle for her to to do her job properly. Still I don't think that they had a significant effect on the the process, I think that the other three items were more or had more impact.
Another problem we encounter is also that we are an Apple company, this means that all our office materials are supported by Apple, when Microsoft dynamics Microsoft dynamics is a Microsoft company, so all these nice features and possibilities of syncing with the Microsoft apps we cannot have in our framework. So a lot of the advantages that Microsoft dynamics gives with PSA we don't have. So as BSA supports outlook and many other

things that we can sync between Outlook and PSA, we cannot do because we have our own Google calendar. We have apple outlook. So we had a lot of discussions about that, but what we can do, well there is no Apple PSA that is only Microsoft dynamics PSA.