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Which Factors Affect Software-as-a-Service Selection the Most? A Study from the Customer's and the Vendor's Perspective

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Abstract

Business interest in deploying Software-As-A-Service (SaaS) solutions has been increasing steadily. Despite this, there is limited empirical work addressing SaaS selection factors or attempting to understand the vendors' perception of the customer preferences. In this paper, we present the results of a qualitative study on SaaS selection factors that takes into account both the customers' and the vendors' perspectives. According to our findings, selection factors differ across customer segments. Furthermore, vendors appreciate the selection factors that relate more closely to the technical and branding aspects and seem to underestimate the importance of usability and support aspects that are highlighted by the customers.

1. Introduction

Cloud constitutes an elastic pool of computing resources offered for a pre-defined level of service quality [1]. It is offered over three main different service layers, Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS). Infrastructure-As-A-Service (IaaS) offers virtualized computational resources as services whereas Platform-As-A-Service (PaaS) provides computational resources through a platform on which applications can be developed and hosted. In this work, we focus on Software-as-a-Service (SaaS), defined as software supporting the remote execution of particular business processes offered in the form of virtualized, already-created applications set-up on the cloud.

According to predictions by Gartner, the SaaS market is expected to grow by 19.5 % until 2016 while the global spending on SaaS will rise by $19.3B from 2013 to 2016 [2]. SaaS is a relatively new technology service which has been changing the software provisioning landscape in recent years. With reference to research work studying customer preferences in the selection of better established computing services (outsourcing, in-house software provisioning) and adjacent fields (PaaS and IaaS selection), this paper sets out to contribute to the literature investigating SaaS selection. In addition, to understand an emergent computing field, that presents new market potential for software services, we envisage that this empirically grounded research on SaaS selection can contribute to organizational, marketing and business research on software service selection.

Research investigating customer preferences for cloud services is already underway (e.g., [3] [4] [5] [6]), but it is fragmented and still at an early stage. The first contribution of the paper is therefore a synthesis of relevant prior work, resulting in a framework of possible SaaS selection factors. We note that earlier empirical research typically invites respondents to prioritize customer preferences based on a pre-defined set of factors. The aim of the paper is to extend this work, so, in our qualitative empirical study, we capture the most important selection factors as *spontaneously* identified by respondents and compare these to the extant literature (second contribution). In addition, we study how responses differ across different organizational sizes of customers (hereafter 'customer segments') and how their views and those of SaaS vendors diverge (third contribution). 'Customers' in this paper refer to organizations or individuals who have already purchased and used SaaS products while 'vendors' are companies who sell SaaS products.

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Through the empirical work presented in this paper, we capture different customer/vendor perspectives on SaaS selection factors, and interpret our empirical results building on the extant literature. Thus, our study provides insights on the most important SaaS selection criteria and identifies differences in perceptions, thus contributing to the body of work that seeks to consolidate SaaS selection criteria, their relative importance and the rationale followed by different stakeholders engaged in the provision and use of SaaS services.

This objective is reflected in the research questions guiding our empirical study: 1) Which are the most important factors affecting SaaS selection? Do these differ with respect to the customer's organizational size? 2) To what extend do the selection factors, as perceived by SaaS vendors, differ from those denoted by SaaS customers?

To address these questions, in Section 2, we introduce a framework of possible selection factors that, according to the extant literature, could influence the decision to select SaaS services. Section 3 describes our methodology. Section 4 presents the empirical findings for customers and vendors. Section 5 compares their perceptions and discusses them in light of earlier research. Finally, Section 6 discusses limitations and possible future directions.

2. Constructing a framework of SaaS selection factors

In order to synthesize a comprehensive framework of possible SaaS selection factors, we reviewed studies from the areas of Information Systems and Computer Science that focus on the adoption or selection of cloud services at any layer (SaaS, PaaS or IaaS). During this process, factors that were identified for other layers but seemed applicable to SaaS were included (e.g. brand name), whereas factors that were relevant for other layers but not in SaaS selection were omitted (e.g. operating system). Adopting the classification framework of four clusters proposed by Janssen and Joha (2011), the possible SaaS selection factors are presented in Table 1 and reviewed in the following paragraphs [7].

The *Technical* cluster captures the factors related to the capabilities and limitations of the technology. One of the identified factors is the elasticity of resources to handle peaks on variable workload [8] [9] [10]. Service availability, i.e., guarantee on service uptime is another factor considered during selection [11]. Back-up and

Factor		Description	References
Technical	Elasticity	Ability to provide services on-demand	[8] [9] [10]
	Availability	Ability to keep the service available at all times	[11]
	Back-up and damage recovery	Data back-up schemes, Damage recovery, Failover capabilities	[12] [13]
	Integration with existing systems	Ability to integrate with existing systems/infrastructure	[12] [14]
	Flexibility	Customizing or changing a service easily	[13]
	Browser compatibility	Ability to function well with desired browser	[5]
	Functionality	Features included	[5]
	Add-ons	Ability to introduce add-ons	[5]
	Security standards & access controls	Ability to assure low-security risks	[15]
	Usability	Effort required in order to achieve desired results	[13]
Strategic & Organizational	Geo-diversity	Ability to scale at different geographical locations	[13] [14]
	Support & Training level	Support level and training offered by the vendor	[6] [13]
	Lock-in effect	Ability to move easily from one vendor to the other	[11] [13]
	Brand name	Expectations of the vendor based on observations of others, reputation and trust associated to the name of the vendor	[6] [16]
	Start-up time	Time required from the time a service is booked until it is fully set up	[1] [14]
Economic	Pricing scheme	Subscription model	[17]
	Pricing	Cost	[6]
	Commitment duration	Contract commitment duration	[7] [9]
	Commitment flexibility	Consequences on changing/breaking the contract	[5]
	Payment method	Ability to pay with desired payment method	[5]
Political &Legislativ	SLAs	Assurances provided by the vendor	[8] [10] [13]
	Standards compliance	Compliance with any standards that the customers desires to comply	[13]
	Legal compliance	Compliance with various legal issues internally and externally of the customer	[12] [15]

Table 1 – Candidate SaaS Selection Factors

damage recovery is also a factor identified [12] [13]. Another factor empirically identified is the ability to integrate the new SaaS product with existing systems [12] [14] – e.g., the compatibility with the existing operating systems in the case of SaaS. Flexibility is a factor that refers to the ability of offering customizations to SaaS in order to accommodate specific needs [13]. In addition, browser compatibility regards the ability to run smoothly on the desired browser [5]. Functionality is concerned with the features provided by the product and add-ons regard the ability to integrate add-ons on the purchased service at any time [5]. Security assurances and access control are relevant to the ability of providing low security-risk assurances [15]. Finally, usability refers to the ease of use of the SaaS solution [13].

The *Strategic & Organizational* cluster captures factors related to an enterprise's organizational and strategic goals. One identified factor refers to the ability of the SaaS user to scale the provided services from different locations [13] [14]. The level of training and support provided is also a factor considered within this cluster. Regarding training, past study results revealed that no training is required, whereas for support, standardized electronic support seems to outshine individual personal support [6] [13]. The lock-in effect is another factor which may apply for SaaS, in the sense of having (or not) the ability to easily move data from one vendor to the other, e.g., exporting contacts from one SaaS and importing them to another [11] [13]. Furthermore, the brand name of the vendor matters. A significant number of participants in an earlier empirical study would prefer a vendor with high reputation [6] [16]. Reputation itself can span over all the selection factors e.g., a cloud service may have bad reputation in terms of availability and good reputation in terms of lock-in effect. Since the trust and reputation of the vendor are factors closely related to its brand name, we group these under the brand name factor. Start-up time for SaaS relates to the lapse in time from purchase until the service is ready to use, including technical as well as organizational hurdles that may delay the setup [1] [14].

The *Economic* cluster captures factors related to the financial aspects of SaaS services. Since by cloud adoption enterprises move from a Capital Expenditure (CAPEX) to an Operational Expenditure (OPEX) model, an important financial factor is the subscription model. According to [17], customers seem to prefer flat-rate tariffs over pay-per-use tariff. Supplementary to the pricing scheme, is pricing and contract commitment. Pricing refers to the costs associated with the use of SaaS service whereas contract commitment refers to the contract duration [6] [7] [9]. In addition, contract flexibility is another factor that could be important as it is relevant to the penalties associated with breaking or changing the contract [5]. Finally, payment method concerns the ability to pay with the payment method desired by the customer [5].

We include *Political & Legislative* issues in the fourth cluster. Service Level Agreements (SLAs) are assurances signed by vendors towards customers [8] [10] [13]. Compliance with standards applies where customers comply with certain standards and the software must conform accordingly. Finally, another important factor is the compliance with legal rules that apply internally or externally of the organization [12] [15].

This comprehensive framework of SaaS selection factors that resulted from a synthesis of the extant literature, as depicted in Table 1, has served as a guide for understanding, questioning and analyzing the results of our empirical study.

3. Methodology

As this is one of the early studies in SaaS selection, with emphasis on under-researched aspects related to customer segments and customer-vendor differences of perception, a qualitative research methodology was selected as the most appropriate for investigating the research questions in depth. The use of semi-structured interviews offered the flexibility to elaborate further on the factors for which perceptions might differ across respondents and at the same time the interview agenda helped us to assess the same topics across all interviews [18]. The use of open-ended questions let respondents spontaneously identify the selection factors they consider most important, thus avoiding the possible bias that a predefined list, such as Table 1, might introduce to their responses.

Respondents were either SaaS customers (11 respondents –see Table 2) or SaaS vendor representatives (7 respondents –see Table 3). In two of the organizations, follow-up interviews with other members of the organization were carried out. For simplicity in the results presentation, the same abbreviation is used for answers from the same organization (cf. customer I & vendor A in the tables). Convenience sampling was used, exploiting our business contacts and the contact of our partners in a European research project on cloud services, to ensure better accessibility and the willingness of respondents to participate and candidly share information. Since we considered customer segmentation an important dimension for data analysis, we sought respondents

representing or (in the case of vendors) targeting all relevant customer groups.

In Table 2, column 'Type' denotes the type of enterprise included in our study and column 'Type of product' indicates the type of SaaS purchased. Concerning company size, we follow the definitions of European Commission [19]. Similarly, for Table 3, the column 'Target Customer' denotes the primary customer group(s) targeted by each vendor, and 'Interviewee role' explains the role the respondent holds in the company.

Customer	Country	Type	Interviewee Role	Type of Product
A[iCA]	Greece	Freelancer	-	CRM-Accounting
B[iCB]	Greece	Freelancer	-	Theming
C[iCC]	Greece	Freelancer	-	CRM-Accounting
D[iCD]	Greece	Micro	Director	CRM-Accounting
E[iCE]	Germany	Micro	Director	CRM
F[iCF]	Greece	SME	Manager	CRM-Accounting
G[iCG]	Greece	SME	CIO	CRM
H[iCH]	Austria	SME	Director	CRM
I[iCI]	Inter-national	Large	National CIO	CRM
I[iCI]	Inter-national	Large	EMEA CIO	CRM
J[iCJ]	Germany	Large	Marketing Director	CRM

Table 2 – Participants' details (Customers)

Vendor	Country	Target Customer	Interviewee Role
A[iVA]	Greece	Freelancers/SMEs	Product Manager
A[iVA]	Greece	Freelancers/SMEs	Product's Technical Manager
B[iVB]	Greece	Large	Director
C[iVC]	Cyprus	SMEs/Large	Product Manager
D[iVD]	Germany	SMEs	Product Manager
E[iVE]	Hungary	Freelancers/SMEs	Product Manager
F[iVF]	Turkey	SMEs/Large	Product Manager

Table 3 – Participants' details (Vendors)

Companies participating in the study were first informed about the general aim of the research so that the most appropriate interviewee(s) in each case could be identified. Concerning customers, the directors were interviewed in micro organizations, whereas in SMEs and large organizations interviewees were usually high-rank executives involved in the decision making of purchasing IT solutions. In vendor organizations, interviewees were individuals with good knowledge of the SaaS product offered and its customer base (hence predominantly SaaS product managers).

Interviews were held either in person or through teleconference and lasted for approximately forty-five minutes to one hour. An interview agenda was used as a guide for the interview discussion, allowing respondents to raise additional points. In the interviews with the vendors, the interview agenda included three sets of questions capturing information about the vendor, the SaaS products offered and how these are provided. Interviewees were also explicitly asked about the most important SaaS selection factors they believed influence their customers' decisions. Similarly, three sets of questions were used for the interview agenda directed to customers, capturing the customer's profile, the use of SaaS in the organization and the most important factors that influenced their SaaS selection. In both cases, questions that regarded the selection factors were phrased as open questions, so as not to bias responses. Specifically, interviewees were invited to denote which selection factors for SaaS they considered most important, without having at hand a list of predefined selection factors (i.e., we did not use Table 1 as a prompt for their responses). The interview discussions were transcribed and key findings were summarized by the interviewer. The interview results were then reviewed by the other authors of the paper. The findings of this research effort are presented in the following section.

4. Results

This section presents the interview results for customers and vendors in Tables 4 and 5 respectively. The rows of the tables represent the selection factors that have been denoted as important by our respondents. The columns of the tables help us categorize the data based on the size of organization purchasing the SaaS product (Freelancer, Micro, SME, Large) in the case of customers and based on the main target customer group in the case of vendors (Freelancer/Micro, SME, Large). Finally, the cells of the tables include representative quotations provided by our interviewees (e.g., how they referred to the respective factor or how they commented on its significance).

Since respondents were asked to identify the most important SaaS selection factors, only a subset of the candidate factors identified in Table 1 appears in Table 4 and Table 5. This does not imply that factors of Table 1 omitted from Table 4 and Table 5 do not influence the selection decision at all, but rather that they play a less important or less conscious role according to the interviewees' perceptions. Similarly empty cells, do not imply that interviewees entirely ignore the particular factor but rather that the related customer segment does not seem to consider these factors of primary importance. In addition, although the factors that appeared throughout the interviews were in most cases identified as candidate factors in Table 1, one new factor, *Website design*, emerged in the interviews (underlined in Table 4). The following

sections present in turn the findings from the customer's and the vendor's perspective in more detail. These findings are then compared across respondents and reviewed in the light of our framework and earlier research work in Section 5.

4.1. The customer's perspective

From the customer's perspective, factors from all four clusters of Table 1 were identified. From the *Technical* cluster, factors associated to functionality and usability were highlighted. According to the respondents, *Functionality* was relevant for all company sizes and concerned specific features that participants required of SaaS (e.g. "currency and language support features" [iCA]). *Usability* also appeared to be one of the most frequently mentioned factors since nearly all participants, regardless of organizational size, mentioned it. As one of the interviewees noted, "when the product is usable, cost comes second" [iCD]. A new factor that appeared consistently in the interviews that was not identified in the literature is *Website design*. This factor seems to relate to the general look and feel of the vendor's website. This could be associated to the expectations about the features of the product, as according to the participants it denotes "attention to detail" [iCB]. This factor appears to be most relevant for freelancers and micro companies.

In the *Strategic & Organizational* cluster, three factors were denoted as important for interviewees. First of all, *Support and training level* seems to affect micro-sized companies and SMEs. As stated by one of the interviewees, there are cases where problematic customer support may signal problems in communication and troubleshooting: "problems with software had to be communicated electronically […] to solve a 2-minute problem" [iCH]. More specifically, support may even outweigh brand name: "it seemed to have a bad service and support and working with a smaller company would be better" [iCJ]. *Brand name* was also identified as an important factor, an indication of security and trust towards the service vendor for some of the interviewees: "I choose the vendor because it's a widely recognized vendor therefore [one that] I

Factor		Freelancers	Micro	SME	Large
Technical	Functionality	"currency and language support features" [iCA] "desired service features" [iCB]	"I liked the feature of creating email directly and the functionality of importing data"[iCD]	"functionality" [iCH]	"having a web based mobile app" [iCI]
	Usability	"good graphical interface" [iCA] [iCC]	"good user interface of software" [iCD]	"usability" [iCH]	"user friendliness" [iCI]
	Website design	"website indicates attention to detail if well designed" [iCB]	"usability of the website" [iCD]		
Strategic & Organizational	Support & training level		"good customer service" [iCD]	"problems with software had to be communicated electronically […] to solve a 2 minute problem" [iCH]	"[…]it seemed to have a bad service and support and working with a smaller company would be better" [iCJ]
	Brand name	"good customer reviews" [iCC]	"I choose the vendor because it's a widely recognized vendor therefore I trust" [iCD]	"brand name" [iCF]	
	Start-up time			"quick installation and less things required before starting to use" [iCH]	"time to introduce" [iCI]
Economic	Pricing	"cost" [iCA, iCB]	"I know that there are cheaper solutions but as long as the price is reasonable it is ok" [iCE]	"it was a cheap solution" [iCF]	
	Pricing Scheme				"cost in front is low" [iCI]
Political &Legislative	Legal compliance				"data is stored known physical place. This was part of the contract" [iCJ]

Table 4 – Results for the customers' perspective

trust" [iCD]. Unlike large companies, freelancers, micro organizations and SMEs seem to be influenced by brand name, reputation and customer references of the service more. *Start-up time* was another factor that appeared in this cluster. This factor considered the time that was required from the time the decision to purchase was reached, until the product became fully functional. This factor was recorded as important in SMEs and large companies.

In the *Economic* cluster, *Pricing* seems to be one of the most important selection factors as it appeared in all customer segments. For the freelancers, micro organizations and SMEs, pricing seemed to be related to minimum or 'reasonable' service rental costs. However, for large organizations, the *Pricing Scheme* was also related to the cost required for starting to use the service which some of the vendors require: "procedure to take the decision usually depends on the amount of money required to be released at a certain time; internal bureaucracy for decision making when it comes to large/costly projects may occur" [iCI].

Finally, *Political & Legislative* matters seem to have an impact on SaaS selection. In this cluster, *Legal Compliance* seems to be important for organizations of large size. Large companies have additional considerations about data handling and storage. Usually such characteristics are audited by the customer before choosing the SaaS service to be purchased. According to the respondents, data location and storage matters may require additional contracting with the vendor in order for the customer to make the purchase.

Comparing results across the four clusters, all customer segments appreciate factors related to the *Economic* cluster. Factors related to the *Political & Legislative* cluster seem to be applicable only for large customers. Furthermore, customers of larger size seem to value the factors grouped under the *Strategic & Organizational* cluster more whereas customers of smaller size seem to appreciate the factors that are associated to the *Technical* cluster more.

Nearly all the responders regardless of their adoption level seem to consider *Pricing* and *Usability* as some of the most important SaaS selection factors. However, if we consider our responders based on their experience in adopting SaaS services, early adopters seem to appraise some additional factors that relatively late adopters did not denote. For example *Functionality* seems to be one of the most important selection factors for SaaS indicated by responders that consider themselves early adopters (e.g. [iCA, iCC]). In addition *Start-up time* seems also to be highlighted by early adopters only (e.g. [iCH, iCI]).

The above findings indicate the importance of customer segments and adoption level and therefore merit further investigation in a larger-scale research, as we argue later in the paper.

4.2. The vendor's perspective

For the interviews with the vendors, we follow a grouping method similar to the one used for the customers, based on the target customer group of each vendor (freelancers, micro organizations, SMEs, large). As vendors may be targeting more than one customer segment, for concision reasons we group our findings under the core target group of each vendor. Freelancers and micro companies were hard to distinguish and hence the two customer segments were grouped under the same category of target customer. Based on the findings of our study, vendors expect that factors from all four clusters presented in Section 2 affect their customers' selection decision for purchasing SaaS services.

In the *Technical* cluster, factors that regard the quality of service such as *Elasticity* and *Availability* are expected to be important for customers of large size. *Backup and damage recovery* is a factor that seem to concern customers of small and medium size as vendors allow their customers to download all of their data locally when desired. In addition, *Flexibility* to customize seems an important factor that influences SaaS selection, especially for SMEs and large companies. According to the vendors, customers of such sizes "want to see *their* business processes in the solution" [IVD] rather than adjust their business processes to the service's design. *Functionality* also seems to be an important selection factor for freelancers, micro and large companies. Finally, Usability is perceived as an important factor for freelancers and micro companies ("which one is easier to understand and conceptualize" [iVA]).

In the *Strategic & Organizational* cluster, *Brand Name* is a selection factor expected to apply to all customer segments and for some vendors it is expected to be an indication of "trust and reasonable pricing" [iVC]. Furthermore, *Start-up time* seems to be important for SMEs. In the *Economic* cluster, vendors seem to expect that *Pricing* is an important selection factor for all customers. In the *Political & Legislative* cluster, *Legal compliance,* as related to the physical location of data, seems to be an important factor for SMEs ("local servers, local solution and ability to meet in person if necessary" [iVE]).

Looking across customer segments, vendors acknowledge that *Pricing* and *Brand name* are important for all customer segments, whereas they consider that different technical factors matter to SMEs and large organizations compared to freelancers and micro companies. Looking across clusters, vendors

Factor		Target customer		
		Freelancer – Micro	**SME**	**Large**
Technical	Elasticity, Availability			"good quality of the service (QoS)" [iVB]
	Backup & damage recovery		"Through our service we allow regular 'dumps' of the data they have on the cloud (data sent back to their own pcs frequently)." [iVD]	
	Flexibility		"customization flexibility: customer wants to see their business process in the solution and users are willing to pay more for this" [iVE]	"Flexibility on technology and business processes" [iVB]
	Functionality	"who has the features that fit the purpose that I am planning to use it for" [iVA]		"Functionality" [iVB]
	Usability	"which one is easier to understand and conceptualize" [iVA]		
Strategic & Organizational	Brand name	"my data are held by somebody else. They need to be trustworthy so that they will not give my data away to third parties e.g. competitors or tax authorities" [iVA]	"we have been in some sense the 'good kid' in the local market who is trustworthy and will charge a reasonable price" [iVC]	"Portfolio of customers also supports the brand name" [iVB]
	Start-up time		"Time to install" [iVC]	
Economic	Pricing	"cost" [iVA]	"people are calculating for many years can they rent the software until it is more expensive than buying them upfront" [iVD] "reasonable price" [iVC]	"cost" [iVB]
Political & Legislative	Legal compliance		"local servers, local solution and ability to meet in person if necessary" [iVE]	

Table 5 – Results for the vendor's perspective

seem to attach importance to a greater number of *Technical*, as opposed to *Strategic & Organizational* factors.

The above insights denote customer segments as an important dimension for analyzing the perceptions from the vendors' perspective. As such, these findings merit further exploration through a larger-scale research.

5. Discussion

The contribution of this work, in addition to synthesizing a framework for SaaS selection, lies in the insights from the research results. In this section, we compare the vendors' and customers' perceptions. We review the findings in light of earlier research work in related areas, such as the selection of outsourcing and cloud services, in an effort to identify similarities and differences. We seek explanations for this emerging diversity of perceptions where possible and thus aim to contribute to the debate on SaaS selection. Factors such as *Functionality, Usability, Brand name, Start-up time*, *Pricing* and *Legal compliance* were identified by both customers and vendors, although perceptions per customer segment may differ. Responses about *Functionality*, indicate that vendors realize that service features are important for all customer segments. This finding is in line with the results of Repschlaeger et al., (2012), who identified functional coverage among the SaaS selection factors based on the literature and interviews with experts [5]. For *Usability*, vendors expect that ease of use and good design of user interface would apply as a selection factor for freelancers and micro-sized companies. However, according to customer responses, *Usability* is considered one of the top factors for selecting a SaaS regardless of organizational size. Theory from the field of management and information systems denote that usability has been identified as one of the key factors influencing customer satisfaction, since the early days of in-house software solutions [20] [21]. Indications

from our results confirm that usability seems to be important despite the change in the technologies in-use and the model through which technology services are deployed.

Moreover, based on the responses of the vendors, *Brand name* seems to be a critical selection factor affecting the selection decision of all customer segments. In line with this finding are the results of Michell & Fitzgerald (1997) and Khan et al. (2011) who based on interviews and desktop research, noted vendor size and reputation as important factors for selecting outsourcing vendors [22] [23]. In addition, findings recorded in industrial marketing, examining brand name in business-to-business markets targeting small firms indicate that brand image strongly influences the customer's expectations for product and service quality [24]. In our research, from the customers' viewpoint, there are indications that brand name is less important for large organizations. Our interviewees explained that other factors are more important compared to brand name (e.g. "we wanted to go for a larger vendor […] it seemed to have a bad service and support" [iCJ]) or, according to an interviewee from another large organization, an internal process is initiated for assessing and testing candidate services before selecting ("We are a large company […] we went through deep auditing of the solutions and long discussions before the final decision" [iCI]).

Vendors seem to perceive *Start-up time* as one of the important factors that affect the selection decision for SMEs. From the customer's viewpoint, except for SMEs, the time to introduce the SaaS solution seems to be affecting companies of large size. This may be explained if we consider that the improvement of business processes in large companies could result to a faster and more substantial return on investment (ROI), compared to micro companies.

Our findings indicate that vendors perceive *Pricing* to be important for all customer segments except large customers, who have better resources. Anandasivam (2009) identifies pricing as one of the most important factors when prioritizing selection factors for IaaS based on a quantitative study [14]. Similarly, in [22] and [25], cost effectiveness is identified as one of the factors that make an outsourcing vendor attractive. However, none of the above studies considered cost across the customer size dimension and hence no comparison is possible across different customer segments of different service models. According to our data from the customers' perspective, cost is important regardless of customer segment, but matters in different ways. For smaller customers, obtaining the service at the lowest total cost may be important whereas larger companies seem to be more willing to compromise in an effort to balance costs across time (i.e., the *Pricing Scheme* matters more). This is consistent with the results of a survey presented in [12], where 63% of the large companies involved in the study and 62% of all respondents evaluated cost as the most important reason for adopting cloud technologies (regardless of the service model). Finally, *Legal Compliance* is important for SMEs (according to the vendors) and large companies (according to the customers).

Although several factors denoted by the vendors were in line with selection factors identified by the customers, other factors that according to the customers are important seem to be underestimated by the vendors. First of all, *Website design,* look and feel seems to be an important factor for freelancers and micro-sized organizations. Given that customers of this size are likely to purchase SaaS solutions online without undergoing a long selection procedure, website design is used as an indication of the quality of the service offered ("website indicates attention to detail, if well designed" [iCB]). Literature from the fields of e-commerce and marketing supports this finding as it denotes that good website design could positively influence customer trust, therefore website design has an impact on intention to purchase [26] [27].

In addition, *Support and Training level* is another factor not discussed by the vendors that is important for customers. This is in line with findings of [14], arguing that support and training is one of the critical factors for IaaS service selection. According to our findings, organizations of micro, small, medium and large size consider this as a key factor for their selection decision. Previous empirical work on the selection factors for in-house ERP systems [28] indicates that good support is an important factor for large enterprises. As one of the interviewees explained, "We wanted to go with provider X with which we had previous collaboration […]. When initiating the discussion for the new service, it was very difficult to communicate, every day we were talking to a different person and had to explain everything from scratch. They seemed to have a bad service and support and working with a smaller company would be better" [iCJ]. Another interviewee from a smaller organization discussed problems arising with support: "when having problems with the software, they had to be communicated electronically. Then, my staff came to me and asked me to call in order to solve a 2-minute problem" [iCH].

Conversely, there were factors that vendors perceive to be important for customers, but customers seem not to recognize them among the most important. Such factors relate more closely to the technical characteristics of the service e.g. *Elasticity* and

Availability. Specifically, vendors targeting large organizations perceive that quality of service, in terms of *Elasticity* and *Availability,* is one of the most important factors that customers consider when selecting a SaaS solution. This divergence in the perceptions of vendors and customers concerning the importance of the technical characteristics of the service is supported by findings of Michell & Fitzgerald (1997) [22] cocnerning outsourcing, who underline that customers value more a set of "softer and more perceptual factors that are difficult to define and quantify" (p.232).

Our findings show the most important selection factors for SaaS and how these may be perceived differently between customers and vendors. We also discuss the divergence of factors across customers of different sizes. Additional theoretical implications arise if we compare our findings to those of research in related fields of IS service provision, namely, IaaS and PaaS and outsourcing. In existing empirical studies addressing the selection factors for IaaS [14] [3] and PaaS [4], customers were aimed at prioritizing customer preferences for the services through the use of conjoint analysis and hence used a pre-defined set of factors for their evaluation. Despite this limitation, we could identify similarities between the customer preferences of IaaS customers (as shown in [14]) and our preliminary results as extracted from the interviews with SaaS customers. These similarities apply to the 'softer' factors of the service such as the price and support levels, whereas more technical factors such as the operating system, availability levels, scalability and others seem to be more applicable for IaaS and PaaS services rather than for SaaS. We can also identify similarities on selection factors for SaaS, as observed in our study, and of factors identified by previous studies on outsourcing services. These concern cost effectiveness, service quality (level of support in the case of SaaS) and vendors' reputation [23] [29] [30]. Differences are also noted. For example aspects such as technical competencies and infrastructure appropriateness seem to be very important for outsourcing but were not identified among the most important factors in our study [23]. This may result from our research approach (respondents did not spontaneously refer to these issues, even though they may actually matter). Having explained the rationale for our methodological approach earlier, we note that this finding merits further investigation.

Several practical implications arise from our study and are of interest both to SaaS vendors and to researchers creating tools to assist in the SaaS selection process. Although these findings result from a small-scale qualitative research, their practical importance is significant as they show that vendors may not appreciate and recognize actual customer concerns. For example, according to our dataset vendors seem to consider that brand name is an important selection factor for SaaS. However, it is important to appreciate that, similarly to traditional business-to-consumer markets, 'branding alone is unlikely to be of any value' [29]. As shown in our findings, factors such as product usability and price level seem to be key drivers for SaaS selection, regardless of customer size. Good customer support seems to be equally important for nearly all customer segments. In addition, freelancers or micro companies pay attention to the vendor's website design and use this as an indication of product quality, whereas larger customers have additional concerns about data storage and legal compliance.

6. Conclusion and Future work

This paper reviewed and synthesized current research related to factors affecting SaaS selection (Table 1). In an empirical qualitative study, SaaS customers and vendors were invited to identify the SaaS selection factors they consider important. The results (Tables 4 and 5) were compared to the related literature, across SaaS customer segments and between customers and vendors. We discussed the findings, drawing relevant theoretical links to the literature in related fields and identified practical implications. The research provided empirical evidence of the factors that come into play in the selection of SaaS services and presented customer size segmentation as a valid and interesting dimension for comparing and making sense of the findings.

The present findings are worth extending and validating in a large-scale quantitative study that investigates SaaS selection factors from the customer and vendor perspective and reviews their relative importance. In addition to customer size segmentation, such research would allow testing and comparing the importance of additional dimensions, including a broader geographical spread, different industries (our research included primarily commercial organizations), different levels of maturity in the use of cloud services and diverse socio-economic conditions. Comparisons could also be made among different types of cloud services. Finally, qualitative research could also extend our understanding of SaaS selection through in-depth accounts of the processes and routines different organizations pursue when selecting cloud services.

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