What drives users to use CRM in a Public Cloud environment? — Insights from European Experts

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Abstract
Customer Relationship Management is about managing the core asset of a company – its relationship with customers. Confiding such an important asset to an external service provider requires special attention. Therefore, we investigated which factors influence the willingness of companies, especially in Europe to use CRM in a public cloud environment. Our model of the “Use of CRM” in a public cloud environment is based on empirical data from European experts and has been developed by using Grounded Theory. Important influencing factors are: the composition of the marketing organization, functionality, IT costs, scalability and integration. Safety and security are very important for decision-making process as well.

1. Introduction
Customer Relationship Management (CRM) is the most important means of achieving and maintaining strategic advantages, especially in saturated markets [1]. The concept is founded on the idea to maximize the value, whereby the customers as well as the firms increase their own and individual benefit simultaneously [2]. Therefore, it correlates to service dominant logic point of view, postulated by Vargo & Lusch [3], and focuses on a service- and customer-oriented marketing orientation. The term is widely used and different definitions can be found in literature [4]. These definitions embrace both technical and managerial aspects as shown by Payne and Frow [1]: strategy, value creation, multichannel integration, information management, and performance assessment. In conclusion, the central theme is to enlarge the customer-orientation of the company [5]. In most cases, CRM is implemented by information systems such as web-based tools [5]. Therefore, the concept could be seen as the strategical connection link between the marketing strategy of a company and its information and communication technology [6].

Here, we understand CRM as an integrative concept in order to get a complete view of the customer. This definition corresponds to the definition used by Payne and Frow [1], where the integration of IT and relationship marketing strategy is a driver for a long-term relationship with customers and further with all stakeholders as well. By using CRM, all communication and actions towards the customer are to be done in a deliberate and consistent manner. The goal of management of the relationship with the customer is to present only one (virtual) face to the customer [4]. Nevertheless, CRM also strives to identify profitable customers by integrating all customer related information [4].

CRM embraces a core asset of a company – its relationship with customers. Therefore, it requires special care when confiding such an important asset to an external service provider. Cloud computing [7] has received a lot of attention due to its capability to provide quickly computing services with nearly no upfront costs and the ability to scale up quickly, to increasing demand. These advantages of cloud computing are particularly evident in public cloud environments [8]. The cloud service provider is able to use a huge amount of resources and thus benefit from economies of scale. According to the NIST definition [7], a public cloud is a deployment model, which offers the cloud infrastructure – in contrast to the private cloud - for an open use by the public. In general, cloud computing such as public clouds can
provide three different service models: Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) [7]. A SaaS service model can be used to implement a CRM in a public cloud environment. However, public cloud computing is also considered as a risk because the confidentiality of data has to be protected by third parties and not by the owner of the data [8].

Cloud computing offers a number of features that fit with CRM. First, cloud computing providers mostly offer a high degree of security. Consequently, mobile employees are integrated in a more secure way. Another important benefit of cloud computing is integration [9]. Customer Relationship Management is an integrative concept [4]. Hence, using cloud computing facilitates establishing CRM by integrated users, data and services across organizational boundaries and locations in an independent manner [10]. Through the use of new concepts like Big Data [11], the processing time for analyzing different types of customer data in the cloud can be reduced [12], [13].

By contrast, the decision to move the CRM into a public cloud environment has to be scrutinized. Especially the use of public cloud CRM systems in highly regulated regions like the European Union (e.g. Germany) is challenging [14], [15], [16]. Using a public cloud implies giving crucial data into the hand of third parties [17]. Customer-related data is highly sensible as it includes personal data like e.g. financial data [17]. In the context of these requirements, our research targets to identify factors that could motivate companies using CRM in a public cloud environment. Therefore, we formulated the following research question: Which factors influence the willingness of companies, especially in Europe, to use a CRM in a public cloud environment?

Although a quantitative study has a lot of advantages, e.g. they lead to a comparable database, which enables to verify differences or equalities [18], a pre-election, for example of potential influencing factors, has to be done before data collection [19]. This leads to a limited set of options for the interviewee and limited spectrum of aspects. In consequence, important information could be lost. Therefore, we implemented a qualitative study in which we interviewed European experts in the field of cloud computing. This research method facilitates gathering the full spectrum of arguments in a more efficient manner [20]. Deeper insights into customers’ necessities and requirements are permitted, which facilitates the understanding of the customers in a better way. Hence, the products as well as the offer could be done in a more customer-oriented manner.

Thereby, the paper is organized as follows. First, the research method is introduced and the data collection as well as analysis is described. Following a model of the use of cloud computing for CRM is developed. Finally, a summary of the findings, a conclusion, and an outlook for further research as well as implications related to practice and research are given.

2. Research Method and Data Collection

The following section explains the research method and applied methodology for collecting and analyzing the interview data to find essential drivers regarding the use of CRM in a public cloud environment. The use of CRM in a public cloud environment can be defined as the individual and perceived use of information systems for CRM, which are offered as a Software-as-a-Service solution (SaaS) from a third party supplier in the public cloud.

2.1. Research Method

The authors developed a qualitative research study to investigate the main reasons for users to employ CRM in a public cloud. The study design is based on the methodology of Grounded Theory (GT) according to Glaser [21]. By using Grounded Theory, it is possible to develop a theory inductively based on our data by the use of several procedures [22]. By systematically gathering and analyzing the data during the research process [23], we used the approach of Grounded Theory to develop a own theory in order to explain main drivers regarding the use of CRM in a public cloud environment. Using Grounded Theory it is not only possible to handle the masses of raw data by several analytical tools, it is also possible to explore different phenomena by identifying and developing concepts, which are the building blocks of the theory [24].

A substantive literature review is not part of the process of origin of the concept of GT [23], [25], [26]. In fact, this approach is more appropriate for discovering new and unknown relations. The researcher should be unbiased when applying this approach. This is by far, better ensured without an intensive literature review.

Before identifying and developing concepts following the Grounded Theory approach, data has to be collected during interviews in order to build and interrelate main categories that describe potential relationships and generate theoretical suggestions and/or hypotheses [24].
2.2. Data Collection

Our qualitative research study is evaluated by implementing a semi-structured interview. This method is appropriate to get useful insights regarding complex issues from IT experts, as the atmosphere created is characterized by mutual trust [27]. We first looked for leading experts in the cloud environment. The identification of adequate companies, respectively interview partners, was conducted by using rankings like Gartner [28] and Forrester [29] reports and local German industry-specific listings of the Chamber of Industry and Commerce [30] in the year 2014.

In each company, we identified eligible candidates for our expert interviews. As selection criterion, we determined the professional experience particularly with regards to CRM and its implementation through information systems. Furthermore, all of our experts were from the service industry. The recruited participants for our research have averagely about 8.84 years work experience in this area of study. Therefore, it can be taken for granted that they have a high involvement as well as strong and deep expertise, in the investigated research topic. These experts were contacted formal via email, phone, or letter as well as informal using personal networks. Regarding the theoretical sampling by Glaser and Strauss [22, p. 45], we applied an iterative approach to address different IT experts in different hierarchical levels (sales professionals, manager, CEOs, etc.) and departments. Therefore, we were able to receive a good survey regarding many different aspects and conditions. That implicates that the information given by the data has a huge information content. At a glance, (job) details regarding the interviewed people in our research, can be taken from Table 1.

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Job Position</th>
</tr>
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<tbody>
<tr>
<td>Wolfgang</td>
<td>Director Product Marketing Central Europe</td>
</tr>
<tr>
<td>Christian</td>
<td>Senior IT Sales Professional</td>
</tr>
<tr>
<td>Dave</td>
<td>Sales Professional for CRM</td>
</tr>
<tr>
<td>Gerald</td>
<td>CEO</td>
</tr>
<tr>
<td>George</td>
<td>Business Advisor Big Data</td>
</tr>
<tr>
<td>James</td>
<td>CEO</td>
</tr>
<tr>
<td>Michael</td>
<td>Senior Manager</td>
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As a result, we conducted 10 interviews with leading experts in Germany from 10 different corporations in their business sector. According to other renowned researches (e.g. [31], [20], [32]) this sample is big enough to develop such a concept.

All interviewed people in this study are male and took part in our interviews without being paid for. The respondents are mainly responsible for the European market with different experiences in the markets of German, French, Dutch, Swiss etc. markets. Further, they have different European origins. Taking the companies of our interviewees into consideration, we have got five firms with less than 500 employees, one firm with a number of workers between 500 and 1,000, and four firms with more than 10,000 employees. Furthermore, we interviewed five IT experts who work for companies with far more than 100 million US-Dollar revenue in 2014. In fact, 4 out of these 5 companies had a revenue of several billions in 2014. Detailed information is depicted in Figure 1 as well as in Figure 2:

Table 1. Pseudonyms of interviewees and job positions

![Figure 1. Number of employees in 2014](image)

![Figure 2. Revenue in 2014](image)
and August 2014. The interviews were structured as follows: First, we introduced ourselves and the study design. Next, we asked questions about the interviewee (name, position, experience, etc.). Afterwards, we asked for core concepts and business cases about cloud computing and CRM. In the main part, we asked about the use of CRM in the public cloud, specifically about the experience and recommendations of the experts. Thereafter, we asked for co-re concepts and business cases about cloud computing and CRM. In the main part, we asked about the use of CRM in the public cloud, specifically about the experience and recommendations of the experts. Thereafter, we asked for remarks and opinions about the future use of CRM in the public cloud environment. Finally, we thanked the interviewees for participating. The questions were based on common and prevalent aspects of CRM and cloud computing. The semi-structured interviews were designed by empirical research methods [33]. Interviews were recorded and afterwards transcribed in the German language, which resulted in 142 pages of transliteration. Although we started the interview with personal questions such as job position and some details about the company (e.g. number of employees and revenue), we checked the given data for up-to-dateness by using annual reports or information on corporate websites if available. As a matter of course, all data used for research purposes and private data such as the name of interviewee, are handled with confidentiality. Therefore, we introduced pseudonyms for each interviewed person (see in Table 1). Additionally, while conducting the interviews, the researcher made helpful notes used for data analysis later on.

2.3. Data Analysis

After having transcribed our semi-structured interviews, we analyzed our data using the coding procedure by Strauss and Corbin [23]. The described procedure follows a systematic format including open coding, axial coding and selective coding [34, p. 58]. In the first step, we did open coding. We identified coherencies within the raw interview data by searching for patterns in the process of constant comparison sentence-by-sentence in order to build initial categories [23, p. 101]. In the next step (axial coding), related categories were subcategorized and linked to categories with the same property level and dimension [23]. Hence, mid-level categories were associated to high-level categories. As we obtained several customized high-level categories in our data, we now moved to the approach by Glaser. In accordance with Glaser’s approach, we introduced the core category which is the category with the most coherencies to all other categories [34, p. 116]. In our study, the core category is “Use of CRM” in a public cloud environment. In the last step (selective coding), we eliminated all concepts that are weakly related to our core category [22].

In general, a literature review was not made according to the GT guidelines [23], [25], [26].

3. Model of the use of Public Cloud CRM

After analyzing our empirical data with the method of Grounded Theory, we found six different core factors of influence and one strong moderating effect. The model we developed on basis of the collected and analyzed data is depicted in Figure 3.

In the following, we describe the different influencing factors and support it with different qualitative states (translated from German to English) from our asked experts.

3.1. Marketing organization

The first and very crucial influencing factor is the marketing organization. The marketing organization develops and realizes the strategies and planes to promote the company as well as to distribute the products or service, for example [35]. Further, the definition of the target groups is a very important remit of the marketing organization [35]. Consequently, it can be defined as the individual marketing orientation and implementation of an enterprise or entity. Enterprises with a very active sales department have a strong marketing organization [36] [37] [38]. Especially, enterprises selling very expensive products require a very intensive customer advisory service, where quality coheres with the information the sales representatives have right before visiting the customers. Therefore, generally companies must ensure accessibility to the information on a central manner. Nine of our asked experts remark this very important influencing factor by marketing organizations. For very agile marketing organizations within the enterprise, public cloud CRM solutions are a very good business strategy. This applies for the B2C, for example as, Michael explains:

“CRM is definitely a relevant aspect for recruiting and customer service. [...] In E-Commerce, the automation of web shops and customer communication plays a crucial role.”
Also the meaning in the B2B-sector, especially when companies have to cope with the decentralization of the marketing, was pointed out by the experts. René remarks it as follows:

“Where the employees have to travel a lot and need access to the most recent data, it is also very interesting to use a public cloud solution.”

According to this, James said:

“[…] the issue of accessibility, anywhere in the world access to the contacts.”

Especially for decentralized marketing organizations, a public cloud CRM is very useful according to Dave:

“It is most suitable for companies that are decentralized.”

Although the benefit of using a cloud based CRM system was not excluded for a single industrial sector, experts often see a huge advantage in the B2B-sector because of a more intensive distribution.

To sum it up, an agile as well as a decentralized marketing organization has a positive influence on the willingness of a company to use a public cloud. On the one hand, it simplifies existing processes and helps to develop businesses. On the other hand, it enables companies to integrate sales representatives in an efficient and secure manner. For example, the sales representative is directly and well informed about the necessities and requirements of the customer without queries, everywhere at any time. Therefore, the administrative support will be reduced and the process will be optimized.

3.2. Functionality

The functionality of CRM systems vary from system to system. Functionality can be defined as the ability of a system to fulfill the requirements, which it was selected for [39, p.72]. Therefore, 70 % of our interviewed experts think that functionality is a very important influencing factor for decision making using a Public cloud CRM system. A good congruence between the individual needed CRM functions and the offered function by the public cloud CRM system is very crucial. Five experts argue that it is possible to increase collaborative work using a public cloud approach. This leads to an improvement of the business processes and the orientation towards the customers as well. Based on the various functionalities and the easy adaption to the individual organizations, a cloud based CRM system can help to get and to stay competitive.
It is very important to implement functionalities of different user groups. Hence, Wolfgang remarks:

“[…] all departments must work closely together for supporting customers.”

Depending on the business case, there are additional features needed to implement some special sales activities. Additional features might be, for instance, newsletter generation and controlling as well as the coordination and implementation of sales activities. James comment to this:

“If you are doing different parts of customer management and customer care, special CRM functionalities are very good.”

In relation to the email functions, Peter states the following sentence:

“It is important that CRM systems provide additional functions, for instance easy e-mailing”

As a result, the possibility to use various functionalities in an easy way is for companies also a driver to implement their CRM in a public cloud environment. Contrary to the consult of provider to stay in contact with the customers and agile communication can be implemented and done in a simple and fast way.

3.3. Cost

Our experts consider the easy calculation of operation and investment costs as a very important influencing factor regarding the usage of the public cloud CRM system. In this context, costs mean acquisition costs (hard-/software) as well as control and operation costs (e.g. costs for implementation, training, maintenance, support) [40].

Because of the high degree of flexibility, such a solution enables enterprises to react quickly to changing surrounding conditions. In times of unfavorable economic situations, costs might be reduced immediately without obstacles. Gerald argues:

“You have fixed calculable costs, which are known in advance, this is an advantage.”

Gerald also added:

“It is a big advantage of CRM on demand that you can pay per use in the cloud”

James adds from the perspective of organizational decision makers:

“[…] this is for those kinds of people, more tangible […]”

Furthermore, organizations can save costs on IT employees, because of the externalization of the IT department. James comments to this:

“[…] the trend is to use such a cloud services. Therefore you are safe from building an overhead / red tape”

Furthermore, lower investment costs are beneficial for organizations. However, four out of ten experts observed that an individual proof of the costs before an organization starts a public cloud CRM project, is needed.

“This is a question of the individual condition of an enterprise, […]” (Wolfgang)

More cost aspects are for instance a decrease in the IT budget as well as short writing-off concepts. This is also an advantage according to the appearance on the balance sheet. Therefore no high investments are needed, only “controllable running” costs. Our expert Dave comments to the concept of writing-off:

“[…] I have no additional costs, which I must write off in the long-term.”

According to the opinions of our experts, the aspect of costs can be identified as an advantage of the use of a public cloud CRM system, too. If companies see their own benefit in the technology, they will be more likely to use this application.

3.4. Integration

Integration is a further important influencing factor for all of our experts. It is important that a CRM system can be combined with the actual conditions in the organization as well as future requirements. Otherwise, the benefit of a cloud based CRM systems would disappear because of cost-intensive adjustments like coding tools for integration or collecting data from existing systems. All of our experts define integration as a very important factor for decision-making. Four out of ten noticed that there are some problems like missing interfaces etc. However, most of the experts notes something like the following:
“Integration is in general quite possible” (James)

Christian confirms it:

“Actually very good feasible”

In general, integration means an integration of processes, functions, data, enterprise applications as well as organizational aspects [41], [42]. If the supplier listens and responds to the customer, this aspect can have a positive aspect on the willingness of using a system to manage the customer relationship in the public cloud as well.

### 3.5. Scalability

All of the asked experts argued that scalability is also a very important influencing factor for the use of a public cloud CRM solution. In general, scalability is the ability of a system to increase or decrease resources capacity [43].

The easy and demand-driven adding and deleting of users in the CRM system is very useful. Therefore, organizations can adjust their demand to the current internal business demand. Our expert Wolfgang confirms it as follows:

“And this scalability is a big advantage for the customer, [...], because you can add a new user overnight”

For most organizations, scalability is only reachable in a public cloud environment. James remarks to this:

“[...] it only speaks for the cloud solution and not for the internal one in everyday life”.

Furthermore, our experts agree that in big organizations small departments start with such a public cloud CRM solution. In case of good experiences with this kind of CRM solution, different departments adopt it. Wolfgang describes this phenomenon as:

“>>Seed and grow<<, it is often better to begin small and then you can acquire bigger departments”

The possibility to start in a small way as well as the opportunity to adapt the CRM system was also identified as an aspect, which benefits from the public cloud based solution in a positive manner. The possibility to start with a single department and just a small amount of data minimizes the sense of risk for the company. Hence, the aspect of scalability can have a positive influence on the use of a cloud based CRM system.

### 3.6. Safety and Security

The influencing factors of safety and security were expressed by all of our experts for the use of CRM in the public cloud. Safety and security are related to each other, but there are differences in the meaning [44]. Safety focusses on the avoidance of hazards whereas security targets on assurance of integrity, authenticity, and confidentiality of information [45], [46]. Nevertheless, there are differences in the meaning of the strength of the influencing factor. James argues that safety and security are very important:

“[...] it is for managers a decisive criterion [...]”

Wolfgang comments that much has been done for safety and security today:

“[...] there are audits and very critical analysis from the server systems [...]”

Furthermore, Ralf comments that it is a technical challenge for both parties:

“[...] is it the classical way via the internet browser? Is SSL active? Can I use an encoding system? [...]”

Very important for our experts is the place of the data center (e.g. inside or outside Germany). René comments to this aspect:

“[...] for me it is very important that I have a solution where my service is placed in Germany [...]”

A remarkable point of view is that the NSA-affair [47] has a positive effect on the aspects safety and security. Some believe that data is now more protected and the formalities are monitored more strictly.

The experts argue that safety and security for small and medium-sized enterprises can be increased by using a cloud SaaS approach because this kind of enterprises, in general do not have such a high budget as to invest in high secure and safety systems and well trained IT security experts.
The conclusion is that not only the risks but also the possibilities of the application are seen. Therefore, if this very important criterion is fulfilled, safety and security could be a positive influencing factor.

3.7. Compliance

Compliance aspects moderate all influencing factors. For all of our experts the level of compliance is very important and influences all other impact factors. For instance, enterprises with a high-regulated environment have different views of cost, functionality, safety and security, marketing organization as well as integration to the use of CRM in a public cloud environment. In the European Union and particular in Germany, are a large number of laws and organizational regulations driven by a high level of privacy and reliability [14], [16], [15].

Four of our experts noticed that compliance is a very critical aspect for users to go into the public cloud with their CRM system. Furthermore, all other influencing factors are moderated by compliance in the view of our experts, because of the special requirements and impacts to the other influencing factors. One expert expresses it with, focusing on the industry-specific use of public cloud CRM:

“[…] of course, it is a possible option for all industries, unless there are legal reasons against it” (George)

Wolfgang expresses it a bit more significant:

“[…] compliance is a basic requirement, absolutely”.

In general, compliance include e.g. regulations, laws, statutes, polices and standards [48]. Therefore, it is not surprising, that especially German companies are hesitant in adopting the cloud [49]. Only 11 % of German enterprises use public cloud services and 19 % in average in Europe [49]. There is a huge difference regarding the European market and the US market that is much more willing to adopt public cloud systems [50]. This can be explained, for instance, by differences in compliance as mentioned before [50]. The regulations (as a part of compliance rules) in the European Union are more restrictive than in the USA, for example [51], [52], [50] [53]. This could imply that the moderating effect of compliance is more distinct in the EU.

3.8. Further influencing factors

There are a number of very weak influencing factors because only one of the experts noticed such a factor or the experts argue that this factor does not play an important role for the use of public cloud CRM. Such factors are, for instance, the internet bandwidth, the IT affinity or existing IT knowledge. Therefore, we have not added these factors to our model.

4. Conclusion

We developed a model of the Use of CRM in a public cloud environment based on empirical data from European experts using Grounded Theory. We found that some important influencing factors like the composition of the marketing organization, functionality, IT costs, scalability, integration as well as safety and security are very important drivers for decision-making. Experts in the cloud environment mentioned all these factors repeatedly. For that reason, they can be seen as a good base for the model as well as the concept of what drives users to use CRM. Furthermore, the analysis of the data shows that the level of compliance moderates the different influencing factors.

Our research contributes to current information system research. First, general aspects of the decision-making, why European enterprises use the public cloud are explored in detail here. Therefore, current decision models can be adopted or improved by using our model. Second, the specifics of public cloud CRM systems as well as the strong compliance requirements in Germany and in general in the European Union are qualitative investigated. Consequently, current research can use these results to extend the current scientific view of public cloud CRM systems for European enterprises.

There are also some practical implications. Enterprises can benefit from our research by evaluating the different aspects of public cloud CRM with their own business cases. Furthermore, our model can help to find suppliers for their specific requirements. Beside the view of potential customers, our research demonstrates starting points for suppliers of public cloud solutions. The knowledge about costumer necessities’ and requirements enables them to improve their offer along the preferences of the customers. Therefore, sales could be increased as well as the market position could be expanded.
Our qualitative research focuses on a sample of different experts. It is obvious that we were not able to reach all experts from all of the European countries. It has to be noted again that we arranged a sample that includes different perspectives to get reliable information. We only asked European experts. In this market, the use of CRM in a public cloud environment is not very common at this moment. Hence, it might be very interesting to get deeper insights into the requirements of the market. For instance, there might be some intercultural differences to other countries (e.g. US or BRIC states). Furthermore, a model validation using a quantitative approach is needed.

Future research should validate our model via a representative quantitative study (e.g. web-based survey). Therefore, the influencing factors explored in our research could be an adequate starting point for the set of answers given in the questionnaire of the survey. An evaluation of our model in different countries and focusing on different aspects (e.g. compliance) are good opportunities for future research. In this context, a differenced investigation of single European states would be interesting, too. For instance, Nordic states like Finland have an increased willingness for adapting public cloud whereas states in the middle of Europe are more restrictive regarding the usage of public cloud [49]. Furthermore, aspects as various SLA models should be further explored in future work.

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5. References


