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Digital internationalization of SMEs

A phenomenon-based study on the video game industry

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Abstract
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Digital technologies, platforms, and infrastructure have changed how business is conducted in many industries. In particular, digital platforms have evolved as a facilitator of internationalization of small-and medium-sized enterprises (SMEs). This phenomenon can also be observed in the video game industry, where digital giant firms have elaborated themselves by building multi-sided platforms, where game developers and users interact with each other.

This thesis sets out to investigate three phenomena in relation to the digital internationalization of SMEs in that industry, which are distinctive to the video game industry. These phenomena are the prevalence of born global firms, online community engagement, and the digital platforms in the industry. A literature review on digital internationalization served as a theoretical starting point. Furthermore, a pragmatic research approach led to various research methods investigating the three stated phenomena. The methods applied in this thesis comprised interviewing founders of small-sized game development firms, conducting a netnography in an online community, and analyzing data from structured survey interviews from 176 Swedish video game development projects by conducting structural equation modeling (SEM).

The overall findings of this thesis reveal a new type of digital platforms that are lifting this industry into further heights, an interesting interplay of SME game developers and digital giants owning the significant platforms in the industry. Moreover, the findings highlight an extraordinary level of interaction between game developers and their online communities.

Keywords: digital internationalization, digital economy, video game industry, digital platforms, online community engagement, born global firms

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List of Papers

This thesis is based on the following papers, which are referred to in the text by their Roman numerals

I Walther, K. (2022) Digital internationalization: A bibliometric review.

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II Walther, K. (2023) Internationalization of small-sized game development firms – A born global theory perspective. In M. Dabić, & S. Kraus, *Handbook on SME Entrepreneurship*, *ISBN: 978-3-11-074752-2,* Berlin, DeGruyter. *(forthcoming)*

A previous version of this paper has been presented at the Academy of International Business (AIB) 2020 online conference, July 1st, 2020.

III Walther, K. & Sörhammar, D. (2021) Reaching New Heights in the Cloud: The Digital Transformation of the Video Games Industry. In P. Ekman, P. Dahlin, & C. Keller, *Management and Information Technology after Digital Transformation* (pp. 53-62), London, Routledge.

IV Walther, K. (2022) Online communities as a source of innovation: A netnographic study on Crusader Kings 3. *Proceedings of the 55th Hawaii International Conference on System Sciences.*

V Walther, K. & Ek, P. (2023) Adding a social dimension to game development: Does Online Community Engagement have an effect on a video game's innovativeness? *Proceedings of the 56th Hawaii International Conference on System Sciences.*

Contents

Abbreviations

CIP	Continuous improvement products
IB	International business
MNC	Multinational company
SDK	Software development kit
SEM	Structural equation modeling
SME	Small and medium-sized enterprises

Prologue

It is a sunny day in May, and I find myself walking from the central station in Malmö to the business conference center Slagthuset–as the name suggests, it was a slaughterhouse until 1969 and now a business conference location. The conference that I am planning to attend is the annual Nordic Game Developer conference. My supervisors have encouraged me to attend this conference and gave me the contact details of Per Strömbäck–the CEO of "Dataspelsbranschen," the Swedish Trade Association for Video Games companies. As I enter Slagthuset and pick up my lanyard with my participant card for this conference, I can already spot Per from afar. Per seems busy but, fortunately, he has some time to welcome me. He invites me to join the lunch buffet which "Dataspelsbranschen" is hosting in a back room of the conference hall. I aim toward the wardrobe, lock in my suitcase, and make my way to the lunch buffet. Once there, I take a spot at a large table with around seven guys roughly my age. Luckily, the people there are communicating in English and everyone seems quite talkative. I introduce myself to the two guys sitting next to me. As the people at the table start to introduce themselves and talk to each other, I realize that I have just found a gold mine in terms of research data. Not surprisingly, the seven guys sitting there are all game developers, and I become a little star-struck. The two guys that I introduced myself to at first and sitting right next to me at the table are the developers of the game "Totally Accurate Battle Simulator." Back then, the game was released as an early access version but already in this state, it generated a huge fan base through people streaming themselves playing this satirical battle simulator game. While the three of us queue at the buffet, I happen to learn that the game started as an April Fool's joke. The developers were overwhelmed by the success and the attention their "joke" has generated. (It is estimated that the game eventually sold around one million times; in the following years, the two developers have always released a game that is a parody of a popular game or game genre on April 1st). Back at the table, I am asked what type of research I am doing. Still quite early in my Ph.D., I struggle a bit with giving an "elevator pitch" on my thesis. Luckily, the few keywords that I use in my–at this point highly unpracticed–thesis pitch, trigger a discussion at our table. The discussion during this lunch

evolved around topics such as Steam as a platform for developers, how easy it is to publish a game but how hard it is to get attention as a small developer on the market, and the collegiality among developers in the Swedish gaming industry.

As insignificant and small as this lunch conversation with those seven developers might seem, it was an early but crucial moment in my dissertation progress. It encouraged me in my upcoming research progress that I am not only an avid consumer of this industry, but I can also contribute with my research insights. I am also encouraged by how easy it is to communicate with people from that industry and how open they are talking about their work. The rest of the three-day conference was filled with interesting talks, with dozens of developers from different countries, attending panel discussions, and joining the Swiss game developer side conference hosted by the Swiss Arts Council. The conference ended with me attending the Nordic Game Awards, where the best Scandinavian Games of the past year were given awards, and the industry legend Warren Spector had a keynote speech.

So why am I telling this narrative story at the beginning of my thesis? When I started my Ph.D., I assumed it would be tough to write a dissertation about an industry in which I am an outsider. Despite my interest in video games, I thought as an industry outsider, it would be hard to be heard and generate insights and findings. However, I soon learned that once you arrive and dive into your research context, things will be revealed and you will become confident in writing about your topic and talking to people from that industry. What motivated me as a researcher was the fact that it is possible to become a specialist without being part of the industry, per se. I have grown not only as a researcher and teacher in the past four years but also developed an expertise in the industry that I was investigating and feel comfortable talking about my perspective on the industry.

And lastly, over the course of time of my Ph.D., I learned to give an elevator-pitch on my thesis. I am proud to present, therefore, the compilation and results of my dissertation on the following pages. To give an elevator pitch on what you can expect to read: “My research investigates digital internationalization of SMEs in the context of the video game industry. A central element of the digital internationalization in this industry is digital platforms, which in most cases are owned by large, digital multinational companies (digital MNCs). The digital platforms can take on many forms, but what they have in common is that they facilitate especially small game development firms to internationalize almost immediately from inception and engage with their online community. The three phenomena of digital platforms, born global

firms, and online community engagement as components of the digital internationalization of SMEs in this industry are the focal points of my dissertation."

1. Introduction

The video game industry in a nutshell

Video games have come a long way. From playing "Pong" on an oscillating screen to arcade games in malls, to having gaming consoles in living rooms, to up until now where you can play and stream your games on almost any device with a screen (Walther & Sörhammar, 2021). Since the eighties, the video game industry, in its entirety, has been showing constant yearly growth. Newzoo, a market research firm specializing in the gaming industry, estimates the total turnover of the gaming industry in 2024 to be $218.7 billion, with a year-on-year growth of 8.7 percent (Newzoo, 2021a). In 2016, Newzoo estimated the industry to generate revenues of $99.6 billion (Newzoo, 2016). This indicates how rapidly the industry is growing. The growth in 2020 has been further driven by the launch of next-generation consoles and by COVID-19 lockdown measures (The Economist, 2020b). Gaming has become a global phenomenon, where the U.S. is the largest single market, in terms of turnover per capita, followed by Japan and South Korea (Newzoo, 2021b). In terms of total revenue, China is the largest market and has overtaken the U.S. in total revenues generated in 2016 (Newzoo, 2016; The Economist, 2019b). China also accounts for the world's biggest gaming company, Tencent, which has acquired a manifold of European gaming companies over the last 5 years. In Sweden, for example, Tencent acquired among others Sharkmob (100 percent ownership) and bought shares in Fatshark (36 percent ownership) (Dataspelsbranschen, 2020; The Economist, 2020c).

From a global perspective, the mobile gaming industry is the largest segment of the gaming industry, accounting for 40 percent of the revenues in 2020. The console gaming segment accounts for 28 percent, and PC gaming accounts for 21 percent of the total revenue generated by the video game industry (Newzoo, 2020).[1]

[1] Despite these impressive revenues, it should not be ignored that the industry, and especially many firms in the mobile gaming segment, are following a controversial business model by selling "loot boxes" to their players. Loot boxes are virtual items bought with in-game currency. These virtual "loot boxes" contain randomly generated content that becomes visible to the players after the purchase. Therefore, these mechanics resemble the practices of the gambling industry. China has passed a law to regulate such controversial business models, whereas–despite much pressure–most European countries and the U.S. still label the sales of loot boxes as non-gambling practices (The Economist, 2017a, 2019e)

The Swedish video game industry has come a long way too. Presumably, the first video game developed in Sweden was developed by Göran Sundqvist in 1960. Sundqvist's development ran on an oscillating screen and a Datasaab D2 –an early prototype computer that was built to eventually assist aircraft with navigation (Ernkvist et al., 2008). Skipping sixty years ahead to today, the industry has become a significant industry to the Swedish economy. The Swedish video game industry generated a revenue of 34.7 billion SEK in 2020, which accounts for roughly 0.6 percent of Sweden's total GDP in 2020. Furthermore, the industry has 6,596 employees on site in Sweden and 667 registered companies in Sweden, as of December 2020 (Dataspelsbranschen, 2021). All these numbers have been growing constantly between 2010 to 2020, and it was one of the few industries that was economically thriving during 2020 despite the COVID-19 pandemic. The shares of the largest Swedish video game companies (Stillfront Group AB, Embracer, and G5) were among the most profitable stocks traded on the Stockholm Stock Exchange in the year 2020. These three companies themselves went on a buying spree with the acquisition of many smaller development studios (Bloomberg, 2020; Dataspelsbranschen, 2020, 2021).

Some of the video game industry's most renowned game series and intellectual properties (IP) are developed by Swedish firms. These include, among others, Minecraft, the Battlefield series, Wolfenstein, or Tom Clancy's The Division (Dataspelsbranschen, 2018, 2020). Despite these flagships of large companies and worldwide popular game series, the Swedish industry largely comprises small-sized game development companies. Specifically, 15 percent of the companies registered are small companies (10–49 employees and a revenue of less than 10 million SEK), and 25 percent are micro-companies (less than 10 employees and no more than 2 million SEK revenue). The largest part of the companies in the industry (55 percent) are sole proprietorship companies. Although these three types of firms "only" account for 9 percent of the entire Swedish industry's revenue, it shows that small and sole proprietorship industries can also compete in this market and find their niche market in a global market (Dataspelsbranschen, 2020). One of the most prominent examples is the Swedish firm Mojang, which–in the beginning–consisted of two developers. The two developers released their game called Minecraft in 2011 and sold over 91 million copies of their game by the end of 2018. In 2014, Microsoft bought the company behind Minecraft, Mojang, for 2.5 billion USD (Business Insider, 2018; The Guardian, 2014). Despite belonging now to Mi-

crosoft, Minecraft is a prime example of small companies being able to compete with the big players and the forerunner of Sweden's thriving video game industry.

From a technological perspective, the video game industry provides a vast range of interesting aspects to investigate. Alone, the technologies early adopted, pioneered, or helped to stimulate by this industry are manifold (e.g., Virtual Reality (The Economist, 2017b), Augmented Reality (Zott & Amit, 2017), Digital Platforms (Ojala et al., 2018), Cloud streaming (The Economist, 2019d; Walther & Sörhammar, 2021), Non-Fungible Tokens (The Economist, 2021b), and Metaverse (The Economist, 2021c)).

Also, from an international business (IB) perspective, the video games industry provides an interesting context to investigate, as the industry has always been changing at a fast pace–driven, among others, by these technological developments. This thesis investigates, in particular, the digital internationalization of SMEs in this industry. The research focuses on three phenomena in relation to the digital internationalization of SMEs in that context. These phenomena are the prevalence of born globals/digitals in that industry, MNC owned digital platforms' role for SMEs internationalization, and the potential for online community engagement.

Digital platforms as the core for distribution and user engagement

Digital platforms are software-based online infrastructures that facilitate interactions and transactions between the platform's users. Digital platforms can take on a lot of different forms, depending on the business model of the platform. In business terms, a digital platform often serves as a multi-sided platform that mediates between buyers and sellers (de Reuver et al., 2018). An essential piece for all types of digital platforms is thus the user base. A digital platform has little value without a critical amount of users (Evans & Schmalensee, 2016).

Gawer and Cusumano (2014) further distinguish digital platforms between internal (company or product) platforms and external (industry) platforms that act as a foundation upon which external actors can develop their own complementary product, services, or technologies. This thesis mainly focuses on external (industry) platforms, which, among others, take on the function of an online marketplace for virtual or physical goods and services. Nevertheless, depending on the business model of the digital platform, a digital platform can

also serve as a communication platform (e.g., social media platforms, such as Twitter, Instagram, etc.) or media sharing platform (e.g., YouTube, Discord).

In the video games industry, digital platforms are a central element. In the U.S. market, the share of virtual sales of video games has grown from 20 percent of total games sold in 2009 to 83 percent in 2018 (Statista, 2018). Most consoles possess their own online marketplace and sell games and additional content exclusively in a digital format (e.g., PlayStation Store, Microsoft Xbox Game Store, Nintendo eShop). Moreover, for the PC platform, the most popular online marketplaces such as Steam and Epic Games Store have millions of users. In 2021, Steam had 26 million users, and Epic Game Store had 194 million users (Statista, 2022a, 2022b). It is a common practice that the platform operators take a 30 percent cut of the revenues made through their platforms. Despite this cut, online marketplaces have been enabling, especially for smaller development teams that usually cannot come up with the money for physical shipping of their games worldwide. Typically, small or medium-sized game developers were thus forced to convince and find a game publisher to take over their distribution (Nichols, 2014). In today's setting, for a game developer, it has become relatively easy–thanks to virtual distribution on online marketplaces–to release a game on such a platform and reach millions of users worldwide.

Yet, digital platforms oftentimes provide more features than being a pure online marketplace. Digital platforms have tremendously changed how firms innovate (Wu et al., 2022), which is highly visible in the video games industry. Steam, for example, offers a tool called "Steam Workshop," where user-generated content can easily be distributed among the Steam community or an extensive rating feature where users can review and rate games (Thorhauge, 2020). The marketplace functionality is thus often only one feature of such digital platforms. Besides these digital platforms such as Steam, Epic Games Store, etc. whose main functionality is the online marketplace, there are also digital platforms predominant in the video game industry that serve the purpose of communication among communities of a specific game as well as between those communities and the developers of the game. Such a platform is Discord. Discord allows users to join specific communities called "servers," where they can communicate with each other or share files (Wanga et al., 2020). In many cases, game developers host their own servers and have therefore a channel of direct interaction with their internationally dispersed online community.

As described by de Reuver et al. (2018), digital platforms are a challenging object to conduct research on, due to the intertwinement with organizations,

markets, and technologies. This is also true for the video game industry, where digital platforms take on many forms and usually cover more features than just being an online marketplace. What is unique in the video game industry and worth investigating from an IB perspective is the interplay between the owner of these digital platforms (in most cases digital MNCs) and smaller development firms that produce content for these platforms. Moreover, changes in the innovation process and the engagement of developers with their community seem to become affected by digital platforms in the video game industry. To examine these dynamics–facilitated by digital platforms–is the scope of this dissertation.

To begin with, the next chapter highlights the role of the small-sized development firms, before discussing the digital MNCs as the owners of digital platforms in that industry in a later section of this introduction.

A promising industry for small-sized game development firms

In the early stage of the dissertation process, the author conducted several semi-structured interviews with founders of small-sized game development firms. Also, attending the three-day Nordic Game Conference led to dozens of interesting conversations with founders. Moreover, discussions with game developers during and after conducting surveys for the quantitative part of this dissertation helped to gain an understanding of and perspective on small sized-game development firms.

The interviewed (co-)founders described how small-sized game development firms have been empowered through digitalization and thus distribution from physical to digital retail versions via online marketplaces. The founder of a Swiss Game Development studio, with ten employees, described it as follows: *...digital platforms are great for small & independent developers. Because today, you can develop a game and you can sell it over the whole world with a few clicks. That was impossible before. Previously, you were always dependent on a big publisher. That is not needed anymore. And you also earn much more than in classical retail.*

The fact that small game development studios can easily distribute their product on digital platforms and do not need the help of a large publisher for distributing their physical copies (thus they are seen as "independent" developers) had quite an impact on the industry. On the one hand, this has led to increasingly successful products stemming from small or micro companies such as e.g., Minecraft or Stardew Valley (Schreier, 2017), on the other hand,

the number of games released on digital platforms has sky-rocketed and is increasing every year (Statista, 2021). This, of course, also means that the competition gets tougher. One of the interviewees and founder of a Swedish Game development studio described it as such: *"Everybody with technical skills and persistence can release games on digital platforms, but it's harder to reach out through the noise."*

In other words, the small or micro companies or the Davids of the industry have the tools to compete with the Goliaths–if they cut through the noise of many released games on online marketplaces. The Goliaths or the large game development firms, such as e.g., Activision Blizzard, often have the means to "create the noise," having a marketing budget of usually around $100 million for their big releases (Levy, 2014). They also own multiple smaller in house development studios and have a total of 9,500 employees (*Activision Blizzard - Annual Report*, 2021).

However, to further draw on that comparison, by the end of 2019, Stardew Valley, which was produced by one person, had sold 10 million virtual copies since it was released in 2016 (Strickland, 2020). Activision Blizzard's largest release in 2016, Call of Duty: Infinite Warfare eventually sold 13.27 million times (Radic, 2020). So, the one-man firm behind Stardew Valley was able to sell almost as many copies of their game as Activision Blizzard's multi-million-dollar production.

However, one potential factor why such a small and independent production such as Stardew Valley made it through the mass of games released and the noise created by immense marketing campaigns by large firms is by engaging with their customer base early on. A mainstay of Stardew Valley's development has been the digital platform Steam, where the developer constantly released early test versions of the game, answered questions from users, and received feedback from them (Frank, 2016; Schreier, 2017). Stardew Valley is thus an example that having a strong, benevolent community can potentially facilitate a game developer and provide an asset to game development–particularly for small firm developers who lack a large budget for marketing campaigns.

Online Community Engagement as an asset

Examples such as Stardew Valley are manifold in the industry. Commonly, game developers ask their community to test their game during the development process (so-called beta-testing). Some firms even apply a so-called early access model where consumers pay to receive the game in a pre-release status

(in many cases on a digital platform such as Steam). Those consumers who participate in an early access usually provide the developer team with feedback and suggestions. Furthermore, the early access approach helps the development team to gain additional funding for a video game project, but they also receive valuable impact from their community before the official release of the game (C. Welch, 2013). A prominent and very successful example of such an early access model is Epic Game's "Fortnite: Battle Royale." During the early access phase, it became apparent that early access players particularly enjoyed one game mode of the game, which was called "Battle Royale." Based on the early-access players' feedback, Epic Games completely overhauled the game and made the "Battle Royale" game mode the central aspect of the game. Consequently, Epic Games also renamed the game from "Fortnite–Save the World" to "Fortnite: Battle Royale." Fortnite: Battle Royale has since become one of the most successful video games in the industry's history, peaking at 350 million active players in May 2020 (Feldman, 2018; Statista, 2020). Beta-testing and early access are two common practices of how game developers include and benefit from their community even prior to a game's release.

Also, post-release, it is common for developers to take advantage of players' feedback and suggestions through online forums or digital communication platforms such as Discord. Another way how game development firms can profit from a strong community post-release is through user-generated content. Traditionally, user-generated content stems from consumers who modify the game with software tools that are not part of the game and which add content, improve, or fix bugs of the base game (Poor, 2014). More commonly these days, game developers release software development kits or level editors along with their games, so users can generate their own content and share it directly with other players (Brandstätter & Sommerer, 2016). Studies specifically on user-generated content in the video game industry show that firms can capitalize on ideas created by their communities (Ho-Dac, 2020; Jeppesen, 2004). This idea was taken to the extreme by "Roblox," which is a game and platform at the same time. The Roblox platform has 200 million monthly users and allows players to build and monetize their own game creations. So basically, every experience for the players is built by the Roblox community themselves. Some industry experts argue that games like Roblox give a glimpse of what a metaverse might look like (The Economist, 2021c). A metaverse is, by definition, an interoperable network of a 3D world that can be accessed simultaneously by millions of users who can exert property rights over virtual items (Ball, 2022). This highlights how the video game industry

can be seen as a forerunner in technological advancements and business models that swap over to other industries and further expand the digital economy. Whereas the concept of a metaverse is still in its early days, it builds on past advancements in digital platforms that serve as online marketplaces and modes of interaction between developers and players. Such platforms are at the core of the evolution of the video game industry. In most cases, these platforms are owned by digital, multinational companies (digital MNCs[2]). The next chapter will look in more details at these platforms and the digital MNCs behind those.

The Digital MNCs in the video game industry

As mentioned earlier, 83% of the games sold in the U.S. market in 2018 were digital copies (Statista, 2018). Market reports relying on global sales data give a similar picture and furthermore reveal that it is mostly large firms that still offer physical copies (in addition to digital versions) of their games, whereas small developers entirely rely on digital sales (ERA, 2022; Orland, 2022). The high share of games bought in a digital form are, on the one hand, a consequence of the triumphant progress of digital platforms and at the same time show the developing firm's (especially smaller) dependence on firms owning the digital platforms that distribute games on a global level. When talking about digital platforms and digital distribution, it is essential to look at who is owning these platforms and what are the market trends and developments, when it comes to the business models of the platforms themselves. A highly interesting and recent development in the industry that is worth highlighting at this point is the case of the digital MNC Microsoft.

On January 18th, 2022, Microsoft announced that they plan to acquire the American game developer and publisher Activision Blizzard for a sum of $68.7 billion (Microsoft, 2022). The acquisition has yet to be confirmed by the board of directories from both firms and the Federal Trade Commission (Bloomberg, 2022). If the acquisition is authorized, the expected deal is not only Microsoft's largest acquisition ever (in comparison, LinkedIn was bought by Microsoft in 2016 for $26 billion) but also the largest acquisition ever made by a Technology Company (in comparison, Meta bought WhatsApp in 2014 for $22 billion) (The Economist, 2022b). The magnitude of this acquisition symbolizes the gigantic size of the video game industry,

[2] Digital multinational companies (digital MNCs) are global companies that are conducting business in at least one of the four digital economy segments (platform, solutions, content, or e-commerce) (UNCTAD, 2022). Also referred to as digital giants throughout this thesis.

whose revenues have grown constantly; in 2020, it increased by another 23 percent to a total revenue of $175.8 billion (Newzoo, 2021a). This is not Microsoft's first major acquisition of a game developer in recent times. Prior to the acquisition of Activision Blizzard, Microsoft acquired ZeniMax Media in 2020 for $7.5 billion (Microsoft, 2020).

Microsoft's strategy behind both acquisitions is to strengthen its gaming division and produce content for their game subscription service called "Game Pass" (Microsoft, 2022). Game Pass offers console and PC gamers access to a library of titles–which usually would cost $40–60 per title–for a monthly subscription fee of $10. Moreover, Microsoft aims to use its Azure cloud computing division to provide a cloud streaming platform where Game Pass subscribers can play high-end games thanks to cloud streaming technology on almost any device with a screen–such as a smartphone, laptop, or TV. Part of Microsoft's gaming catalog can already be streamed with this technology, but Microsoft aims to mature this technology and draw more players to their cloud streaming platform–especially in middle-income countries where not all consumers can afford a PC or console. By the end of 2021, Game Pass had 25 million active subscribers, and Microsoft's gaming revenue has made a 51 percent jump based on year-on-year data (Microsoft, 2021; The Economist, 2022b). Although Microsoft now has the largest portfolio of in-house game developers and the largest number of subscribers, they are not the only digital giant aiming to provide a cloud gaming platform (which often is referred to as a "Netflix for Games"). Amazon, Sony, and Tencent also invest heavily in content for their game subscription and cloud streaming platform; even Netflix is trying to set foot in the gaming market (Morton, 2021).

Who wins the race for becoming the market leader in a cloud gaming platform[3] depends very much on the content they can offer in the form of the number and quality of video games. Newzoo expects the gaming market to continue its growth and reach $218.7 billion in revenue by 2024. A main reason for this growth is an even bigger market of potential gamers due to cloud streaming technology promoted by services such as Microsoft's Game Pass (Newzoo, 2021a).

Looking at cloud streaming platforms as an example of the digital platforms highlights what is unique in the video game industry. The industry has attracted and generated digital MNCs that currently aim to build a digital platform environment where not only users peak in numbers but also smaller firms that produce content (sometimes exclusively) for their platform. Despite the

[3] Often also called "cloud gaming service" or "cloud gaming." This dissertation uses the terminology "cloud gaming platform."

massive acquisitions of game developing firms by digital MNCs, the demand for game development studios that produce a certain level of quality is expected to grow further as the market for games is growing–among others, through the new type of digital platforms in the form of cloud gaming platforms. This is due to cloud streaming platforms in dire need of content for their subscribers (The Economist, 2019a). A good example, therefore, is Google's cloud gaming platform "Stadia." Despite Google acquiring some renown game studios, the lack of content was seen as a major reason why Stadia received rather mixed reviews after it was released and soon began to struggle in the first place (Grey, 2019). Eventually, Google announced that it will be shutting down the cloud streaming platform by 2023 (Google, 2022). The case of Google's Stadia highlights that despite their financial power, digital giants elaborating themselves in this industry must face multiple challenges with their platform. Firstly, they must facilitate smaller developing firms in publishing games for them. Simply acquiring incumbent firms does not provide enough content that is needed to attract users in the first place. Secondly, and in line with that, the platform must ensure developing firms that they can reach a large user base in a global market. And thirdly, the platform has to offer functions for game developers to engage with the consumers and vice-versa. Hence, a digital platform in the video game industry nowadays must provide more features than solely being an online marketplace if it wants to succeed.

To come back to de Reuver et al. (2018), who pinpointed the challenging aspects of studying digital platforms, the video game industry also shows how complex and diverse digital platforms are from a business perspective and consequently, the various aspects of digital platforms that can be investigated from a researchers perspective. Intrigued by the many potential research foci one could take with the video games industry as a context, this thesis tried to limit itself as much as possible to certain phenomena which were assessed by the author as related to the main phenomenon of digital internationalization of SMEs.

Aim of the dissertation

A common definition of the digital economy is that it is the branch of the economy which has "zero marginal cost intangible goods" thanks to the internet (Fournier, 2014). The video game industry, which these days mostly consists of virtual products and services, can thus be seen as an industry that is part of the digital economy. A central aspect of a digital economy is digital

platforms, which ease the distribution of goods and services with zero marginal costs (Evans & Schmalensee, 2016).

Another common aspect of the digital economy is that SMEs can internationalize on the back of digital platforms and leverage on the user base that these digital platforms have already built up. Thus, the digital platforms serve as an opening to internationalization in the digital context, meaning that internationalization in the traditional sense ("processes of business activities across home country borders" (L. Welch & Luostarinen, 1988, p. 35)) becomes exceptionally simple for firms acting in a digital economy. Thus, digital platforms serve as a means for developers to sell their products in a global market and are presumably causing the internationalization of firms from inception in the digital economy industry of video games.

Beyond the worldwide distribution, digital platforms in the video game industry also serve as an ecosystem for developers to collect and process consumer input and innovations in various forms from internationally dispersed online communities (Burger-Helmchen & Cohendet, 2011).

The starting point for conducting research for this dissertation has been the figure depicted below. In line with what has been written so far, the figure shows the importance of digital platforms in the digital internationalization of SMEs. On the one hand, the digital platforms generate and are thriving thanks to engagement with online communities (lower half of figure 1). On the other hand, digital platforms facilitate and are dependent on born global / digital firms (upper half of figure 1). The figure also aims to hint at the somewhat paradox situation that this "new world" of conducting business via digital platforms creates. Digital MNCs aim to create a network where game developing SMEs can easily reach a global market and interact with their users, but at the same time, the supremacy of these platforms in the video games industry creates a dependency for SMEs to be on these platforms to engage with a large community and reach a global market with little effort.

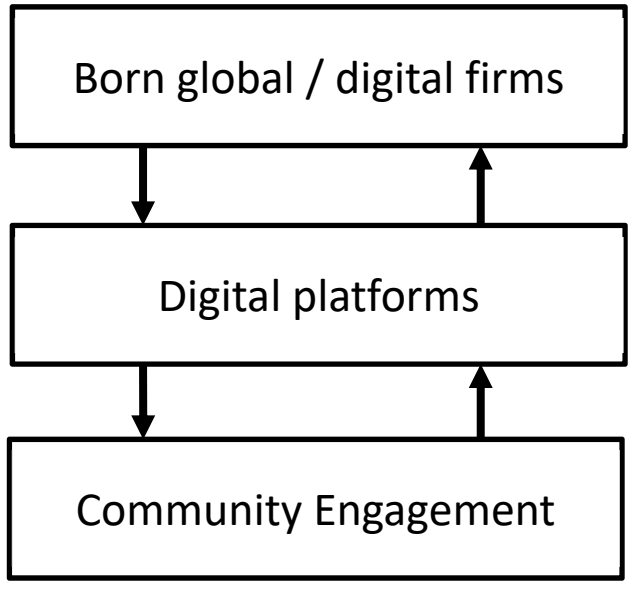

Figure 1: Digital internationalization of SMEs – Phenomena and how they are interlinked

This thesis aims to highlight aspects of internationalization for SME game developers acting in a digital economy industry of video games. There is a particular focus on the digital internationalization of SMEs in this industry. The research conducted centers around SMEs, as they mainly represent the firms that produce content for the digital platforms owned by large, digital MNCs that, from their position, try with their digital platforms to establish a multi-sided market where developers and users interact with each other. The research focuses on three phenomena in relation to the digital internationalization of SMEs in that context. These phenomena are the prevalence of born globals/digitals in that industry, MNC owned digital platforms' role in SMEs internationalization, and the potential for online community engagement. The thesis intends to speak to scholars of the IB field as well as managers that want to learn about the exciting context of the video game industry and how this context can be linked and captured by existing theories.

The three related phenomena are particularly appealing to investigate in the digital economy context of the video game industry as they resemble new causes and effects of SME game developers acting at a global level with "zero marginal cost intangible goods" thanks to digital platforms.

Development of research questions

This dissertation is driven, therefore, by investigating the video game industry as an example of the digital economy where SMEs' internationalization is facilitated by MNC owned platforms and online community engagement, which is often a feature empowered by the same platforms. This interplay generates exciting phenomena worth investigating from an IB scholar's perspective. Hence, in a first step to have a solid theoretical fundament and understanding of how the domain of digital internationalization has been looked at in IB studies, a systematic literature review has been conducted to uncover emerging trends in the domain as well as article, author, and journal performance in the extant literature on digital internationalization.

In the next step of this dissertation, the actual context of the video game industry is further highlighted. Digital technologies, platforms, and infrastructure have changed how business is conducted in many industries, and they hold many new opportunities for innovation and entrepreneurship (Nambisan et al., 2017). Consequently, digitalization and the digital transformation have affected entire industries and how value is created and captured in these. Moreover, digital firms have to completely transform themselves in order to succeed in the emerging digital world (Brynjolfsson & McAfee, 2014; Nambisan, Wright et al., 2019). It seems fruitful to look therefore at how the industry in its entirety has changed since its inception in the early 1970s and how the digital platforms, respectively, online marketplaces have evolved as facilitators for SME internationalization. Because of such digital platforms, smaller firms especially have been facilitated, in terms of ease of access to a global market and engaging with online communities. This seems to have caused a prevalence of born global, respectively, born digital firms. A further aspect of this dissertation is therefore to investigate SME game development firms through the lens of born global theory.

The digital transformation has also altered innovation processes in significant ways (Nambisan, Wright, et al., 2019). In the video game industry, co-creation has been fostered by the emergence of digital platforms (Ojala et al., 2018) such as Steam, which allows users to modify existing products and share them with other users. Thus, firms in the gaming industry have facilitated the process of innovation by user communities in many ways (Jeppesen, 2004, 2005); most of all, the firms have learned to build on online communities through which they can learn from and listen to numerous customers from all over the world (Fuchs & Schreier, 2011). It is fascinating to look at this form of consumer engagement when investigating the video game industry, as

this is one of many aspects that makes this industry unique. The strong engagement of users can be seen as distinctive in the video game industry and thus another interesting phenomenon to investigate, which is facilitated by the MNC owned digital platforms.

Building on the concept of the consumer as an influx for innovation (Chesbrough, 2003; Chesbrough & Bogers, 2014) and using a firm's community to gather ideas (Parmentier & Gandia, 2013; Parmentier & Mangematin, 2014), this dissertation intends to investigate if there is an effect of firms engaging with their community during the game's development, in terms of innovativeness of their product but also investigating through a case study how a firm uses input received from their community.

In sum, this thesis highlights the digital internationalization of SME game developers. This context is particularly interesting to investigate as it offers insights into a digital economy industry, such as the video game industry and unique phenomena toward digital internationalization. These phenomena are the prevalence of born global firms in this industry, online community engagement, and MNC owned digital platforms. The research questions that guided this research effort are:

RQ1: What is the link between digital internationalization of SMEs and digital platforms in the video game industry?

RQ2: What is the role of online community engagement in the innovation process in the video game industry?

Research approach

To cover the aim and answer the research questions, this thesis compiles five papers. A thorough literature review (Paper I) served as a basis for gaining an in-depth understanding of the international business research stream of digital internationalization. The review was conducted by applying different bibliometric methods to investigate what journals and authors had the most impact on this research stream (citation analysis), what is the intellectual structure or central researchers, articles, and journals in this field (co-citation analysis), what is the intellectual structure of the investigated research field (bibliographic coupling) and what are the topics associated particularly with digital internationalization (co-word analysis). Paper II draws on the context of the internationalization of small-sized game development firms acting in the video game industry and facilitated by digital platforms. From a theoretical

perspective, Paper II investigates the extent to which a traditional concept of International Business–namely the born global framework by Madsen and Servais (1997)–can be applied to explain such a rapid internationalization in a digital, entrepreneurial context. Following Hennart's (2014) argument of business models of particular firms or entire industries being the main reason why some firms gain foreign customers so quickly, Paper III focuses on the context of the development of business models in the past roughly fifty years in the video game industry. Investigating the high-paced changes in technologies and business models revealed the importance of digital platforms in today's video game industry and the importance of cloud gaming platforms for the gaming industry in the years to come.

Papers IV and V are centered on the engagement of firms in the gaming industry with their online communities that might presumably lead to enhanced versions of their products and are used for the firm's innovation process. Traditionally, innovation was seen as either an accumulation of a firm's knowledge drawing on internal R&D or imitation of innovations of other firms (Lewin & Massini, 2004; Schumpeter, 1934). However, in the video game industry, innovation in many cases stems from users and firms applying this as part of their business model by engaging with their online communities. Digital platforms such as Steam have not only facilitated the global distribution of video games, but also facilitated the interplay between online communities and developers. Through a netnographic approach, Paper IV investigates such an online community that generates ideas to incrementally improve a specific game. Paper V tries to quantify and find a measurable effect between online community engagement during a game's development and the innovativeness of the final product.

Structure of the dissertation

The structure of this compilation thesis is as follows. In the previous introduction section of this dissertation, the research context–namely the video game industry–was presented as well as the aim and research questions of this dissertation. Then, in Chapter 2, the theoretical perspectives used in the empirical papers are presented, including a conceptual framework that guided the overarching research conducted in this dissertation. Chapter 3 discusses the methods used in the various papers. This includes considerations and processes related to conducting the literature review, qualitative and quantitative data collection, as well as analysis procedures. A summary of the papers and a summarizing table for all the papers are presented in Chapter 4. The final chapter

revisits the aim of the dissertation, offers concluding remarks on the research conducted, and highlights the implications of the finding.

2. Theory

Internationalization theory and the digital economy

The digital economy has been and is progressing at an increasingly high pace in developing nations (UNCTAD, 2022). From an academic perspective, the definition of digital economy remains divergent and limited. Yet alone, a review conducted by Bukht and Heeks (2017) reveals 21 various definitions of digital economy in the academic context. For the purpose of this dissertation, the OECD's definition of digital economy was applied, which defines digital economy as: "The digital economy enables and executes the trade of goods and services through electronic commerce on the internet" (OECD, 2012, p. 5). The OECD report also highlights the importance of network effects in a digital economy. A network effect arises when the value for its users increases with the number of other users of the product. This fosters demand-side economics of scale where the popularity of the platform attracts additional users (OECD, 2012).

The literature review conducted for this dissertation, which served as an empirical foundation, highlighted research applying internationalization theory and a digital context. Within the field of international business, internationalization within the digital economy is evolving, but it has many different terminologies. In their research, Brouthers et al. (2016) examine "internationalization of business firms," Shaheer and Li (2020) investigate "digital internationalization," whereas Coviello et al. (2017) name the phenomenon of internationalization in a digital economy in their conceptual article "internationalization in a digital context." The review thus tried to capture the different terminologies of internationalization within the digital economy. Furthermore, the review serves as a basis to raise the debate within the field of international business, driven, among others, by Coviello et al. (2017). The debate on the absence of "the impact of the digital context as a defining macro-level feature of the modern firm" (Coviello et al., 2017, p. 1154) in one of the field's most applied schools of thought–namely the Uppsala internationalization model. The Uppsala internationalization model is an attempt to explain how and why businesses expand into foreign markets (Håkanson, 2021; Johanson & Vahlne,

1977). The model has developed over the last fifty years into a central conceptual lens for studying the process of internationalization of firms (C. Welch et al., 2016). Although the model has had widespread influence in the field of international business and beyond, scholars challenge the insights of the original model (Johanson & Vahlne, 1977) and its revisions (Johanson & Vahlne, 2009; Vahlne & Johanson, 2017). One reason for this is that modern digital technologies and business models have changed the way firms produce and engage with consumers. A firm acting in a purely digital environment may have completely different distribution channels, value chains, pricing strategies, and business models than a traditional, non-digital multinational company (MNC) (Coviello et al., 2017; Monaghan et al., 2020).

Undoubtedly, research in international business goes beyond solely applying and adapting internationalization theories. Research, for example, placing a stronger focus on a firm's or industry's business model has been prevalent for some years and undermines the multi-disciplinary endeavor of IB research. Particularly in the context of international new venture firms and born global firms, research that promotes the importance of investigating a firm's business model to understand the rapid internationalization is growing in numbers (Bouncken et al., 2015; Hennart, 2014; Onetti et al., 2012). Hennart (2014, p. 129), for example, diverges partially from internationalization theory, which according to him "implicitly assumes that all firms face the same structural conditions when expanding abroad." Hennart promotes the concept hinted by authors such as Madsen and Servais (1997) and Fan and Phan (2007) that the difference in the speed of internationalization of Born Global and Uppsala-type MNCs depends mostly on the business model that the firm is implementing. Hence, how "the firm links the type of product or service with a particular subgroup of customers using a specific communication and delivery method" (Hennart, 2014, p. 129). Such firms, summarized by Hennart as born globals and international new ventures, can sell their niche products and services to internationally dispersed customers due to low-cost information and delivery methods. A factor that is further leveraged by firms conducting business in the digital economy from the firm's inception–so-called born digitals (Monaghan et al., 2020). Onetti et al. (2012) further highlight the importance of examining business models of "new-technology based firms" to gain a deeper understanding of internationalization processes. The authors promote the business model perspective as a way to bridge various fields of academic research and thus new critical variables for understanding the strategic decisions of firms (Onetti et al., 2012).

On the note of bridging new technology-based firms and internationalization theory, the next section highlights the theory of born global and born digital firms. This is followed by a section discussing internationalization happening through online platforms, which facilitate the internationalization of SMEs in the digital economy.

Born global & digital firms

A model that emerged during the debates and revisions of the Uppsala model is the born global framework, which highlights entrepreneurial aspects and characteristics of the entrepreneur as one of the drivers behind internationalization (Cavusgil & Knight, 2015).

Firms that are selling a substantial share of their products internationally nearly from inception have raised a lot of attention in scholarly research. This phenomenon has been given many different names. They are, among others, referred to as "international new ventures," "global start-ups," or "born globals" (Knight et al., 2004; Knight & Cavusgil, 2004). Although some research applies the classification of international new venture and born global interchangeably for firms that internationalize rapidly, there is a small difference in the two concepts. A born global firm seeks presence on a largely global level, including the world economy's major regions (Bouncken et al., 2015). An international new venture tries to quickly address opportunities in multiple countries but not necessarily on a global level (Crick, 2009). Some studies even apply a sharp definition of born global firms. To fall into the category of a born global, a firm must earn more than a certain percentage of revenues from abroad within a few years following its establishment. Specifically, this means often earning more than 25 percent in foreign revenues within three years (Andersson & Wictor, 2003).

Noticeably, technological advancements seem to have facilitated born globalness of firms, as ICT has made internationalization feasible and cost-effective (Coviello et al., 2017). One of the most cited theories on born global internationalization by Madsen and Servais (1997) proposes three aspects in order to understand the rapid internationalization of born globals. These aspects are founder, organizational, and environmental factors. Founder factors are related to the background and characteristics of the founder, such as previous international experience, personal ambitions, and motivations to internationalize. Organizational factors are the competencies, routines, and governance structures of the firm that might affect internationalization. Environ-

mental factors are the macro-environmental trends of higher levels of technology, market internationalization, and specialization (Madsen & Servais, 1997).

Knight and Cavusgil (2004, 2005) view the new entry into a foreign market or internationalization as an innovative act on which born global firms, in particular, are thriving. They follow the concept of innovation, where innovation results from two resources: internal research and development (R&D) and imitation of innovation of other firms. Moreover, the born globalness of firms has also been fostered by globalization. The increasing "homogenization of buyer preferences around the world" (Knight & Cavusgil, 2004, p. 125) has made it easier for firms to develop their products and position them in foreign markets. Also, internationalization per se or entry into multiple markets is an innovative act that, according to Hennart (2014), marks born globals as a particularly innovative type of firm. Moreover, Hennart (2014) regards born globals as accidental internationalists. The business model of these firms requires them to have foreign sales from the outset or soon thereafter. In contrast to the Uppsala Model, born global firms, according to Hennart (2014), require low communication, low transportation, and no adaption costs to sell their product outside of their domestic market. Also, selling to the foreign market requires born global firms no additional time or effort.

Whereas born global firms are defined by firms internationalizing early after foundation, the born digital firm has two characteristics from inception. First, the born digital firm does have an identifiable online presence (it is in "space"). And second, the firm builds and leverages its business processes on digital infrastructure. Some business processes might be digitized more than others or not at all (Monaghan et al., 2020; Nambisan et al., 2017). Firms with a high degree of digitization in their business processes but with a physical product are not classified as digital firms. Thus, only firms that offer a product or service that is both digital in nature and distributed digitally are considered digital firms (Monaghan et al., 2020).

It is important to keep in mind that a firm can be both–born global and born digital, either of the classifications or none of them. A game development firm that puts its digital product two years after the founding of the firm via a digital platform on the market and sells more than 70 percent from non-domestic sales would therefore be classified as both a born global and a born digital firm.

Born digital firms challenge traditional frameworks of the internationalization process, such as the eclectic paradigm by Dunning (1980), suggesting that

a successful internationalization requires significant firm resources and capabilities (Shaheer, 2020). As pointed out by Knight and Cavusgil (2004), ICT has made internationalization feasible and cost-effective and facilitated born digital and born global firms.

Moreover, technological advancements have eased direct engagement with stakeholders and fostered network effects. Over the last decade, firms have transitioned and digitized their business processes. Again, this has led to a multitude of firms having mainly a digital infrastructure with a few "physical" characteristics remaining, such as office spaces, warehouses, or data centers (Monaghan et al., 2020). Having a digital business model–thus creating value for the customer based on digital technologies (Weill & Woerner, 2015)–makes such digital firms highly flexible and scalable. A firm's product or service can, therefore, without much effort be made globally available (Shaheer, 2020). The fact that firms can compete in a market where they are not physically present or, possess little to no knowledge about that market, is an indicator that the internationalization processes of such digital firms differ from the internationalization process, as e.g., suggested by Johanson and Vahlne (1977, 2009).

The born digital firm can build on globally dispersed resources outside of organizational boundaries, but made available through digital channels. These resources are, for example, Software Development Kits (SDK) or payment/monetization systems (Shaheer & Li, 2020; Zott & Amit, 2017). The question of location also plays a minor role for born digital firms. Whereas traditional internationalization theory, like the eclectic paradigm, highlighted the importance of market selection, born digital firms depart from this location choice criteria. Foreign expansion can happen at a low or no cost at all in a digital environment (Shaheer, 2020). Moreover, taking control of physical assets is not a crucial concern for born digital firms. Internalization in the classical sense is not necessarily required in a digital context (Coviello et al., 2017) as this type of firm gains strategic advantages through novel mechanisms that include access to (user) networks. The most striking examples are Uber, Facebook, or Airbnb. These firms realize critical advantages through extensive user networks across countries (Shaheer, 2020; Wentrup et al., 2019).

Naturally, the internationalization process in a digital space also creates new barriers. Despite the ease of accessing new markets, digital internationalization is still based on user adoption that stems from differences in user preferences across various markets. Satisfying the immense variety of user pref-

erences all around the world, thus, creates a massive challenge for digital internationalization (Shaheer, 2020). Similarly, acting on a global level creates an intense competition where small firms must expose themselves and manage to stand out. A lack of copyright and intellectual property in the digital world also increases the likelihood of competitors copying successful innovations (Shaheer, 2020).

In the modern digital economy, information technology has enhanced efficiency in demand aggregation (Parker et al., 2016). Hence, generating a network effect, where the value is increased by the amount of users, is vital to a firm acting in the digital economy (Chen et al., 2019). The next section discusses platforms as a means to scale digital products and services globally and thus, in an ideal case, creating such network effects.

Digital platforms

As inclined in the previous two sections, a reason for the ease of entry into multiple markets and the existence of many born global or born digital firms is the occurrence of online marketplaces or, more broadly speaking, digital platforms. Consumers and firms increasingly interact with services enabled by digital platforms and purchase physical and virtual goods through online marketplaces oftentimes embedded in these digital platforms (Evans & Schmalensee, 2016).

Ever more, digital technologies transform previously physical products and services into digital form. Due to digital platforms, virtual goods and services achieve greater connectivity (Nambisan et al., 2017). The digital platforms have evolved because of the digitalization of artifacts, which transformed traditional businesses and their business models into the digital world. Digital platforms have made it possible for firms to transcend national borders and scale globally (Ojala et al., 2018; Stallkamp & Schotter, 2018). Thus, digital platforms have become a vital role in today's economy, as the most prominent digital platforms nowadays are owned by digital giants such as Amazon, Google, Facebook, or Tencent (Kenney & Zysman, 2016). The same applies to the gaming industry, where some firms early on saw the potential in digital distribution and developed their own digital platforms. For many of these firms, the development of such platforms from its core and early on has made these firms giants in this industry, as they control the distribution of games with their digital platforms. The most common examples of such companies that dominate the online distribution of video games are Valve Corporation

("Steam" platform), Epic ("Epic Games Store"), or Microsoft ("Microsoft Store" & "Game Pass").

Obviously, a firm can only generate value with its product or service if the firm chooses a platform that a critical amount of users have adopted or is willing to adopt (Brouthers et al., 2016). Moreover, digital platforms themselves become more valuable by enabling direct interactions between the firm, secondary firms, and the customers. Digital platforms, therefore, serve as multisided platforms as they enable such a direct interaction between multiple actors (Evans & Schmalensee, 2016; Zeng et al., 2019).

However, it remains challenging to investigate digital platforms as an object of research since digital platforms are intertwined with markets, institutions, and technologies (de Reuver et al., 2018). Moreover, digital platforms comprise different layers, such as device layers (e.g., manufacturers of smartphones, tablets, etc.), network layers (e.g., telecommunication providers), service layers (e.g., digital marketplace or video-on-demand service provider), and content layers (e.g., film studios, game developers, etc.) (Ojala et al., 2018; Yoo et al., 2010).

The phenomenon of digital platforms and internationalization through digital platforms offers, therefore, a multitude of research perspectives for IB scholars. Recent IB research looks at the platform providers themselves (Wentrup et al., 2019; Zeng et al., 2019), or the fundamental importance of network effects for internationalization through digital platforms (Chen et al., 2019). Particularly, the latter stream of research highlights the fact that through user participation and exchange made possible on digital platforms, internationalization is no longer a unilateral, manager-led process for the individual firm. Moreover, the internationalization process for the individual firm may be externalized, thanks to digital platforms (Chen et al., 2019). However, firms that own digital platforms have to generate a network effect where a community and network of geographically dispersed users of a platform attract new adopters in the form of firms and consumers. One can argue that this mechanism or the internationalization in a digital context via digital platforms highlights a shift in the underlying, classical perspective of internationalization in the IB literature (Coviello et al., 2017).

Besides a global distribution of their virtual products, a large proportion of firms acting in the digital economy seek digital platforms that enable multilateral and interactive forms of communication with and between online users (Brouthers et al., 2016; Chen et al., 2019). The next section will highlight this

form of engagement with communities from a theoretical perspective and focus particularly on the potential of such multilateral communication with communities as a potential source for a firm's innovation process.

Online Community Engagement

In their research, Knight and Cavusgil (2004) investigate born global firms and the crucial role of an innovative culture for these types of firms. The authors argue that internationalization, or new entry into foreign markets, is an innovative act (Simmonds & Smith, 1968) in which born global firms are particularly innovative due to their early internationalization. Knight and Cavusgil (2004) take on a traditional perspective on innovation. According to this view, innovation stems from two major sources. First, from internal R&D and secondly, from imitation of the innovation from other firms (Lewin & Massini, 2004).

The digitization and the virtualization of how a firm interacts with its consumers/communities have changed especially how innovation is managed (Parmentier & Mangematin, 2014). Nambisan et al. (2019) argue that novel and powerful digital technologies such as digital platforms sparked a digital transformation of innovation. Digital platforms have facilitated user innovation (Thomke & von Hippel, 2002) and consumer co-creation (Prahalad & Ramaswamy, 2004). Leveraging these ideas can increase the firm's innovation performance (Nambisan, Wright et al., 2019).

Consequently, for a firm that is acting online, a critical part of its value generation is organizing the input of users and managing the cross-relationship of the various users (Brouthers et al., 2016). This means that R&D is not a purely internal process anymore. Recent theories in innovation literature highlight this and open innovation has become a central concept of innovation literature. The field of open innovation has developed into two different streams (Ho-Dac, 2020). The first stream mainly focuses on how firms expand their boundaries in order to innovate (Bogers et al., 2017; Chesbrough, 2003; Dahlander & Gann, 2010). The second stream focuses on the users as a source of innovation and how the user innovation disseminates to firms (Thomke & von Hippel, 2002; von Hippel, 2016, 2017). Although the second stream is mainly represented in this thesis, both perspectives are considered in this research as both streams are based on a distributed innovation paradigm that differs from the classical producer innovation paradigm.

Particularly in a digital industry such as the video game industry, engaging with a firm's online community takes on a crucial role. Online communities

around a product are formed, which is advantageous for the firm (Jeppesen, 2004). Firms can directly profit from user innovation stemming from online user communities (Jeppesen, 2004) and oftentimes provide them with user tool kits to allow the users to design (new) key features by themselves (Jeppesen, 2005; Parmentier & Gandia, 2013). User innovators and their innovations can become an asset for the firm (Pongtanalert & Ogawa, 2015). How to manage online users and their contributions becomes a strategic relevant question and requires competence from a management level (Bengtsson & Ryzhkova, 2013).

In the traditional perspective on consumer engagement, the role of the consumer was passive, and the direction of interaction was one-way from firm to customer. Virtual environments such as online forums or digital platforms allow a continuous, two-way dialogue with the customers as a partner in the innovation process and as a web-based idea market (Sawhney et al., 2005). Firms ideally strive to engage with their community and individual customers in order to integrate these channels into their idea and concept stage of the new product development process (Parmentier & Mangematin, 2014; Sawhney et al., 2005). This is of particular importance as products in the digital context have become continuous improvement products (CIP). CIPs are products that allow and are designed to make post-purchase improvements (Ho-Dac et al., 2020) and are common in the video game industry where e.g., level editors are included in the base game where users can build their own content.

The contribution made by users can lead therefore to actual innovations in the form of additional content for the game. Engaged customers can turn into actual innovators and create value for the game (Thomke & von Hippel, 2002). In a majority of cases, the customers as innovators do not seek financial rewards but reward themselves in other ways, e.g., in the form of community recognition (von Hippel, 2016, 2017). This consumer innovation, or free innovation, challenges the dominant perspective of the commercial product development process. This arises as innovation is not carried out by paid employees of a firm or by entrepreneurs seeking profit (von Hippel, 2017). A good example that can be found by looking at the video game industry is the Steam Workshop, a feature of the digital platform Steam. Steam Workshop serves as a platform to find tools to modify games and to share the modifications created by consumers free of charge. Steam Workshop thus creates a central platform for free innovation activity (Steam Workshop, 2021; von Hippel, 2016, 2017).

The video game industry resembles a fruitful context to analyze the relatedness of game development companies and online player communities as they interact not only in a producer-user way, but in many cases also in co-development, testing, and diffusion of activities (Burger-Helmchen & Cohendet, 2011). Also, coming back to the perspective of Knight and Cavusgil (2004), stating that internationalization is an innovative act, internationalization and user innovation seems to go hand-in-hand in the video game industry. One example of this is language modifications by users that translate the game to more languages (oftentimes into Chinese, Korean, or Russian) and thus increase the market outlet for the product.

To conclude, online communities can be beneficial for the firm in different ways. The community can support a product or a service, promote a brand and spread loyalty to the firm or product or act as a resource for ideas (Burger-Helmchen & Cohendet, 2011; Carlson et al., 2008; Jäger et al., 2010; Kozinets et al., 2010). As earlier stated, using online communities and players to improve and even continuously innovate the virtual product can be seen as a digital transformation of the innovation process (Nambisan, Wright et al., 2019). Following Knight and Cavusgil's (2004) assumption of the innovative nature of born global firms, it is worth investigating, specifically, the new ways of innovation processes that are rather unique in the video game industry and enabled by digital platforms.

Conceptual Framework

The starting point of this thesis was to look at digital internationalization by conducting a systematic literature review. With the video game industry as the research context and following a phenomenon-driven research strategy, certain aspects related to digital internationalization of SMEs seemed particularly interesting to investigate in this industry. This has led to three overlapping phenomena in relation to digital internationalization of SMEs (in some articles referred to as "internationalization (of SMEs) in a digital context"). The three phenomena that guided the overarching aim of this dissertation are born global/digital firms, digital platforms, and online community engagement. These three phenomena applied in the context of the video game industry provided a manifold of interesting research topics. The intersections between the three phenomena have led to interesting theoretical starting points to investigate in the context of the video game industry. Paper II can be linked to the two phenomena of born global/digital firms and digital platforms, as the paper investigates the internationalization of born global, small-sized firms through

digital platforms. Paper IV explores the engagement of developers with their online communities happening through platforms such as Discord or online forums. Digital platforms thus do not only serve as a method to transcend national borders and scale globally (Ojala et al., 2018), but also to engage in diverse forms with the community and presumably provide a source for valuable exchange with enthusiastic consumers.

Owing to the phenomenon-driven research approach, some papers are overlapping in their focus on the phenomena–whereas some research conducted, and articles mainly focused on one particular phenomenon. The research that was conducted as part of this dissertation has thus tried to follow a framework that can be aligned to figure 2 seen below.

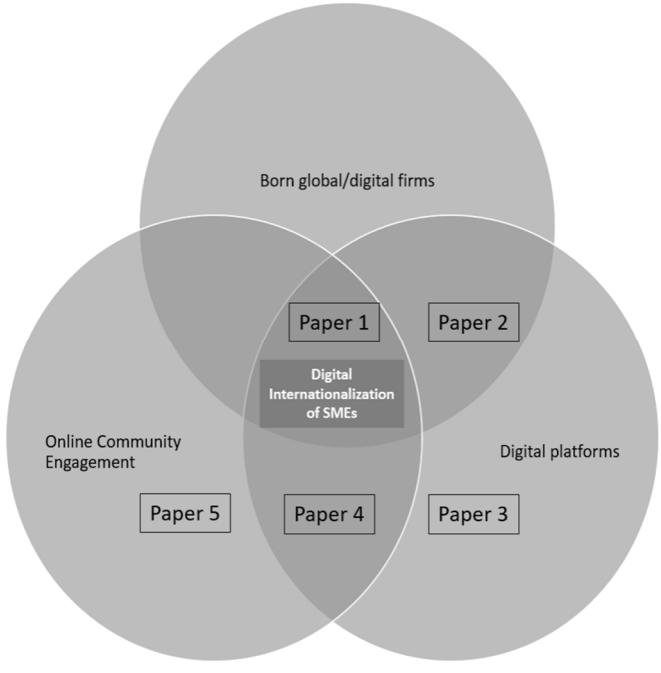

Figure 2: Conceptual framework based on the phenomena investigated

3. Material and Methods

This chapter provides an overview of the different methodological approaches and a more in-depth description of the thesis work conducted in terms of method. The thesis was guided by applying a phenomenon-driven research approach, where the digital internationalization of SMEs in the video game industry was the main phenomenon of interest. Phenomenon-driven research is a problem-oriented research that "focuses on capturing, documenting and conceptualizing organizational and managerial phenomena of interest in order to create knowledge creation and advancement" (Van de Ven, 2016, p. 265). Phenomenon-based research thus creates and describes the empirical facts and constructs that enable scientific inquiry to proceed (von Krogh et al., 2012).

In order to investigate the phenomenon, this dissertation uses multiple methods to provide insights into the investigated context and answer the overarching research questions introduced. Typical for the multiple method approach, data have been collected from different sources, and qualitative as well as quantitative data have been applied. The methodological pluralism or eclecticism applied for the research process of this dissertation followed the principle of classical pragmatists. The bottom line of the pragmatic position is to mix research approaches that offer the best opportunities to answer research questions (Johnson & Onwuegbuzie, 2004). Pragmatism is thus a theoretical framework that supports justifications for mixing or using multiple methods (Mutch, 2009). Furthermore, pragmatism is a practical and applied research philosophy where the research question takes precedence over the method and drives choices throughout the study (Tashakkori et al., 2003). Following the pragmatic research principle, each of the individual papers used a specific research method. Thus, the overarching findings for this dissertation include findings based on various research methods as a result of the pragmatic research approach.

As a point of departure for the empirical investigations, a literature review (Paper I) conducted on digital internationalization served as a theoretical starting point. The review was undertaken to "learn the breadth of research on a topic of interest or answering practical questions by understanding what ex-

isting research has to say on the matter" (Okoli & Schabram, 2010, p. 1). Furthermore, the literature review is supposed to map and assess the relevant intellectual territory to specify research questions and further develop the knowledge base (Tranfield et al., 2003). The review helped to construct and design empirical investigations for the following articles in this dissertation. The review thus set the tone for the rest of the thesis by presenting relevant research on the topic of internationalization in the digital context. The review provides a format where parallels can be drawn between the findings of extant research (Okoli & Schabram, 2010) and the research conducted in this thesis.

The research process for Papers II–V progressed in a sequential matter by first applying qualitative methods, which include semi-structured interviews, as well as a netnographic approach. In the next step, a quantitative method was applied, with a focus on testing relationships between variables. Table 1 shows a summary of the methods and data sources. The following sections of this method chapter further highlight in more detail each method applied in this dissertation.

Table 1. Summary of methods and data sources

Type of data	**Collection method**	**Number**
Academic articles	Structured literature review	95 articles
Qualitative data	Semi-structured interviews	6 interviews
	Netnography	1577 forum threads
	Written interviews (part of netnography)	11 interviews
Quantitative data	Survey, structured interviews	176 respondents

Literature Review method

The video game industry provides an interesting research context due to the novelty of processes and practices that this industry has to offer in comparison to more traditional and less digital industries. This dissertation, therefore, tried to find a balance between contributing to extant research and discussing new aspects of doing business that seem novel or were adapted early on by the

video game industry. The purpose of the literature review was, therefore, to gain an intensified understanding of the domain of internationalization in a digital economy–which is deemed as a fundament for the context of the video game industry.

This balance between extant research and the research context suits well into the larger research project with senior colleagues at Uppsala University that this dissertation is part of. The larger project that this dissertation is part of is an interdisciplinary perspective on the research context of the Swedish Video Game industry–covering other perspectives of international business, marketing, and innovation management. The review thus also served the purpose of contributing to the overarching research project.

The review method used for the respective review (Paper I) was inspired by bibliometric literature reviews conducted in similar research areas such as digitalization and business models (Caputo et al., 2021) or SME internationalization (Dabić et al., 2020). Conducting a review seemed like a viable approach for getting an overview of the discussion on how digitalization "alters internationalization theory's assumptions" (Hennart, 2019, p. 1388). Moreover, conducting a systematic, bibliometric review served to get a proper overview of central articles, authors, and most impactful publication outlets. The interest in learning new software tools for research also guided the author of this dissertation to use VOSViewer Software to conduct the review and map the investigated field. Various manuals and articles, written by the software developers (van Eck et al., 2010; van Eck & Waltman, 2010, 2014), were consulted to learn to apply the software and get to know its features.

Search method

To search for relevant literature, the Scopus database was used. The Scopus database allows to search for literature by making keyword queries using the AND–OR criterion and thus linking multiple keywords to one search. This facilitated the combination of different search criteria in one search query and the substitution of similar theoretical terms (e.g., "internationalization" OR "internationalization process").

Criteria that were defined before conducting the first search excluded books, book chapters, reports, and conference papers. This was done to ensure that only peer-reviewed articles were considered in the review. Moreover, the search only included articles written in English, which were published at the point where the search was conducted (January 20th, 2021).

Eventually, a search query was applied, using the keywords "Internationalization/Internationalization theory/Internationalization process" in combination with "Internet exporting/Online Internationalization/Born Digital/Digitalized Service/Digital Platform/Digital Marketplace/Digital Economy/Internet firms." These keywords needed to be present in the title, abstract, or indexed keywords of the article to fall into the sample for the review. The "AND" criteria in the Scopus search, therefore, helped to combine the keywords for internationalization theory with a digital research context. Certain keywords had to be excluded from earlier search queries conducted, as they would have resulted in thousands of articles (e.g., ICT, Internet, digitalization)–probably due to their broad usage in various research areas.

The search query mentioned above resulted in 646 articles. In the next step, the 646 articles were filtered by the journals in which they were published. The criterion applied for the journals was that the outlet be ranked as at least a two-star journal by the CABS Academic Journal Guide 2018. Thus, to limit the number of articles, only articles published in high-quality journals were assessed. Furthermore, the articles were filtered based on the subject area, and only articles published in "Entrepreneurship & Small Business Management," "IB & Area," "General Management," "Information Management," "Operations Research and Management Science," "Innovation," "Marketing," and "Strategy" were considered. Applying the criteria of a two-star outlet according to CABS AJG 2018 and falling within the above-mentioned area led to an exclusion of 380 out of the 646 articles.

In the next step, the remaining 266 articles were analyzed by reading the abstract of each of the articles and assessing whether the article contained both internationalization theory and digitalization as its primary context. This screening led to 96 articles published in 25 different academic outlets. All of the journals were then checked with the CABS AJG 2009, 2010, and 2015 guides on whether they were at least a two-star outlet during this course of time. Four journals were identified that were lower than a two-star outlet during this period. For two journals, this was not an issue for this review, as there was no article in the sample that was published during that time of the outlet not being at least two-star ranked. For the other two journals, there were three articles identified (Forsgren & Hagström, 2007; Ho et al., 2003; Yamin & Sinkovics, 2007) that were published when the journals did not have a two-star ranking yet. It was decided to keep two of the articles in the sample due to the heavy impact of these articles (Forsgren & Hagström, 2007; Yamin & Sinkovics, 2007). The third article, published in a journal that was not a two-star outlet at the time of the article being published, was excluded due to its

low impact (Ho et al., 2003). This eventually led to a final sample of 95 articles. A summarized overview of the search method can be found in figure 3.

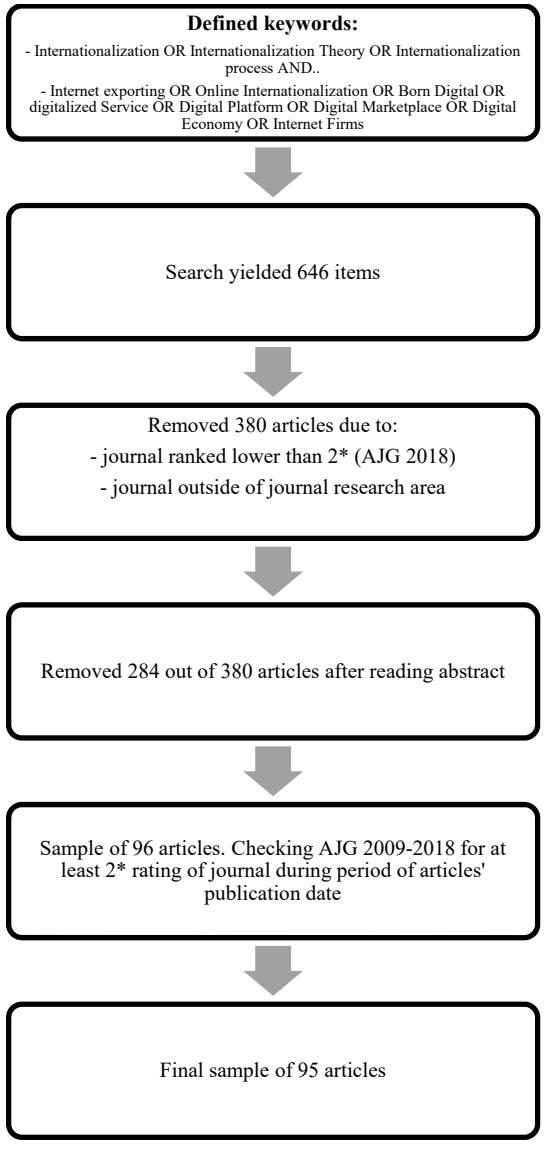

Figure 3: Search method literature review

Analysis and review procedure

The review focused on collating IB research, whose research context addresses the digital context of conducting business. Mapping out the field was assessed as useful to later investigate the highly digital context of the video game industry with lenses from the field of International Business. By applying a rather novel methodological approach that compares results from different bibliometric analyses, such as analysis of citations, co-citations, bibliographic coupling, and co-occurrences of keywords, this review tried to identify the most influential authors, articles, journals, as well as three thematic clusters within the data sample. The reviews conducted by Caputo et al. (2021) and Dabić et al. (2020) served as an initial reference point on how to conduct bibliometric analyses. Furthermore, Zupic and Čater (2015) served as a framework for conducting a systematic review with bibliometric methods.

The first analysis conducted was a citation analysis for each article, author, and academic outlet. Citation analysis is primarily a measure of impact which aims to find the influential documents, authors, and journals within a research stream (Zupic & Čater, 2015). In a second step, a co-citation analysis was conducted. This analysis identifies the cited articles from the database in terms of cited documents, authors, and journals. This is sometimes defined as examining the "knowledge base" of a field (Persson, 1994). Co-cited publications are thus the foundations on which the research of the database is being carried out and thus contain crucial theories, breakthrough early works, and methodological fundaments of the field (Zupic & Čater, 2015). The third method applied to the structured review was bibliometric coupling. Bibliometric coupling uses the number of shared references in two documents. The more two bibliographies of two articles overlap, the stronger their connection. It can be seen as the opposite of a co-citation analysis which analyses the documents cited together in a bibliography, whereas bibliographic coupling analyses the citing documents that are referencing the same documents (Vogel & Güttel, 2013; Zupic & Čater, 2015). The bibliometric coupling technique identifies the emerging research streams/clusters and can be seen as forward looking as it highlights recent trends (Ruggeri et al., 2019). Bibliometric coupling, therefore, serves to answer questions like "what is the intellectual structure of recent/emerging literature?" or "how has the intellectual structure of a niche area X developed through time?" (Zupic & Čater, 2015).

The fourth method applied in the review was a co-word analysis. Co-word analysis serves to uncover conceptual building blocks of literature. It uses the text of titles and author-designated keywords to construct a semantic map of the examined research area. Thus, it is a method to discover linkages among

subjects and trace their development (He, 1999) and is therefore rather a backward-looking technique. The co-word analysis revealed three major clusters of articles covering internationalization within the digital context. These clusters are "Digital internationalization of SMEs," "platform internationalization," and "Service (firms) internationalization." Further and more detailed methods and results of the four methods applied can be found in Paper I of this dissertation.

Qualitative Methods

Papers II and III apply qualitative methods and are based on interviews, industry reports, popular sources (news reports and magazines), and books written by industry insiders. Paper IV applies a particular qualitative method in the form of a netnography. The netnographic approach applied in Paper IV is therefore outlined in a separate sub-chapter within this qualitative methods chapter.

Paper II is primarily based on interviews conducted with (co-)founders of small-sized game development firms. This is outlined in the next sub-chapter. Paper III, a conceptual, qualitative book chapter, is based on various additional sources such as an in-depth interview with an industry expert, at least two dozen non-recorded short interviews with game developers during a three-day game developer conference and other industry events, industry reports (a.o. Dataspelsbranschen, 2020; Newzoo, 2020), regularly reading gaming industry news websites, books from industry insiders (McNeil, 2019; Polfeldt, 2020; Schreier, 2017; Williams, 2017) and business newspaper articles on the industry (a.o. The Economist, 2018, 2019b, 2019e, 2020b, 2020b, 2020c, 2022a).

Qualitative data collection & analysis

For Paper II, semi-structured interviews were conducted eventually with five (co-)founders of small-sized game development firms. The qualitative approach was chosen for this paper to get in-depth insights from founders of small-sized game development firms on their decision and insights to sell their products through digital platforms as well as the firm and founder's background. The semi-structured method was chosen to enter a dialogue with the founders, guided by a flexible interview protocol and supplement the interview with follow-up questions. The semi-structured approach allowed the author to collect open-ended data and to explore the interviewees' thoughts and beliefs about the research topic (DeJonckheere & Vaughn, 2019).

Suitable respondents, respectively, firms were found by looking at games on the digital marketplace "Steam" that were newly released the months before the data collection process. Moreover, Steam also checked for service providers who were included in this development and could be identified. Out of this sample, 28 firms could be identified where the founder of the firm was still in charge of the firm, and he/she could be identified using the companies' homepage or social media page. These 28 founders were eventually contacted, and five were willing to take part in an interview.

The final sample included three firm founders from Sweden, one from Switzerland, and one from Brazil. Each interview lasted for roughly one hour and was recorded and transcribed. The questions for the interview included educational and work-related background of the founder, international experience before the founding of the firm, questions on using digital platforms to reach a global customer base, working with(out) publishers, the firm's international market experience, entrepreneurship, and general questions on their insights into the video game industry. The research model on born globals by Madsen and Servais (1997) served as a basis for the questionnaire to understand the presumable immediate internationalization of firms acting in a digital context. On the one hand, the interview guide consisted of open-ended questions which aimed to facilitate unexpected answers (Yin, 2013). On the other hand, some questions were framed based on data publicly available on the founders' background or their latest games to increase the internal validity.

To analyze the interview transcripts, a structured content analysis approach was applied (Krippendorff, 2018; Saldana, 2021). This analysis was done in three stages. First, the transcripts underwent open coding, which includes describing and conceptualizing the data at a very basic level, to generate first-order categories. Secondly, axial coding was conducted to draw connections between the initial codes and to generate second-order themes. And lastly, selective coding was conducted, where the different categories are aggregated into overarching dimensions (Gioia et al., 2013).

Netnography

In simple words, a netnography can be described as an ethnography adapted to the study of online communities. It builds upon observation and participation in an online environment–such as online forums–to arrive at the ethnographic understanding and representation of a cultural or communal phenomenon (Kozinets, 2015). A common practice in netnography is to triangulate data with interviews to increase the understanding of a community.

Applying this relatively new form of digital and network data collection was considered valuable to investigate and dive into an (online) group of consumers. This approach served as a basis for Paper IV. As a first reference point in terms of how to conduct a netnographic study, well-cited studies applying a netnographic method within the field of interactive marketing (Seraj, 2012), customer knowledge management (Chua & Banerjee, 2013), or with the particular context of video games (Garcia-Alvarez et al., 2015; Wang et al., 2017) were reviewed.

Paper IV, which is based on a netnographic approach, followed the netnographic research process outlined by Kozinets (2015), to a large extent. The guideline suggests four stages, which are entrée, data collection, analysis, and interpretation. The entrée stage stands for choosing the right community for conducting a netnographic research. The decision to choose the online community for Paradox Interactive's game Crusader Kings 3 was because Paradox Interactive is known to have a large community base for all their games, and Crusader Kings 3 raised a lot of positive attention from media outlets before its release. The data collection, therefore, could happen at the same time and months following the game's release. The online forums could be followed continuously and in real-time and provided an interesting source of online interactions to observe. To account for the participant nature aspect of the netnography, the author started playing the game for more than 40 hours in total. Despite the delightful aspect of playing the game, this ensured understanding of the lingo in the community's discussion and the suggestions made and discussed by the players in this forum. Playing the game, thus, puts the author in the same role as fellow community members and enhanced the understanding of the observed community, which is crucial for conducting a netnography (Kozinets, 2015; Wang et al., 2017). The stage of data collection includes reading messages regularly and in real-time and capturing the data for analysis. However, a characteristic of a netnographic approach is that data collection and analysis are often intertwined. For the purpose of Paper IV, the qualitative data analysis software NVivo was applied to collect and later on code the captured data into themes. A total of 1,577 forum threads have been captured over the timeframe of four months after the game's release. Another form of data collection has been conducted through online interviewing highly active and heavily contributing forum members, as well as two community managers. Similar to in-person interviews, these netnographic interviews can be conducted group-based or individual based, structured, semi-structured, or unstructured. However, netnographic interviews are recommended to be conducted online and in written form, in order not to permeate the virtual space

(Kozinets, 2015). To conduct interviews for Paper IV, two criteria were relevant for selecting participants. First, the forum was filtered by threads with the most views. The threads were then manually filtered for threads stemming from the creators with more than 500 forum messages. These two criteria ensured that the participants at least made one relevant suggestion that caught a lot of attention and that the thread creator was, in general, an active contributor to the forum. A total of twenty potential respondents were contacted through the forum's private messaging system. Eleven were willing to participate and eventually, nine responded to the questions and follow-up questions sent to them through the private messaging feature of the online forum. Moreover, the three community managers responsible for Paradox Interactive's online forum were contacted, and two were willing to conduct a written interview for the purpose of this study. These written interviews were conducted over the messaging function of the social gaming platform Discord. Anonymity was granted to both types of respondents, the forum contributors, and community managers.

After capturing the forum threads and conducting interviews, the next step of the netnography was data analysis. Netnography involves an inductive approach, meaning an examination of the raw data set by breaking it into constituent parts (Jong, 2019). The refinement of the raw data was conducted by thematic coding, again with the help of NVivo software. Thematic coding was deemed a suitable method for such a textual inquiry (Silverman, 2019). The coding process eventually led to five themes. These themes referred to the type of suggestions made by the forum contributors. The themes were then triangulated with the game's patch notes to get an indication if the suggestions made by forum contributors were implemented into the game by the developer through software patches. Additionally, the open letters posted regularly by the developers describing what game updates the community can expect helped to gain an understanding of how the developers respond to players' suggestions. Comparing these discussions and changes to the game with the suggestions made, as well as drawing parallels between these findings and the article's theoretical pillar of free innovation, was the fourth interpretation stage of conducting this netnography.

Quantitative Methods

To examine online community engagement and the effects on innovation in more detail, this dissertation also draws on quantitative data and applies multivariate statistical analysis. The quantitative data analyzed in Paper V was

collected based on a survey instrument that was developed as part of the earlier mentioned research project at the Department of Business Studies of Uppsala University, investigating the Swedish video game industry. The survey was developed by the research group before the work for this dissertation. During the design process, the survey underwent three major iterations and multiple smaller iterations before completion. The last two iterations were tested with industry professionals before commencing the data collection process. The author of this dissertation was not involved in the survey design as this was prior to the start of the author's doctoral program. The author started his dissertation work during the data collection process in which he took on the lead for continuing the data collection process.

Survey Design

Due to the interdisciplinary interest of the research group, the final survey was based on a variety of established literature to formulate and adapt measures within the context of the Swedish video game industry. The survey is therefore divided into three parts, where each part relates to a theoretical domain and level of analysis. The first part of the survey investigates the firm as a level of analysis. This part has a strong focus on internationalization and the firm's strategic and market interest in international markets. The second part of the survey addresses a specific product and a retrospective account of its product development. In this part, mainly literature on innovation and capability management was used to develop and adapt survey items and constructs. The third part deals with external collaboration in product development. The respondent was asked to specify the external firm with the most significant business relationships concerning the development of the product identified in the second part of the survey. In the third part, mainly literature from marketing and industrial marketing was used to define the survey items and constructs.

For this dissertation, constructs from all three parts have been taken into consideration to build a structural equation model in the first place. Eventually, the constructs that were included in the quantitative paper of this article (Paper V) stem from the second part, which looks at the development process of a product.

Quantitative Data collection

For the purpose of this study, survey data were collected from firms active in the Swedish Video Game industry. The annual report from the Swedish Game

Industry trade association has been used to create a population of organizations active in this industry. This resulted in a population size of 449 firms (Dataspelsbranschen, 2018). In a first step, 84 firms were excluded from the population as they were not directly involved in game development or publishing (e.g., event organizers, visual artists for games, etc.). In a second step, 67 companies were excluded as the firms have not released or developed a game yet (which would make it impossible for them to answer questions about a past development). These two exclusion steps eventually led to a total population of 298 firms.

Multiple researchers active in the Swedish Video Game Industry project from Uppsala University have contacted and collected survey responses from CEOs, founders, or senior developers. To increase the probability of valid responses, it was crucial to identify relevant respondents. One requirement was that the respondent should have a good overview and insight into the product development process of a particular game development of the firm. Company websites and professional network platforms were used to identify respondents.

To increase the face validity and response rate, the large majority of the surveys were conducted as structured interviews through video calls, and respondents could read all questions through screen-sharing. The interviews mostly lasted between 30 and 60 minutes. Eventually, 131 (44 percent) out of the 298 identified firms had been interviewed. As the survey was project-based and referred to individual developments of the firm, some firms were surveyed twice with different respondents based on different game development projects within the same firm. This led to a total of 176 completed surveys.

Quantitative Data analysis

In terms of the quantitative data analysis method, Paper V applied structural equation modeling (SEM) using linear structural relations modeling (LISREL) to analyze the survey data. SEM is a group of statistical techniques suitable for the analysis of relationships between multiple variables (Hair et al., 2008). This method can be seen as an extension of factor analysis and multiple regression techniques. A strength and difference between the multiple-regression techniques is the possibility in SEM to examine several dependence relationships in the same model. SEM thus simultaneously estimates interrelations between variables that may be both dependent and independent variables in different relationships (Hair et al., 2008). Another strength of SEM is the pos-

sibility of estimating relationships between latent constructs. A latent construct consists of several measured variables and is based on solid reliability between those measured variables. This is similar to factor analysis, where individual variables form factors. By using SEM and LISREL, the estimation of dependence relationships is facilitated by considering the estimation of measurement errors in the constructs (Hair et al., 2008; Jöreskog & Sörbom, 1993). Thus, SEM considers estimated error and "corrects" coefficients, which allow for more accurate identification of relationships (Hair et al., 2008).

The SEM analysis for Paper V followed the two-step modeling approach promoted by Andersen and Gerbing (1988). With this approach, a potential measurement model containing indicators (individual items) and latent constructs was assessed in a first step to determine the convergent and discriminant validity of the individual indices and constructs. When these individual indicators and latent constructs had been assessed and established to a satisfactory extent, the analysis advanced to an estimation of a structural model by specifying relationships between the constructs.

The second step followed Andersen and Gerbing's (1988) two-step approach, assessing the structural model by estimating the model's overall fit and hypothesized paths between the latent constructs. Also, Hair et al. (2008) advocate the model's fit to be the most crucial for assessing the model's predictive accuracy. In line with that, a good model fit indicates that the specified theory (therefore the measurement model and structural model) provides a reasonably accurate representation or reproduction of the data (Schermelleh-Engel et al., 2003).

A more detailed description of the procedures and results of the analyses can be found in the method section of Paper V.

4. Summary of Papers

Paper I: Digital internationalization: A bibliometric review

Paper I was the result of an effort to review digital internationalization articles. The review contains articles that discuss or apply internationalization theory in a digital context–meaning that digitalization plays a major role in the article's context. The aim was to contribute to the ongoing discussion in the field of IB (e.g., Banalieva & Dhanaraj, 2019; Coviello et al., 2017; Hennart, 2019) on how, and if, adapting its concepts to the digital development of recent times is necessary. The review was conducted by applying a methodological approach of bibliometric analysis and applying VOS Viewer software. A sample of 646 articles was identified by using the keyword search feature on Scopus. The sample was limited to articles that were published in at least 2-star journals according to the CABS AJG 2018 list. This resulted in 380 articles whose abstracts have been assessed regarding whether the paper applies or discusses internationalization theory, and digitalization plays a major role in the article's research context. This assessment then resulted in a dataset of 95 articles.

The units of analysis for the bibliometric review of these 95 articles were authors, journals, and articles. For each of these units, the citation count, co-citation count, and bibliometric coupling strength are presented. The analysis of journals highlighted that the top-tier 4-star journals created most of the citations and co-citations within that context. However, the bibliometric coupling indicator revealed that three-star journals such as International Business Review, International Marketing Review, or Marketing International Review generated a high degree of connection between their bibliographies and thus some sort of network importance within this investigated subfield. The analysis of the authors further broadened that trend and highlighted researchers in the field that gained a lot of network importance (bibliometric coupling). On the other hand, the co-citation analysis revealed the importance of authors of elaborated and incumbent IB theories, such as e.g., Johanson & Vahlne, Cavusgil, Dunning, Sinkovics, etc. The analysis of articles in terms of citation and co-citation analysis revealed a picture of the main references or theoretical pillars that have influenced the investigated field. Also, in terms of articles,

the bibliometric coupling, which looks at the embeddedness of the articles and weighs the relevance of an article within the network of a field, was applied to point out research that gained a lot of impact excluding the factor that those articles were not able to accrue citations over time. To further ignore the fact that older articles were able to accrue more citations over time, the citation count had also been normalized. Interestingly, this showed that recently published articles accrued a high normalized citation count (i.e., Monaghan et al., 2020; Shaheer & Li, 2020). Furthermore, VOS Viewer software was applied to identify thematic clusters based on the articles' indexed keywords. This analysis revealed three clusters: "Digital internationalization of SMEs," "Platform internationalization," and "Service (firms) internationalization."

Beyond these clusters and analyses, the author identified potential streams for future research. These include, among others, the reliance of SMEs on digital platforms that are mostly owned by large digital MNCs. SMEs undergoing a digital internationalization are largely dependent on digital MNCs that own digital platform (e.g., Apple's AppStore) which creates a strong dependency for the firms seeking to put their product or service on the global market. Furthermore, little research has been found where the actual digital MNCs or the platform owner is the piece of research. Certainly, large digital MNCs are restrained on giving data to research, but due to the importance of such platforms in today's economy, the field of IB would serve well to explicitly investigate emerging topics around digital platform owners such as their enormous market power when it comes to digital internationalization.

To summarize, beyond serving as a theoretical fundament for this dissertation, this literature review tried to systematically analyze existing research within the domain of digital internationalization. By applying analysis of citations, co-citations, bibliographic coupling, and co-occurrences of keywords, this review has identified the most influential journals, authors, and articles, as well as three thematic clusters for this context.

Paper II: Internationalization of small-sized game development firms–A born global theory perspective

This book chapter aims to analyze the extent to which the born global approach to internationalization can be applied to understand the internationalization of small-sized game development firms. Generally, SME game development firms have mushroomed. Thanks to digital platforms, these firms can compete with incumbent, large firms and in a global market almost immediately. This phenomenon seems, therefore, interesting to investigate with an IB lens. Five (co-)founders of small-sized game development firms have been interviewed. The data were coded and analyzed based on Madsen and Servais' (1997) framework for examining the born global approach. This entails applying three factors–namely founder, organizational, and macro-environmental factors and analyzing whether antecedent drivers of a born global approach could be found in this context of small-sized game development firms. The interview data revealed a pattern of small-sized gaming firms being in different stages of their firms' development. However, a distinction between subcontractors, developers, and self-publishers is deemed necessary to discuss the born global nature of the firms. Therefore, the three stages model has been proposed, and the firms of the interviewed founders have been categorized in these three stages. These three different stages of the firms' development highlight different business models that these firms pursue based on the stage that they are in. This is in line with Bouncken et al. (2015), Hennart (2014), and Onetti et al. (2012) who suggest investigating a firm's business model to understand a firm's rapid internationalization. These three stages thus suggest a more nuanced approach to born global, as the level of globalization and the cooperation with international partners increase when the company moves from being a sheer subcontractor toward an individual game developer and eventually a self-publishing game developer.

Thus, in terms of applying the born global framework to investigate the rapid internationalization of small-sized game development firms, this chapter takes a stance that Madsen and Servais' (1997) framework partially explains the almost immediate internationalization of small-sized firms in the video games context. Mainly, the macro-environmental factors serve well to explain the born globalness in this context and overshadow factors of the founders or organizational factors which seem rather irrelevant in this context. However, an exception is firms being in the stage of a subcontractor. Those types of firms mainly seem to serve a domestic market with their services provided. Subcontracting firms rather internationalize rapidly as soon as they develop a product themselves and target a global consumer base through digital platforms and marketplaces.

Paper III: Reaching New Heights in the Cloud: The Digital Transformation of the Video Games Industry

This book chapter contributes to the discussion of digitalization enabling new business models. This conceptual, qualitative chapter provides an overview of various business model innovations happening in the video game industry since its emergence until the present, where cloud gaming platforms prevail.

The chapter aims to point out how the video game industry has transformed from physical products to digital products to digital business models. A digital business model is one of the characteristics of a (born) digital firm in line with Monaghan et al. (2020). On top of that, this chapter highlights the industry's capability to innovate at a fast pace and the vast emergence of new ways of capturing value. The focus is laid on what the authors assessed as game-changing business model innovation in the industry.

For this purpose, the development of the video game industry was divided into three different eras: the pre-digital era, the digital transformation era, and the post-digital era. The pre-digital era is characterized by slot machines, arcade machines, and, eventually, home consoles such as PlayStation or Sega Saturn. The industry from the 1970s until the late 1990s was mainly defined by sales of home entertainment systems and later physical cartridges to play on such home entertainment systems. In the second era, the industry began to digitize its distribution systems. The surge of personal computers and increased access to broadband internet has led to a virtual distribution of game software. Digital marketplaces arose in the mid-2000s, and sales of virtual content and items have flourished through such platforms. Consequently, in the last decade, many games have developed to become a service rather than a product. Business models such as "freemium" mushroomed. Freemium follows the concept that a consumer does not have to pay for the base game but for additional content or access to gameplay elements.

In the ongoing and future era of post-digital transformation, another shift in the industry was assessed, namely gaming advancing into the cloud environment. Digital giants such as Amazon, Microsoft, or Nvidia are fighting over the supremacy of becoming the "Netflix-for-games" (The Economist, 2019a). Consumers will not be required to invest in hardware; however, through a single subscription service, consumers have access to a library full of games and can access them through cloud technology on their smartphones, tablets, or notebooks. At the beginning of the 2020 decade, this is still in the early stage. Google has launched its cloud gaming platform in November 2019, but the service is facing challenges as the supply of games and the technology are not satisfactory to the customer base (Grey, 2019; The Economist,

2019a). A more promising service is offered by Microsoft in the form of their Project xCloud.[4] Microsoft invested heavily during the year 2020 and currently owns 23 in-house game development firms that will produce content for their subscription and cloud-gaming platform (Microsoft, 2020; The Economist, 2020a).

In conclusion, this chapter highlights the high intensity with which the video game industry re-invents itself and comes up with new business models. The business models have come from entering coins into a slot machine to subscribing to a service where you can play almost anywhere on almost any device with a screen. The industry has transformed itself from a pure physical industry in the pre-digital era toward an industry that will most likely very soon be entirely elevated in the cloud environment through cloud gaming platforms.

[4] Microsoft recently renamed "Project xCloud" to "Game Pass." Microsoft's service reached 25 million subscribers by January 2022 (Statista, 2022c).

Paper IV: Online Communities as a source of innovation: A netnographic study on Crusader Kings 3

This paper highlights and investigates online communities through a netnographic approach. The community investigated is the online forum from Paradox Interactive and more specifically, the suggestion sub-forum on the video game Crusader King 3. Data stem from the 1,798 forum threads posted within the first four months after the game's release and interviews with nine active forum contributors as well as two community managers. The author has familiarized himself by playing the game and following and capturing the suggestion forum thread. The respective forum threads were coded into five main themes using NVivo software.

The article highlights community management in the video game industry and idea generation from players, willing to put in their effort to improve the game in their spare time. The article contributes to the topic of players as innovating consumers, and parallels from the video game industry are drawn to the theoretical concept of free innovation. The paper starts by discussing the five suggestions made by von Hippel (2017) on how producers can benefit from free innovation in the context of the video game industry. Paradox Interactive mainly applies two of von Hippel's (2017) suggestions as they entertain a constant dialogue with its user base and provide tools to players to modify the game.

The findings reveal five themes that emerged from the coding process, and each theme is discussed and presented in the form of word clouds. The five themes are gameplay features, user interface/quality of life improvements, historical or geographical context, artificial intelligence, and modding. The patch notes[5] from the patches 1.1 and 1.2, released within the first 4 months of the game's release, have been analyzed in terms of how many and what major suggestions from each theme were addressed by the developer. Beyond that, the finding section pinpoints some examples of noteworthy discussions, such as the discussion from a gameplay perspective on allowing same-sex couples to marry and adopt heirs. Or a player's elaborate review in terms of the historical accuracy of the game in terms of Islam in 1066 A.D. Interviewing nine heavy contributing forum members revealed that most of the players are satisfied with how much Paradox Interactive incorporates their feedback in the game, but they are dissatisfied with how little the developer joins the discussion on suggestions and shares the developer's perspective. The two interviewed community managers elaborated on how they evaluated suggestions

[5] A patch is a software update. Patch notes are a list of changes in a software update.

from players in weekly meetings and how they addressed the community with regular open letters.

To conclude, the unique interplay in this industry between the producer (the developer) and the consumer (the players) was highlighted in this study based on the example of Crusader Kings 3. The wide range of different suggestions was captured through a coding mechanism which might serve well as a method to capture and visualize a vast amount of ideas and suggestions stemming from a community that is willing to share their ideas and suggestions directly with the producer.

Paper V: Adding a social dimension to game development: Does Online Community Engagement have an effect on a video game's innovativeness?

The fifth paper follows the concept of Paper IV, which means examining the phenomenon of online community engagement within the video game industry. Whereas Paper IV mainly investigated the incremental improvement of a particular video game post-launch, Paper V investigates the effect of community engagement during the product development on a game's innovativeness. Thus, this article examines the more and more common practice in the video game industry of game developers having a two-way dialogue with their community and using user communities as a source of innovation for their product development (Boudreau & Jeppesen, 2015; Jeppesen, 2005; Parmentier & Gandia, 2013; Parmentier & Mangematin, 2014). There are numerous examples of successful game developers adapting their games based on user input before the release of the game. The most famous example is Fortnite, which radically overhauled the concept of the game after user input from a pre-launch beta test phase (Feldman, 2018; The Economist, 2019c). Besides online community engagement, this article investigates the effect of the development speed in a game's innovativeness.

The data for this study were collected through structured survey interviews from 176 Swedish video game development projects. Structural equation modeling was used to analyze the data and conducted with LISREL 10.3. The results indicate that engaging with online communities during the development phase has a positive effect on a game's innovativeness. A negative effect could be found on development speed on a game's innovativeness. A potential explanation for this might be that many game developments follow a "more of the same" principle and are sequels to previously successful games. Those games might not need that much development time as a completely new project. Thus, entirely new developments that might resemble more innovative projects are expected to take more time to develop.

The key finding of the SEM model and this paper, therefore, is that adding a social dimension in terms of involving community input does have a beneficial effect on a game's innovativeness.

Table 2: Summary of findings

Paper	Aim	Method & Methodology	Theory	Concepts	Contribution / Findings
I: *Digital internationalization: A bibliometric review*	A systematic perspective on the domain of digital internationalization based on four bibliometric methods	Bibliometric review of 95 articles meeting the defined search criteria. The analysis includes the 4 techniques: citation analysis, co-citation analysis, bibliographic coupling, and co-word analysis.	Internationalization Theory	• Digital Economy • Digitalization • Digital Marketplace /Platform • Online Internationalization	• Detailed insights on the evolution of the domain in terms of author, journals and articles • Identified three thematic clusters o Digital Internationalization of SMEs o Platform Internationalization o Service (firms) internationalization
II: *Internationalization of small-sized game development firms – A born global theory perspective*	To analyze the extent to which the born global approach to internationalization can be used to understand the internationalization of small-sized game development firms	Qualitative: Semi-structured interviews & Structured content analysis	Born Global theory (Madsen & Servais, 1997; Oviatt & McDougall, 1997)	• Digital SME Entrepreneurship & Internationalization • Digital Marketplace /Platform • Immediate Internationalization	• The assumption that internationalization is an incremental and country-by-country approach seems obsolete for digital industries with barely any obstacles toward internationalization • The proposed three stages model provides a more nuanced approach to born global, small-sized firms in the video game industry and the question of whether these types of firms are in any case born global

III: *Reaching New Heights in the Cloud: The Digital Transformation of the Video Games Industry*	Aims to point out how the video game industry has transformed from physical offers to digital products to digital business models	Conceptual, qualitative	Business Model Innovation (Chesbrough, 2007, 2010; Zott & Amit, 2010, 2017)	• Digitalization • Digital Marketplace /Platform • Digital Transformation • Digital Service	• For nearly 50 years, the video game industry has been at the forefront, in terms of capitalizing on new technology and innovating its business models • The chapter summarizes the central business model innovations and technological advancements of the industry in three different eras • Business model innovation related to a digitally transformed industry mostly involves subscription-based revenue streams linked to cloud-based technologies
IV: *Online Communities as a source of innovation: A netnographic study on Crusader Kings 3*	Understand how firms can benefit from communities to capture innovation outside the firm's boundaries	Qualitative: Netnography	Free Innovation (von Hippel, 2016, 2017)	• Free Innovation Paradigm • Open Innovation • User-generated content • Community Engagement	• Community management serves as a vital idea and innovation source for developers – also post-release of the game • The video game industry is unique as it is a creative, digital, industry where the product lives on even after its release • Using qualitative Software (e.g., NVivo) may serve as a tool to capture and categorize qualitative user feedback

V: *Adding a social dimension to game development: Does Online Community Engagement have an effect on a video game's innovativeness?*	Investigate whether engagement in online communities by the game developers has an effect on the innovativeness of the final product	Quantitative: Structural equation modeling	Digital Innovation Management (Nambisan et al., 2017; Nambisan, Wright, et al., 2019; Zott & Amit, 2017)	• Consumer as innovator • Open Innovation • Community Engagement • User-generated content	• Community engagement has a positive effect on the innovativeness of video game products • Development speed has a negative effect on new product innovation • By having additional development time through an early access model, the firm can afford to engage more in-depth with its community

5. Main findings and conclusion

The process of internationalization has changed due to digitalization and the digital transformation of entire industries (Coviello et al., 2017; Nambisan, Wright et al., 2019; Nambisan, Zahra et al., 2019). This thesis aimed to highlight phenomena related to SMEs internationalization on the back of digital platforms, which seems to be the modus operandi in the video game industry. More specifically, this thesis has set out to investigate, on the one hand, the link between digital internationalization of SMEs and digital platforms and on the other hand, as an aspect for digital internationalization of SMEs in that industry, the role of online community engagement in the video game industry.

The research conducted for this dissertation has been phenomenon-driven, and three phenomena that seemed particularly relevant concerning the digital internationalization of SMEs in the video game industry have been studied. The observed phenomena of online community engagement, digital platforms, and born global/digital firms could be linked, on the one hand, to the overarching topic of digital internationalization of SMEs and, on the other hand, led to interesting research areas by linking the observed phenomena to each other (intersection B&D in figure 4). The findings and the contribution of this thesis can be aligned to different phenomena (C&E) and intersections of phenomena (A,B,D), as depicted in figure 4 below.

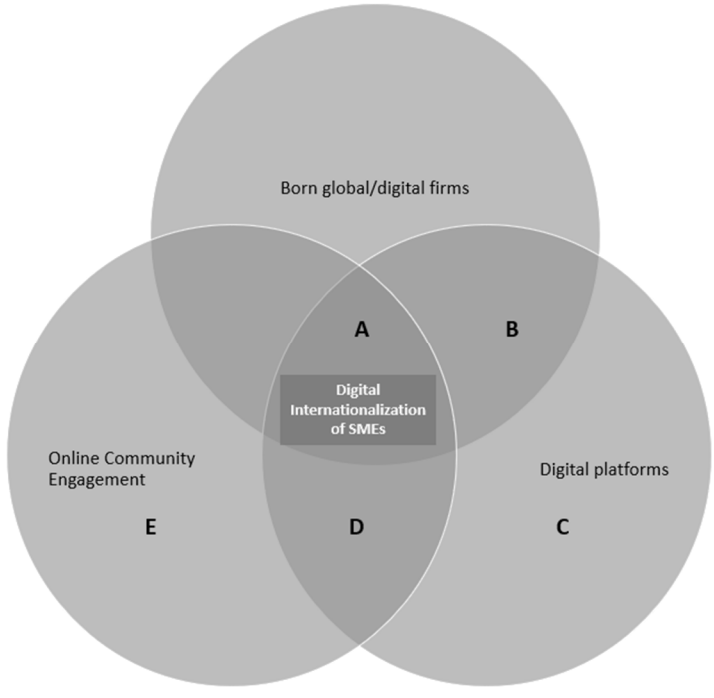

Figure 4: Investigated intersections of conceptual framework

The starting point of this thesis was a systematic literature review that offered various systematic perspectives on the IB research area of digital internationalization. The review served as the theoretical point of departure to investigate the topic of digital internationalization and led to the more specific research focus on the digital internationalization of SMEs. This research focus has been applied in the subsequent articles and the phenomena-based research approach in relation to the video game industry.

In line with Coviello et al.'s (2017) counterpoint article, the review sheds light on a critical dimension absent from significant IB theories, such as the Uppsala model–namely the "digital context as a defining macro level-feature of our modern world" (Coviello et al., 2017, p. 1151). The review revealed that the field of International Business is indeed adapting by discussing and augmenting traditional models and coming up with new ways of looking at internationalization. By using co-word analysis, the review contributes to the field of IB as it identified three contextual clusters of investigating internationalization in a digital context. These clusters are "Digital internationalization of SMEs," "Platform internationalization," and "Service (firms) internationalization." As indicated above, these clusters helped to discover the main

theoretical focus of this dissertation, namely digital internationalization of SMEs facilitated by digital platforms.

Generally, digital platforms have facilitated the rapid internationalization (Nambisan et al., 2017; Nambisan, Zahra et al., 2019). Thus, the rather slow and incremental fashion of internationalization by the Uppsala school recedes into the background, and models of rapid internationalization such as the literature on born global (e.g., Madsen & Servais, 1997; Oviatt & McDougall, 2005) seem more applicable in the digital context. Based on the digital internationalization of SMEs cluster, SME internationalization in the video game industry has been examined with a born global perspective and with the perspective of the MNC owned digital platforms facilitating internationalization for SMEs in this industry. Thus, the thesis has various contributions to the intersection of phenomena between the born globalness of firms and the supremacy of digital platforms (Intersection B in figure 4).

First of all, the born global framework by Madsen and Servais (1997) serves well to a certain extent to analyze the (in many cases) immediate internationalization of SME game developers. However, in the digital context, some sub-factors suggested by the framework become negligible (e.g., international experience of the founder). Investigating primarily small-sized game development firms revealed how the emergence of digital platforms and thus the virtual distribution of their products have led the industry to consist of mostly born global and/or born digital firms. This is due to the dominance of digital platforms as such platforms allow "internationalization to be externalized"–as argued by Chen et al. (2019, p. 173). This externalization of the internationalization process has radically enabled SME game developers to follow their own agenda in terms of the development process, independent from publishers, and in the best case, to compete with productions from larger firms on digital platforms. In that sense, most small firms in this industry become born global or even born digital from inception, thanks to digital platforms. However, it should not be ignored that the game developing firms become dependent on and agents of digital platforms and their owners. The owners behind these digital platforms are oftentimes large, digital MNCs, such as e.g., Microsoft, Valve, Amazon, or Tencent. It has to be noted that it remains challenging to investigate digital platforms as they can take on many forms in this industry, from a metaverse-like platform that is a video game in itself, allowing users to create and sell their own content (e.g., Roblox), to online marketplaces with various features for user engagement and sharing user created modifications of the games (e.g., Steam) or cloud gaming platforms that allow for playing games with cloud streaming technology on almost any device (e.g.,

Microsoft GamePass/Xbox Cloud Gaming). All these platforms, however, expedite the process of internationalization for a game developer and give them global exposure almost from inception. In that sense, especially in this industry, firms developing games can be seen as "accidental internationalists" as discussed by Hennart (2014)–since internationalization through digital platforms does not require additional time or effort for a firm.

Digital platforms can be characterized as matchmakers that connect one group of customers (users/gamers) with another group of customers (game developers) (Evans & Schmalensee, 2016). Incumbent, successful digital platforms grant access to an enormous global market, attractive for both newly and well-established game development firms. Being present on such a platform and thus being international from inception is practically a requirement for firms in that industry. Thus, platform internationalization and born global/digital firms are two theoretical foci that should be investigated simultaneously in the video game industry context. Even more, as this is an interplay between the individual firm, which is developing games, and the platform-owning firm which takes on the internationalization process as such by making their platforms (or subscription services to a platform) available in most countries. Accordingly, the work conducted in this thesis has contributed to show the linkage between digital platforms and born global/digital firms (intersection B in figure 4).

However, investigating SME game developers in more detail revealed that, particularly, the small-sized firms follow a pattern in their development and, in fact, often begin as subcontractors. Subcontracting firms are not directly involved in sales; in the sample, the firms were subcontractors to domestic firms. Thus, it can be argued that firms undergoing the stage of subcontractors first do not follow a born global approach. This changes as soon as the firm is growing into the next stage of game development firm, and they begin to shift from a business-to-business service provider to a product developer. Firms developing a game themselves immediately begin to target their products beyond the domestic market through digital platforms. Despite the centrality of digital platforms in this industry, it also seems feasible to look at an individual firm's business model to understand the internationalization approach and what stage the firm is in. This is in line with a debate within the field of IB taken up by multiple scholars (Autio, 2017; Hennart, 2014, 2019; Onetti et al., 2012; Rask, 2014) arguing that investigating business models should be the cornerstone for understanding the internationalization of firms. Thus, despite the centrality of digital platforms in the industry, not all types of firms in this

industry can be automatically aligned as born global firms, as there is a common path for small-sized game development firms to begin as subcontractor firms.

A strategic question that remains, despite the ease of distribution for games via digital platforms, is whether a developer needs the financial backing for the development process and/or marketing backing of a large publisher. Digital platforms have made game developers regarding these questions more independent as they can reach the market directly without being reliant on the demands from publishers. However, game developers must face the guidelines and fees posed by the digital platforms. A game developer therefore must make a selection of the suitable digital platform(s) where the game developing firm wants to release their game. In this context, internationalization for the individual firm is rather a selection of the suitable digital platform than a selection of target countries. This highlights that (foreign) market expansion in this industry is not based on knowledge development at home and incremental expansion into new markets, as inclined by the Uppsala school, but firms going global almost from inception by releasing their product on one or multiple digital platforms. Internationalization per se is thus not that much of a process anymore for developing firms in the video game industry; instead, it is a process of a few mouse clicks facilitated by digital platforms–in the hand of digital giants.

Further investigating the link between MNC owned digital platforms and SME internationalization, it was seen as meaningful to examine the phenomenon of digital platforms and the "next evolution" of digital platforms in the video game industry in the form of cloud streaming platforms. Digital giants such as Microsoft, Tencent, or Amazon stir up the industry and fight to become the "Netflix for Games" with their cloud streaming platforms. These digital giant firms not only compete over content for their platforms provided by game development firms but also have started to make massive acquisitions of game development firms (e.g., Microsoft's acquisition of ZeniMax Media ($7.5 billion) and Activision Blizzard ($68.7 billion)) in order to produce in-house content for their cloud streaming platforms.

Clearly, a low effort internationalization for SMEs via digital platforms comes with new challenges and opportunities. A challenge that this dissertation has only slightly touched upon is–despite small-sized game developers not being dependent on the publisher anymore–they are now dependent on the owners of digital platforms. Game developers must follow the rules and pay fees to the platform owners. As the owner of these platforms are usually digital giants, the developing firms become agents of the platform owing principles.

Only in one case did a game developer that reached an enormous market size (Epic Games with their game Fortnite) go into a regulatory war against Apple and their AppStore regulations (The Economist, 2021a). Another challenge that the case of Microsoft and their massive acquisitions has shown is that as soon as game developers become highly successful and reach a large size, digital MNCs such as Microsoft possess the financial means to acquire them to produce games for their platform exclusively. This is, of course, attractive for investors in smaller firms and the founder(s) of successful game development firms, but like in many other digital economy industries, digital MNCs often suppress competition by acquiring potential competitors.

Despite these challenges for SMEs being present and reliant on digital platforms, this thesis has paid attention to the opportunities these digital platforms withhold for smaller firms. Currently, SME game developers are in a good position as the cloud streaming platforms struggle over providing enough high-quality content to its subscribers and as the technology makes gaming more accessible to a larger market. Again, this high demand for quality content is also visible by the massive sums that digital giants spend on acquiring successful, prominent game development firms.

Another opportunity that this thesis has highlighted is the online community engagement that digital platforms try to facilitate for SMEs being on their platform. Gathering a large community around their product that provides the developers with feedback and input seems like a potential method for game developers to make it above the mass of released games. Therefore, the second research question raised by this thesis was on the role of online community engagement in the innovation process in the video game industry. Thus, beyond reaching a global market with little to no effort, digital platforms such as e.g., Steam facilitate the engagement of game developers with an existing or new community in various forms (e.g., user input, user modifications, discussion forums, etc.). As games are a malleable product, developers can leverage on online community engagement pre- or post-release of the game to change their product in accordance with what users request or desire. Thus, SME game developers in the video game industry do not only sell their products to internationally dispersed customers and use low-cost means of delivery, but they also innovate through engagement with an internationally dispersed online community via digital platforms. Game developers release their products not only to the international marketplace right after their inception, as suggested already by Madsen and Servais (1997), but SME game developers tend to build upon globally dispersed online user communities as a source

of innovation pre- and post-release of their product (Parmentier & Mangematin, 2014).

Contrary to the traditional perspective of innovation as a process that is drawing on internal R&D or imitation of innovations of other firms (Knight & Cavusgil, 2004), the video game industry demonstrates that innovation does not necessarily have to follow that traditional logic–which makes the video game industry a fascinating context to investigate. By including communities and giving tools to modify their software to the users, innovation and, therefore, added value can be created even beyond the boundaries of the firm. Digital platforms thus not only serve as a tool to scale globally and transcend national borders (in line with Nambisan, Zahra et al., 2019; Ojala et al., 2018), but in the video games context, they are also a tool to receive input from the international player community and content that was created by the users themselves (Burger-Helmchen & Cohendet, 2011; Ho-Dac, 2020). Hence, this thesis has emphasized how game developers can use community input to incrementally adapt and improve the base game (such as in the case of "Crusader Kings 3"). Or more directly, how developers give the community tools to adapt the game and spread their modifications to other players through (oftentimes) the same digital platform.

The process of involving the community and adapting the base product pre- or post-release takes a large role in creating and adding value in this industry–which is rather unique. Prime examples for this value creation by engaging with users in various forms are some of the most popular games in history, such as Fortnite or Dota 2. Also, the case illustrated in this thesis, Crusader Kings 3, serves well to shed light on how developers can utilize and benefit from community input to adapt and improve their game. The work contributed, therefore, to section D (figure 4) by shedding light on the connectedness of digital platforms and online community engagement in various forms.

The examined case of "Crusader Kings 3" from the game developer "Paradox Interactive" revealed that fruitful online community management serves the firm to incrementally innovate their existing products and scavenge for ideas for new development projects or additional content. In a similar vein, this dissertation looked at data collected from Swedish video game development projects and whether engaging with their online communities reveals a direct relation to the innovativeness of a game project. A positive relation between online community engagement and product innovativeness has been found in the data. Furthermore, a negative relation between development

speed and innovativeness has been identified through structural equation modeling. The study highlighted thus the importance of online community engagement in this industry, which becomes an asset to a game development firm. This is the case, not only because such a firm can get an understanding of what the consumers demand, but the consumers can also be innovators that actively create value for a firm's product. This part of the thesis thus contributed to online community engagement (section E in figure 4) by particularly investigating this phenomenon in the video game industry and revealing the potential that such an interaction with the community can have for a developer.

To summarize the findings in relation to the first research question, the link between digital internationalization of SMEs and digital platforms in the video game industry seems apparent on a first note. Digital platforms are omnipresent in this industry and can take on many forms. What the platforms have in common is that they make it easy for SME game developers to reach a global market. Internationalization, therefore, is something that SMEs can externalize into the hands of the platform's owners. This has turned the industry into an industry where almost all firms become born global due to the ease of internationalization. The platforms have at first sight created good conditions for SME game developers as they can choose to be independent from publishers–who usually took on the role of distributor of the products–and that the platform owners are reliant on a constant supply of high-quality content for their digital platforms to create a multi-sided platform. Also, the current development in the industry, the "next evolution of digital platforms"–cloud streaming platforms–create a huge demand for content to attract users, respectively, subscribers to these platform services. On a second look, despite this rather positive perspective for SMEs, it also must be stated that the digital giant firms are the gatekeepers in this industry as they own these platforms and can set the rules and fees which developing firms have to go along with. Moreover, as it is common in the digital sector these days, the digital giants behind those platforms possess the financial power to simply acquire firms that become too successful and could pose a threat eventually to their market power. As in many other digital industries (e.g., social media), this market dynamic can also be observed in the video games industry.

The findings in relation to the second research question, on the role of online community engagement for the innovation process in the video game industry, highlighted first and foremost how digitalization has affected how firms innovate in the video game industry, and thus how firms capture and create value stemming from users. This is in line with Nambisan et al. (2019)

who call for research on how digital technologies have impacted value creation and the firm's openness to innovation. In the case of the video game industry, engaging with an online community has become an asset for a firm, which can help the firm to make it beyond the masses of released games and improve the game incrementally pre- or post-release. Apparently, platform owners also have an interest in firms interacting with their communities, as this strengthens the multi-sided market economics of a digital platform. Thus, digital platforms such as e.g., Steam offer tools and communication channels where users can engage with the developing firms. So, digital platforms in the video game industry not only facilitate the internationalization process for SMEs but also facilitate the externalization of the innovation process–at least partially–into the hands of the consumers.

Theoretical contributions

In order to investigate digital internationalization of SMEs in the context of the video game industry, this thesis has examined different phenomena which are, in the case of the video game industry, linked to digital internationalization. The conceptual framework depicted in figure 4 served to theoretical position the research conducted. The three phenomena connected to the overarching topic of digital internationalization have created intersections as presented in the conceptual framework. The three phenomena also aimed to point out how internationalization in the context of the video game industry is not much of a process anymore–as argued in traditional models of internationalization–but a precondition for firms conducting business in this digital industry. The prerequisite to going international is provided by digital platforms; thus, the internationalization process is a process that is externalized for the individual firm.

This thesis, therefore, has raised important questions and findings at the intersection of digital technologies and internationalization in one particular context. More specifically, this thesis contributes to the theoretical discussion of how SMEs in the digital economy internationalize on the back of digital platforms owned by large MNCs. The context of the video game industry has shown that investigating internationalization of firms acting in the digital economy is not about understanding the process or the strategic reasoning to where and how to target a specific market, but investigating the emerging challenges and opportunities of conducting business in a virtual and therefore almost entirely global marketplace. Therefore, the thesis can be seen as an

attempt to dive into one specific industry where digital technologies and internationalization are at the core of the industry. The research has been motivated by articles that could be identified at this intersection (Banalieva & Dhanaraj, 2019; Hennart, 2019; Nambisan, Zahra et al., 2019; Shaheer & Li, 2020).

Specifically, this thesis contributes from a theoretical perspective on three topics. Firstly, to what extent can existing frameworks such as born global theory be applied in a digital economy context. This part aimed to contribute to the discussion of born global and digital firms (Knight & Cavusgil, 2004, 2004; Madsen & Servais, 1997; Monaghan et al., 2020) by applying the specific context of the video game industry as an example of the digital economy.

Secondly, this thesis aimed to contribute from a theoretical perspective to the discussion of digital platform internationalization (Nambisan, Zahra et al., 2019; Ojala et al., 2018). A topic that was evaluated by the literature review as an emerging topic within the field of international business. This thesis therefore discussed how platforms and upcoming new types of platforms (i.e., cloud gaming platforms) affect(ed) the researched industry–mainly from the perspective of SME game developers using the (external) digital industry platform to reach a global market.

Thirdly, the thesis contributed to understand how, in this industry, the high degree of engagement of game developers with their online communities builds an asset for a firm. Here, the thesis drew upon theoretical concepts of free innovation and user generated content (Burger-Helmchen & Cohendet, 2011; Ho-Dac, 2020; von Hippel, 2016, 2017) and connected these theories to the context of the video game industry.

In sum, these three theoretical contributions can be linked to the overarching topic of digital internationalization of SMEs, but they also create exciting paths to investigate by linking the individual theoretical foci and phenomena on which they are based. Linking born global theory with platform internationalization in the context of the video game industry revealed how internationalization is not a choice but a requirement in this industry and how, particularly, SMEs benefitted from digital platforms as they have become independent from large publishers and can pursue their own projects and timelines.

Linking the two theoretical foci of online community engagement with digital platforms served as a basis to investigate another aspect of internationalization in the video game industry. Digital platforms are not only used as sources to distribute the games, but also to gather user innovation and input (Burger-Helmchen & Cohendet, 2011; Parmentier & Mangematin, 2014).

This generates an interesting interplay between developers and users on various distribution and communication platforms, which is a particularity of this industry.

To conclude, in terms of theoretical contribution, this thesis contributes to SME internationalization in a digital economy by connecting the phenomena of born global firms, internationalization through platforms, and the opportunity for user engagement facilitated by digital platforms. The conceptual framework with its three phenomena served to investigate the context of the video game industry and might guide as a starting point for investigating other industries being part of the digital economy.

Managerial Implications

In addition to implications for research, the work conducted in this thesis has relevance for firms and managers conducting business in the digital economy. First and foremost, this thesis has highlighted how the video game industry is a forerunner industry, when it comes to early-adopting technology and adapting to new types of business models. The transformation of physical products to virtual products and the introduction of subscription models can be found in other industries, such as the music or the film industry. However, the video game industry is unique, as digital platforms enabled smaller firms to compete in the global market. However, game developers are dependent on digital platforms and therefore become agents of large digital MNCs that can determine the rules and fees applicable for them. However, engagement with online communities that can be found on such platforms provides an asset for firms in this industry to improve their games pre- or post-release. The netnography conducted in this thesis emphasized how enthusiastic online communities share their ideas with the developer and how firms themselves actively engage with their communities to adapt their games. In line with that, innovation is something that does not necessarily have to come from internal processes but can either be co-created with the community or, as in the extreme case of Roblox, be completely "outsourced" to the users. The video game industry is, thus, an interesting example of an industry where boundaries become blurred. On the one hand, boundaries become blurred through digital platforms blurring the national borders and turning most firms in this industry to born global firms. On the other hand, digital platforms blurring the boundaries of innovation as an internal process toward innovation being a process where the users'

input in various forms is implemented into product development. Accordingly, both the process of internationalization and the innovation process are becoming more and more externalized for game development firms. This facilitates them by reaching a global market and interacting with online communities–but makes them dependent on large, digital MNCs behind those digital platforms.

Directions for future research

By taking a phenomenon-based approach, the work conducted in this dissertation has led to empirical findings that enable scientific inquiries to proceed. One of the intersections of the conceptual framework that has not been covered by this thesis is the intersection of born global/digital firms and community engagement. Future research could particularly investigate the role of online community engagement for born digital firms and determine whether born digital firms have an advantage through engaging with online communities over "non-born" digital firms.

Another aspect that this thesis was not able to cover is how large or more financially strong development firms are using big data analytics (in addition to or instead of user input) to learn how their game is played and to optimize their current or future product. In such a case, innovation is driven by analytical processes based on user input data which, one could argue, turns the innovation process into an analytical concept and a one-way communication as a potential complement or addition to a two-way dialogue with the community. Conducting a case study on such an analytically driven innovation process in the video game industry might provide interesting insights into how analytical tools can be used, beyond improving user experience, to create and develop explicitly new products and innovation.

Furthermore, as the video game industry is a creative industry, one could look beyond the aspect of profitability of games as products. A potential topic for future research could be the creative intention and artistic integrity that developers seem to lose by listening to and adopting their products to communities. A prominent example has been the game Mass Effect 3 where the developer BioWare acted in response to its community and changed retroactively the ending of the plot of their game to please a part of the community. This would then shed light on a potentially negative side of community engagement.

Lastly, on the note of subscription-based cloud gaming platforms (or the "Netflix-for-games"), a potential study could investigate the need for or effect of mandatory domestic investment in countries where the subscription service is offered. Large film streaming services are currently obliged in many European countries to reinvest a small percentage of their revenues into domestic film productions. From a policy-maker perspective, a similar regulation could be arguable for cloud streaming platforms in the gaming industry, so a country's domestic game industry could be subsidized and stimulated.

Limitations

Certainly, the work conducted for this thesis is subject to several limitations. The author has identified three major limitations that should be considered.

Firstly, this thesis has, for the most part, taken a positive perspective on the business practices in this industry, the growth of digital platforms, and digital internationalization in general. A more critical perspective on technological change might have led to other conclusions and assessments of a rapidly growing digital industry as well as the digital economy in general.

Secondly, from a methodological perspective, the low amount of SME founders interviewed in the qualitative part of this thesis limits the generalizability of these findings for the entire video game industry. To confirm the results on a larger scale, more interviews would be needed, as the interviews with the SME founders cannot be considered representative but should be interpreted as perceived insights into SME entrepreneurship in the video game industry. In general, the author of this thesis has exerted efforts to have a range of different methods, rather than focusing on one method and the sample size for one particular method. This has certainly limited the generalizability of this study, but this pragmatic approach made it possible to focus on more than one phenomenon that was deemed as worth investigating in this industry and for the limited time available for writing this dissertation.

Thirdly, this thesis has taken on the video game industry as its main context to discuss digital internationalization. Unquestionably, the discussion of digital internationalization and debating whether digital internationalization alters assumptions and classical theories of internationalization should go beyond applying one particular context or industry. However, in line with the directions for future research, this research can serve as a steppingstone for such a debate or investigating the observed phenomena in this industry in more detail.

Conclusion

This dissertation has examined digital internationalization of SMEs in the video game industry. More specifically, the thesis set out to answer the research question of what is the link between digital internationalization of SMEs and digital platforms in that industry? The second research question examined the role of online community engagement in the innovation process in the video game industry. To address these questions, a conceptual framework guided the overarching aim of this thesis, which connected the phenomena of born global/digital firms, digital platforms, and online community engagement. All these phenomena could be linked to or seen as relevant to the digital internationalization of SME in the video game industry.

Certain features of this industry have been highlighted, such as the importance of digital platforms for the internationalization of SME game development firms, the new type of digital platforms that are lifting this thriving industry to new heights, as well as the high level and importance of online community engagement in this industry. The phenomenon-driven approach led to examining these aspects of the industry, linking them to IB concepts and building bridges between theory and the context of the video game industry. A systematic literature review has served as a basis for linking the observed phenomena and theory in a conceptual framework. The review has revealed that there are a growing number of authors and articles investigating internationalization with the digital economy as a context. Moreover, the review pointed toward thematic clusters that were identified through co-word analysis. Based on the identified thematic cluster of "Digital internationalization of SMEs," the internationalization of small-sized game development firms has been further investigated by interviewing founders of such firms. The paper revealed that these types of firms seem to follow a certain industry-specific pattern in their firm growth. Therefore, not all these small-sized game development firms can be classified as born global per definition. It makes sense, particularly in this industry, to investigate the business model in more detail to be able to understand the way firms in the video game industry grow and expand their market. To do so, the third paper in this dissertation has specifically investigated and given an overview of the most significant business models of the video game industry since the industry's early days of the 1970s. Furthermore, the paper discussed the impact of cloud technology (an early-adopted technology by the gaming industry), which enables the streaming of video games on devices such as laptops, TVs, or smartphones. Digital giants such as Microsoft, Tencent, Amazon, etc. are currently competing against

each other to become the market leader in such a cloud gaming platform that could expand the gaming market even further into new heights. The increased demand for these platforms for content offers good preconditions for SME game developers. However, the principals in the industry remain the platform owners, oftentimes digital, large MNCs, whose aim is to leverage a multi-sided platform, which enables interactions between customers and game developers.

On the note of interaction between customers and game developers, this dissertation has explored value creation through innovation outside of a firm's boundaries. Game development firms are engaging with user communities to get input and feedback to incrementally improve their games but also more radically by giving the users tools to modify the base game and increase the value of the product. To further investigate online community engagement, a survey of Swedish video game development projects has been conducted, and the structural equation model based on this survey showed that engaging with the community has a positive effect on the innovativeness of the game.

In conclusion, the research effort contributed to the intersection between the field of international business and the digital economy by looking at digital internationalization of SMEs and the connected phenomena of born global/digital firms, digital platforms, and online community engagement. From an IB perspective, the video games industry is appealing to conduct research on, as it shows how the process of internationalization and, to some extent also the innovation process have become externalized beyond the boundaries of the firm. The industry reveals, thus, many interesting aspects for IB scholars to investigate such as an industry where born digital firms are predominant, an industry where SMEs act on a global level, and an industry where innovation and product development are partially in the hands of the consumers.

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