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## Key Factors in the Internationalization Process of SMEs Exporting Business Software as a Service

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**Abstract:** Little is known about how SMEs export business Software as a Service. This article describes six case studies in which prevailing factors regarded as essential for the internationalization process of Software as a Service are identified: generic software, a domestic market base, technical internationalization and localization, entrepreneurial management, personal customer contact, and usage of specific market selection criteria such as high IT penetration and maturity levels and psychical proximity. These factors and their interplay do not fit in the established theoretical models of internationalization in the literature. A redefinition and refinement of internationalization theories specific to Software as a Service are needed.

**Keywords:** Software as a Service, SaaS, business software, export, internationalization process, stage theory, network theory, international entrepreneurship theory, key factors

**Reference** to this paper should be made as follows:

## 1 Introduction

Software as a service (SaaS) is a software distribution model in which applications are hosted by a vendor or service provider and made available to customers over a network, typically the Internet (Bidgoli, 2010). Customers do not own the software, but only pay for the used services provided by SaaS providers (Laplante et al., 2008). The amount of applications and possibilities of SaaS have increased significantly over the past decade and are considered to become increasingly important for IT vendors in the near future (Pettey, 2006). Originally mainly used in the sales force automation and customer relationships management domains, SaaS is now widely applied in computerized billing, invoicing, human resource management, service desk management, sales pipeline management and various other business processes (Biddick, 2010). According to Gartner, the world wide SaaS revenue will grow 18 percent annually until 2013 (Pettey and Stevens, 2009).

Both SaaS and on-premises software belong to the group of product software, i.e., software that is created for a market (Xu and Brinkkemper, 2007). In comparison to on-premises software, where the software is installed on a customer's hardware, the fundamentally different characteristics of SaaS are very promising for both its vendors and customers (Armbrust et al., 2009). A key element here is the online aspect, which enables consumers of the service to use the software application anytime and anywhere around the world, as long as they have a computer with a web browser and Internet access. No complicated hardware or software is needed and high-priced licenses are evaded since the service is used on demand, either through a time subscription or a 'pay-as-you-go' model. Software and hardware storage can be outsourced to the SaaS vendor or third party, diminishing server-costs and even total energy usage, while increasing overall accessibility and security (Velte et al., 2010). Software that serves multiple users, can be updated and upgraded automatically from one central location, lowering implementation and maintenance costs. These aspects, combined with the potential of remote client support, can deliver providers of SaaS enormous economies of scale throughout the software life cycle (Kaplan, 2005). SaaS is a very suitable and attractive export product, due to its online character.

Despite various efforts to outline an economic definition of internationalization, a uniform agreed and unambiguous definition has not been established yet. This article uses the definition provided by Welch and Luostarinen (1988), particularly since it has been broadly applied in business studies and views internationalization as progress-based, involving both sides of the process, i.e. both inward and outward, which have become more closely linked in the dynamics of trade: 'Internationalization is the process of increasing involvement of enterprises in international operations'. Although this article concentrates on the economic context of internationalization, the more technical aspects of internationalization and localization used in computing are not ignored and are actually expected to

be important factors in the economic internationalization process of SaaS, which is the case with regard to on-premises software according to Esselink (2000). This article aims to display key factors in the internationalization process of SaaS and examines the validity of existing internationalization theories.

First, the research method applied to uncover how existing internationalization theories are used in practice in the Netherlands is presented. In section 3 the main three theories that were found in a literature study of internationalization theories are examined and a comparison is made. Section 4 presents six case studies performed at Netherlands-based international SaaS providers, thereby addressing the occurrence of concepts from the three theories, but also looking at SaaS specific characteristics of the internationalization process. In sections 5, 6, and 7 we present the analysis of the results, discuss the validity of our conclusions, and provide the final conclusions to our work.

## **2 Research Method**

This research was conducted to answer the following three research questions:

1. What is the state of the art with regard to software internationalization and can theories be identified?
2. How do these theories hold up in practice?
3. Is there a difference between on-premises software export (and internationalization) and software as a service exporting?

To answer these research questions, three steps were taken. First, a short literature study was conducted to uncover the theories that are described in section 3. Next, six case studies were carried out by performing structured interviews to see how well these theories apply in practice. Furthermore, to uncover some of the intricacies of software as a service, interviews were designed to also address the differences between on-premises software and SaaS software.

The case studies followed a case study protocol as prescribed by Jansen and Brinkkemper (2008), Dul and Hak (2008), and Yin (2003). For each of the case studies, one-day rounds of interviews were conducted at the case companies. These interviews consisted of approximately two-hour sessions per interviewee. Interview notes were transcribed and processed within 24 hours of the interview, usually the next day. Interviews were recorded and the results were checked by both a fellow scientist and the case study champion at the case company, in most cases the CEO of the company. The case companies were selected from a list of 150 Dutch software companies, of which was promoted through their web site that they supplied both on-premises software (or had so in the past) and SaaS. Companies were contacted by email. All six companies responded positively. The project was ended after the sixth case study because little new material was added after the fourth case study.

## **3 Theories of Internationalization**

Research on the internationalization process of firms has not led to one universally accepted model of internationalization yet, although several theories have been

developed. Three major schools of internationalization are most influential: stage theory, network theory, and international entrepreneurship theory. The presented theories are not necessarily mutually exclusive, but in fact can complement each other in explaining and understanding the often highly complex internationalization process of firms.

### *3.1 Stage Theory*

Models of stage theory, like the most cited Uppsala model by Johanson and Vahlne (1977), consider the internationalization process as a successive and incremental concept based on market knowledge development connected to market commitment. Originating from the behavioural theory of the firm by Cyert and March (1992) and theory of growth of the firm by Penrose (2009), firms are assumed to export only when they have a strong domestic market base. Subsequently, while knowledge of foreign countries increases over time, markets that are physically and psychically close are entered first, gradually expanding international activities towards countries more distant. While physical distance stands for the geographical distance between the domestic- and foreign market, psychical distance refers to the differences in language, culture, political system and business practice (Chetty and Campbell-Hunt, 2004). Although an earlier study by Johanson and Wiedersheim-Paul (1975) formed the foundation of this theory, the role of psychical distance has reduced due to globalization and therefore the concepts of market commitment and knowledge have become the underlying basis for the stage model (Hadjikhani, 1997).

According to the stage theory, the choice of entry mode reflects the gradual process of commitment, since firms choose the entry mode that requires less resource commitment (e.g. franchises or dealerships) first and later shift to another entry mode that demands more resource commitment (e.g. alliances or direct investments) as the perceived risks in the foreign market decrease as a result of better or more market knowledge (Luostarinen, 1979). This conception, where market knowledge is a key aspect in the process of business internationalization, has been widely agreed upon (Blomstermo et al., 2002; Casillas et al., 2009).

While numerous authors support the stage theory and its incremental pattern of increasing knowledge and commitment, others have rigorously criticized it. Studies showed that smaller firms exhibit behaviour where traditional stages of internationalization are omitted, entering international markets almost instantly (Whitelock and Munday, 1993; McNaughton, 2003). Think, for example, of companies such as companies like Google and Facebook, which went global fairly quickly after launching in the US. Furthermore, the research of Bell (1995) on the internationalization process of software SMEs showed that no specific stages are followed at all. Despite this criticism there is ample empirical evidence that multiple firms have internationalized in incremental stages and that others continue to do so as shown later by Bell et al. (2003).

### *3.2 Network Theory*

Through the interaction with suppliers, subcontractors, partners, customers, and many other market actors, all firms are considered to be part of one or more

business networks according to (Johanson and Mattsson, 1988), also known as software ecosystems (Jansen et al., 2009). These software ecosystems can be interpreted as business ecosystems: a set of two or more connected business relationships, in which each exchange relation is between business firms that are conceptualized as collective actors (Emerson, 1981). As shown in figure 1(b), these business networks play a key role in the firms internationalization process, driving market expansion and development activities, including choice of market and entry mode (Coviello and Munro, 1997). Although the example figure is modelled from the domestic country perspective, new network connections can arise in foreign markets and additionally serve as new entrances to many other countries.

Business networks are often perceived as bridges to foreign markets (Sharma and Johansen, 1987), allowing a much faster internationalization through the experience and resources of network partners (Mitgwe, 2006). In this context, the examination of Johanson and Vahlne (1992) of two case studies found foreign market entry to be a gradual process, resulting from interaction between parties, both developing and maintaining relationships over time. Complementary, studies on internationalization indicated the extensive influence of network relationships on foreign market selection and mode of entry, as well as product development and diversification activities (Abraha et al., 2008; Amal and Filho, 2010). This is consistent with findings from research by Coviello and Munro (1997) and Moen et al. (2004) with regard to the internationalization of small software firms. International new ventures or born globals, defined as: business organizations that from inception seek to derive significant competitive advantage from the use of resources and the sale of output in multiple countries (Oviatt and McDougall, 1994), show similar results, selecting foreign markets based on their own existing knowledge and the knowledge supplied by their network ties (Sharma and Blomstermo, 2003).

### *3.3 International Entrepreneurship Theory*

According to the international entrepreneurship theory (IET) as seen in figure 1(c), individual and firm entrepreneurial behaviour form the basis of foreign market entry (Mitgwe, 2006). Hence IET focuses on the role and value of entrepreneurs, commonly cited as the most important variables in the SMEs internationalization process (Miesenbock, 1988) and often prevalent in well-established large organizations as well. The most recent definition of international entrepreneurship by Zahra and George (2002) excludes firm size as a variable: International Entrepreneurship is the process of creatively discovering and exploiting opportunities that lie outside a firms domestic markets in the pursuit of competitive advantage. Although it should be noted that small firm international entrepreneurship appears to be considerably different from large firm international entrepreneurship, as smaller firms are more prone to foreign risks and manage them more effectively (Shrader et al., 2000), this definition is generally accepted.

Born globals - or international new ventures - in different industries often follow the path of international entrepreneurship theory (Oviatt and McDougall, 1994). Multiple studies also found evidence of existing born globals within the software industry (Lopez et al., 2009; Dib et al., 2010; Wren and Gabrielson,

2011). Entrepreneurs of born globals are perceived as the initiator of the internationalization process, being the main factor of sustained competitive advantage, possessing socially complex resources (e.g. entrepreneurial knowledge, experience and skills), which facilitate the capture of new resources for the venture and recognition of new opportunities in and outside the domestic country as found by Alvarez and Busenitz (2001). Moreover, these resources are often individual-specific and therefore difficult for competitors to imitate.

### *3.4 Comparison of Internationalization Theories*

For each of the described theories market knowledge and familiarity are essential when entering a market. The main difference, however, can be found in the method applied to uncover the best location to first start working towards. The stage theory suggests that the best approach lies in finding those locations that are psychically and physically close and assumes that little or no changes are made to the way the organization does business. Network theory is similar but it applies the network of the organization primarily, before looking at physical and psychical distance. Finally, in the case of international entrepreneurship theory, the organization is willing to change its business and product partly, simply because it sees interesting opportunities in another country. IET takes different shapes that determine the scope of the internationalization process. It could be that the company has worldwide ambitions and therefore attempts to internationalize to as many countries as possible in a short time. It could also be that an entrepreneur simply sees an interesting cross-border opportunity and takes it without venturing too far or investing immensely.

What we feel is currently lacking in these theories, is that they do not necessarily take into account the business opportunity that foregoes the internationalization process. It could be that a company has saturated the local market, which enables the organization to start venturing in any of the directions proposed by the theories. It could also be that a company is approached by a customer that is active in several countries already, and would like to purchase the product in local versions also. It could also simply be that the organization takes a worldview and is concerned with competition deploying similar products in other countries. In the following six case descriptions, we have explicitly taken the opportunity into account.

Figure 1 goes here

## 4 Multi-Case Study Results

Based on the earlier discussed stage theory, network theory and international entrepreneurship theory a theory-testing multi case study (Dul and Hak, 2008; Jansen and Brinkkemper, 2008) was performed. The internationalization process of six Dutch SMEs exporting business Software as a Service has been examined, resulting in six case study reports. The identities of the firms have been anonymized using pseudonyms.

A questionnaire was developed and interviews were held in person with key individuals of each firm. People were questioned about: what kind of international activities their company had yet employed, is planning to employ and to what extension; chosen foreign entry modes; server- and customer support structure; the importance of the IT penetration ratio and IT maturity; perceived market knowledge; possibly experienced physical and psychical distance and the role of technical internationalization and localization; the relevance of the firms position in the domestic market; the role of network contacts and specific individuals during the internationalization process. Finally, people were asked to reveal their golden tip for SMEs keen on exporting their business SaaS product. After each interview additional documentation was requested and examined if available.

### 4.1 Case 1 ERP Software

**Case Subject.** ERPComp is a vendor and manufacturer of Enterprise Resource Planning (ERP) software, founded in 1996 as a result of a management buy-out. The firm has approximately 300 employees and currently serves over 10,000 small, medium and large enterprises, concentrating on the fields of healthcare, accountancy, education, and business. One standard product is offered, which can be provided either on-premises or SaaS-based.

**International Context and Opportunity.** ERPComp serves the Dutch market through its head office in the Netherlands, with regional offices situated in Belgium and the Netherlands Antilles. For about ten years, a dealer in Belgium handled the Belgium- and Luxembourg market, before the firm decided to have its own foreign office one year ago. The same happened in the Netherlands Antilles, where first a dealership served customers in the Netherlands Antilles and Aruba, after which a regional unit was started there in 2007. When the SaaS-based product was officially introduced in the beginning of 2009, it was directly available for all discussed markets that were already served with on-premises software. Due to the presence of local sales offices, the firm already had foreign market knowledge before the SaaS-based product was introduced. This knowledge has enhanced ever since. At the moment, ERPComp has not planned any future international activities. All software and data needed for using the SaaS-based product is hosted on a third party server in the Netherlands. Customers can get support through the firms regional offices and online.

**Challenges.** The main issue ERPComps SaaS-based product is dealing with is limited data traffic capacity in especially the Netherlands Antilles. Though the use of satellite technology is expected to mitigate this problem eventually, high IT penetration and IT maturity are still important conditions for a successful implementation of the SaaS product internationally.

Although the online concept of SaaS diminishes the relevance of this factor by enabling services as online user support, ERPComp emphasizes the need for physical contact with managers from foreign offices. Thereby, the psychical distance is expected to hamper the most important localization process as well as marketing and sales, with differences in language and tax system perceived as particularly cumbersome. ERPComp will therefore prefer physical and psychically close countries like the United Kingdom, Germany, and France, if it decides to further internationalize its activities in the future.

**Future Internationalization Ambitions.** The described expansion to foreign markets should be considered as a concurrence of circumstances rather than a part of the companys vision. In fact, ERPComp is not planning any further expansion on short-term and emphasizes the importance of domestic market share and satisfying current and local customers, before entering new markets and complexities. In fact, people striving for international business ventures do not align with the firms current focus on the domestic market.

**Lessons Learned.** Foreign customers in the firms network have increased the firms knowledge of new markets, but the main focus will be on the network in the current international context.

**Internationalization Theory Applicability.** The internationalization process was initiated out of opportunism, and did not necessarily convey the company vision at that time. We find elements of stage theory, since the countries exported to are psychically very close. We also find elements of IET, since ERPComp goes about its internationalization process pragmatically and opportunistically.

*Golden tip.* ERPComps golden tip to SMEs keen on exporting their business SaaS product is that the relative easiness of introducing the software in new markets should not distract a firm from the real importance of localization and effective sales and marketing.

#### 4.2 Case 2 Accountancy Software

**Case Subject.** AccComp develops and sells accountancy software and presently has over sixty employees and 40,000 users, representing over 80,000 companies in nearly every sector. The firm offers one standard product, which can only be delivered SaaS-based combined with a monthly subscription fee. The product was originally aimed at end-users, who then had to convince their accountants to start using the software. Contracting such customers directly proved not effective and AccComp began to target accountancy offices instead, starting with smaller offices and approaching increasingly larger accountancy firms along the way.

**International Context and Opportunity.** When the firm was founded in fall 2000, its operations went international immediately, when they obtained a large customer in the United Kingdom. However, a foreign solid base appeared hard to accomplish for an alien firm without a reputation and the firm decided to shift its focus to the domestic market. The firm went international in a structured manner after seven years because the organization was showing solid growth in the Netherlands, by expanding to the United Kingdom, Netherlands Antilles, Denmark, Norway, Sweden, and Finland. In the beginning resellers were appointed in these countries, but the use of these dealerships proved to be

ineffective, as the relatively small markup on each product - caused by the monthly subscription - was not profitable enough for them. Gradually, accComp replaced each reseller with a local sales office with just one or a few employees, since only a bridgehead is considered essential by AccComp. AccComp also has users in other countries through subsidiaries of companies that are already customers. All together, AccComp has users in 22 countries. All software and data is completely hosted on servers in the Netherlands. AccComp also has a global support center at their headquarters, which assists customers in their own language and even their own time zone.

**Future Internationalization Ambitions.** The firm is currently exploring with a potential business partner whether to enter the United States.

**Lessons Learned.** Foreign market selection is primarily based on the degree of IT penetration, which was one of the main reasons to enter e.g. Scandinavia. The firm emphasizes the inevitable higher product costs when deviated from this rule.

AccComps considers foreign market knowledge as a process that is continuously updated and refined and confirms that it has increased since the foundation of the firm. Though the concept of SaaS is believed to reduce the role of physical distance, personal contact is still found crucial in the firms internationalization process. Business-wise, Scandinavian countries are considered much alike the Netherlands and are therefore attractive markets. This in contrast to the United Kingdom, where the banking system is considerably different and three years behind on the Dutch system and accountants are much less willing to switch to another software service. Mediterranean countries show the same difficulties. Many countries also show great cultural differences, like for instance the influence of hierarchy, which are reasons for AccComp to avoid certain countries. In order to cope with the functional and cultural differences the process of localization plays an important role in the internationalization process, following the credo: Think global, act local.

**Internationalization Theory Applicability.** We find elements of IET and network theory. The network theory applies, since, the first customer in the UK was acquired through an old business partner of the firms founder. Also the Scandinavian market was accessed through the network, via an accountancy office that was already a customer of AccComp. On the other hand we see IET at work as well, since both these options were found opportunistically. Also, when one of the internationalization projects failed due to a weakened home base, the company waited for seven years to try again.

*Golden Tip.* As golden tip, AccComp advises firms to Crack the code in the domestic market before entering new markets. Foreign cultures should also not be underestimated and personal customer contact remains crucial, regardless the advantages of SaaS.

### 4.3 Case 3 Anti-Plagiarism Software

**Case Subject.** PlagComp develops and sells anti-plagiarism software to educational establishments, such as universities and high schools. The company was founded in 2003 and currently holds twelve fulltime employees in the Netherlands and about thirty in foreign countries. More than 5,000 customers are served directly or through integration partners, such as vendors of virtual learning

environments. PlagComp delivers one standard product that is completely SaaS-based and used through a one-year subscription.

**International Context and Opportunity.** In 2005 the firm became international by approaching potential customers in Norway, Belgium, Germany, France, Swiss and Austria. The opportunity grew out of demand from universities and later as a firm strategy. Besides deliberately targeting certain countries, PlagComp is also often approached by universities and schools in other countries, with a customer portfolio including 26 countries as a result. All decisions are taken at the firms headquarters in the Netherlands, from which all countries are approached first. Thereafter, local resellers, i.e. integration partners and local salesmen directly working for PlagComp, are used to further penetrate specific markets. Still, internal employees working from the Netherlands are considered important in regards to contact with foreign countries, to ensure that the companys values and culture are safeguarded in foreign countries too. All future international activities are completely focused on Europe.

PlagComp has a datacenter in the Netherlands, from which storage space for databases is offered as a standard to customers, regardless of the country they are located in. Occasionally foreign customers choose an alternative storage location in their own country, if they prefer a physically closer datacenter. All client support is centralized in the companys head office in the Netherlands, where employees that speak the customers language assist the support division.

Countries with a high IT penetration are entered first, for reasons of easy applicability of the product.

Before PlagComp went international, the firms knowledge of foreign markets was minimal, though this has positively changed over time. The firm states that this knowledge is still growing.

**Challenges.** Physical distance is an important limiting factor in foreign market selection, since PlagComp prefers countries that can be reached by plane within two to three hours. This is because physical contact with customers is found crucial. Psychological distance is perceived as cultural differences and differences in business practice, which the SaaS delivery model can sometimes tackle. PlagComp recalls an example, where a foreign customer neglected to pay while using the service, resulting in a remote shutdown. In order to prevent such events, countries that show cultural similarity with the Netherlands are favoured. The product is also deliberately kept rather simple, in order to reduce any psychological differences and to diminish the difficulties in the technical internationalization- and localization process.

**Lessons Learned.** A strong domestic market position is seen as a criterion for even considering any international activities, since one first needs a solid base. Due to the concept of SaaS, building this base can take quite some time, as the companys revenues completely depend on yearly subscriptions.

**Internationalization Theory Applicability.** The companys network is considered important. Many sales are still made through cold calling, but it is also not uncommon for foreign universities to contact PlagComp first. Lately, a lot of sales are done through network partners, who sell PlagComp's products with their main product. In this case, we see both IET and network theory at work.

*Golden tip.* As a golden tip, PlagComp advises to exercise test cases, where selected markets are used as a try-out. Problems inherent in SaaS are also

highlighted: obtaining a loan to start up your company can be difficult, since a service is sold and not a product.

#### 4.4 Case 4 Enterprise Software

**Case Subject.** EntComp develops and sells business software applications, such as ERP and financial accounting software, to customers in a variety of industries. The company was founded in 1980 and currently holds over 4,000 employees and 40,000 customers. All international and local products combined, EntComp offers over one hundred software solution products, of which most are delivered on-premises. Since 2009 the company also offers one natively SaaS-based product internationally and in 2010 it expanded its portfolio by extending its international flagship products with alternative delivery methods: on-premises, cloud or hybrid.

**International Context and Opportunity.** The firm has subsidiaries and offices in 24 countries across Europe, North America and Asia. Furthermore, the firm has its own resellers in Australia, South Africa and Uganda. In 2008, EntComp acquired a firm that already had a financial SaaS-based product, which used the platform of an American cloud computing firm. A joint venture between EntComp and the American firm was formed in 2009 to expand the potential new product. The new company has its headquarters in both the US and UK and meanwhile operates from several offices around the world, profiting from existing offices of EntComp. In less than one year, this SaaS-based product has reached customers in more than twenty countries, mostly from native English speaking countries or willing to use English-based software. To create economies of scale, a special division was formed in 2010 to manage EntComps hybrid deployments on a global scale, serving customers in those countries where the firm was already operational. Both the joint venture and EntComps hybrid division will probably focus on their current country portfolio in the near future. The company has followed an international strategy since the 80s.

Whether clients data in a hybrid solution is stored on a server in the Netherlands or in the foreign country itself varies by customer, not by country. Especially government agencies tend to keep their data close. The hybrid division handles technical customer support centrally, while local offices provide functional support.

**Challenges.** High IT penetration ratio and IT maturity are considered very important factors in the firms decision process with regard to internationalization. For example, Scandinavias well-built IT infrastructure is one of the main reasons why EntComps products have been proven highly successful in hosted situations for over 10 years.

Information about the role of foreign market knowledge in the internationalization process of the firms SaaS-based product could not be explained. Since all hybrid solutions are offered in countries that were served with on-premises software before, the firm already had a considerable amount of foreign market knowledge prior to the introduction of SaaS. This knowledge is continuously evolving.

**Lessons learned.** Psychological differences are considered a main issue in the internationalization process, which is why English-speaking countries are targeted first by the joint venture. By developing multilingual and multi-legislation products

in consultation with local partners and offices, EntComp seeks to diminish the psychological distance in the technical internationalization process. As long as latency is low, the physical distance is thought to be less relevant in SaaS-computing. Customers can now buy foreign software as a service more easily, due to the rise of a global market. Still, EntComp claims that customers will always prefer a local business contact.

When the SaaS-based product was launched by the joint venture, it went directly international without an introduction into the Dutch, domestic market first. This also applies for the firm's hybrid solutions.

**Internationalization Theory Applicability.** The firm's existing international network has been fundamental to the export of the SaaS product, since steady sales channels had already been established decades ago. Simultaneously, through strategic partnerships and joint ventures, new opportunities were found worldwide, showing signs of IET and network theory.

*Golden Tip.* Since customers of SaaS have less commitment towards their vendor, a switch to a competitor is easily made. Therefore, the firm's golden tip is to deliver high quality products in order to keep customers' satisfaction high under all circumstances.

#### 4.5 Case 5 Administrative Software

**Case Context.** AdminComp, founded after a management buy-out in 1994, develops and sells administrative software, supporting processes in human resource management and both financial and payroll administration. As an independent software vendor, the firm also uses platforms from a worldwide operating developer, for implementing software solutions in the areas of enterprise project management, file sharing (FSProd) and customer relationship management (CRMProd). In this way, the firm does not have to build its own SaaS environment. All products can be delivered on-premises, while FSProd has been available as SaaS in the Netherlands for over one year now. AdminComp currently has 125 employees and a total of about 1200 clients spread over a wide spectrum of industries.

**International Context and Opportunity.** As of November 2010, both FSProd and CRMProd are available as SaaS in Germany, where AdminComp already has a regional office for its on-premises software. The SaaS-based products are delivered there and in the Netherlands - first, before other countries in Europe and possibly the United States will be approached. AdminComp also has a software development office in Ireland, which is not commercially active. AdminComp has only recently started its international activities, and these are related to the fact that the company is growing steadily in the Netherlands, but sees limits to its national growth.

The SaaS-based applications and clients' data are stored on servers from the same worldwide operating developer that provides AdminComp platforms for their products. Although AdminComp has no control over where the data is stored, the company acknowledges security matters with regard to governmental clients that favour their data in their own country. Client support is provided in the country's language by its regional office.

AdminComp's file sharing product has been available in the firm's domestic market for over a year, prior to its introduction in Germany. Now both SaaS-based products will need to prove their effectiveness in the Netherlands and Germany first, before other markets will be entered.

**Challenges.** Cultural differences are the main reason for AdminComp to avoid certain areas, such as Asia or the Middle East. Business practices in Europe and the United States are experienced as easy going. However, the relevance of the localization process must not be underestimated, since regional offices in England and France were closed due to localization issues with the firm's on-premises software. The use of a generic and widely used platform for their current SaaS-based products is expected to mitigate such problems. Although the physical distance is found irrelevant, local offices or partners and assisting personnel are still crucial in order to fulfil the essential need for physical client contact.

**Lessons Learned.** High IT penetration and IT maturity are considered basics in the firm's internationalization process. AdminComp has developed good knowledge of its foreign market in the past few years by delivering on-premises software in Germany. As SaaS has only recently been introduced internationally, any change in foreign market knowledge with regard to SaaS has yet to occur.

**Internationalization Theory Applicability.** The developer that supplies AdminComp its platforms (Microsoft) plays a major role in the firm's internationalization process, by providing a vast network of partners around the world. AdminComp is most likely to leverage this network in the future, when the firm plans to expand further. The firm's network plays a key part, but the organization prefers psychically (and even physically) close customers. This case displays both network and staging theories at work.

*Golden Tip.* AdminComps golden tip is to generate simple software lacking the need for support and to create volume, in order to simplify the internationalization process. However, a steady foreign partner or own offices are considered to be essential in business-to-business markets.

#### 4.6 Case 6 Automation Software

**Case Context.** AutComp develops and sells both customized and standard business automation software to customers mainly in retail, wholesale, transport and logistics, healthcare, local governments and real estate. The firm has approximately 5,300 employees serving thousands of customers and is part of a larger corporation that also delivers financial, engineering and consultancy services. AutComps wide variety of products cannot be strictly divided into a SaaS-based or on-premises category. Instead, the best software solution is chosen for each specific customer, containing the most suitable products and delivery models.

**International Context and Opportunity.** The firms SaaS-based products are offered in the Netherlands, Belgium, Germany, Switzerland and Sweden, which are all countries where AutComp already had one or more regional offices for its on-premises software. Any particular order of market entrance could not be explained, although psychical and physical factors were mentioned. All SaaS activities are locally managed and driven by regional offices, without the presence of a company-wide internationalization strategy in relation to SaaS-products.

AutComps current and future focus concerning both on-premises and SaaS-based software is on the firms current country portfolio.

AutComp prefers its own datacenters in the Netherlands and Germany for customer data and application storage, but the use of servers provided by customers or third parties in these and other countries are common too. Security issues and financial arguments are the main motives here. Support is provided by the firms regional office in the country where the customer is located. IT maturity is an important issue, especially when issues like uptime and redundancy are critical. Decent hardware and network quality are therefore essential for AutComps SaaS-based products.

Prior to the introduction of SaaS, the firm already enjoyed extensive foreign market knowledge due to the delivery of on-premises software and this is yet increasing over time.

**Challenges.** Since all SaaS-based products are delivered in countries where AutComp was already acquainted with owing to the delivery of their on-premises software, any psychical distance with regard to the internationalization of SaaS specifically is not experienced. Nevertheless, cultural differences and differences in language and business administration do prevent the firm from entering certain countries. Physical distance is merely perceived on the customer side, as customers do not always favour the idea of data storage in a distant country. The globalization of standard hardware, software and network protocols simplifies the technical internationalization and localization processes. AutComp thereby aims to keep all their software as generic as possible.

**Internationalization Theory Applicability.** The internationalization of the firm should be viewed as part of the firms strategy, with an opportunity driven character. Since AutComp already enjoyed a solid domestic market base and foreign offices, the firms SaaS-based products could relatively easily be sold. The firms network should be considered as just one element of the total firms internationalization decision process and does not play a key role specific to its SaaS-based products. In this case study all three theories seem to apply, being IET, stage theory, and network theory.

**Lessons Learned.** AutComps current owner and founder has directed the firm towards other countries. However, prominent persons specifically dedicated to the internationalization of SaaS could not be identified. This clearly illustrates the firms view that SaaS is just another product, which does not need a specific internationalization strategy.

*Golden Tip.* As a golden tip, AutComp emphasizes the importance of cultural differences and localization in the internationalization process. In relation to SaaS, software must be held generic in order to create large volumes and benefit from the delivery model. Restrictions with regard to customers who favour their data close could require a distinction between a public and private cloud.

## 5 Multi-Case Study Analysis

Table 1 goes here

The fundamentally different characteristics of SaaS question the validity of existing internationalization theories. This article examines to what extent firms exporting SaaS follow these theories.

Table 1 summarizes the multi-case study results in relation to the stage theory, network theory and international entrepreneurship theory, and the aspects of server and customer support structure and the role of technical internationalization and localization.

With regard to the stage theory, each firm acknowledges the importance of a solid domestic market base before entering new markets. Yet, the term domestic is somewhat problematic, since firms that already served foreign countries with on-premises software before the introduction of their SaaS-product, often consider those countries as a part of their domestic market.

Most firms believe that their market knowledge has increased over time and all firms are prone to choosing countries that are psychically close first. SaaS can diminish the relevance of psychic distance by enabling the use of test cases and providing the possibility of shutting down troublesome customers as one firm did. Still, a direct relation between market knowledge and psychical distance can neither be confirmed nor ruled out. This also applies for the relation between market knowledge and physical distance. SaaS proves to diminish the role of this distance, except for one case where the whole firm is directed from its head office in the Netherlands. The key issue here is personal customer contact, which is found essential in all the cases and can rather easily be provided by the local offices in the other cases.

Four out of six firms had already committed their full resources in the selected foreign countries, before they started exporting SaaS. Any relation between market knowledge and resource commitment can therefore not be assumed. The other firms do show an increase in resource commitment over time, although it is unclear whether this is a direct effect of increased market knowledge. We also confirm the view of Ojala and Tyrväinen (2007), who state that for the first countries that firms internationalize to, software firms will choose psychically close countries, whereas thereafter they will move to countries further away, but with larger markets, such as (seen from the Netherlands) the US, the United Kingdom, or Spanish speaking countries.

As for the network theory, the firms that sell exclusively SaaS or use a SaaS platform provided by another firm profit from their network in the

internationalization process. The other firms that sell SaaS and software on-premises as well consider the firms network more of a local instrument. Although a specific crucial network actor cannot be indicated, it is found that providers of worldwide used SaaS platforms can play a major role in creating bridges to foreign countries, while reducing the firms development resources.

The presence of key individuals driving the internationalization in most cases endorses the international entrepreneurship theory. Yet, the smaller firms that only sell SaaS based software show a much more rapid internationalization of SaaS than the firms that sell on-premises software as well. Moreover, certain key individuals are often responsible for the internationalization of the whole firm, including that of on-premises software, while persons concerning the internationalization of SaaS in particular could not be found. It is also remarkable that two firms are led by real entrepreneurs, while the international activities are considered to be a concurrence of circumstances or opportunity driven.

Although firms prefer the use of a central datacenter in their server structure, they are aware of restrictions posed on the customer side that may result in the detrimental usage of local datacenters and a distinction between a public and private cloud. The use of platforms and consequently servers from another developer makes this even more complicated, since a firm loses its control over where the data is stored. While local offices provide customer support in the cases where firms sell SaaS and on-premises software, the other cases use remote support. In the latter situation, customers are assisted in their own language and in case two even their own time zone. It is noteworthy that the firms that already had a local office before the introduction of SaaS, still prefer local support to remote support.

In all cases, a country's IT penetration and IT maturity level are analyzed before a specific foreign market is entered. This study shows that these issues are considered basics for a successful implementation of SaaS internationally, preventing limited data traffic capacity, low acceptance rates and uptime and redundancy problems. The processes of technical internationalization and localization are also important issues in each case and help the firms cope with experienced psychological distance. Developing generic and relatively simple software can keep these processes rather uncomplicated and can help a firm deal with psychological distance. This is also repeatedly underlined in the firms golden tip. The use of widely applied platforms from other developers observed in some cases can provide a secure framework in the technical internationalization process.

As a final observation we see that the larger companies use existing networks and foreign subsidiaries for internationalization of their SaaS products. The smaller ones follow some form or combination of the three theories, where new business opportunities are always at the basis for the first move. It was also mentioned frequently that intensive customer contact can reduce a customer's perception that a SaaS provider does not dedicate enough resources to a country to which it wishes to internationalize.

This study also identifies several prevailing factors in SaaS internationalization, as seen in figure 2. It might be worthwhile to investigate the relative relevance and interplay of these key factors and to define a new theoretical internationalization model specific to SaaS. This might lead to new strategies and guidelines for SaaS vendors eager to export their product in the future. The figure can be

interpreted as follows: there are three main domains that play a role in SaaS internationalization, being the *technical domain*, the *human domain*, and the *market domain*. In the *technical domain*, the product must be generic, i.e., applicable in foreign markets and the internationalization process should not cost too many resources. In regards to the *human domain*, there must be intensive relationships in the target countries to make the internationalization project work. Furthermore, the entrepreneur must keep its eyes open for opportunities that may accelerate an organization's to in a foreign domain. Finally, in the *market domain* three factors play a part. First, the domestic base must be strong enough to invest largely in the export move. Some of the horror stories spoke of money running out, a recession hitting in the home country or in the remote location, etc. The psychical proximity also plays a large part in deciding which countries to go to first. Most of the locations that the companies in our cases internationalized to were English speaking countries, neighbouring countries, and former Dutch colonies. Finally, a necessary success condition is the IT penetration in the target country. If only 5% of businesses have a web connection that is fast enough to use a SaaS product, one might consider skipping over to a country with higher internet connectivity.

Finally, in regards to the golden tips, three things are prevalent: make a winning business case, customer contact is key, and do not underestimate local specifics. In regards to the winning business case the point is made that the actual internationalization of the product is easy, but the establishment of a successful foreign sales office is much harder and requires serious investment. Secondly it is mentioned that customer contact is fundamental for a good customer relationship, so a foreign office and mature support structure are required if the SaaS is to be successful. Thirdly, the local customs and differences may be a lot less visible at first. For point-of-sale systems in some countries, for instance, it may be custom to add taxes only after the total of a bill is made, whereas in the Netherlands taxes are already included in the product prices. These variances are easy to support, but must first be uncovered. A way to circumvent problems with these local specializations is by making test cases and prototypes early in the process.

Figure 2 goes here

## 6 Discussion

There was no harm done in trying to apply the three theories in isolation to our six case studies, but a well-fitting model was not found when applying the theories, unless we are willing to accept that these theories work in unison for the

SaaS situation under study. To improve on this situation, we have attempted to create our own model, based on a semantic analysis of the most common terms mentioned throughout the interviews. This model, however, has not been evaluated with experts. It is easy to see, however, how elements from the three theories have been combined into one model that appears to fit the case studies much better.

The case studies were the most effective way to establish whether these theories were applied or not: conversations with six CEOs from the case companies and others involved in the process of internationalization gave us quick insight into the steps followed. Much of the interviews quickly took an anecdotal turn, where stories were told about projects that were cancelled because of reasons mentioned earlier: excessive projected investments, too low IT penetration in the target country, customers that did not understand how the product could be applicable in the target country, etc. Success stories were told as well, such as the business customer that asked for an internationalized version of one of the SaaS products under study in 12 countries, thereby accelerating the internationalization process significantly. We therefore recommend using the case method for further study in this area, although future work may also include surveys for further generalization of the results.

The limitations of this work are that the findings are hard to generalize. Cases were selected opportunistically, but due to the limited adoption of the software as a service paradigm at the time of the research, the data set can be considered relatively extensive. Furthermore, these six cases have led to theory building, which, if the case method is followed closely, is sufficient. It is, however, possible that observations led to poor derivations of the theory, which was attempted to avoid by having peer-reviews from both academic colleagues and key informants at the case study companies. In future work we hope to conduct a survey to further strengthen and elaborate our findings.

## 7 Conclusion

In this article we show that there are three theories that explain the internationalization process for organizations. We also show that these three theories cannot be found in an isolated manner in six case studies. Furthermore, we show that SaaS has some minor peculiarities when internationalizing: its software and data can be hosted in the home or foreign country and the internationalization process may be more extensive than initially expected due to cultural differences. Finally, from these six case studies and three theories we extract three domains that determine how the SaaS internationalization process will be executed, being technological, human, and market. A model is presented that presents these three domains and the factors they encapsulate.

This study shows that, although several components of each of the three theoretical models are observed, none of the firms explicitly follows the paths of a leading internationalization theory. A dominant model cannot be identified either. Instead, firms appear to act intuitively and opportunistically, without a distinctive internationalization strategy specific to SaaS. Firms that sell both SaaS and on-premises software prove to internationalize based on their existing international

infrastructure, while the firms exclusively selling SaaS internationalize much faster. This indicates that SaaS specific strategies are feasible.

We see the development of a SaaS internationalization method (set) as future work. Such a method (set) will assist SaaS firms in surveying markets, establishing measures for success, making the leap, and extending business across different dimensions. Furthermore, we hope to conduct a survey among SaaS companies, similar to the Finnish software business surveys (Rönkkö et al., 2009), that specifically addresses the point of internationalization.

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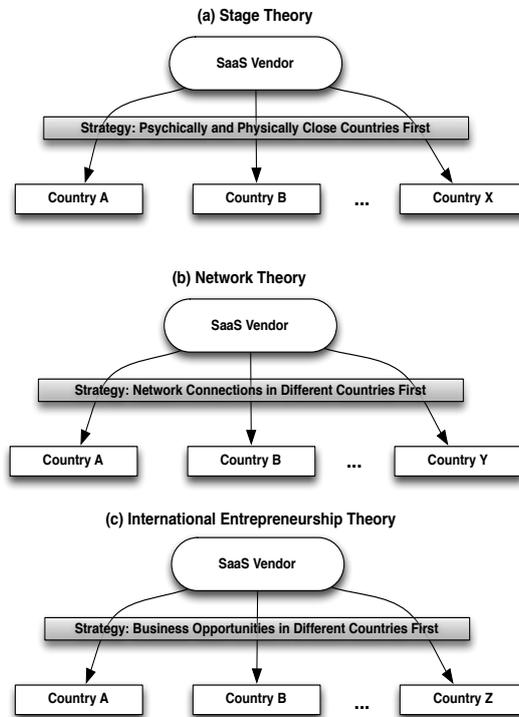
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**Figure 1** Three Internationalization Strategies, being (a) Stage Theory, (b) Network Theory, and (c) International Entrepreneurship Theory

Technical	Human	Market
<ul style="list-style-type: none"> <li>• Generic product</li> <li>• Internationalization and productization</li> </ul>	<ul style="list-style-type: none"> <li>• Entrepreneurial management</li> <li>• Personal customer contact</li> </ul>	<ul style="list-style-type: none"> <li>• Domestic base</li> <li>• Psychical proximity</li> <li>• High IT penetration and maturity level</li> </ul>

**Figure 2** Key Factors in the Internationalization of SaaS

**Table 1** Stage Theory Analysis for the Six Cases (i8n = internationalization, ST = Stage Theory)

	<b>ERFComp</b>	<b>AccComp</b>	<b>PlagComp</b>	<b>EntComp</b>	<b>AdminComp</b>	<b>AutComp</b>
<b>ST: Resource commitment</b>	Already resource commitment at introduction	First sales from the Netherlands, then local offices	First sales from the Netherlands, then local salesmen	Full resource commitment for hybrid, joint-venture for SaaS	Already resource commitment at introduction	Already resource commitment at introduction
<b>ST: Market knowledge</b>	Extensive at introduction, ever increasing since	Minimal at introduction, ever increasing since	Minimal at introduction, ever increasing since	Extensive due to acquisition of international competitor	Extensive at introduction	Extensive at introduction, ever increasing since
<b>ST: Psychological distance</b>	Psychically close countries are preferred	Psychically close countries are preferred	Psychically close countries are preferred	Psychically close countries are preferred	Psychically close countries are preferred	Psychically close countries are preferred
<b>ST: Physical distance</b>	Minor role, but physical customer contact is crucial	Minor role, but physical customer contact is crucial	Major role, physical customer contact is crucial	Minor role, as long as latency is low. Physical customer contact is crucial	Irrelevant, but local offices or partners providing physical customer contact are crucial	Minor role, the physical distance is merely perceived on the customer side
<b>Network Theory</b>	Network does not play large role	Network is used extensively	International integration partners are used	Already internationally active, network plays small role	Depends on SaaS strategy of platform provider (Microsoft)	Network does not play large role
<b>IET</b>	Opportunism over physical and psychological distance	Opportunism over physical and psychological distance	Opportunism over physical and psychological distance	SaaS activities take place in internationally based company	Opportunism over physical and psychological distance	Opportunism over physical and psychological distance
<b>Data location</b>	Netherlands	Netherlands	Netherlands / optional	Anywhere	Platform provider decides	Netherlands / optional
<b>Server location</b>	Netherlands	Netherlands	Netherlands / optional	Anywhere	Platform provider decides	Netherlands / optional
<b>Support center</b>	Customer support through regional offices and online	Netherlands	Netherlands	Functional support is provided locally, Technical support centrally.	Netherlands	Customer support through regional offices and online
<b>Technical i8n and Localization</b>	These processes are important issues, while psychological distance can hamper them	These processes play an important role in coping with functional and cultural differences	The product is deliberately kept rather simple to simplify these key processes	Hybrid: Multilingual and multi-legislation are products developed	A generic and widely used SaaS platform is expected to mitigate problems regarding these vital issues	These important processes are simplified by the globalization of standard hardware, software and network protocols