Internationalisation of Swedish computer gaming companies - The role of knowledge in a digital era

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Abstract
Title: Internationalisation of Swedish computer gaming companies - The role of knowledge in a digital era

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Research question: How do Swedish computer gaming companies internationalise in regards to pursuit and absorption of knowledge?

Purpose: The aim is to investigate how computer gaming companies find, internalise and use knowledge leading to internationalisation. This in turn will further be explained by embracing the role of digitisation for the above mentioned processes. This will enrich the field of study about international business where little research has been conducted by putting focus on the expansive industry and its digital product. At the same time the practical viewpoint is to highlight how these companies work around knowledge to become international.

Method: An exploratory, qualitative research approach was undertaken. Semi-structured interviews were conducted to gain an in-depth understanding of how Swedish computer gaming companies internationalise with special focus on absorptive capacity. A conceptual framework forms the basis for analysis consisting of internationalisation theory, absorptive capacity and digitisation.

Conclusions: The findings show that Swedish computer gaming companies internationalise in a reversed order. They do not act according to the Uppsala model, rather they chose what market to focus on after a game is released due to the digitised environment in this industry. This highly competitive and knowledge intensive industry requires game developers to find specific niches in which they can gain a competitive advantage.

Key words: Knowledge, Uppsala model, Absorptive Capacity, digitisation, Swedish computer gaming companies, internationalisation
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Introduction

The gaming industry has a very high pace of growth today and the export of products is highly successful (Jin, 2010; Rentzhog, Anér & Leijon, 2013; Ström & Ernkvist, 2012). Predictions say that this industry will be the fastest growing industry in the coming years compared to other types of media (Rentzhog, Anér & Leijon, 2013). Many different countries such as China, South Korea, France, the UK, Canada and the US have managed to put themselves at the forefront of developing games (Jin, 2010). According to Kelion (2015) many game producers have also found their luck in producing games for the growing segment of consumers playing games on their mobiles and tablets. Almost anyone is a potential consumer of a game today and women are currently an audience that represents 40 to 50 percent of gamers globally.

Sweden is in particular a country where several game developers and studios have achieved a global reputation for popular and lucrative games (Swedish Games Industry, 2015). Between 2012 and 2014, the turnover from Swedish games increased 800% and recent acquisitions have made headlines such as Microsoft’s acquisition of the Swedish company Mojang which developed the game Minecraft (ibid). It was sold for USD 2.5 billion which is USD 0.7 billion more than Chinese Geely paid for the acquisition of Volvo Car Corporation (Rentzhog, Anér & Leijon, 2013). Most recent the US gaming company Activision Blizzard acquired Swedish founded King Digital Entertainment for USD 5.9 billion making it the largest merger ever within the gaming sector (Kelion, 2015).

Hence, it becomes evident that Sweden is an important actor within the gaming sphere and that Swedish companies have a capacity to grow to become lucrative for mergers and acquisitions (Swedish Games Industry, 2015). It seems that their internationalisation process happens at a fast pace which is evident when looking at the average annual growth (CAGR) for Swedish game developers between 2006-2014 which has been 39% (ibid). Mojang as one example, was founded in 2011 and it was sold in 2014 to Microsoft (Rentzhog, Anér & Leijon, 2013). King has grown similarly fast since its success game “Candy Crush” was developed in 2010, six years later they have reached close to 500 million active users (Kelion, 2015).
Mojang and King represent two very successful Swedish PC-game and mobile game developers (Rentzhog, Anér & Leijon, 2013; Kelion, 2015). Apart from them, Sweden is also known for developing so called “AAA-games”, according to Swedish Games Industry (2015). These are games developed on large budgets, often with a high staff turnover and then released by large publishers. Together with mobile games and other types of PC-games, more than every 10th human being on earth has played a Swedish game (ibid). An important factor contributing to this is how games are sold. Formerly, games were solely distributed on physical discs or similar storage units which were bought in stores. Even though a game at its core was digital, it had to be sold in a physical form as distribution via internet was limited (Jöckel & Schwarzer, 2008; Marchand & Hennig-Thurau, 2013).

Marchand & Hennig-Thurau (2013) further state that the industry is moving more and more towards digital distribution as it brings several benefits for producers, developers and consumers. By eliminating production costs and retailers which prior were vital parts for the realisation of a game, Marchand & Hennig-Thurau (2013) argue that profit margins can be increased and relationships to consumers can be developed more deeply by for example online communities and stores. This opens up for an easy distribution of large quantities to players worldwide.

In the light of recent developments in this industry, Swedish games have as mentioned before become very attractive around the world and computer games have had a significant growth over the last couple of years, from SEK 1,2 billion to SEK 3,7 billions between 2010 and 2012 (Boati, 2013). This thesis will henceforward solely focus on the development of computer games and their internationalisation process.

While these internationalisation processes can be complex, they are in most cases based on different types of knowledge according to Figueira-de-Lemos, Johanson and Vahlne (2011). For entering a new market for instance, it is important to have certain market knowledge (Figueira-de-Lemos et al. 2011). Through A firm’s operation, acquisition of such knowledge can be achieved by learning from social and industrial networks and a lack of knowledge easily becomes an obstacle for internationalisation (ibid).
Hence, it is vital for companies aiming to become international to manage their knowledge leading to internationalisation successfully according to Johanson and Vahlne (1977). They emphasise that it is important to have knowledge regarding the core business which can lead to decisions to take on commitment. A way of making knowledge fruitful for the company and to gain value from it is by using knowledge management as stated by Cancialosi (2014). This can be achieved by for example formalising knowledge in documents to make information available for other employees. Successfully managed knowledge can lead to improved decision making, creation of learning routines and stimulation of innovation (Quast, 2012).

With this in mind, knowledge can be found, acquired and used in different ways by the company according to Ojala (2008). Sinkovics, Sinkovics and Jean (2013) argue that developments within IT have affected how these knowledge processes are carried out. The internet as a whole has had profound impacts on how internationalisation processes are carried out.

The advanced digital development and the major impact that internet has had on society has according to KPMG (2007) made new markets available for many companies. The way these markets can be exploited has also changed. There has been a rapid growth of the online world, broadband and digitisation in general which has generated a distinct decline in cost of media distribution. This has been advantageous for many types of companies. According to Manyika et al. (2014) knowledge and information play a big role in the digital environment today. The way that firms find and use knowledge and information has changed considerably due to the digital means and the digital changes in the environment.

Lund, Manyika and Robinson (2016) have concluded that internet and digital platforms have also changed the way companies find and recruit key competence exactly when needed. They further argue that these technological possibilities have made it harder to retain competent personnel and thereby the rotation of knowledge and competence is greater than before.

To conclude the introduction; the field of internationalisation of gaming companies has not been researched in depth and thereby it constitutes a research gap (Ström & Ernkvist, 2012). There are aspects of this industry that are specific and different from other industries and the digital
possibilities within the environment are constantly changing (Gandia, 2013). It is in particular an industry that is dependent on a good ability to find and incorporate new knowledge in order to develop new products that will be of interest to the market (Marchand & Hennig-Thurau, 2013). Therefore knowledge exchange and knowledge incorporation are vital for game development (Jöckel & Schwarzer, 2008). The type of knowledge that will be focused on in this thesis is knowledge about game development and the processes around it rather than knowledge about internationalisation specifically. How companies manage to find and incorporate it is tightly linked to how they utilize digital means (Betz, Oberweis & Stephan, 2010; Bouwman, 2005; Lund et al. 2016). Added to this, the Swedish gaming industry is growing rapidly which makes the process of how these companies internationalise very interesting to look at (Swedish Games Industry, 2015).

Research question
The following research question has evolved from these aspects:

How do Swedish computer gaming companies internationalise in regards to pursuit and absorption of knowledge?

Purpose
The aim is to investigate how computer gaming companies find, internalise and use knowledge leading to internationalisation. This in turn will further be explained by embracing the role of digitisation for the above mentioned processes. This will enrich the field of study about international business where little research has been conducted by putting focus on the expansive industry and its digital product. At the same time the practical viewpoint is to highlight how these companies work around knowledge to become international.

Delimitation
In this study, we have chosen to look at companies that develop computer games since these games often are more resource demanding than games produced for mobile phones for example.
The companies that are interviewed are all operating in Sweden with mostly Swedish developers. Not all of the companies have a Swedish ownership structure but they are all established in Sweden originally. The study is conducted in order to clarify how knowledge surrounding game development, from initial idea to finished product, is related to internationalisation of these companies, accordingly the interviews orbit knowledge more than the rest of the internationalisation process. This research question does not aim to explain the entire internationalisation process, as seen in the Uppsala model, of companies in the Swedish computer gaming industry. Trust and networks are treated as aspects not limited to the Uppsala model and they will be touched upon throughout the thesis with special regards to absorptive capacity and knowledge.

**Introduction of the theory section**

The internationalisation process of the gaming industry is an almost uncharted field of study and it is a phenomenon where companies are establishing themselves on the global arena in a very rapid pace (Ström & Ernkvist, 2012). In order to investigate the research question of this thesis, a section with theory will follow. In the theory section we will present the theoretical perspectives that we will use to look at this industry from different angles. The well-established Uppsala model will be presented and how it incorporates prior and new knowledge. Following, this will be tied to absorptive capacity and how it explains firms’ knowledge processes leading to internationalisation.

Except from presenting the Uppsala model and how absorptive capacity relates to it, we will in the theory section explain how the environment, where the companies operate in has changed by digitisation. The digital development is something that is not addressed by the Uppsala model but highly relevant as a means in the case of explaining the internationalisation process of the gaming industry today. Finally, the computer gaming industry will be shortly introduced in order to set the conditions of how the industry is operating to internationalise and how it relates to the models used in this thesis.
Uppsala Model

The internationalisation process model or so called Uppsala model was developed by Johanson & Vahlne (1977) after studying large Swedish manufacturing firms and their subsidiaries. By looking at their way of internationalising and expanding to new markets, they were able to create a model to explain the behaviour of how firms choose new markets depending on the level of uncertainty. Foreign markets pose a threat in terms of uncertainty where firms do not possess enough knowledge and experience to enter that market successfully. The only way of minimising uncertainty is to acquire knowledge about that foreign market. Johanson & Vahlne (1990) state that this knowledge is stored in individuals, databases and reports and can be retrieved in order to be used in decision-making processes. As a result, firms enter markets incrementally as they gather new knowledge step-by-step. Market knowledge decreases uncertainty towards new markets and facilitates market entry. This process relies on firms’ experiential learning they gather by being active in one market.

Knowledge is a prerequisite for decisions to take place as new decisions are related to what knowledge base a firm has (Figueira-de-Lemos et al. 2011; Johanson & Vahlne, 1977). This knowledge base consists of objective and experiential knowledge. Objective knowledge is transferable and can be expressed in written form (ibid). Experiential knowledge however is more tacit and often stored in individuals who have gathered it through personal experience (Johanson & Vahlne, 1977). It is not easily taught, acquired or transferred (Eriksson et al., 1997). Johanson & Vahlne (1977) consider objective knowledge not to be a main driving force for internationalisation. Instead experiential knowledge gives rise for new opportunities on international markets. This type of knowledge is sometimes acquired by firms systematically on their own however often it is gathered unintentionally in an unstructured way by operating in markets (Huber, 1991).

In line with new developments and how firms conduct their business, researchers criticised the original model on a number of aspects (Forsgren, 2002; Madsen & Servais, 1997). Madsen and Servais (1997) concluded that firms not necessarily follow the Uppsala model’s
internationalisation process and Forsgren (2002) missed a deeper focus on how learning affects the process. Johanson and Vahlne (2009) revised their original model to include a broader network perspective and to meet the demand by other researchers. They state that it is a crucial part nowadays for companies to utilise networks they operate in, e.g. suppliers and customers, in order to maintain a strong market position and to internationalise to new markets.

According to Johanson and Vahlne (2009), firms have a certain network position from which it can gather knowledge and see opportunities. This is expanded by developing their network relationships. Firms are still limited by their knowledge although they can see and seize new opportunities in the markets by utilising other parts of their network. They are thereby in relationships with other actors which affect their decision commitments. From these relationships they learn, create and establish trust which in turn affects their network position. The model consists of state and change variables where state variables are temporarily fixed in the beginning and change variables are dynamic. The state variables are here *knowledge & opportunities* as well as *network position*. A firm has a certain knowledge base in the beginning and can perceive opportunities based on its prior knowledge and network position. Compared with market knowledge in the previous model, the 2009-model states that firms via networks now can take part in new opportunities which are not limited to firms’ boundaries.

The change variables are *relationship commitment decisions* and *learning, creating & trust building* presented by Johanson and Vahlne (2009). *Relationship* was added to commitment decisions to underline the role of other actors in a firm’s decision making process. Firms can choose to increase or decrease its level of commitment to other parts in its network. Current activities from the original model have been expanded to include learning, creating and trust-building. While current activities are still valid and important, focus is also put on what happens after certain decisions have been made. The outcomes generate learning and trust-building between the different parts involved and can even facilitate creative processes.
In contrast to the Uppsala model from 1977 the revised model by Johanson and Vahlne (2009) states the importance of having networks and how they are one of the main drivers of internationalisation. Knowledge creation happens through interaction within a firm’s interconnected networks and relationships. Figueira-de-Lemos et al. (2011) state that objective and experiential knowledge are both important for knowledge accumulation and they interact with each other as this accumulation does not follow a sequential pattern. Instead, a firm’s learning process is interlinked with its internationalisation process, which means that during internationalisation, firms generate and find new knowledge which drives the process. Here, firms are exposed to different kinds of knowledge due to the role of networks. A firm is indirectly involved in knowledge creation processes as its network stretches outside the firm’s focal area and can include a variety of new knowledge according to Johanson and Vahlne (2009). Other actors within a firm’s network exchange knowledge inside their own business relationships which again can be exchanged back to the initial firm.

In their original model Johanson and Vahlne (1977) stress how experiential knowledge is important for internationalisation processes and that it is accumulated through experience in current activities. In their revised model Johanson and Vahlne (2009) consider how knowledge is transferred within a network via commitment to partners which allows a firm’s knowledge base to grow and the company to discover new opportunities. The richer a firm’s body of knowledge, trust and commitment are towards network partners, the more efficiently is knowledge exchanged and learned.
Absorptive capacity

Firms which are internationalising are, as mentioned shifting between state and change variables; Johanson and Vahlne (2009) argue that information is used from one stage to the next. A firm seeing knowledge opportunities, possesses certain knowledge which is related to that perceived opportunity, i.e. prior knowledge. When a firm already possesses certain R&D knowledge for instance it is easier to recognize external opportunities related to that R&D. According to Cohen and Levinthal (1994) prior knowledge is important for recognising what additional information can be useful and where and how this information can be obtained. Cohen and Levinthal (1990) call this process of knowledge recognition, assimilation and realisation Absorptive Capacity (AC). They define it as the “ability to recognize the value of new information, assimilate it and apply it to commercial ends.”(Cohen & Levinthal, 1990, p.128). This term states a company’s capability of finding new information based on a company’s prior knowledge, integrate it and use it (ibid). Depending on how well this process is handled the absorptive capacity is cumulative in the sense that the more prior knowledge a firm has the more opportunities to find new knowledge will be generated (Cohen & Levinthal, 1994).

While the theory of absorptive capacity tries to explain the process of knowledge acquisition based on prior knowledge, its variables are broad and ambiguous according to Fosfuri and Tribó (2008). There is a need for deeper insight and more clarity to understand how the actual process can be be broken down into smaller steps. Zahra and George (2002) state four aspects they consider important for AC: acquisition, assimilation, transformation and exploitation of knowledge.

Zahra and George (2002) state that acquisition is the process of finding external knowledge which is important for a firm’s operation. Here, speed of learning, intensity of identifying new knowledge and direction of accumulated knowledge play a vital role which affect how well firms can acquire the knowledge.

Assimilation is the next step including how external knowledge and information is analyzed, interpreted and understood according to Zahra and George (2002). If information is acquired
which cannot be understood due to a lack of previous knowledge, it will not be assimilated by the firm. It might not even be discovered at all as it falls outside of the firm’s search area.

Next, Zahra and George (2002) emphasise how transformability refers to how firms internalise acquired and assimilated information. In this step they combine existing knowledge with new information by re-coding and converting it to make it fit with a firm’s existing knowledge base.

Finally, Zahra and George (2002) and Fosfuri and Tribó (2008) mean that the last step in the process is exploitation. This refers to the actual application of acquired knowledge. It is here where knowledge is becoming a competitive advantage by incorporating it into a firm’s operation.

To link these four processes back to AC, Zahra and George (2002) divided AC into potential and realized AC. Potential absorptive capacity includes the process of acquisition and assimilation of external knowledge. It states how well a firm is capable of acquiring and assimilating external knowledge but it excludes transformability and exploitation of knowledge. Instead these two processes are grouped into what Zahra and George (2002) state as realized AC. This exhibits how well firms use acquired knowledge they have absorbed.

![Fig. 2 AC-framework](image)

The framework around AC is given by introducing the two categorisations of potential and realized AC. Moreover the categories are defined by two processes each (Zahra & George, 2002).
The four variables around absorptive capacity go in line with what is previously stated around AC (Figueira-de-Lemos et al. 2011; Johanson & Vahlne, 2009). For firms to internationalise, they need knowledge to minimise uncertainty but also to perceive new opportunities and seize them (Johanson & Vahlne, 2009). They have an existing knowledge base which is extended by incorporating new knowledge from outside by following the four variables of AC (Johanson & Vahlne, 2009; Zahra & George, 2002).

Digitisation

The society and the industry of game development have changed dramatically since digitisation became a highly relevant factor according to Ström and Ernkvist (2012). The entire chain of game development has been affected by this paradigm shift. The conditions on the market that the industry is targeting have changed as well which generates new terms for the industry to work with. The technological aspect of the industry demands a certain careful handling when looking at it in combination with internationalisation. A wide range of different technology is enabling a variety of products for the consumers which opens up for new possibilities for game developers (Jin, 2010).

When speaking of digitisation, it is often referred to as the “conversion of analog information into the computer-readable format of 1s and 0s. In digital format, all audio, visual, or textual information blends together in the process of convergence” (Pavlik, 1998, p.135). Further Beniger (as cited in Pavlik, 1998, p.135) states that the distinction between communication and information processing as well as communication between person and machine is becoming less obvious. Instead they are progressively fused together making it a fast and easy process. The convergence of different types of media and their communication is driven by electronic development, computers and network technology.

In order to structure this section about digitisation, the themes; acquisition, assimilation, transformation and exploitation, introduced above to construct absorptive capacity will be used to break down the subject.
Digital acquisition

In the acquisition phase, the company needs to identify what kind of external knowledge and information can be relevant to obtain, doing this in an efficient way is crucial (Zahra & George, 2002). According to Cohen and Levinthal (1994) prior knowledge is base from where the relevant information can be found. Neuman (1991) and Porter (2001) argue that the cost of transmission, processing and storage of information has dramatically declined since digitisation started affecting organizations. When companies learned how to manage and take advantage of the technological devices used for this, the cost declined even more. The time spent on searching for accurate information, both internally and externally has been drastically cut and the quality of information found can be maximised since the structure of how information is organised has become more efficient (Bouwman, 2005).

The process of scanning the supply of information and knowledge available on the market is part of acquisition (Zahra & George, 2002). Today, as Jin (2010) argues, high-speed internet is available more than ever and that has made communication between actors efficient and inexpensive no matter what distance there is between them. The internet has generated possibilities to communicate both with other actors in the development and publishing business of games as well as the consumers in the shape of gamers. The communities of engaged gamers are a constantly evolving source of ideas, comments and constructive inspiration that the developers can take advantage of and use as base for further improvement and future game development ideas.

Bell (1995) argues that intra-industrial relationships are a crucial factor when small and medium sized companies within the software industry are internationalising. Developers within the gaming industry is known for having strong networks, often digitally based, with other actors which give them the benefit of new inspiration and effective problem solving (Gandia, 2013). Alavi and Leidner (2001) argue that people within the same group tend to have the same type of knowledge and being able to post a question in an online network, in order to get help in a specific type of area have increased the knowledge opportunities significantly.
The internet has been shown to distribute power and possibilities to smaller and less established actors and by that it can strengthen their position in relation to bigger companies (Prashantham & Young, 2004; Sinkovics, Sinkovics & Jean, 2013). Taking advantage of the internet in the shape of internet-supported intermediaries, smaller actors can evade traditionally important steps in the internationalisation process, such as face-to-face contact in order to establish trust according to Prashantham and Young (2004). The new opportunities that internet has given smaller companies has made it possible for them to cooperate with bigger firms, grow and as in some cases like mentioned before, smaller actors get acquired by bigger companies which changes the combination of knowledge and capabilities within the firms.

Digital assimilation

Assimilation is referring to the process of analysing and processing the information and knowledge obtained (Zahra & George, 2002). Through digitisation it is possible to expand the prior knowledge of a company extensively (Neuman, 1991; Porter, 2001). According to Johanson and Vahlne (2009) and the Uppsala model this is giving the firm the ability to find and use new information and knowledge in viable ways since the prior knowledge decides what new knowledge the company finds and chooses. Being able to integrate the new information and knowledge as well as cooperation between actors is often a cornerstone to finding innovative solutions and products (Gandia, 2013; Matusik & Heeley, 2005). Betz et al. (2010) conclude that in order to use new resources in a useful way and to integrate them successfully it can be viable to use some kind of system. There are many different systems developed for communicating information and storing old knowledge in a systematised way today. These systems can help companies in their quest to transfer knowledge and information between departments and personnel. Careful evaluation of the options available should be done to get the best solutions for the specific needs of the firm.

Digital transformation

Communicating the new knowledge in a way that the employees understand is crucial to the transformation phase (Zahra & George, 2002). The ability to process and communicate big volumes of information and data and the variety of communication channels that this can be done
through has given individuals in organisations endless ways to understand knowledge (Neuman, 1991; Sinkovics, Sinkovics & Jean, 2013). The existing software infrastructure of the company needs to be analysed in order to see if it can maximise the utilisation of the new knowledge and software systems that are suggested to be used by the firm (Betz et al. 2010).

Digital exploitation

Exploiting the information gathered is done by the company when they manage to leverage it and incorporate it in the operations (Zahra & George, 2002). Barrett et al. (2015) explain how technology, especially with focus on digital platforms has made it easier for companies to innovate. The digital infrastructure allows for the exploitation of knowledge from other sources which can lead to the development of new products and services as well as digital capabilities on an organisational level. Gandia (2013) emphasises how the digital revolution that has been present during the recent years really has changed the way innovation can be brought to its full potential. Digital means are really encouraging cooperation between actors in the industry and development of new products that explores new opportunities and possibilities.

Games

Marchand and Hennig-Thurau (2013) describe in their framework how the gaming environment is built up. At the first stage of game development a game is created and programmed. Comparing it with a value chain much of a game’s value is created at this stage. Developers use their knowledge and creativity to make a game unique and attractive to the market by adding interesting content.

Following, they make the digital product available to publishers which are the next stage in the process described by Williamson (2002). These publishers are right-holders of the game. They have either given the task to game developers to create a game after certain guidelines or they buy the rights of existing game projects. Their task is to market a game and facilitate the sales process. Next, distributors manage manufacturing, storage and sales of the game. They also handle the supply infrastructure and contact with retail chains. However this stage in the process is becoming increasingly less important as digitisation replaces many of the parts at this stage.
Lastly retailers are the final stage where consumers purchase games although again digitisation is changing the retail of games and makes physical stores increasingly obsolete. This way of distribution is becoming outcompeted by digital platforms for downloading where consumers can access games instantly (Marchand & Hennig-Thurau, 2013).

Conceptual framework

Fig. 3 Conceptual model

To provide an overview of the theoretical foundation of this thesis, a conceptual model illustrates how concepts and theories are linked to each other. The overall model used is the Uppsala model from 2009 in which focus lies on the perceived knowledge opportunities. The arena of this conceptual model is digitisation which affect every step in this framework. At the first stage, prior knowledge limits a firm’s search for opportunities and sets the frame for finding new
knowledge illustrated by the arrow leading to new knowledge. Prior knowledge is developed into new knowledge by absorptive capacity which acts as a mediating variable. AC can be seen as the ability to process prior knowledge leading to new knowledge. Its value can then be exploited to give the company a competitive advantage during its internationalisation process.

**Method**

Research design
This thesis is based on an exploratory classification as we are exploring a phenomenon where little prior research has been conducted (Ström & Ernkvist, 2012). According to Saunders, Lewis and Thornhill (2012), an exploratory study is suitable for investigating and clarifying a problem which at its nature is unknown. Due to the unknown nature of this kind of study, it is important to be adaptive and flexible in light of new data which can appear and make a change of direction necessary. Even though such an approach can seem broad, the research progress makes the study more and more focused. The general purpose is to gather much information and data about a specific problem according to Patel and Davidson (2011). This allows for a deeper insight and generation of new questions which allow for further studies. The way of gathering information is often undertaken in a verbal form such as interviews.

This method was chosen due to the circumstances that the field is rather un-researched and we wanted to explore how the phenomenon relates to and differ from existing theories and if there are parameters that these theories lack in order to adequately explain the phenomenon (Saunders et al. 2012). Before the empirical data was collected, we thoroughly searched the field in order to see what theories were relevant and what research about similar areas had been discovered.

Operationalisation
To reach the goal of answering the research question of this thesis; *“How do Swedish computer gaming companies internationalise in relation to pursuit and absorption of knowledge?”*, the parameters had to be broken down into concepts that could be constructed into questions. This was done already in the end of the theory section of this thesis when we constructed a conceptual
framework. In order to create questions out of this framework, we looked at what facilitates knowledge. During the research for this thesis, we found that in order to study the process of knowledge transfer in the Uppsala model, it is viable to look at a company’s absorptive capacity. To make absorptive capacity concrete, we used four variables to break down the concept; acquisition, assimilation, transformation and exploitation. However, since these concepts are not established for respondents without a theoretical knowledge of the subject, the questions orbited the subject of how knowledge is understood and taken care of to generate as much value as possible in the development process. The questions regarding these four concepts did not explicitly refer to internationalisation in the interview guide since knowledge in itself is a step on the way to internationalisation of companies. Explanations and subquestions around the questions were given during the interviews to minimise the risk of misunderstandings regarding the questions to increase the validity of the study (Sanders et al. 2012). Questions that targeted internationalisation especially and the connection to knowledge were constructed in order to survey how the employees themselves see and value the connection.

The following table illustrates the parameters that are used to gather and structure empirical data and which later on will be analysed. Each parameter includes indicators to make the content of parameter more clear and to show what we look for when asking about them. These are also indicators for the subsequent analysis. Lastly the theoretical foundation from which the parameters are gathered is presented as well as the interview questions asking about them.

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Data collection

A pre-interview with an analyst at the industry association for the gaming industry was conducted in order to get an overview of the industry and what challenges it faces. The pre-interview was helpful since it gave an understanding of what problematic aspects that would be viable to study and in what way it could be explored (Patel & Davidson, 2011).

Interviews were conducted using a semi-structured interview guide. This is according to Saunders et al. (2012) adaptable depending on the specific interview. Some questions were excluded while others were added. The technique allows the order of the questions asked to be altered to fit the flow of the interview. The aim of such an approach is to let the interviewee elaborate on a phenomenon and to build on earlier answers. The interviews were transcribed afterwards to make them usable for data analysis and to provide exact quotations.

Selection criteria

To conduct the empirical part of this study, eleven companies were contacted and asked to participate in interviews. The goal was to hold all interviews in person to facilitate communication and understanding of the interviewee. As Saunders et al. (2012) point out, it is important to establish trust during the interview process to be able to dig deeper and explore responses in more detail. This is not as manageable during telephone interviews. All the firms in the selection were Swedish companies in the game developing industry. In total there were 30 companies amongst which we narrowed our sample to eleven which were most suitable to this study. The aim was to have different sized companies to investigate how different resources can
affect internationalisation processes. Moreover, some of the companies were chosen due key employees that had a background in the industry that was viable for our subject. These interviewees had previous positions in successful Swedish computer gaming companies and had therefore desirable information to share with us. Since the number of possible companies to interview were rather small, we did not expect a big amount of respondents, our focus would rather be to survey companies of varying sizes and people with varying positions. Due to practical reasons of this study, there was a geographical confinement and only companies in Stockholm, Uppsala and Malmö were approached. Three companies, out of the eleven contacted had the time and possibility to participate in face-to-face interviews. One of the companies was reached via snowball sampling (Saunders et al. 2012). The three companies that agreed to be interviewed were of various sizes; one large with 200 employees, one medium with 32 employees and one small with seven employees. This provides a foundation for analysing how computer gaming companies in this industry work around knowledge and AC depending on the size of the company, number of years in business and employee experience.

Respondents

The largest company in this study is Paradox Interactive AB, founded in 1999 and situated in Stockholm. It employs 200 people working both with development and publishing of games. They have an in-house development studio as well external studios which they supervise as publishers. At this company, two interviews were conducted, one with a production team lead called Florian Schwarzer and one with a producer, Peter Cornelius. Paradox’s game development is focused on historical games which consists of complex and very accurate game play features. In some markets their games are almost perceived as simulations due to their rich and detailed content. Further they lead other development studios which develop a range of other types of games.

The medium sized company in this study is Gaming Corps AB in Uppsala which was founded in 2014. It can be considered medium sized in comparison with Paradox with its 32 employees which work with game development and most recently they launched their first game. At this company the CEO and founder Nicklas Dunham was interviewed. Their first game was launched
in March which is a narrative story game. It entails an adventurous storyline which is supposed to be released in different episodes during the year.

The smallest company in this study is Calm Island. We interviewed the studio manager, Martin Annander at the Swedish department with seven employees in total. The company is originally Korean and delegates specific parts of the development process to the Swedish sub-department in Uppsala where developers work independently but in close contact with the Korean owner. Their niche is within educational games for children whose parents want them to learn English by playing Calm Island’s games. They put strong emphasis on making it educational and not only entertaining.

In total four interviews were held spanning over developers, producers and CEO. They provide a good overview of game development and its different stages. Different perspectives on this research question help to understand the complexity of the topic and enrich the empirical data with inside knowledge. Interviewing only people from the same position would not give a lucid account on knowledge processes in gaming companies.

Overview of companies

<table>
<thead>
<tr>
<th>Company</th>
<th>Number of employees</th>
<th>Founded</th>
<th>Type of games</th>
<th>Interviewee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaming Corps AB</td>
<td>32</td>
<td>2014</td>
<td>Narrative adventure games</td>
<td>Nicklas Dunham (CEO)</td>
</tr>
<tr>
<td>Paradox Interactive AB</td>
<td>200</td>
<td>1999</td>
<td>Historic strategy games</td>
<td>-Peter Cornelius (Producer)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-Florian Schwartzer (Production Team Lead)</td>
</tr>
<tr>
<td>Calm Island</td>
<td>7</td>
<td>2014</td>
<td>Educational games</td>
<td>Martin Annander (Studio manager)</td>
</tr>
</tbody>
</table>
Data analysis

The transcribed interviews were used to find pattern in the data which could be categorised and coded according to Saunders et al. (2012). The parameters *prior knowledge*, the four variables for knowledge processes (*acquisition, assimilation, transformation* and *exploitation*), *internationalisation* and *digitisation*, were used to sort the material systematically. The empirical findings were then analysed using the same parameters and digitisation was analysed throughout that section since it influenced every parameter in some way. The data was tied close to the theoretical foundation of this thesis in order to allow for a thorough analysis. Quotations were used were seemed fit to underline and confirm certain analytical thoughts.

Interview guide

Our interview questions are based around our conceptual framework, focusing especially on absorptive capacity. In the beginning we are asking questions around the interviewee’s position in the company and the general process for developing games. This is supposed to create trust and a feeling of mutual understanding before digging deeper into the theoretical aspects (Saunders et al. 2012).

The four variables (*acquisition, assimilation, transformation* and *exploitation*) are serving as pillars on which empirical data will be analysed. Hence, interview questions need to be tied closely to them. However, since our interviewees are not familiar with our theoretical knowledge base, we keep the interview guide more focused on game development which is in accordance with Saunders et al. (2012) a recommendation. It is important to create a common understanding of the questions asked. More specifically, we let the interviewees elaborate by giving examples from recent game developments they were involved in. The questions surrounding the four variables included *digitisation*. Before asking about the knowledge processes we aimed at asking specifically about *internationalisation* to keep our focus on the research question and to frame the interviewee’s mindset around this topic.

Limitations

The fact that a relatively small number of companies were interviewed in this study can be seen as a limitation. It can be argued that more respondents would have added new nuances to the
subject but our experience was that during the last interviews, recurrent answers and arguments came up which indicates saturation in our data. The three cases and their variety of resources give a diverse picture of the industry and its relation to knowledge.

When conducting the interviews, a purposive selection in regards to geographic location of the companies was made due to the desire of making face-to-face interviews. Even though this puts a limitation on the available companies, we claim that the access to in-depth interviews and discussions with respondents justifies this choice (Bryman & Bell, 2005).

In this thesis, we have chosen to make an in-depth study of knowledge which is one of the mechanisms in the Uppsala model. This can be seen as a limitation since it does not provide any certain answers about the entire process of internationalisation. We are conscious about this but argue that knowledge is one of the early steps in a process and exploring this provides an understanding of how the rest of the process is made possible.

**Empirical findings**

In the following sections, the empirical data gathered from the cases will be presented. The earlier introduced parameters will be used to structure the data and give a clear insight into what the interviewees stated. Networks and trust are included under the knowledge parameter as they have a close link to these aspects. First the general findings on knowledge will be introduced. This allows for a general account on how knowledge was perceived by the different companies. Following, the four variables of AC will be presented to illustrate the different knowledge processes within the gaming companies. Thereafter, the topic of digitisation is shown and how digitisation is affecting the working and knowledge processes in the companies. Finally the interviewees’ perspective on internationalisation is given to round up the findings with an international focus.
Knowledge

All of the interviewees in this study agreed that knowledge is an absolutely crucial asset for being successful in the industry. However, the way they handle knowledge and the resources they have to manage it differs from case to case. At the biggest company in this study, Paradox, they have a solid company structure that allows external knowledge to be used when needed and people to specialise in order to fill certain needs of knowledge. Whereas the smaller companies in the study has to be more agile and deal with different needs of knowledge more spontaneously.

Something that was common for all the companies in the study was that they do not systematically store knowledge in databases or other organised systems. The producer at Paradox stated that they have some documents from previous projects but the information in them is on a very high level, they do not contain any specific details at all. The CEO at Gaming Corps stated the following concerning objective knowledge: “We do not want too much documentation either, nobody will read it anyway, everything is changing and old knowledge is useless.” At Gaming Corps they never do the same thing twice and knowledge always has to be updated for new projects to be successful.

Some of the informants said that sometimes they find themselves in situations where the specific knowledge needed for a certain project does not exist internally at the company. Then, outsourcing is an option in order to use external knowledge without having to internalise it. The fact that the knowledge does not get internalised into the company is the reason to why outsourcing does not fit under the headlines below even though it is relevant in the context of knowledge.

Below, we will structure the empirical findings from the interviews under the headlines; acquisition, assimilation, transformation and exploitation.

Knowledge - Acquisition

How knowledge is found and acquired differs both depending on the company in question but also depending on what type of project is undertaken. At Paradox, the biggest company in the study, they try to send employees to conferences in order to deepen their knowledge within
certain areas. They also have the resources to bring in people with specific knowledge about subjects of interest, the producer at Paradox said “Once we hired a PhD in Nordic mythology to get the historic and geeky information that we needed correct”. When Paradox uses external sources of knowledge or consultants, they try to extract the information and knowledge possessed by that person as much as possible. The two other companies are significantly smaller and state that external resources in the shape of people with specific knowledge rarely can be used due to lack of money. The CEO at Gaming Corps expressed that the resources for making proper research at bigger gaming companies are vastly larger, “They can send out people to travel the world to get inspiration, take pictures, smell, feel textures and so on”.

Among all of the respondents, there was a consensus about that internet is a highly relevant means in order to acquire knowledge. All the respondents state that it is really important to keep one’s knowledge updated continuously since the industry changes rapidly all the time and internet is a viable way to find different types of knowledge needed. There are many digital publications that report about new and useful tools and programs for the business and protocols are published on the internet from different kinds of conferences and trade fairs that can be useful for getting inspiration and finding out what new discoveries that has been made in the industry. Often, Google is a tool used for finding solutions to specific programming issues that are encountered. The producer at Paradox stated that “probably half of the times when we encounter problems we google the answer and half of the time we walk over to a college to try and find a solution”.

Networks are also important when acquiring knowledge in the form of recruiting people that are needed to produce games. Many of the interviewees state that the gaming industry in Sweden is really small and having a good network is crucial for a good exchange of knowledge and personnel. The producer at Paradox said that “I know a few people at other competing companies that I would love to work with since I know that they are good at certain things and have certain ways to work, they have brilliant minds”. The CEO at Gaming Corps stated that “There are 3500 employees in this industry in Sweden today. It is extremely important to have the networks. You cannot burn or trick people.”
The digital platforms are also highly relevant in the recruitment process. All of the respondents speak about how they find new people to employ via forums for people in the industry and special web based platforms for developers and programmers that are looking for new jobs.

At Calm Island, they have a special focus on producing educational games for young children. In Korea, where the head office is located, they have people with special knowledge about children’s education and at the office in Uppsala, the manager stated that they try to hire people that have children in this age themselves to make sure that they have an interest and an understanding of who the consumers are. They are very dependent on the Korean knowledge as the Swedish section of the company lacks specific knowledge about children’s education relevant for their games.

There are certain tools available for analysing information about the industry that can be used in the process of making new games. Steam is a digital platform from where individual consumers can download games to their devices. The data about how much certain games are downloaded and what other games that appeal to that specific group of consumers are then made available to companies. Such information is viable to use for cross marketing of products and ideas about what to produce next in order to attract a certain group of players.

Knowledge - Assimilation

The respondents all agree that the process of understanding the knowledge available to the development process is essential to be as successful as possible. At the biggest company Paradox, the producer says that there is an explicit process of knowledge transfer in the entire chain of the development; from the initial idea to the programmed product. He states that it is extremely important for their developers to be in contact with the gamers. Both to read the ongoing conversations on the forums where people are discussing specific parts and happenings in the game but also to meet them in person on trade shows and similar events.

All of the respondents emphasis how important it is for the employees to keep their knowledge about the industry and profession up to date and interact with others to make sure that their
internal knowledge is relevant in the business. The producer at Paradox said regarding knowledge “Everything is changing and old knowledge is useless”.

The manager at Calm Island stressed how important it is not to point fingers in the process of understanding knowledge and how to use it in a viable way. “It is really important for people to be innovative and to think in new ways”.

The team lead at Paradox said that when it comes to understanding implicit knowledge, it often takes someone with the same kind of implicit knowledge to interpret and understand it. He also stated that “people with much expertise can attract others as they want to assimilate this sort of expert knowledge”.

A problematic aspect that some of the informants talked about is the uncertainty of what knowledge is needed in the process of developing a game since the project changes very much over time. The process is also not a linear process, “trial and error” is a common state that the employees go through when developing games.

The CEO at Gaming Corps emphasised that in order to create a common understanding of what is going on in different phases of the production and what goals are set to reach, brainstorming meetings are useful.

Knowledge - Transformation

All of the companies in this study transform knowledge into something more tangible and useful for the development process. The manager at Calm Island said that they try to have weekly coffee meetings where they choose different topics to talk about. He said that one of the employees picks something that he or she is particularly interested in or have some troubles with and then talks about that for a while. After that the rest of the personnel can give their view or suggestions on the matter or problem “It is really inspiring, we should definitely do it more often!” At Paradox they have meetings in small groups to facilitate knowledge spread. The team lead said “If you work side by side, you can transform implicit knowledge from one person to the next. Other than that, you can have retreats or workshops. It is important to share knowledge across
different departments to make sure people know what the company as a whole is doing. The aim is to make more people specialist by sharing knowledge.” The CEO at Gaming Corps said that they have brainstorming meetings in different phases of the production to develop ideas into elements in the production.

The gaming companies studied for this thesis have different routines when it comes to knowledge processes. While Paradox for example have a lot of past experience in how to find skilled employees or external knowledge required for a game project, Calm Island is less routinised; “We are still trying to make things better. Just trying to find the right procedures.”

Within the computer gaming industry it is common to talk about the so called “Truck factor”. This is an expression for how the development process would be affected if somebody from the development team would be hit by a bus tomorrow. At many gaming companies including Paradox “this tends to be high”. Consequently, one must realize the importance of spreading knowledge to make it less individual and more spread throughout the whole gaming company.

Knowledge - Exploitation

Concerning how knowledge is exploited the development studios are keen on integrating knowledge from different sources to make their games more popular. For Calm Island it is essential to add knowledge surrounding how children learn and play. The team working in Sweden does not possess this knowledge base but they are instead focused on the actual development of the game, meaning coding and programming. The Korean team provides the research around children’s education and how it should be integrated into the game.

Gaming Corps uses the same principle at a smaller scale. They have one person in particular who identifies new trends and interesting content for new games. He has a lot of past experience which makes him an important part of the development process, “He knows exactly what players like or don’t like.” As mentioned they apply a 70% old, 30% new guideline; the 30% new content
is to a high degree determined by this person. The CEO of Gaming Corps further believes that traveling to foreign cultures and markets are important steps to “understand the specific cultures and markets and their habits and the people”. It is a way of adopting a global mindset to find new niches and possibilities which then can form a base for the development for a new game. It is also the best way to find local partners which can provide local market knowledge.

At Paradox they try to listen to as much feedback as possible expressed by the gaming community. Their opinions and experiences are valuable inputs which can add value to the games to make them more popular.

Digitisation

Digitisation has affected the way gaming companies work. An important link game developers have to its customers lies in online communities and groups. Paradox can easily communicate with its communities around their games. There are different forums and online groups on social media which facilitate the exchange of knowledge and ideas. Production team lead at Paradox stated “Games as an entertainment medium will elicit a strong response from a fraction of the audience. The easiest thing to do is to listen to that part of the audience to see where they are. They come to you or express themselves publicly about the game.” Paradox realised by looking at their gaming forums that for example people posting in those forums came from Russia. From this information, they could deduce that Paradox’s games have some popularity in that market as well.

At Paradox, they have a community support and community management part which maintains their community hubs and where they “listen to people”. For Calm Island, digitisation has facilitated their recruitment process. It is easier to find the right people by looking at certain forums where people with interest linked to Calm Island’s games tend to communicate with others. As they are working closely with their HQ in South Korea, communication over Skype and other digital means lead to cost minimisation and increased efficiency.

A similarity among the three companies is how distribution of games have become cheaper and faster. As games are digital products they do not need to be manufactured or sold in stores as they
can be made available globally with a few steps. As a producer at Paradox put it “We don’t do physical products anymore. We can just send our games out to the consumer. We don’t target specific countries.”

The CEO at Gaming Corps believed that “… many more people have been able to release products since there are more digital platforms and business models for them to do it. It is a digital era.” This “digital era” also enables developers to develop games across borders without ever meeting face-to-face. They are also able to receive detailed data on how their games are sold and played. For example, games from Paradox and Gaming Corps are sold on an online platform called Steam. Steam provides analysis of which games are popular and what the consumer buys in relation to what has been bought previously. Also, developers are able to determine which are their most profitable markets based on where the consumer log-on to Steam. The general view among the interviewees is that it is essential to keep up with developments in this area as those companies which do not adapt to the digitised environment will not be able to find new markets and consequently not survive.

Internationalisation

Internationalisation is a given prerequisite for the interviewed computer gaming companies as they all aim at a global market. There is little distinction concerning national boundaries but instead they consider different regions when introducing new games.

Paradox for instance has established itself in Western Europe and the US. These are their biggest markets although they recently discovered their games were popular in Eastern Europe and South America as well. These markets have not been specifically targeted by Paradox. Sweden or Scandinavia are not considered as important as pointed out by the production team lead at Paradox, “Non of Paradox’s games get made primarily for the Swedish or Scandinavian market.” It is too small to be considered as a primary market. They have strong sales in German and Anglophone markets and new games are often launched in these markets and thereafter they look
at playing patterns and try to find where else their games are popular by for example going via social media. Similar the CEO of Gaming Corps states that 35% of their sales is in Europe in which Sweden only has a small proportion of European sales. The CEO at Gaming Corps said they “are targeting the entire world.”

The interviewed gaming companies are each trying to focus their development to specific niches. In the case of Paradox they do not try to make high quality games with advanced graphics. Instead they reach so called “smart gamers” which appreciate details and historic accuracy found in Paradox’s games. Gaming Corps goes into another direction where they strive to become the third biggest developer within the “story genre”. This is a niche they believe they can become good at and in the long run gain a strong market share. The same applies for Calm Island which solely focuses on children’s educational games.

The interviewed gaming companies do often not target specific countries but instead they aim at large regions. In these regions they want to become a leading actor within a certain niche. Common for all gaming companies in this study is that their distribution of games is localised to online stores and platforms. There is an increasing trend to sell games without it ever becoming a physical product. The result is an instant global distribution. However different regions have different gaming preferences resulting in certain niches being more popular in some markets than others.

**Analysis**

The following section will present the analysis built on previous empirical findings and theoretical foundation. The chosen areas for analysis go in line with how the empirical findings are structured, namely knowledge including the AC-framework and internationalisation. Digitisation is analysed continuously rather than focusing on it in a separate section as it affects every parameter in this study.
Prior knowledge

In the empirical findings, it becomes obvious how dependent gaming companies are on experiential knowledge. There is a heavy reliance on knowledge stored in individuals who in some cases are in sole possession of it. In one case, only one person had experience enough to identify what new trends will become popular in the future and in effect, this person lays the foundation of what the developed game will be about. As stated by Johanson and Vahlne (1977; 1990) this experiential knowledge is gathered through experience and it has a tacit nature. All interviewed gaming companies reported that there is relatively little attention paid to objectifying knowledge, meaning to make it transferable by for example expressing it in written form (Figueira-de-Lemos, Johanson & Vahlne, 2011; Johanson & Vahlne, 1977). They do not document their knowledge and experience which results in that their prior knowledge is very tacit and experiential.

For future knowledge processes to take place, i.e. AC-processes, prior knowledge is an essential component which in these findings often is stored in individuals (Cohen & Levinthal, 1994). One factor behind this can be traced to the high pace of change in the gaming industry. New technologies and developments are constantly changing the framework in which gaming companies work. There is no time to place on objectifying knowledge which at some point will become obsolete.

Another factor influencing a gaming company’s prior knowledge base is the actual size and number of years it has operated. The small and young companies in the empirical findings are more loosely structured. There are often no clear boundaries of employee’s work duties but instead everybody contributes with their thoughts and knowledge. This can happen more naturally in smaller companies with fewer employees. At larger gaming companies work processes are more structured. It is easier to identify what prior knowledge base the company has and what additional knowledge is needed and where it can be found.

For smaller developers, it is often a question of handling available resources as efficiently as possible since their knowledge base is smaller than for larger gaming companies. These limited opportunities however can be extended much like the Uppsala model states (Johanson & Vahlne,
by utilising networks. All interviewed gaming companies rely on external networks which provide valuable knowledge to realize new opportunities.

Acquisition

The empirical findings show that networks, as Johanson and Vahlne (2009) state are highly relevant for the gaming industry. Digital means are facilitating communication within network platforms which often are used for recruiting new personnel with new knowledge valuable for the company. They are efficient to use and easy to access and they give a good overview of what knowledge is available on the market.

The fact that the development within this industry regarding technology and trends is moving rapidly makes it naturally hard for the companies to keep their knowledge up to date. The companies in this study are all focusing on being really good at producing games for a specific target group, which makes their domain of knowledge smaller than it would have been if they targeted the entire market. A smaller domain of knowledge is easier to manage and comprehend and updated knowledge can be acquired continuously. Having a relatively small domain of knowledge also makes it easier to identify what knowledge the organisation possesses. Since the prior knowledge is the base from where new knowledge gets chosen (Johanson & Vahlne, 1977; Johanson & Vahlne, 2009), a smaller and more well founded prior knowledge base can make it easier to identify in an accurate way what new knowledge is desirable for the company.

This new knowledge is to some extent gathered via networks as stated by the gaming companies in this study and it is apparent how vital trust is among different network partners for this to happen. Both internal and external networks are built on trust as seen in the revised Uppsala model (Johanson & Vahlne, 2009). Once trust is established, it leaves room for a solid network position from which new opportunities can be perceived and where acquisition of knowledge is possible (ibid; Zahra & George, 2002).

The internet is shown to be a great source of knowledge for the companies in the gaming industry. Employees can easily use the internet to gain information about specific programming issues or fact about specific research topics. It is a cheap and efficient way to get objective
knowledge into the organisation (Alavi & Leidner, 2001; Jin, 2010). Getting information from the internet is an alternative to acquiring experiential knowledge from hiring experts or traveling the world. This information gets internalised by the employee and as a result it becomes part of their experience. Hence, the internet is a source of objective knowledge that can become experiential when acquired.

Assimilation

Gaming companies strive to have a dialogue with gamers via for example forums and trade shows to understand how their games are perceived. It is an important part in understanding what gamers like or dislike and what gaming companies can change or add to their games. This process of understanding how knowledge related to game development should be used and adapted goes in line with assimilation of knowledge in the AC-framework (Zahra & George, 2002). It is a matter of understanding and analysing gaming preferences to be able to improve future games and to avoid past mistakes. By doing so gaming companies are able to identify which aspects they are good at and what they should focus more on to become a more successful game developer domestically and internationally. Moreover developments within this industry put high pressure on game developers to keep their knowledge up-to-date. Developing games with outdated technology and old trends will lead to low sales in this competitive industry. Improving one’s skills and to be aware of new changes in the industry are vital. Here it is not sufficient to acquire new knowledge if it cannot be understood. There is constant need to be well informed and to extend one’s knowledge base in order to be able to understand the value of new knowledge.

From the empirical findings one can see a pattern that assimilation processes do not happen in a structured and ordered way. There is little in terms of pre-defined procedures to facilitate the understanding and analysis of new knowledge. As mentioned for prior knowledge there is a strong reliance on individuals who possess experiential knowledge gathered over time (Huber 1991). Assimilation is therefore often limited to individual developers who have a certain prior knowledge base consisting of experiential knowledge. During game development much happens through “trial and error” leading to individuals gathering experience. This experience can be
important for understanding new knowledge but as it is not a common or objective experience found in the entire gaming company, it limits assimilation of new knowledge. This might eventually lead to problems when new knowledge is integrated into the existing pool of prior knowledge as it might be the case that only certain individuals understand it. The larger and more experienced companies are aware of the importance of creating routines to facilitate assimilation. They utilise brainstorming meetings for example to share ideas and thoughts. This creates a common understanding of new knowledge and it spreads existing information to improve the capabilities to understand new knowledge (Zahra & George, 2002).

Transformation

In the empirical findings it is mentioned how gaming companies implement weekly informal meetings where knowledge exchange can take place. When knowledge is exchanged it enables for experiential knowledge to be recoded and transformed (Zahra & George, 2002). Thereby it becomes part of the common pool of knowledge in the gaming company where everyone can use it. It transforms from experiential to objective knowledge (Johanson & Vahlne, 1977; Figueira-de-Lemos, Johanson & Vahlne, 2011).

Furthermore, it is sometimes common practice to work side by side when a game is being developed. It can be the case that certain programming techniques are supposed to be spread and taught to other developers. It is the same principle here that experiential and implicit knowledge can be transferred to others by transformation of knowledge. Also several gaming companies apply open offices where developers sit close to each other. This can facilitate knowledge spread and encourages transformation of knowledge.

The smaller the company, the easier it is to spread knowledge. Large gaming companies employ many developers, each possessing a large quantity of implicit knowledge. Knowledge spread is difficult as it would take effort and time to first create a common understanding of the implicit knowledge and thereafter to integrate it into the whole gaming company. This is easier at smaller development studios which only employ a small number of people and where the hierarchical structure is low. It is easier to follow what other developers are doing and create an understanding of what the different development phases look like.
Gaming companies must evaluate the cost of spreading knowledge to create a greater common knowledge base in the company in comparison to the risk of the so called “truck factor”.

Exploitation

The interviews show that especially the biggest company uses forums and trade shows to get insight into what the consumers of the games are concerned about. The gamers that choose to express themselves in forums and communities often have observations that are valuable to the developers. A successful exploitation of that experiential knowledge possessed by the gamers generates a better gaming experience in the end. If the gaming company is able to exploit this information and improve the product, they manage to please the target audience of the game even better and by that they get a better chance of earning a competitive advantage that possibly can lead to internationalisation (Johanson & Vahlne, 2009; Zahra & George, 2002). Since exploitation is the last step in AC, it is really important that the company manages to create value of the entire process, if they fail to do this, the previous three steps are meaningless.

When the knowledge base grows after a successful transformation, they must find ways to exploit that knowledge to generate value to the gaming experience. In the long run the cycle is repeated as the enlarged knowledge base enables the company to acquire new knowledge in new areas (Johanson & Vahlne, 2009; Zahra & George, 2002). An enlarged prior knowledge base combined with trusted networks gives rise for new opportunities and more commitment.

In the empirical findings of this thesis it was evident that gaming companies use their consumers in the development phase of a game. The gamers are a part of the network that the company uses actively to gain new knowledge and insights about what is needed to produce a successful game. This new knowledge gets a part of the prior knowledge which is a step in the direction to new knowledge as explained above (Johanson & Vahlne, 1990; 2009). This is a different way of how companies internationalise using networks in comparison to the Uppsala model by Johanson and Vahlne (2009) where the components in the network are other companies or similar actors rather than consumers.
AC in relation to trust and networks

As the analysis above is implying, digital means are acting as facilitators all through the process of absorptive capacity. The empirical material states that the gaming industry was born and has expanded during a time when digitisation has been a natural and growing infrastructure.

In connection to knowledge and absorptive capacity, it is relevant to discuss trust and how that has to be present all through the process. Trust is, as well as digital means a facilitator for handling information and knowledge in an efficient way. If trust is not established between actors, they will not be prone to share knowledge and information. Knowledge is also highly relevant in connection to networks, as Johanson and Vahlne (2009) state, it is vital in the mechanism behind the creation of networks. In the empirical study for this thesis, trust was something that was considered really important by the respondents but it was hard to specifically talk about since it was a postulate for all activities undertaken in the process of using knowledge.

Internationalisation

It has become evident by the empirical findings that gaming companies do not follow explicit internationalisation strategies to enter new markets. As soon as a game is ready to be launched it can potentially be spread globally with relatively little effort. Digital platforms enable fast and efficient means to sell games while at the same time provide feedback to developers on how games are sold, to what type of gamers in which countries (Gandia, 2013). This has also opened up possibilities for smaller developers to distribute their games who do not necessarily have to use publishers. Thereby they can become international and minimise cost at the same time.

All the four knowledge processes within the AC-framework have been facilitated by digitisation (Jin, 2010; Zahra & George, 2002). This allows for faster and cheaper means of communication
to identify new knowledge as well as new opportunities given by networks (Jin, 2010; Johanson & Vahlne, 1977). As a result new market opportunities can be more easily identified.

The internationalisation process of gaming companies is to a large extent determined during the development phase of a game. Instead of aiming at specific markets gaming companies aim at becoming good at what they are doing. They want to become specialised within their genre since this will allow for wider reputation of their games. Depending on a game’s content it will attract different types of gamers found in different markets. This however is something developers recognise after a game is released. They analyse where their games are bought by which type of gamer and in this way get a picture of where they might want to focus sales and marketing for their next game. This process is continuous as new games can attract new customers and the companies need to be aware of where their games are played. In this way the internationalisation process is driven by expanding the knowledge base of how and where games are played (Figueira-de-Lemos et al. 2011; Johanson & Vahlne, 1990). This is especially important for smaller gaming companies with smaller budgets as they are not able to spend as much on marketing, staff and technology. The games developed by such studios are for instance technically simpler in terms of graphics than for example “AAA-games” and therefore they need to focus on specialised content instead which attracts certain gamers.

As presented in the findings, gaming companies are often uncertain about which markets are profitable before a game is launched. Instead they determine afterwards by looking at data given by online platforms for example where their games are bought. This type of experiential knowledge exhibits how gaming companies internationalise (Figueira-de-Lemos et al. 2011; Johanson & Vahlne, 1977) and cannot be determined beforehand. The process is unstructured and happens seemingly randomly and unsequential. Like Huber (1991) states is internationalisation, or the gathering of experiential knowledge which is the base for internationalisation, unintentional. Games spread to different markets on their own and gaming companies subsequently become aware of this.

When analysing the subject of internationalisation of the gaming industry it is impossible not to start questioning if there really is something that can be called internationalisation in this matter.
During the interviews for this study it became evident that none of the respondents are interested in launching games on a national market. There is no gain in solely releasing a game on a national market since it is a digital product and there is no additional effort in releasing it worldwide. The lack of interest in a national market among the Swedish gaming companies has also to do with the size of it. Sweden does not offer a target group big enough to appeal to the producers and naturally, the global market is more attractive. The interviews with the gaming companies imply that Sweden has a culture similar to western countries like the U.S and Germany which makes it possible for them to produce games that are successful in those countries. Hence, it is attractive for Swedish computer gaming companies to be international and expand to these lucrative markets. If this study would have been conducted among US developers instead of Swedish, the question regarding other markets would not have been as important since the US provides a national market big enough to be financially attractive.

Conclusion
Knowledge is, as expressed through the entire thesis, a cornerstone in the computer gaming industry. Prior knowledge is the starting point for the whole process of pursuing and absorbing knowledge. The fact that this initial state is so crucial, combined with the fact that much of the knowledge is experiential and tied to specific people gives the process of internationalisation an element of risk and uncertainty. This aspect of uncertainty which in the end affects internationalisation is handled in more or less structured ways at different companies in order to minimise the loss of potential opportunities. However, in an industry that is changing as rapidly as the computer gaming industry, there is little gain from trying to standardise knowledge and making it objective. This could be seen as contradictory since it on the one hand is desirable to formalise and spread knowledge but on the other hand, it is risky to do that since it might be a useless effort in a constantly changing industry.

Despite the fact that digitisation allows for fast and efficient distribution of games, this study shows it is not a guarantee for internationalisation. The gaming industry is very knowledge intense and costly, consisting of complex processes to develop a game. Especially for smaller developers this poses a difficulty to keep up with most recent developments in the industry. Subsequently, it is required for them to find a niche to build a solid reputation for developing
attractive games in a specific genre. In this way, games become international, leading to new gamers who have an interest in that specific niche. The groundwork for achieving this is having functioning knowledge processes to pursue and absorb the right knowledge. The right knowledge will enable gaming companies to develop a competitive advantage within a certain niche.

The role of trust is highly important in the game development process since the projects are big as well as the financial investments. The focus in this thesis has been on the knowledge aspect of development where trust is shown to be extremely important. One of the reasons for this is probably that much of the components in this industry are intangible in the shape of ideas and knowledge. These components can only be shared if there is a high degree of trust established. Our findings and analysis show that trust might be highly important among internal networks during the game development phase which is a precondition for creating an internationally demanded product.

Digitisation has been a significant contributing factor for internationalisation in this industry. Looking back at the Uppsala model, it appears that gaming companies internationalise in a reversed order. Instead of determining which potentially profitable markets they want to enter and expand into, they first release a game digitally which automatically makes it available on the international market. Thereafter they analyse where there is a demand for the game and where they can continue releasing future games. The internationalisation of games is very much an uncertain progress and gaming companies are often not able to foresee where their customers are beforehand and where their games will become popular. By pursuing and absorbing knowledge related to a game’s attractiveness, gaming companies can reduce this uncertainty and target their niche better. One can argue that internationalisation amongst gaming companies in this study is a passive phenomenon. It is something that happens automatically and it does not necessarily require active decision making to start the process. The digital environment makes it a natural consequence.
Contributions and suggestions for future research

The theoretical contribution of this study is the enrichment of a relatively un-researched field. The conclusion highlights how companies can internationalise differently compared to existing theories. Considering the practical contributions, it becomes obvious how knowledge driven this industry is and how much happens by “trial and error”.

For future studies, this topic can be analysed deeper by looking at gaming companies developing “AAA-games”. They work with much greater resources than the companies in this study. The knowledge processes are possibly even more complex and routinised. Moreover they have financial capabilities to do marketing globally which affects their internationalisation strategies to a large extent. Another topic viable for research would be to look into the other aspects of the Uppsala model and focus more on trust and networks since these aspects were only researched in this thesis in relation to knowledge.

Limitations of this study

It should be taken into consideration that it cannot be specifically determined how much and what specific kind of knowledge is leading to internationalisation. Furthermore, the study does not provide an exact answer to how digitisation affects the internationalisation process. We can only state it is a vital component.
References


Nyström, C. 2011, “Internationalisering i svenska små och medelstora företag”, Tillväxtverket


Appendix

Interview guide

1. Please tell us about your position and for how long you have been working at X

2. Could you in short describe the corporate structure of X

3. When developing games, what factors do you consider important for making it attractive on international markets?

4. Can you give us overview of the process of game development? Structures, people, procedures, initial idea to an actual game

5. How do you use internal and external networks during game development and how do they contribute?

6. What role does trust have in your networks and how does it affect game development?

7. During the development process, what different types of knowledge are involved in making a game?

8. Developing a game, how much of your existing knowledge could you use and how much did you have to gather externally? Please exemplify

9. When in the initial phase of developing a game, how do you identify what new knowledge is needed and how do you find that knowledge?
   a. How are digital means involved in the identification and search process?
10. What happens once you have found the knowledge needed for game development, how do you manage that knowledge through the entire process of making a game? Speak freely
   a. Is new knowledge ready to be used in game development immediately?
   b. How are digital means helping to make knowledge understandable and internalize it?
   c. How do you combine the new knowledge with the already existing knowledge.

11. How do you make use of new knowledge for developing this game? Do you have working procedures and/or processes to facilitate the incorporation and use of new knowledge?
   a. Do these procedures and/or processes take place digitally?

12. What is especially important during game development in regards to knowledge for a game to become international? Is a successful game synonymous with an international game?