

Success Factors for the Implementation of a Cloud-based ERP System at Personnel Service Companies

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Abstract: Currently, we record unemployment due to the COVID-19 pandemic and increasing regulations in temporary employment scenarios. It is almost inevitable for companies in the personnel services industry to use a supporting Enterprise Resource Planning (ERP) system to manage their internal processes. Lots of them are starting to use cloud-based ERP systems as a service (SaaS) with the benefit of getting a ready developed solution adapted to the industry, as well as a time and cost-saving implementation. This paper elaborates on the success factors of cloud-based ERP systems implementation at personnel service companies. To determine these, the authors use the qualitative method of expert interviews to find out more about the given topic. Based on the explanation of the industry of personnel services, ERP systems in the cloud and success factors derived from literature are described. Later on, the design, implementation, and interpretation of the expert interviews, if given – followed by the study’s outcomes. The success factors are determined by inductive category formation. Besides the factor “process survey” as the most important one, factors like "project team and project management", "project planning", “data privacy issues”, "training and "compliance conformity” are mentioned factors by the experts. For a successful implementation, all factors should be considered or at least kicked out with consciousness. Based on the empirical results, the authors have drawn up some recommendations to consult personnel service companies in a successful cloud-based ERP implementation.

Keywords: success factors, personnel service industry, corporate governance, ERP system implementation

1 Introduction

The success factors for implementing an ERP system in small and medium-sized enterprises (SMEs) have already been investigated several times [Ki15; Se15; Ve16]. Scientific studies have considered SMEs in general, but the success factors for ERP implementations in specific areas have already been investigated. Examples of this research are: The determination of success factors at a pharmaceutical manufacturer [Ra16], in a hospital [Bo09], and construction and engineering companies [Ch07]. One industry where the introduction of an ERP system has not yet been investigated is personnel services. Temporary workers are

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often the first to be dismissed or registered for short-time work by the employing companies. Especially in times of fluctuating personnel requirements and personnel cost planning, the support of an IT-supported system is essential [Ka18, p. 17]. Personnel service companies differ in specific essential points from established production companies. One of the crucial differences in the intangible character of the services is that they cannot be produced and stored in stock but depend on concrete demand situations [Hi19, p. 15]. In the temporary employment industry, employees' services are provided by a third-party company [Ba18, p. 21-22]. These differences affect the required ERP system, and therefore software solutions for the temporary employment industry have differences from conventional ERP systems.

Since ERP systems are multi-layered and are strongly oriented towards business processes [Ph08, p. 10], an implementation even without temporary employment peculiarities represents a complicated and time-consuming project [Ch19, p.53]. In this paper, the authors want to gain new insights in the implementation of ERP systems developed specifically for the personnel services industry. As there is a trend towards cloud-based ERP systems [EE12, p. 3] and there are also recommendations for web-based solutions for personnel service companies, this has to be considered. The following research question will help gain some insights: What are the success factors for introducing a cloud-based ERP system in personnel service companies? The goal is to identify success factors that need to be considered to implement a cloud-based ERP system in personnel service companies.

To answer the research question, the authors have chosen qualitative content analysis and the expert interview as a survey instrument. After the introduction in section 1, the declaration of the central concepts are given in section 2. Section 3 later describes the empirical study and section 3 will show the results and they will be discussed in the same section. The delimitation of the work and possibilities for constructive research are explained in section 5.

2 Cloud based ERP systems in the personnel industry

In this section of the paper, the theoretical background and central concepts will be explained based on the definition of the personnel services industry, followed by the explanation of ERP Systems, which will be combined with cloud computing.

2.1 Personnel services

When the secretary of the attorneys Elmer L. Winter and Aaron Scheinfeld fell ill in 1948, they sought a replacement at short notice. Since the search for qualified personnel proved to be more difficult than expected, and they were under the correct assumption that they were indeed not the only ones with this problem, they founded a company in Milwaukee, USA. This company, Manpower Inc., is now considered to be the first staffing services company

in history. Human resources services encompass a wide range of services related to human resources (HR). These services are provided for employees or job seekers and companies that offer employment [Hi19, p. 8]. The term for companies in this sector ranges from the personnel service provider, personnel consultant, personnel management, employment agency, temporary employment agency, headhunter, executive search, to other terms [Hi15, p. 4]. For this paper, the umbrella term "personnel service company"(PSC) is used. In terms of the services offered, a distinction is made primarily between consulting and assisting personnel services.

Consulting services have a project character, and it can be assumed that the PSC brings in professional expertise. For the project's execution, an order exists, and contractual agreements are made [Hi19, p. 13]. The customer uses technical knowledge in dealing with employees and hopes to increase his human capital [Hi15, p. 6]. Human capital is the value that personnel represents for the company and can offer a company competitive advantages due to the increased potential for value creation [Ma08, p. 13].

In the case of assisting services, the client uses the PSC resources and thus gives up part of the independence in favor of a permanent external completion. In contrast to consulting services, this does not increase, but rather a cost reduction of the own human capital. Assisting services involve a contractual agreement in which the content and procedure of the services are regulated [Hi15, p. 6-8]. In this area, the service provider must orient itself to the client's processes and standards and is more strongly bound by instructions. Examples of assisting services are the assumption of personnel administration (payroll accounting, applicant management, recruiting, etc.), interim management, and temporary workers' commercial supply [Hi19, p. 89 - 95]. A temporary employment agency, also called personnel leasing, is the commercial transfer of an employee (temporary worker) from the employer (PSC) to a third party (employee).

2.2 Cloud-based ERP Systems

The origin of ERP software lies in the 1960s. The predecessor systems were called Material Requirements Planning (MRP I) systems. At that time, production companies were looking to improve their ordering process, and they did so using this method. MRP deals with the questions "What do we produce", "What do we need for it", "What do we have, and "What else do we need"[WK01, p. 6-7]. In the 1980s, based on this capacity calculation, further direct development was created: Manufacturing Resources Planning. Manufacturing Resources Planning (MRP II) deals with the procurement of materials and the entire production process, from the ordering process through production to delivery. ERP systems have evolved from this method, the main difference being that MRP and MRP II systems only deal with production, while ERP systems deal with the processes and resources of the entire company [Br15, p. 40-44].

Human Resource Information Systems (HRIS) are IT solutions that are designed to support personnel managers in administrative, planning, and strategic decisions [KI, p. 26]. HRIS offers a way to manage HR electronically and is used, among other things, for demand planning of personnel capacities [Ka18, p. 52]. A temporary employment agency must require these features but do not cover all internal company processes, unlike a full ERP system. Since the employee also plays a key role, especially in the triangular relationship of the PSC [Hi15], a complete solution for internal mapping processes also requires a Customer Relationship Management (CRM) module.

While production planning and control and material management are essential components in a traditional ERP system [Ma11, p. 6], they are entirely omitted in the case of temporary employment agencies. The main requirement for solutions in the personnel services industry is personnel management, representing the offered resource or product [Hi19, p. 73]. Due to the resulting high amount of private data, the topic of data protection is a significant one [Hi15], which should be taken into account, especially in a cloud-based ERP. An ERP system for PSCs covers all processes in a company and can be used for recruiting, master data, order management, and billing and accounting right through to management.

A Human Resource Management (HRM) module is responsible for administering internal employees and their employment law documents in ERP systems. A further function is recording performance and non-performance times, including the subsequent payroll accounting [WM09, p. 157 - 176]. However, PSCs have the unique feature that salaried employees perform their daily work internally within the company and are also hired out to third-party companies [Sc17, p. 19 - 22]. Due to this triangular relationship between PSC, employee and customer, and the associated regulations, such as the fact that the employee's collective agreement must be considered during the hiring process, the ERP system has unique features that cannot be represented in a conventional ERP solution. Therefore, the ERP system must be able to map services that are performed in an external company and the performance and absence times of internal personnel and apply different regulations.

2.3 Cloud Computing

Cloud computing embodies the service-oriented transformation of software applications. The term Cloud Computing, which became known at the beginning of 2007, refers to providing resources via the Internet. These resources are obtained from data centers with virtual servers [St12, p. 87]. Cloud-based applications are particularly interesting for companies that want to achieve cost reductions and do not have a distinct in-house IT department [Be10, p. 176]. In addition to simple maintenance, due to outsourcing the IT infrastructure and the low initiative costs, the main advantages are the simple set-up and the flexibility and scalability [St12, p. 87 - 88].

However, the disadvantages are the software provider's dependence, the limited adaptability due to the standardization of cloud solutions, and the reliance on the Internet [Ak13, p.

120-121]. The outsourcing of business-relevant data to a third-party company could also be seen as a disadvantage, especially in the case of confidential and personal data [MRV11, p. 50-53].

3 Empirical Study Design

The qualitative method of the expert interview was used to answer the research question. This method is suitable because there is a lack of relevant literature on introducing cloud-based ERP systems in the PSC industry. By interviewing experts who have been involved in the introduction of a cloud-based ERP system for PSC in a leading role, it is possible to generate qualitative data and evaluate it. The goal is to develop new theories and to re-examine anonymous data.

In an expert interview, the interviewer wants to gain unique knowledge about a topic of interest to him/her from people with specific knowledge [GL09, p. 11-13]. In this paper, experts are asked about their knowledge and experience on "Introducing cloud-based ERP systems in personnel service companies," "The success factors will then be determined from the statements made.

For this purpose, the guideline-supported expert interview is used as a survey instrument. This interview is non-standardized and requires a guideline with open questions as a basis for the survey. This type of interview is particularly suitable for collecting precise and specific information, which is a prerequisite for determining success factors [GL09, p. 12]. The main advantage of this method is the openness of the interview. Although the researcher formulates concrete questions, the respondents are free to answer them in their way and bring in personal experiences [He19, p. 162].

The expert interview definition is based on the expert status of the respondents [Ba19, p. 681]. To obtain this status, it is a prerequisite to have special knowledge. Knowledge can be regarded as information enriched by the experience. On the other hand, information is merely a preparation of data that is available to many [Et13, p. 11-12]. This expert knowledge does not necessarily have to be evaluated by the function or position of the expert. Someone who knows everything about something, such as a music genre or an artist, can also be called an expert [GL09, p. 11]. In general, it should be noted that the expert role is assigned by the researcher [Ka14, p. 39].

In this paper, persons are defined as experts who have been involved in successful implementations of a cloud-based ERP system at PSC in a leading or decisive function. The goal is to find experts who have been involved in several ERP implementations. Before the experts are interviewed, it is necessary to draw up a guideline that serves as an instrument and aid in data collection. Furthermore, a procedure provides orientation and structuring. For the interview, concrete questions are developed with the guide's help [Ka14, p. 52-54].

The SPSS method was used to create the guide. In addition to the necessary structure, this procedure has the advantage that the creator deals with his/her theoretical previous knowledge and implicit expectations [He11, p. 182]. After finishing the guideline, three pretests had been performed, and afterward, minor changes to the procedure were considered. The interviews' content depends not only on the guidelines and the level of knowledge of the interviewee, but also on the interviewees' selection and statements [GL09, p. 117]. The number of interviewed experts also affects the results since each person brings their own experiences and viewpoint into the interview, and therefore the information received may also differ. Because of the time required for transcribing and coding the interviews, it is crucial to select an appropriate number of plausible respondents for answering the question, but not more experts than necessary [Ka14, p. 139]. When recruiting interview partners, the author was able to draw on experienced experts who work as consultants for an ERP software vendor and experts who are employed by PSC and have led or accompanied an implementation in leading positions. All potential experts were provided with an explanation of the research aim and a copy of the consent form. Two experts had to cancel the interview at short notice, and no new date could be found within the research timeframe. The software vendor employing experts B4, B5, and B9 is both a manufacturer and a cloud-based ERP solution for the HR services industry. Different temporary employment agencies use the experts B1, B2, B3, B6, and B7. Expert B8 is self-employed in management consulting with a focus on HR processes.

The transfer of audio or video recordings into written form is called transcription [Dr17, p. 10]. Simple transcription rules were used, where transcription was done literally. All names of persons, companies, and places were reduced to the first letter in the course of anonymization. The qualitative content analysis, according to Mayring, was used to evaluate the interview results. Compared to other text analysis approaches, it differs in that it is guided by a categorization, which is the actual instrument of analysis [Ba19, p. 637]. To determine success factors, this is the most reasonable approach in text analysis since the developed categories can be considered these factors. In this paper, a summary content analysis is used, in which an existing text, specifically the present transcripts, is reduced to the essential and essential contents [Ma15, p. 67].

By applying this method, the data is divided into different categories. The categorization process is also called coding and corresponds to a code's assignment to a specific text unit [RK19, p. 57]. An inductive procedure was chosen to determine the categories. The coding from the transcripts in raw form was done with the analysis software MAXQDA.

4 Results and Discussion

This chapter highlights the results of the expert interviews with some particular statements from the experts. In the first section, the created categories are shown as success factors in table 1. Subsequently, the experts' opinions on the execution's influence as a cloud-based

ERP system on the implementation are presented. The last part comes up with some considerations for implementations.

Codesystem	Frequency
Process Knowledge	36
Project Team Staffing	29
Project Planning	20
Analyzing Data / Data Privacy	20
Acceptance of the Users	19
External Support form Consultants	18
Communication	16
Training (Keyusers, Users)	15
Support from Top Level Management	13

Tab. 1: Coding Scheme and Frequency of Mentioning

4.1 Process Knowledge

The survey of processes is the named success factor with the most frequent naming by the respondents. Internal processes of a personnel service company are forced to change with every new ERP system introduction. The introducing company must adapt to the given standard processes of the cloud solution. For this to be possible, these processes should be demonstrated by an external consultant who is familiar with them. If this does not happen, there is often a wrong expectation of the ERP system, which cannot be fulfilled, leading to frustration. Without a detailed knowledge about the orchestration [PF] of the internal processes, neither a concrete time and budget planning nor a considered selection of the project team is possible. Therefore this is essential for the success of an ERP implementation.

"We need first a process and then the solution". This recommendation was given to B7 for the implementation of an ERP system (B7 41). This is particularly necessary because internal processes have to be adapted, as B8 explains: "The internal processes are forced to adapt with a system change"(B8 27).

4.2 Project Team Staffing

A balanced project team is critical to ensure that all areas and functions of a company are covered. This set of people consists of a project manager and members of the management board but is extended by key users from different departments [Le15, p. 430]. The experts recommend that the team include personnel consulting, customer service, payroll accounting, and invoicing. The created project team should have sufficient know-how about the industry and the company. Furthermore, the selected project team must be given adequate time to realize the ERP implementation and their daily work. The project and the associated

team should be led by project management that can enforce decisions, intervene in case of difficulties, and serve as the contact person for external consultants.

The project team should be familiar with the industry's day-to-day business and the company's internal processes (B8 9, 15; B9 13). The interviewed experts recommend consistency in the project team. Since different groups always have different opinions, the system requirements are additional (B2 15; B5 45; B9 21). Other people always bring different ideas with them, often all the work done is thrown out because everyone wants to get their thing done". (B9 21)

4.3 Project Planning

Since the introduction of an ERP system is an intervention in the company's structures and processes and causes changes, well-thought-out project planning is essential. Core elements are project definition, time planning, and the provision of sufficient financial resources. The schedule should be well structured and contain concrete milestones. These should be chosen so that they correspond to the time resources and possible prioritization of individual modules. The parallel operation during the implementation is also noted as positive so that daily routines can be tested. For optimal implementation, the project plan should be developed that success can be recognized every week within the project team.

A timetable with concrete milestones is important. (B2 23; B3 13, 21; B4 5; B5 57; B6 11, 17; B7 43; B8 25; B9 13). Milestones are a way to get structure into the introduction (B1 63; B4 5) and focus on the set goal (B4 5; B9 13). If the project plan does not match the available resources, this causes stress (B1 43; B4 11; B7 43).

4.4 Analyzing Data / Data Privacy

According to current data security standards, a correct and accurate analysis of the data stored in the future ERP system is critical to think about the compliant implementation. As described in the paper of Pablo et al. [Sa17], the primary data security issues in cloud-ERP Implementations are (1) Lack of Control (data control, staff control from the cloud provider, etc.), (2) Integrity (uniformity of stored data, lack of trust between the parties, etc.) and (3) Availability (depends on a cloud provider). Additionally, also, some experts have mentioned the need to comply with current laws and guidelines.

It is important to fulfill all the requirements given by the DSGVO"was mentioned by the experts (B3 21). Another expert is aware that this is not only a onetime job but also that you continuously have to be mindful of changes in the environment to adapt from a compliance perspective (B4 54).

4.5 Acceptance of the Users

User acceptance is essential for the success of the introduction. However, since most people are naturally reluctant to make changes, it is necessary to emphasize this so that the mood does not fluctuate from acceptance to rejection. If the employees, who are ultimately the ERP system operators, feel included even before the final implementation, the users' acceptance will eventually increase. Several experts have already experienced that a lack of acceptance or willingness on the users has tipped the mood into the negative and slowed down an introduction or brought it to a complete standstill. To ensure that the necessary acceptance is not lost, communication between all participants should be maintained utilizing ongoing feedback during the entire implementation phase.

Users should be shown what the introduction of a new system brings and how it helps them in their daily work to maintain acceptance (B2 45; B3 15; B6 19; B7 23; B8 21;). However, this should be done in advance (B2 45; B3 15) that users do not feel forced but included (B7 15). A lack of acceptance or willingness of the users and a negative mood can cause an introduction project to fail (B3 23; B6 17; B7 17; B9 19).

4.6 External Support from Consultants

External support, e.g., consultants from the software supplier or independent consultants, is essential for implementing an ERP system. Even before the implementation, help from external consultants can pay off for the process survey because they know the industry and the ERP system and, therefore, tell a PDL what is needed during the implementation. This external support is essential, especially for smaller companies and companies about introducing software. External consultants can provide the PCS with reference examples and best practices from other customers. At the latest, for full user training, external support is essential.

For a successful implementation, the consultant in charge must know the industry (B1 15). External consultants can tell the customer what to expect during the implementation (B4 5) and show best practice examples (B2 49, 55). Especially for small companies and enterprises, which are about to introduce or change their software for the first time, it is essential to get support from outside (B8 33; B9 23).

4.7 Communication

In many aspects, efficient communication is a prerequisite for success and impacts other success factors. Especially concerning user acceptance, it is vital to have good internal communication even before the ERP system is implemented. The project team should communicate openly and honestly, and any difficulties or delays in the project plan should

be immediately communicated internally and externally. Another task of the project team is project marketing. Project marketing includes all activities that serve to make the ERP introduction known in the project environment and increase acceptance. The experts agree that ongoing positive communication promotes acceptance and conveys order and security. Positive feedback on the course of the project is necessary to support the management.

For respondents B1, B4, and B9, communication is the basis for a successful ERP implementation (B1 15; B4 7; B9 33). "Communication is most important"(B1 15). Active listening is a crucial factor here (B4 7). The conversion of processes needs to talk to the team members involved even before processes are converted (B8 27). They should not merely be sat down and told that things will be done differently now (B2 45). Primarily to maintain user acceptance, it is necessary to communicate with the users on an ongoing basis (B7 19).

4.8 Training (Keyusers, Users)

Since ERP systems are very complex systems, extensive training of the users is required. Introducing a new ERP solution without the end-users' extensive training can have drastic consequences and is one of the most common reasons for implementing implementation projects. A sufficient budget should be set aside for the training of ERP users. It is recommended to allocate 17 percent of the project budget [WM09]. In addition to the financial budgeting, participants should also have enough time for the training courses and attend them undisturbed. The experts recommend using practical examples and involving the participants instead of frontal lectures to gain the knowledge on the future users. Additionally some used knowledge management methods would help to support in the long term [FP07]. In the first training sessions, the project team, especially the project managers, should be intensively trained in using the ERP system since they will be responsible for internal support as key users later.

Users must understand the full context and implications of the functions (B5 17). The employees must be trained as much as possible in advance. Only when they are taught will they enjoy it, and acceptance increase (B3 15). The project team or key users are also responsible for internal support. New employees must be shown how to do it correctly, not to feel lost (B2 45; B5 49).

4.9 Support from Top Level Management

Top Management Support has been identified in the literature as the most crucial success factor in implementing a new ERP system [A 01; Le15]. In our study, the experts express different opinions on the influence of management. While the management's support is the essential factor for one expert, several experts consider it critical only concerning financial capital provision. Should disruptions or unexpected delays occur, decisions have to be made

by top management. The management should lead by example during the implementation and positively express themselves about its new ERP system.

The management is mainly responsible for providing financial resources (B4 25; B8 19). B5 states that the importance of management also depends on their role in the company. If they are involved in the daily business and work with the ERP system daily, they are considered vital users. Otherwise, B5 also sees the management here mainly in the money-giving role (B5 51). Two experts name the creation of free space or time resources in the project team as a necessary management task (B6 15; B9 17). Especially when it comes to mediating discussions and taking action or prescribing how something is to be done, B2 feels that the management's support is necessary (B2 19).

4.10 Considerations for Implementations

"ERP implementations are a journey, not an event"[Pe15, p. 15]. Implementations of cloud-based ERP systems are a complex undertaking, in which so-called "critical success factors" should be taken into account for a successful outcome. However, the most important of the factors identified in the survey of the processes and requirements, which only enables a suitable composition of the project team and an estimation of the implementation time required to create a project plan. Thereby it is unavoidable to adapt the internal processes to the given processes of the provided ERP system. For an optimal implementation, the defined processes and the assembled project team should not change during the project.

External support, e.g., consultants from the software supplier, is essential for introducing a new ERP system, at the latest for full and detailed user training. Many companies underestimate the importance of user training during ERP implementations. Without well-trained users, however, an implemented ERP system will never provide the full added value, and therefore sufficient budget for user training should be included in the project planning. Another KEF accepts these users, which brings a project to success or failure and can only be achieved through good communication, user training, and support.

The unique characteristics of a cloud-ERP (Availability, Data Privacy, Scalability, and SLAs) have to be taken into account and communicated internally and externally. Besides, external support and project planning can be implemented more successfully through existing experience than with an individual solution.

5 Limitations and Future Research

This paper is distinguished by the fact that the Austrian legal situation and collective agreements were considered. Due to the fact that in the area of the PSCs, other countries have different regulations that have a direct impact on the personnel service ERP system to be implemented, no agreement is guaranteed here. Further follow-up studies would be possible

for implementations at international personnel service companies and a more extensive and broader selection of experts. The results of this research could also be compared with already identified success factors in the area of cloud-based ERP implementations in conventional companies.

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