POZNAŃ UNIVERSITY
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Determinants of development and internationalization of Polish video game producers

Determinanty rozwoju i internacjonalizacja polskich producentów gier wideo

Doctoral dissertation

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Introduction

Video games have become an integral part of global culture and economy. As an industry, it has been rapidly growing and evolving, displaying an impressive dynamism and resilience in the face of the ever-changing technological landscape and consumer preferences. In 2022 alone, the global games market revenue reached an estimated $180.3 billion (Newzoo, 2022). As a result, the video game industry has not only surpassed the film and music industries in terms of revenue, but it has also become an important area for academic inquiry, particularly from economic and managerial perspectives.

Despite the financial magnitude and societal impact of this industry, academic research focused on the economic and managerial aspects of video game studios – especially those of small and medium-sized – remains relatively scarce. This gap in literature becomes even more critical considering the unique characteristics of these enterprises operating at the intersection of technology, creativity, and commerce. As these studios navigate the complex industry dynamics, they face an array of unique challenges, growth trajectories, and success parameters, which are yet to be thoroughly explored and understood.

Through this multifaceted investigation, this dissertation intends to contribute valuable insights to the academic discourse on the video game industry and offer practical implications for game developers, industry stakeholders, and policy-makers. By shedding light on the under-explored economic and managerial dimensions of video game studios, this research aspires to facilitate a more nuanced understanding of this dynamic industry, ultimately aiding its sustainable growth and development in the face of future challenges and opportunities.

Thus, this dissertation represents an important step in recognizing and understanding the distinctiveness of the video game industry from an academic standpoint, acknowledging its economic potential and managerial complexity, and appreciating its unique place within the broader landscape of creative industries. Given the undeniable importance and growing impact of the video game industry, this endeavor is not only timely but also crucial for the continued advancement of both academic scholarship and industry practice.

Research Problem:

The video game industry, particularly in the context of small and medium-sized game development studios, has grown significantly over the past decades, becoming an increasingly important segment of the global creative economy. However, the industry is characterized by a high degree of heterogeneity and operational diversity among game development studios, reflecting a wide array of studio characteristics, strategies, motivations, and growth trajectories. Yet, despite this growing importance and inherent complexity, the academic literature and industry classifications have so far provided only a simplified picture of the industry and its key actors.

Current classifications, such as the commonly used distinctions of First Party/Second Party, AAA/Indie, tend to rely on generalizations that may not fully capture the nuances and heterogeneity within the industry. They fail to accommodate the wide range of developer motivations, which can extend from a more artistic, creative, and sustainability-oriented focus, to a more business-driven and growth-oriented approach. This limited perspective may constrain our understanding of the varied growth and development trajectories pursued by game development studios, as well as the diverse ways in which they perceive and define success.

Furthermore, the current understanding of what drives growth and perception of success in this industry appears insufficient. Certain determinants, such as human capital, strategic collaborations, and the studio's internationalization strategy, despite their potential significance, have not been thoroughly examined within this specific industry context. This leaves a significant gap in our understanding of the underlying dynamics that drive successful outcomes in the video game industry.

Moreover, the evolving ecosystem of the video game industry, characterized by an increasingly intricate web of roles and relations among various industry actors, has not been adequately mapped out. Traditional roles such as developer, publisher, and retailer, may no longer accurately reflect the reality of the industry, as studios take on multiple roles and pursue different pathways, including towards greater self-sufficiency.

Given these considerations, it becomes evident that there is a pressing need for a more in-depth, nuanced, and comprehensive exploration of the video game industry, particularly concerning the growth and development of small and medium-sized game development studios. Understanding the characteristics, strategies, motivations, and growth trajectories of these studios, as well as the determinants of their success and the nature of the industry ecosystem, will be crucial in developing more effective strategies for growth and success within this dynamic

industry. This research aims to address this knowledge gap and contribute to a more thorough and nuanced understanding of the video game industry.

Aim of this dissertation

The main aim of this dissertation is to illuminate the growth strategies and trajectories of Polish video game companies, contextualizing these within their respective strategic objectives and identifying the specific factors driving their development.

This dissertation aim is to offer an in-depth analysis of the unique growth strategies employed by companies operating in Poland's video game sector. It seeks to provide a comprehensive exploration of these strategies, which are situated within the broader context of each company's distinct objectives. The pursuit of growth within an enterprise is invariably tied to its strategic goals, and this research intends to understand how these objectives inform, direct, and shape the growth strategies that Polish video game companies adopt. In addition, this dissertation will delve into the distinctive growth trajectories of these companies, recognizing that each firm's path to expansion and success is inherently unique and shaped by a variety of factors. By tracing these developmental paths, the study aims to gain a deeper understanding of the patterns, trends, and complexities inherent in the growth process within this specific sector. Moreover, a central focus of this research is the identification of key factors that drive the growth of these enterprises. By unraveling the intricate web of influences that determine the direction and pace of a company's growth, the study will seek to provide valuable insights into the mechanisms of growth within the video game industry. Ultimately, this dissertation aims to generate a nuanced understanding of growth within Poland's video game industry, acknowledging the complexities and idiosyncrasies that characterize this vibrant and rapidly evolving sector.

The additional aim is to categorize the companies within Poland's video game sector and evaluate the variability in the importance of growth factors according to their respective growth strategies**.**

This dissertation sets out to classify the companies operating in the video game industry in Poland, acknowledging the industry's diversity and the unique positioning of each company within it. This involves categorizing companies based on identified parameters, including but not limited to, their size, resources, objectives, and market strategies. Additionally, the study seeks to evaluate the extent to which the importance of growth factors varies across different firms depending on their selected growth strategies. By exploring this, the research hopes to reveal

more about the multifaceted nature of growth within the video game industry, understanding how different strategies might amplify or diminish the significance of certain growth factors. This line of inquiry could potentially lead to a more comprehensive understanding of growth dynamics within the video game industry and provide insights beneficial to both industry stakeholders and academic discourse.

Research Objectives:

1. To determine the principal factors contributing to growth and commercial success in the game development sector, with particular attention to the influences of human capital, strategic partnerships, and international business strategies.

   This objective focuses on understanding the pivotal elements that drive the growth and commercial success of companies within the game development industry. The intent is to discern how elements like human capital (the collective skills, knowledge, or other intangible assets of individuals), strategic collaborations (partnerships or alliances formed with other entities), and internationalization strategies (approaches to extending business operations across national borders) play a role in this sector. The findings are expected to provide a nuanced understanding of the dynamics that contribute to successful outcomes in the game development industry.
2. To illustrate the intricate network within the video game industry, exploring the relationships between various industry participants and the prospects for game development studios to attain self-reliance.

   This objective aims to decipher the complex network within the video game industry by studying the various relationships and interactions that exist among industry participants. The focus will be on understanding the diverse roles of these participants, how they interrelate, and how these relationships influence the overall industry dynamics. Further, it seeks to explore the potential pathways for game development studios to become self-sufficient, a facet that has gained significance in the current industry scenario.
3. To conceive a comprehensive classification system for game development studios, transcending conventional categories to reflect the varied nature of the industry and differing perceptions of success.

   This objective intends to develop a more nuanced classification system for game

development studios, going beyond traditional categorizations. The new classification system aims to encapsulate the diversity and dynamism within the game development sector, reflecting the array of growth trajectories, strategic focuses, and success parameters prevalent in the industry. This endeavor acknowledges that studios' perceptions of success can vary significantly, ranging from commercial profitability to creative satisfaction or societal impact.

4. To construct a conceptual model outlining the growth trajectory of game development studios, harmonizing the insights obtained from this research with existing theories of enterprise growth.

    - This objective centers on the creation of a theoretical model to illustrate the growth patterns of game development studios. This model seeks to merge empirical findings from the study with existing theories of enterprise growth, thereby providing a holistic view of the growth dynamics within the game development sector. By doing so, the research hopes to contribute a useful tool for understanding and predicting growth trajectories in this unique sector.

Main hypotheses

H1: The growth strategies employed by companies within the video game industry exhibit diversity and are contingent on the specific objectives that the company has successfully attained.

Hypothesis H1 is crucial in its exploration of the growth strategies within the video game industry, as it acknowledges the diversity of these strategies and their dependency on individual company objectives. The inherent legitimacy of this hypothesis lies in its recognition of the highly dynamic and competitive nature of this industry. By positing that growth strategies are not uniform but vary contingent on specific company achievements and objectives, this hypothesis accounts for the wide range of organizational forms, strategic approaches, and outcomes within the industry. The necessity to scale, adapt, and evolve according to individual company goals and past successes is an inherent characteristic of the industry's competitive landscape. Therefore, understanding this relationship between objectives, achievements, and strategic approaches to growth is of pivotal importance. It helps us build a comprehensive picture of the industry's dynamics and provide strategic insights for stakeholders. In conclusion, Hypothesis H1

constitutes a significant and valid inquiry into the understanding of growth strategies and the role of company-specific factors in shaping the future of the video game industry.

H2: The perception of achieving sales success bolsters the business orientation of video game studios. Conversely, the perception of sales success shortfall tends to encourage these studios to focus more on an artistically oriented strategy

Hypothesis 2 offers a valuable inquiry into the dynamics of strategic orientation within the video game industry, highlighting how perceptions of sales success can influence a studio's approach to its operations. This question is important given the considerable economic implications and the pivotal role of strategy in shaping the trajectories of game development studios. Understanding this interplay between perceived sales success and strategic orientation is crucial, as it can impact the long-term sustainability and growth potential of studios. It provides insight into the psychological factors that may drive a studio's decision-making processes, potentially influencing resource allocation, product development, and marketing strategies. This insight, in turn, could prove instrumental in guiding management decisions, informing policy, and shaping the broader strategic narrative within the industry. Moreover, the dichotomy this hypothesis proposes between a business-oriented strategy and an artistically focused one touches on a longstanding debate within creative industries. By examining how perceptions of sales success can shift this balance, this hypothesis offers a new lens through which to understand and navigate this tension. It could also inform a more balanced strategy, where financial success and artistic integrity are not viewed as mutually exclusive, but rather as interconnected facets of a holistic approach to game development.

Auxiliary hypotheses

aH1: Participation in international partnerships, coupled with the expansion of sales to international markets, bolsters the business-centric approach of video game development studios.

This hypothesis essentially correlates two integral factors of a video game studio's growth - the fostering of international partnerships and the broadening of market reach. The globalization of industries, including the video game industry, has led to an increased interconnectedness between different geographical markets, leading to opportunities for international collaboration. It suggests that the active engagement in such partnerships and the

subsequent expansion of sales to international markets are linked to an enhanced business-centric approach in studios. Understanding this relationship can offer a deeper insight into a studio's growth dynamics and potentially inform strategies to maximize business-oriented results. The focus on business orientation suggests an alignment of artistic creativity with profit-driven strategies, which is a pertinent consideration in the fast-paced, competitive landscape of the video game industry. Hence, this hypothesis presents a significant, valid question that merits in-depth examination and has potential implications for game studios' strategic decision-making processes.

aH2: The magnitude of employment within a company in the video game industry enhances its propensity towards a business-oriented approach.

This hypothesis represents an area of investigation within the context of the video game industry. As a component of the creative industries, video game studios often emerge from a passionate, artistic pursuit, primarily focused on creating unique and engaging experiences. However, as these studios grow and their teams expand, they must grapple with the intricate balance between maintaining their original artistic vision and managing a viable business. Examining this evolution is of particular importance because it can elucidate the complex dynamics of growth and strategic orientation within the industry. As team size increases, studios may face pressures to adopt a more business-oriented perspective, prioritizing financial performance to support the larger operation. Yet, the tension between maintaining the artistic integrity of the games and securing financial stability can pose significant challenges. This hypothesis therefore explores a critical transition point in the lifecycle of a video game studio. It allows us to better understand how these studios navigate growth and change, shedding light on broader industry trends and offering insights that may help other emerging studios plan their strategic trajectory. By studying this hypothesis, we contribute to the larger discourse on how creative enterprises negotiate the interface between artistry and commerce as they grow, a question of enduring interest in the field of creative industries studies.

aH3: The duration of a company's presence on the market does not dictate its strategic orientation, whether it leans towards a business-centric focus or an artistic-centric approach

This hypothesis poses a significant inquiry within the academic understanding of the video game industry, specifically concerning strategic evolution. It questions the prevailing understanding across industries that a firm's age and market experience typically correlate with its strategic orientation - more mature firms are often expected to take on a more business-centric approach, leveraging accumulated resources and capabilities to drive growth and market share. However, this hypothesis argues that in the context of the video game industry, this might not necessarily be the case. The dynamics and characteristics of the video game industry, with its fast-paced technology advancement, shifting consumer preferences, and the artistic nature of the content, may mean that even as studios age, they maintain an artistic-centric approach. Alternatively, they might adopt a mixed strategy, balancing the drive for business growth with a strong artistic orientation. Understanding this aspect is crucial because it provides insights into the strategic behaviors of video game studios. It adds complexity to our understanding of how these studios grow and evolve, offering valuable insights for practitioners and researchers alike into the strategic choices that successful studios make in this dynamic and creative industry. Furthermore, this hypothesis can shed light on the interaction between a firm's external market orientation and its internal strategic focus. Unpacking this relationship may, in turn, contribute to broader discourses within the field of strategic management and organizational theory, offering a nuanced perspective on strategic choice and adaptation in creative, technology-driven industries.

Thesis structure

With an interdisciplinary approach, this dissertation ventures into three main lines of inquiry. Firstly, it builds a theoretical framework to understand the unique growth and development patterns of video game studios. Secondly, it delves into the empirical investigation of these patterns, drawing upon extensive quantitative and qualitative research. Lastly, using the insights gleaned from the theoretical foundation and empirical data, it proposes a novel non-linear growth model and a classification system that encapsulates the diverse orientations of video game studios.

This dissertation is divided into three chapters. In the first chapter, the focus is primarily on creating a robust theoretical background that addresses the topic of enterprise growth and development. The intent is to critically examine existing methodologies and perspectives that describe and analyze the phenomena associated with company growth. This essential first step lays the groundwork for the creation of a new conceptual model that encapsulates the unique growth dynamics of video game developers. An important aspect of this chapter is the comprehensive exploration of the general determinants and factors that influence enterprise growth. This examination enhances our understanding of the characteristics and practices typical of creative companies and provides valuable insights into the personas of creative entrepreneurs. The results of these investigations are critical for classifying video game studios in Chapter 2, as video game companies form a significant subset of the creative industries. The main goal of Chapter 1 is to establish a theoretical framework and conceptual foundation for further analysis. The findings and conclusions drawn here will guide and shape the direction of the subsequent investigation in Chapter 2. By investigating creative industries and their unique growth dynamics, this chapter prepares the ground for a deeper understanding and modeling of video game developers' growth trajectories.

Chapter 2 is a multifaceted examination of the video game industry, with a particular focus on developers and the unique environment in which they operate. The first objective of this chapter is a comprehensive investigation of the actors in the video game industry and an in-depth exploration of their relationships and interactions. This results in a graphical representation of the Game Industry Ecosystem that not only identifies but categorizes the various actors involved. Building on this, a Diagram of Video Game Industry Actor Relations is created to reveal the intricate web of cooperation and potential interplay between video game developers and other entities. The second objective is a critical review of the existing classification systems for video game developers. The aim is to determine the effectiveness of

these classifications in describing the growth dynamics and developmental characteristics of small and medium game studios. The findings suggest that these classifications fall short of accurately capturing the dynamism of these studios, indicating the need for a more refined classification system. The third objective of this chapter is to propose a conceptual non-linear model of video game studio growth. This model, informed by the insights gleaned from Chapter 1 and the existing literature discussed in this chapter, reflects the reality of the game studio's growth journey. It particularly highlights the potential transition from independent, creatively driven studios to more business-oriented, managerial organizations as they grow. The model challenges the linear progression posited by Autier and Picq (2003) and instead suggests a more fluid, non-linear growth trajectory for game studios. The underlying assumptions of this new model will be further examined and validated in the empirical studies presented in Chapter 3. Overall, Chapter 2 serves as a critical step towards understanding the specific characteristics of the video game industry and provides a blueprint for a more nuanced understanding of video game developers' growth.

Chapter 3 delves into the empirical studies conducted for this thesis, revealing the extensive data amassed through both quantitative and qualitative research methods. The research, grounded on the findings of Chapter 2, seeks to delve into the key determinants of growth and commercial success among small and medium-sized game development studios in Poland. This inquiry focuses on identifying the operational characteristics, growth strategies, and motivational drives of these studios, as well as understanding the variations and underlying reasons for these differences. A pivotal aim of this research is to comprehend the game studios' perceptions of success and their driving motivations, with these insights juxtaposed against existing literature on creative industries. The outcomes of this analysis serve as the foundation for proposing a novel classification system for video game studios, incorporating their approach to growth and their motivations. The quantitative results gleaned from the survey were used to verify the five hypotheses regarding the growth, international characteristics, and development determinants of video game studios. These results reinforce the non-linear model presented in Chapter 2 and corresponding literature research, signifying that game studios indeed display a significant diversity in their orientations, ranging from Indie-Artistic to Business focused. Moreover, these orientations are not static and fluctuate across different stages of a studio's lifecycle, revealing a dynamic shift along the spectrum between these two orientations. To complement the quantitative findings and lend more depth to the understanding of these trends, qualitative research in the form of semi-structured interviews was employed. These interviews

offered nuanced insights that were less tangible in the quantitative studies and provided further evidence to the diversity in studio orientations, thereby bolstering the validity of the non-linear growth model. The interviews highlighted the heterogeneity in studios' approaches, ranging from Indie-Nonfinancial to Business-Oriented, further cementing the notion of a non-linear growth trajectory. Furthermore, the detailed exploration of studio characteristics aligned perfectly with the proposed new classification for video game studios, as the discovered features and growth strategies corresponded with the classification's criteria. Overall, Chapter 3 presents compelling empirical evidence supporting the non-linear growth model and the innovative classification system for game development studios, contributing insightful revelations into their diverse growth paths and the forces that drive these trajectories.

Chapter 1

1.1 Enterprise growth and development

Every organization goes through a series of changes over time, as a result of their adaptation to the market expectations, increasing competition or new innovations introduced (Teece et al, 1997). Video game studios are no exception. Existing for a relatively short time, the video game industry has undergone a tremendous evolution, starting from a handful of major video game franchises in the 70's with high barriers to entry, to the present state where hundreds of thousands companies specializing in video game production are located around the whole globe. The dynamic development of this industry also means that its participants are constantly changing, adapting their activities to current trends, market expectations and new technologies (Zackariasson et al, 2006). Though studies show the rise of the gaming industry on a macroscale, little is known about how individual game studios develop and change in time and which factors or events drive or slow down these changes. A question arises whether it is possible to describe their development and growth with a universal, conceptual model. Due to the large diversity of video game producers, identifying patterns and clear phases in their historical activities can be a serious challenge. Current literature lacks studies of this kind that relates directly to video game producers. A natural starting point is a review of existing leading theories and models of organizational growth and development.

1.1.1. The distinction between enterprise development and growth

Enterprise development and growth have been present in academic scholarship all over the world for several decades. This topic is noticeably broad and multidimensional. The concepts of growth and development are not always clear - in existing literature they are often used interchangeably, as if they were synonymous, but according to Czarnecki (2014) it is a common mistake. It is important to pay attention to the differences between enterprise development which refer in large extent to the qualitative aspect of operating an organization, and enterprise growth associated mostly to its quantitative aspects. Development is a long process in which an enterprise changes towards its goal and vision, adjusting and revising its operations to make it optimal. Development may be based on introducing innovations to the processes, products or

organization structure and management of the enterprise. According to this approach, organizational development can be divided into three elements (Hałas, 2016):

- introduction of new elements to the enterprise;
- improvement of existing elements of the enterprise;
- changes of the whole system and functioning of the enterprise ;

Organizational or enterprise development may be considered with change of organization in general and this change doesn't necessarily have to be positive. Depending on the direction in which these changes are advancing, three types of development can be distinguished: progression, regression and stagnation. In the light of the constant changes in the economic environment, continuous development of the company seems inevitable (Pierścionek 1996). There are many definitions of organizational development, in general describing planned, intended changes within an organization.

According to French (1969), organization development initiatives emerged in approximately 1957 as an effort to integrate certain principles and perspectives of laboratory training into overall organizations. In the Author's Understanding, organization development (OD) is a recent (for that time) and progressive approach aimed at enhancing an organization's ability to solve problems and adapt to changes in its external environment. It involves the assistance of internal or external behavioral-scientist consultants, also known as change agents, gaining momentum in developed countries. French cites several organizations that have already embarked on OD efforts including not only businesses, but also other types of institutions that have become involved in OD initiatives, such as public school systems, churches, and hospitals.

According to Beckhard (1969), organization development involves a deliberate, comprehensive, and top-down approach to enhancing an organization's efficiency and well-being through targeted interventions in its processes, utilizing knowledge from the field of behavioral science. In Beer's (1980) view , organization development is a comprehensive process that involves gathering data, diagnosing issues, devising action plans, implementing interventions, and evaluating outcomes with the goal of achieving three main objectives: (1) improving the alignment among organizational structure, processes, strategy, people, and culture; (2) fostering the development of innovative organizational solutions; and (3) enhancing the organization's capacity for self-renewal. This process involves the cooperation of organizational members and a change agent who employs behavioral science theory, research, and technology.

Pierścionek (1996) proposed similar definition where enterprise development is described a purposeful, effective and coordinated change of the company's systems, which

consists in introducing new elements, improving those that are already functioning, but also causing the growth of the company and changes in the environment that provide the company with a competitive advantage in the long term.

On the other hand, organizational growth itself is mostly associated with enterprise measurable and positive change of its size, profit or scope of operations, which leads to an increase in its market share. The measures used to determine growth are factors such as the dynamics of the value of sales, the dynamics of market share or the dynamics of the growth of the value of assets (Starbuck, 1965). Kahn and Katz (1966) identified five types of growth, four of which directly address the issue of the size of the enterprise (growth by increasing the size of the single entity; growth by creating multiple parallel entities, growth by differentiation, meaning the creation of units operating on new markets or new products products; growth through mergers and acquisitions). The fifth type - growth through specialization, assumes an improvement in labor productivity through the reallocation of its functions, which in the end should result in financial indicators improvement as well as better functioning of the company itself (Katz& Kahn, 1966). The Organization for Economic Co-operation and Development adopted into its methodology of research on the growth of enterprises indicators based on the number of employed people and the value of sales (Kurczewska, 2008).

Penrose, in his work "Theory of the Growth of the Firm," distinguishes internal improvement processes from quantitative growth (Penrose, 1959). Most studies focus on the latter, known as company growth. The field of organization development encompasses a variety of concepts and lacks coherence in its trends, as shown in a review of the literature. Many studies concentrate on comparing development between organizations, disregarding the fact that different organizations have different methods of achieving development. McKelvie and Wiklund (2007) suggest categorizing research on organizational development into three trends (Czarnecki, 2011):

1. Organizational development is considered a dependent variable, with research aimed at identifying the factors that influence it.
2. Development is considered an independent variable, with research aimed at the changes within an organization which are a result of development.
3. Development is a process. This trend focuses on the process of organizational development, rather than its causes or outcomes, specifically exploring what occurs within a growing organization.

Although both development and growth have different meanings, they are still intertwined in the literature on the subject. In studies on the development of enterprises theories of growth occur and on the other hand, studies devoted to a specific theory of growth have references to the theory of development. In some studies, both these terms appear in the same category. This indicates how close both these terms are related and inseparable in considerations of changes and evolution of organizations.

Another important aspect worth mentioning in this introduction is scholars' observable tendency to formulate many different models for enterprise development and growth. Since organizations may differ significantly from one another both in internal and external factors of their operating environment, creating an universal model of development becomes a difficult task.

While analyzing different company cases, authors have to choose characteristics that they believe are dominant in the ongoing development process. This leads to creation of models based on similar phases, but with very different orientation and context. Therefore an analysis of the same cases, conducted by two different researchers may result in two completely different models of development (Hałas, 2016).

This seems to be natural and inevitable for managerial studies, but the multitude of enterprise development models and their critique suggests that creating an universal, functional model that describes a vast diversity of enterprises is extremely difficult. However, the task of explaining why organizations are changing seems to be still relevant, and scholars in management fields and other disciplines have been exploring this matter since the 60s.

Because most studies tend to focus on the issue of enterprise growth in their deliberation - however it is included in a wider definition of development and organizational change - later in this chapter, this study will mainly focus on this aspect - using the term: "enterprises growth” or “firms growth”.

1.1.2. Theories and models on enterprise growth

For a better understanding of the evolution of views on enterprise growth, it is necessary to examine both classical theory and modern growth models. While classical economics does not specifically address growth, it does address production growth as the shift between two

balanced states (Grebel, 2014). The concept of optimal growth is analyzed and models of investor behavior are developed, with a focus on the assumption that smaller businesses grow at a faster pace than larger ones. According to Viner (1932) , classical economic theory has examined firm growth in an indirect manner, focusing on determining the optimal size of firms . This approach considers firm growth as the transition from one equilibrium state to another, and it reveals a negative relationship between firm size and growth. The reason for this negative correlation lies in the fact that firms aim to achieve the most efficient size possible, which is associated with economies of scale. As a result, larger firms tend to reap greater profits.

The neoclassical perspective on growth was primarily addressed by Marshall, who believed growth is determined by the accumulation of financial resources, natural resources, and production advancements. However, A. Marshall's theory did not consider the role of entrepreneurship or innovation in growth (Kurczewska, 2008). According to the neoclassical theory, firms strive to achieve the profit-maximizing "optimal size" as they grow. This theory assumes perfect competition, where the optimal size corresponds to the level of production that exhausts economies of scale and brings the average long-run cost curve to its lowest point (Carlton and Perloff, 2004).

According to Schumpeter,, entrepreneurs, by engaging in profit-driven and risk-taking behavior, constantly disrupt the balance in the economy. This perspective contrasts greatly with Marshall's belief that the economy is in a state of balance. Schumpeter referred to this state of imbalance as "creative destruction," stating that entrepreneurs disrupt equilibrium through innovation and the creation of new businesses, thereby affecting the market conditions of existing enterprises (Autio, 2000, p. 4). This perspective is particularly interesting considering video game developers who dynamically change their activities and products in response to trends and directions set by other successful games and technological novelties. For example, the imbalance in the market of game producers and a kind of "creative destruction" can be seen in new technologies gaining popularity (e.g. Virtual Reality technology) or even, much narrower, in the huge success of a specific genre of games (e.g. Soulslike), which resulted in the creation of new companies specializing in the creation of this particular type of game, modeled on the original.

The behaviorist approach explains the expansion of large firms on the basis of the separation of ownership and control functions. Growth enables managers to achieve greater satisfaction with their own goals. Growth is understood as a continuous process that begins when the management group tries to use previously unused factors to use them as intensively as possible

(Rodriguez, 2003).

Contemporary learning theory includes factors that influence a company's growth such as the age of the company, the industry it operates in, the need for organizational learning, innovation, market competitiveness, etc. According to mainstream economic growth models, growth theory can be presented based on exogenous and endogenous models. The most significant models include (Autio, 2000):

- The Solow-Swan model - was the first to consider technological progress as a variable explaining economic growth of a firm. However, it did not delve into the detailed sources of technological progress, assuming that it is a result of the knowledge and experience of existing companies (Autio, 2000).
- Romers' model - his model of endogenous growth explains enterprise growth by focusing on the role of technological progress as an engine of economic growth companies can generate increasing returns to scale through the creation and implementation of new ideas and innovations, leading to continuous growth.

Due to the multitude of theories and different approaches in describing the analysis of business development and growth, many researchers have conducted a comprehensive review of literature to aggregate the contemporary theories, find their common characteristics, and classify them within certain categories.

De Ven and Poole (1995) performed a literature review across multiple fields to discover different theories used in the social, biological, and physical sciences to understand enterprise change and growth. They identified around 20 theories, which varied in their content and terminology. Through an in-depth analysis of their content and origins, they were able to classify most of them into four main categories:

- Life cycle - one of the most commonly used explanations for enterprise growth in management literature; changes occur sequentially, moving from uncomplicated to complex.
- Teleological - The development of an enterprise is perceived as a repeating sequence of goal formulation, implementation, evaluation and modification, based on what the organization has learned and how its operating conditions change. Unlike the life cycle theory, teleology does not specify an inevitable sequence of events or determine the trajectory of the organization's development. However, achieving the goal set by the enterprise does not mean staying in a state of constant equilibrium, as the organization

faces the challenge of achieving new goals that are defined based on past actions and influenced by changes in both the internal environment and its surroundings. Therefore, the course of the organization's development cannot be determined a priori (Krzos 2018).

- Dialectical - The enterprise operates in a world of conflicting events, forces and values that compete for dominance. Changes in the enterprise occur as a result of these factors that have gained enough strength to disrupt the status quo. Therefore, in the development of an organization after a relatively stable period, in which its orientation to success is consistent, there is a reorientation, resulting from pivotal moments that have occurred. In this way, enterprises do not develop according to predetermined sequences of stages, but they pass through specific states of stability and instability (Krzos 2018).
- Evolutionary - Similar to biological evolution, change in organizations is a continuous process that involves a cycle of variation, selection and retention.

According to O'Farrell (1998), theories related to organizational growth can be classified into four main groups :

- Static equilibrium theories derived from industrial economics,
- Stochastic enterprise growth models,
- Theories describing enterprise growth from a strategic management perspective,
- Theories of enterprise growth stages/phase models.

Orser, Hogarth-Scott, and Riding (2000) systematize and distinguish four approaches in analyzing the growth of small companies. These approaches are :

- Biological,
- Decision-making,
- Behavioral, related to social psychology,
- An integrative approach

Dobbs and Hamilton (2007) in their publication identify six key methods for analyzing the development of SME companies, which are:

- Stochastic,
- Descriptive,
- Evolutionary,
- Resource-based,

- Learning,
- Deterministic,

A quite different approach is presented by Pümpin and Wunderlin (2005). In their studies, they categorize models of a firm's growth into five groups, which are:

- Metamorphic models
- Crisis models
- Market growth models
- Structural change models
- Behavioral change models.

It is worth noticing, that the metamorphic models identified by Pümpin and Wunderlin correspond to Dobbs and Hamilton's descriptive models, while Dobbs and Hamilton (2007) would likely view crisis models as a subcategory of the latter.

The most current and comprehensive review of previous literature and analysis of the theories on business growth has been developed by Wach (2020). In his research, he highlights the most commonly used approaches: the stochastic; stages; evolutionary; resource-based; learning; managerial; econophysical, and sustainable schools of thought (shown in Table 1) (Wach 2020). It should be noted that this categorization is not exhaustive as it is not feasible to classify all alternative models. Additionally, some models employ multiple approaches and can be categorized in different ways.

Table 1. Main approaches in describing company growth

Models	Representatives	Characteristics
Stochastic models (econometrics approach)	Gibrat (1931) Mowery (1948)	Numerous factors contribute to the growth of a firm, and none of them can be considered dominant. These factors are not easily distinguishable from one another, and can only be statistically described based on their impact at a given point in time.
Deterministic models (mathematical economics approach)	Steffens, Davidsson, and Fitzsimmons (2009)	The growth of a firm is influenced by a combination of internal and external factors that persist over time. Theoretical models that attempt to explain the complex relationships involved in the growth process are often quite intricate.
Stages models (corporate life cycle, OLC, phase model)	Steinmetz (1969) Greiner (1972) Churchill & Lewis (1983)	Similar to living organisms and social groups, a firm follows a life cycle that is marked by distinct phases of growth. As it progresses through each phase, the firm experiences individual patterns of growth.
Evolutionary models	Alchian (1950) Jovanovic (1982) Aldrich (1999)	The concept of growth can be understood through the lens of Darwin's theory of natural selection, which highlights the importance of a firm's ability to adapt to its competition and environment. In this context, growth is seen as a function of the firm's adaptive capabilities.
Resource-based view	Penrose (1959) Wernerfelt (1984) Hamel & Prahalad (1990)	The growth of a firm is contingent upon the specific arrangement of internal resources and the level of competence demonstrated by the entrepreneur.
Learning models	Senge (1990) Deakins & Freel (1998) Phelps, Adams, and Bessant (2007)	A company continuously acquires knowledge and engages in a process of ongoing learning - as a result it grows.
Managerial models	O'Farreell and Hitchens (1988) Drucker (1954) Ansoff (1965) Porter (1980) Mintzberg (1994)	The growth of SMEs firms is typically examined through management-related concepts, with a focus on analyzing organizational structure and decision-making processes. These firms are often compared to larger enterprises in order to draw meaningful comparisons and insights.
Econophysical models	Aislabie (1992) Axtell (2001)	Firm growth can be described and modeled using mathematical and physical models, as well as analogies that draw from the laws of nature. This approach relies on principles that are adapted from these laws in order to better understand and predict the growth of firms.
Sustainable models	Smith (2011)	For a firm's growth to be considered sustainable, it must be achieved in three distinct dimensions: economic, ecological, and environmental. This means that the growth must be financially viable, socially responsible, and environmentally sustainable.

Source: (Wach 2020)

From the first mentioned literature review conducted in 1995 by De Ven and Poole (1995) the number of approaches in describing company growth has noticeably grown, as well as the number of representatives and presented models in every approach. The dialectical and teleological approach have been omitted. A relatively large amount of attention in recent literature on the subject has been devoted to phase theories, evolutionary theories, and the growing significance of the learning approach and managerial theories. However It is worth examining in detail the assumptions and individual models of each one mentioned in table 1.

The stochastic approach

Stochastic models incorporate random variables and probabilities into their calculations, therefore they're also called probabilistic models. They are used to model systems that involve some degree of uncertainty or randomness, such as stock prices, weather patterns, or the spread of infectious diseases (Abiden 2013 p. 319).

According to Carrizosa (2006, p. 48) stochastic growth models aim to accomplish two primary objectives. The first is to identify the presence and lasting impact of stochastic factors (random and unpredictable conditions or events) that influence firm actions and behaviour. The second is to identify signs of inequality and concentration within studied firms. In his analysis, Carrizos names three main authors of stochastic growth models: Robert Gibrat (1931), Michał Kalecki (1945) and Champronowne (1937).

Robert Gibrat proposed his Law of Proportionate Effect, stating that the growth of a company is proportional to its current size, and not influenced by its initial size. In reality, a set of nonlinear processes modifies the initial size causing growth of a firm (Carrizosa 2006, p. 49). Various factors can impact a firm's growth, including both internal and external factors related to the firm and its environment. Growth is influenced by income, profitability, market opportunities, entrepreneurs' attitude to risk. Other conclusions from Gibrat's law are(Rodriguez, 2003):

- We cannot determine an optimum size of a firm, best for driving its growth.
- All firms have the same probability of growth, regardless of their initial size, and the average expected growth and its diversity are the same for each category.
- There is no continuity of growth - growth in the past does not mean growth in the future.
- Because firm size tends to disperse over time, we observe higher market concentration, with the number of firms being constant.

- The growth of a firm is determined by random events or factors, which are beyond the control of the firm's management.

Gibrat's Law assumes that the firms in the industry are homogeneous and operate in the same market conditions. This assumption implies that the growth rate of a firm is determined solely by its internal factors and the external factors that are common to all firms in the industry. Therefore, the law suggests that firms in the same market with similar internal structures will grow at similar rates.

However, while Gibrat's Law of Proportionate Effect is a well-known principle, it has been subject to empirical testing, and the results have been mixed (Fiala 2019). While some studies have found support for the law, others have found evidence of firm size dependence, where larger firms tend to grow faster than smaller firms (Nassar 2014). These mixed results have led to debates over the validity of Gibrat's Law and its relevance in explaining firm growth dynamics (Santarelli, 2006).

In the modern approach of considering enterprise growth, stochastic models are also known as the econometrics of cross-sectional convention, allowing us to describe the growth of a firm based on economic theories (Wach 2020). It highlights that firm growth depends on multiple factors, without a single dominant. The stochastic approach is mainly used as a statistical tool, identifying growth determinants and their dependencies. There is no single, comprehensive theory that explains the growth of a firm based on a sole determining factor. Instead, there are multiple complementary theories that focus on chosen factors determining growth. Due to the multitude and diversity of influences, and their interrelationships, it is impossible to determine one primal factor that influences the growth of a company. However, it is possible to determine the dependencies between dependent and independent variables that influence a firm's growth at a particular time, which is why this approach is mainly used as a statistical tool (Storey, 1994, p. 123).

The deterministic approach

According to Abiden (2013 p. 319) a deterministic approach assumes that all input parameters and external factors are known and fixed with certainty, the outcome of a system or process can be predicted with complete accuracy based on these inputs. The output is completely determined by the inputs and the underlying mathematical or physical laws governing the system, without any randomness or uncertainty. In other words, with a

deterministic model, there is only one correct solution and only one possible set of values for the function graph (Hill 2023). This approach is often contrasted with a probabilistic approach (also called stochastic approach), which acknowledges that there may be some degree of randomness or uncertainty involved in the inputs or outcomes of a system, and attempts to model this uncertainty using probability distributions or other statistical methods. Stochastic modeling is more challenging, and the best solution can only be obtained through extensive iteration. Deterministic approaches are commonly used in fields such as engineering, physics, and computer science, where the behavior of a system can be modeled with high precision based on known inputs and laws. Because of its simplicity, deterministic models provide a clear and easy to understand analysis, however its results are not accurate and unreliable in real-time scenarios (Irisninria 1987).

Considering enterprise growth, the deterministic approach views it as a result of a fixed set of variables relating to the human capital, companies, and its industry surroundings. Although many attempts have been made to create deterministic models, they tend to end up as idiosyncratic[1] (Wach 2020). However, a Model of Growth-Profitability Dynamics proposed by Steffens, Davidson, and Fitzsimmons (2009) deserves more attention, being an example of a deterministic approach.

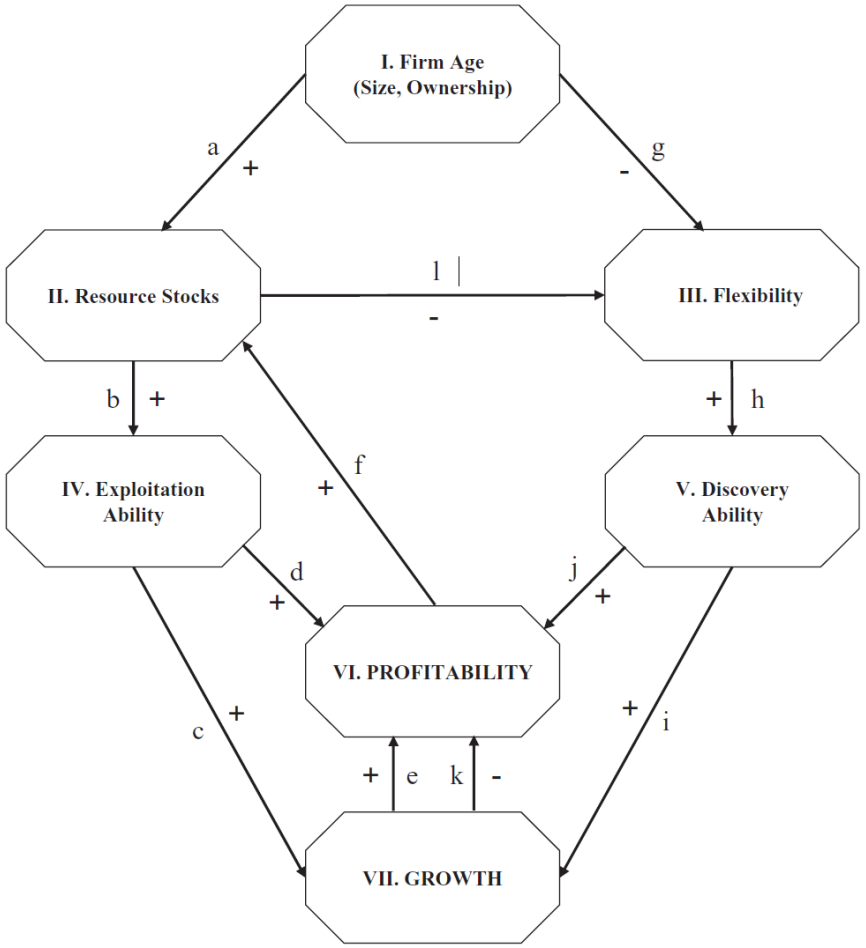
The authors have combined inputs from many theories and conducted empirical research to understand the dynamic and interrelated character of company performance, particularly concerning growth and profitability. They have examined the critical theoretical justifications for the connection between growth and profitability to address the previous research's inconsistencies. Finally, they have incorporated these realizations into a model that delineates various performance pathways depending on the company's age. This approach resulted in a theoretical foundation that is more expansive than what is required for the limited interpretation of their findings. A longitudinal dataset of Australian companies was used and categorized according to their relative profitability and growth compared to other companies in their industry

[1] Idiosyncratic models refers to factors or characteristics that are unique to a particular individual or firm and that cannot be explained by broader economic trends. In other words, idiosyncratic factors are specific to a particular situation or case, and cannot be easily generalized or predicted using broader economic models or theories. For example, in the context of stock market analysis, idiosyncratic risk refers to the risk that is specific to a particular stock, and that cannot be diversified away by holding a diversified portfolio of stocks. This type of risk is sometimes referred to as "firm-specific risk" or "unsystematic risk", and is distinguished from market risk, which affects all stocks and cannot be diversified away.

for their empirical analysis.

They have tracked changes in these categories to determine the predominance of various performance routes. The model consists of five parts (Steffens 2009). Growth (VII) and Profitability (VI) are the first two key performance indicators. Authors define growth as an increase in sales, and profitability refers to operating surplus above what is required to keep the firm operations at the current level, using ROA (Return on Assets) as its measure in further analysis. The second emphasized element, called the focal moderator of the model, is the Firm Age (I) which, as the authors note, is strictly correlated with the size of the company and its form of ownership. Following are the four elements describing key company characteristics that tend to change along with age. For example, younger companies generally benefit from its Flexibility (III) and greatest Discovery Ability (V). However, older companies typically have more significant Resource Stocks (II), which leads to stronger Exploitation Ability (IV). The term Discovery Ability describes a decision-maker's capability to identify creative ideas and introduce them quickly to the market at low costs. Exploitation Ability describes the capacity to fulfill an idea's potential, which entails scaling it up and maximizing margins using effective procedures. Exploitation can also refer to the capacity to commercialize a concept despite unskilled and resource-constrained firms facing insurmountable obstacles due to development expenses and/or process complexity.
Authors of Growth-Profitability Dynamics Model explain further implications that are worth mentioning. Focusing only on Discovery Ability (V), a company may generate short-lived growth and possibly Profitability (VI), but without Exploitation Ability (IV), it is unlikely to maintain its position regarding the market competition. On the other hand, by developing only its Exploitation Ability (IV), a company can lead to Profitability (VI) by efficiently exploiting current market opportunities, but it cannot sustain continued high growth when current opportunities are exhausted. The model assumes that the age of firms influences their growth and profitability dynamics, with young firms often facing resource disadvantages and needing external resources to expand and realize the full potential of their ideas. On the other hand, old and large corporations have abundant resources to realize the full commercial potential of given opportunities but need help with fast and radical changes and require an infusion of ideas from elsewhere to continue growing. The model provides insights into the dynamics of firm growth and profitability.

Figure 1. A Model of Growth–Profitability Dynamics



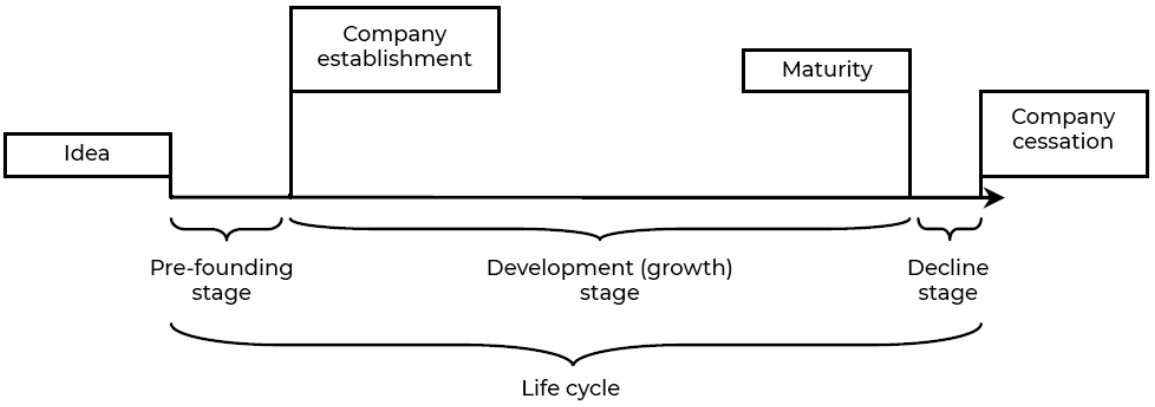
Source: (Steffens 2009)

The stages model approach

Currently, the most leading theories explaining the growth and development of enterprises are the life cycle theories and the theories of development stages. The Stages Models, also known as the phase convention is a model that is based on the analogy between the growth of organization and natural systems that develop in stages. The life cycle theory is based on the assumption that change is inevitable, and that an evolving enterprise will eventually go through a change process. This fundamental form, logic, program or code causes the organization to go through successive phases of development during its operation (Krzos 2018). In the literature, little space is devoted to attempts to explain the terminology for these theories and their distinction; they are often used synonymously, which, however, is not entirely

correct. Life cycle theories describe the stages of a company's life from birth to death (e.g. the Adizes model). On the other hand, models of enterprise growth phases focus primarily on the development or growth of the organization - describing only a certain part of the company's life (e.g. L. Greiner's model) . In fact, theories of development (growth) phases cover the period from the moment the company is founded to its resource maturity, while theories of the life cycle cover the entire life of the company, including its pre-founding stage and collapse (cessation of activity) (Puto 2011).

Figure 2 . Company's growth stages and the life cycle



Source: (Stabryła, 2002)

Authors of individual models use different names for each phase, although they are often semantically based on changes that occur in organizations, e.g. emergence, survival, growth, expansion, maturity, etc. The models also differ in the number of phases, as the number is not determined. One can encounter three-phase models (e.g. Thaine, Mitzberg), five-phase models (e.g. McGuire, Greiner, Churchill and Lewis), and ten-phase models (e.g. Adizes model). Theoretical framework for studying enterprise growth can be found in various theories on organizational growth, like the organizational life-cycle, also known as organizational stages theory. The evolution of stage theories began in the 60s, when McGuire developed his phases of firm growth. Since then multiple models have been introduced, describing different numbers of phases with different designations (McGuire, 1963).

Many studies on organizational growth and development rely on organizational life cycle (OLC) models, but the number of proposed growth models based on the OLC concept is difficult to determine. Phelps et al. (2007) mention 33 models, while Levie and Lichtenstein (2010)

identified 104 models. It is worth taking a closer look at the organizational life cycle models that appear most frequently in the literature. Table 1 presents a chronological comparison of 15 life cycle models, including the distinguished variables and phases for each one.

Table 2. Comparative Description of Life-cycle Models

Authors	Variables	Stages/phazes
Lippitt and Schmidt (1967)	Age, management focus, different interest groups' priorities, crises and presence of confrontation, Structure, Management formalization	Birth, Adolescence, Maturity
Greiner (1972)	Age, size, industry growth rate, evolutionstages, revolution stages, organisation structure, formalization, top management style, control system, management remuneration emphasis	Creativity, Direction, Delegation, Coordination, Collaboration
Torbert (1974)	Age, size (staff), structure, Decision making methods, management principles, formalization level, members of the organisation's individual mentalities	Fantasies, Investments, Definitions, Experiments, Predetermining efficiency, Free choice of structure, Basic integrity, Stage Liberal order
Galbraith (1982)	Age, size, growth rate, objectives, Structure form, staff (specialization), remuneration system, processes (formalization), centralization, leadership style	Proof of Principle/Prototype, Model Shop, Start-Up/Volume Production, Natural Growth, Strategic Maneuvering
Quinn and Cameron (1983)	Age, size, organization efficiency criteria, Structure form, formalization, centralization, leadership, culture	Entrepreneurial, Collectivity, Formalization, Elaboration of Structure
Miller and Friesen (1984)	Age, number of employees, sales growth, size, property concentration, stakeholders' influence, environment dynamics, strategy, Formal control, internal communications, power centralization, resource capacity, differentiation, decision-making style (13 dimensions total)	Birth, Growth, Maturity, Revival, Decline
Schein (1985)	Culture function, management generation, complexity, size, Management style, top management composition	Birth or early growth, Middle of life, Organization maturity
Smith, Mitchell and Summer (1985)	Age, size (sales), size (staff), growth rate, top managers' priorities, Structure form, remuneration system, centralization, top managers' interaction	Inception, High Growth, Maturity
Flamholtz (1986)	Age, size, growth rate, critical development objectives, Organisation, formalization of planning, control, budgeting, operational and management systems, leadership, decision-making	New Venture, Expansion, Professionalization, Consolidation, Diversification, Integration, Decline

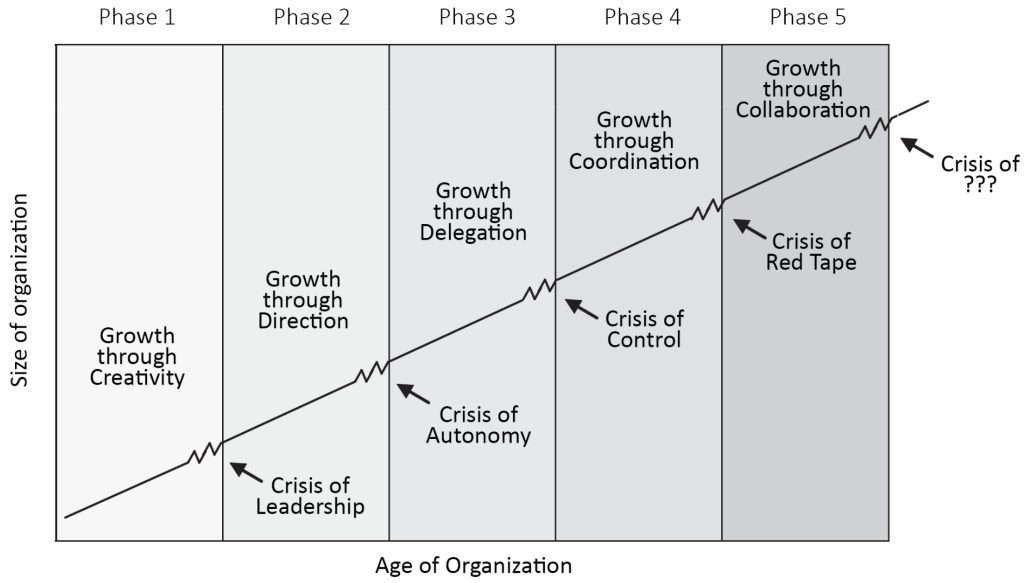
Scott and Bruce (1987)	Age, size, growth rate, industry development stage, key challenges, Structure form, control system formalization, top management style	Inception, Survival, Growth, Expansion, Maturity
Kazanjian (1988)	Age, size, growth rate, dominating management challenges. Structure form, formalization, centralization	Conception and Development, Commercialization, Growth Stability
Hanks et al. (1993)	Age, size, growth rate, structure, formalization and centralization degree, specialization	Creation, commercialization, growth, maturity
Adizes (1999)	Age, size, normal and transition challenges, Structure form, formalization of policies and procedures, leadership qualities needed, diversity, complexity	Courtship, Infancy, Go-go, Adolescence, Prime, Stability, Aristocracy, Salem City, Bureaucracy, Death
Lester, Parnell and Carraher (2003)	Age, size, power, information processing, type of organization structure	Existence, Survival, Success, Revival, Decline
Hoy (2006)	Age, size, founding leader's personality	Birth, Growth, Maturity, Decline/renewal, Death

Source: (Shirokova 2009)

Perhaps the most recognizable approach to the issue of the life cycle was presented by Greiner, also called the Evolution - Revolution Model. The premise underlying Greiner's model is the observation that during growth, there are evolutionary phases characterized by stability and a calm pace of growth, as well as periods of organizational problems that necessitate radical actions. Crisis moments, in which revolutionary changes are necessary, are critical for the organization to transition to the next evolutionary growth phase. Crises require a high intensity and radical actions, while calm growth phases are characterized by only minor changes to the management model in the organization, as they are completely sufficient to maintain growth. According to. Greiner, the typical duration of a calm growth phase is four to eight years, assuming external environmental stability and no critical internal problems. After a period of stability, the organization experiences a period of turbulent changes in the methods of management used. It turns out that well-performing patterns and methods become inadequate as the size of the organization grows. The crisis period can bring positive effects in the form of changes and a new opening, which allows for a transition to the next growth phase, but it can also cause the downfall or slow loss of developmental capabilities of the enterprise. Revolution periods bring changes in the management practices of the organization, which are the engine of its further growth. As Greiner observes, paradoxically, they become both a benefit in the next phase of evolutionary growth and a limitation that inevitably leads to another crisis. The speed of

transition through the individual phases, and therefore the frequency of crises, is conditioned by the speed of development of the industry in which the enterprise operates. In dynamically developing sectors of the economy, the next phases of evolutionary development and crises will appear more quickly than in stabilized industries. Greiner also notes that an enterprise can postpone a crisis if it operates in a very favorable market environment. Even serious management mistakes are not then a critical threat because the financial situation of the organization provides a buffer of safety to those in charge. On the other hand, when the environment is unfavorable, crises are much more severe and difficult to overcome (Greiner 1998, s 55-68).

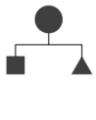
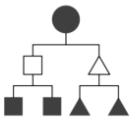
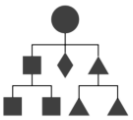
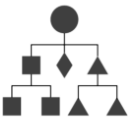
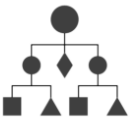
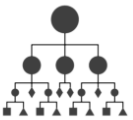
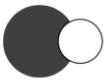
Figure 3 . Company's growth model by Grainer - five phases



The five-stage growth model for small and medium enterprises proposed by Churchill and Lewis (1983) is based on slightly different assumptions. The basis for the introduction of a new approach to the growth process of small and medium enterprises was the observation that all previous works assumed that a company must go through all the growth stages or die in case of failure. According to Churchill and Lewis (1983), the model proposed by Greiner (1972) is not ideal for small businesses. They assert that the model assumes that a company must grow, fails to consider the early stages of a company's development, and only uses annual sales and number of employees to measure a company's size without taking into account factors such as value-adding and production technology. In contrast, Churchill and Lewis's model focuses on starting a small business and outlines five stages: existence, survival, success, take-off, and

resource maturity, with the first two being disengage phases and the latter three being growth stages. The model considers four key factors - financial, personal, system, and business resources - to determine a company's success. (Churchill and Lewis 1983).

Figure 4. The Characteristics of Small Business at Each Stage of Development

	Stage I Existence	**Stage II** Survival	**Stage III-D** Success-Disengagement	**Stage III-G** Success-Growth	**Stage IV** Take-off	**Stage V** Resource maturity
MANAGEMENT STYLE	Direct supervision	Supervised supervision	Functional	Functional	Divisional	Line and staff
ORGANIZATION						
EXTENT OF FORMAL SYSTEMS	Minimal to nonexistent	Minimal	Basic	Developing	Maturing	Extensive
MAJOR STRATEGY	Existence	Survival	Maintaining profitable status quo	Get resources for growth	Growth	Return on investment
BUSINESS AND OWNER*						

*Smaller circle represents owner. Larger circle represents business.

Source: (Churchil and Lewis 1983).

Although a large number of OLC or stage models are present in literature, those models are widely criticized mainly for either not addressing or inadequately addressing the issue of organizational efficiency change over time. Critics of OLC models argue that they have major flaws, including being linear, sequential, and deterministic, having inconsistent characteristics, lacking empirical evidence, and comparing organizations to organisms, which is considered inappropriate (Czarnecki 2015).

The evolutionary approach

This theory was built on Darwin's work regarding evolution, which was influenced by Malthus' economic theory of population. Evolution is governed by five principles, with two of them being crucial to the evolutionary approach, which are the fitness and survival of the fittest. It refers to certain traits being favorable in the struggle for resources, making it easier for some individuals to compete. Natural selection refers to the better adapted or fitter individuals having a higher chance of survival and reproduction. The theory asserts that only the fittest individuals survive, leading to a constant adaptation to the best possible degree. Alchian (1950) , in the mid-20th century, stressed the importance of adaptation for the growth of firms through natural selection, either through imitation or trial-and-error.

Aldrich and Ruef describe how evolutionary theory provides an explanation for the emergence of specific organizational forms in particular environments. The theory posits that variation, selection, retention, and struggle happen at the same time, rather than in a step-by-step sequence. While these processes can be broken down into distinct phases for analytical purposes, they are actually interconnected in continuous feedback loops and cycles. Variation produces the building blocks for selection, which may be determined by either environmental or internal criteria, while retention processes maintain the chosen variation (Aldrich, 2006). In Aldrich's view the evolutionary approach assumes that organizations do not follow a predetermined path of development but rather respond to external events and their own actions, driving the pace, pattern, and direction of change. Organizational problems arise in response to changing situations, not in a predetermined order. Despite all organizations facing similar fundamental problems in organizing, their histories - including the timing, sequencing, and intensity of changes - are influenced by the selection forces they encounter. From an evolutionary perspective, changes within organizations must be associated with specific environmental conditions, such as national boundaries and geographical context.

Jovanovic introduced the "noisy" selection theory, which states that successful firms grow and survive, while ineffective firms decline. Firms vary in size due to their effectiveness, not due to the fixity of capital. The evolutionary approach has gained importance since the 1980s, and after a decade of opposition, some of its critics became advocates (Jovanovic 1982, 649-670). Hodgson and Knudsen believe that the evolutionary approach can explain why some firms are more successful and long-lasting than others (Hodgson, Knudsen, 2006, p. 1-19)

An interesting attempt to model the growth of SME was presented by Grebel, Pyka, and Hanusch, which is based on the Darwinian theory of evolution (Grebel 2001). They identified various levels of examination, namely the actors level, the firm level, and the sector level. The entrepreneurial process primarily occurs at the actors level, where a group of actors with different resources forms social networks that change over time through random matching. These actors constitute a prospective firm, and their decision-making is based on their shared assessment of economic conditions, influenced by their subjective understanding of quantifiable economic factors, due to their limited foresight and imperfect information about the future. The more positive the economic indicators appear, the more likely the actors are to pursue entrepreneurial activities, and vice versa. If they opt not to establish a firm, they become available to other actors who are assessing entrepreneurial opportunities within a changed social environment. If they do establish a firm, the resources of the founding actors are tied up in the firm, and they are precluded from future founding processes. At the sector level, the newly-formed firm competes with established firms, and its competitiveness is determined by the composite resources of the individual founding actors. The competitive process determines the viability of the business idea in the long run, with the short-term exit criterion being insolvency for firms with an unbalanced set of resources.

K. Wach in his analysis (Wach, 2020) evaluated Grebel, Pyka, and Hanusch's model as a fairly successful attempt at reconstructing the evolution of small and medium-sized firms through modeling their growth, claiming the model is well-designed, and the qualitative data collected during stochastic conventions is robustly quantified through standardization and endowed with quasi-permanent characteristics. Nonetheless, a drawback of the model is its narrow focus on only a few factors, while the growth of a firm in reality should be examined from multiple perspectives. However, it is important to note that this is simply a model and is necessarily simplified, like any other model. The strength of this particular model lies in its empirical verifiability, which was demonstrated by its creators.

The resource-based view

The resource-based view (RBV), recognized mainly by Edith Penrose (1959), describes the growth mechanism as a result of the optimal alignment of an organization's resources and capabilities. In her work, Penrose focused on a general theory of organizational development and entrepreneurship based on the individual abilities of the company towards its expansion based

on indivisibility and balance of internal processes, the essence of diversification of resources, and growth potential through mergers and acquisitions. Penrose also described the factors affecting the slowdown in the company's growth rate, which it associated with limited business management capabilities (Penrose, 2009). This theoretical framework gained significant attention in strategic management during the 1980s and 1990s (Wach, 2020). According to Penrose's theory of firm growth, the availability of knowledge is the primary factor determining the expansion of an organization. In order to achieve growth, firms can accumulate knowledge in two ways: by learning to use existing knowledge more efficiently within the firm, or by creating new knowledge through information from external sources, ensuring that the firm has the internal capabilities to absorb it in the first place. Although the resource-based view suggests that company's production and usage of its resources will lead them to generate growth and give a competitive advantage, Penrose argues that it is not solely a firm's resources that produce positive outcomes but rather the managerial skills and enhanced problem-solving abilities of individuals within the firm that can create opportunities for productivity. In other words, the managerial capacity of a firm plays a crucial role in achieving positive results rather than just the resources at its disposal (Krasniqi, 2012). In this perspective, as a firm increases its use of resources, it also increases the likelihood that managers will identify new ways to combine those resources in response to entrepreneurial opportunities, which can promote the firm's continued growth. Additionally, Penrose posits that firms engaged in similar activities and utilizing the same equipment and staff levels may still achieve varying output levels due to differences in their unique teamwork, knowledge, and experiences (Penrose, 1959). Further development of the RBV theory by Jay Barney (1991) who offered a comprehensive view of the business level by introducing the VRIO framework, which consists of four questions allowing to study whether the firm's resources possess the critical attributes for it to expect success:

- Value - “Does a resource enable a firm to exploit an environmental opportunity and neutralize an environmental threat?”
- Rarity - “Is a resource currently controlled by only a small number of competing firms?”
- Imitability - “Do firms without a resource face a cost disadvantage in obtaining or developing it?”
- Organization - “Are a firm’s policies and producers organized to support the exploitation of its valuable, rare, and costly-to-imitate resources?” (Barney 2015)

In J. Barney’s framework, the resources and capabilities that a company possesses play a crucial role in its competitive advantage and must be guarded. As a result, they have a significant influence on a firm's competitive strategy.

The learning approach

Since the 1990s, the scientific literature has attempted to capture and define the phenomenon of organizational learning, with numerous studies being conducted on this topic (Franco 2008). Before that, organizational learning had been understood as an outcome of organizational operations and not as a dynamic process (Lieberman 1987). However, the complexity and multifaceted nature of organizational learning has been demonstrated through various analyses by Fiol and Lyles (1985), Sher and Lee (2004), and Ipe (2003), who highlight that the terms change, learning, and adaptation are used interchangeably to describe the process through which organizations adjust to their environment. Organizational learning is a process that fosters collaboration, resource allocation, and team integration, leading to an innovative and competitive work environment. For optimal outcomes, individual employees must practice and share their knowledge, while the organization must provide a long-term, supportive learning environment.

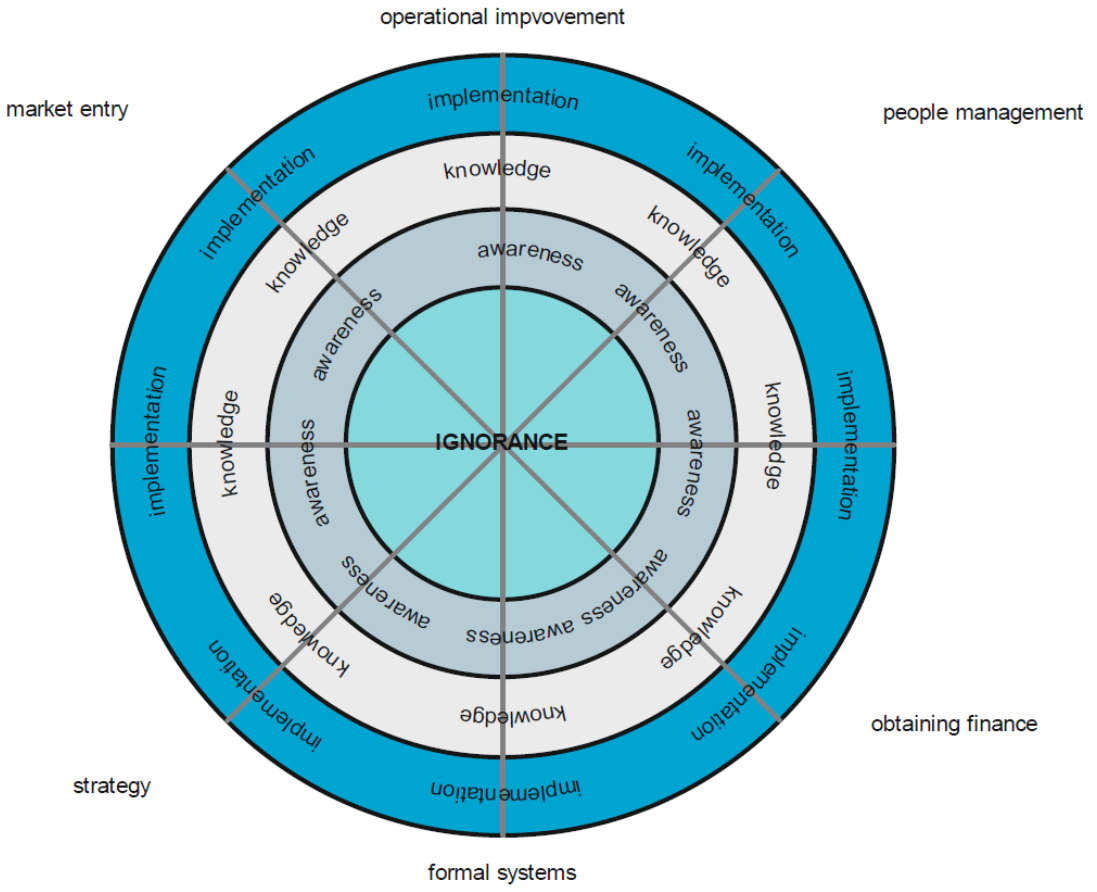
Additionally, organizational learning aids in expanding a business into new areas by facilitating the creation of new knowledge, building new understandings, and correcting misalignments. The importance of organizational learning lies in its contribution to the sustainability and growth of organizations (Lumpkin & Lichtenstein, 2005). In recent literature, several models have been proposed in the context of knowledge absorption and organizational learning.

Phelps, Adams, and Bessant (2007, pp. 1-30) proposed a unique framework for examining firm growth, building it on a basis of previous studies by Levie and Hay (1998), which argue that firms are not developing by a predetermined order or a set of stages. Instead, the growth manifests itself as a result of a unique combination of stable and unstable states, which correspond to different managerial challenges. Phelps, Adams, and Bessant's framework is based on the combination of learning states, representing the level of firm's knowledge in six areas of its activities, which are (Phelps et al. 2007) :

- Market entry (firm's ability to adapt business model or products to new markets or customer needs)
- Operational improvement (firm's constant improvement on the operational level, seeking potential errors and flaws in its processes)
- People management (HRM abilities, leadership skills, and talent management)
- Strategic orientation (shift from opportunistic and reactive approaches towards a more intentional and thoughtful strategy)
- Formalized systems (presents the formalization and rationalization of firm practices)
- Obtaining finance (representing the ability to acquire new finance providers outside of the initial area)

In this framework, the growth of SMEs involves transitioning from a level with minimal or no knowledge towards a state where a high level of knowledge on specific aspects can be implemented, thus significantly improving firms' performance and causing growth. The starting point is ignorance - the company does not realize that it is struggling with serious problems. In the next stage - awareness - the company can see the problem but needs more knowledge to deal with it. Going forward, the company can acquire the knowledge it needs actively or passively. With the right knowledge, the company takes action, as a result of which a change occurs. The authors emphasize that bypassing one of the states may be possible. The awareness stage can immediately jump to implementation, although there needs to be more understanding of the problem.

Figure 5. Learning States Framework for Firm Growth



Source: (Phelps et al. 2007)

The managerial-strategic approach

The managerial-strategic perspective, grounded in organizational and management theory, is a widely-accepted approach to understanding enterprise growth. It is particularly relevant for small and medium-sized enterprises (SMEs), as it employs analytical methods and tools derived from managerial sciences, which were initially designed for larger organizations (Wach 2020). This approach often entails comparing SMEs to their larger counterparts to identify patterns and strategies that can be adapted for smaller firms. Research within this domain is multifaceted, encompassing various aspects of business management .

A popular aspect of the managerial-strategic approach is the decisional perspective, which posits that a small firm's growth is contingent upon the efficacy and success of its decision-making process. Other research has focused on the structural dimension, emphasizing the impact of growth on a company's organizational structure. Churchill and Lewis (1983, pp.

30-50) are notable for their examination of structural and strategic shifts in SMEs, integrating both structural and phase-based methodologies in their analysis. Similarly, other studies have sought to explore the link between managerial strategies, organizational structure, and the overall growth of SMEs, demonstrating the importance of this approach in understanding the factors that influence enterprise expansion.

The econophysical approach

Econophysics is a relatively new interdisciplinary research area that utilizes the laws, theories, and methods developed by physicists to address economic problems that involve uncertainty, stochastic processes, and nonlinearity. By linking physical causes and effects with economic causes and effects, econophysics aims to provide a more concrete analysis of economic reality. The field relies heavily on probabilistic and statistical methods borrowed from statistical physics. In essence, econophysics applies the concepts, models, and methods of statistical physics to quantitative economics (Eser, 2021). Theories such as Chaos theory, complexity, catastrophe, and elf-organizations are based on econophysical background. There are many examples of successful usage of this approach in research of enterprise development. Based on catastrophe theory Aislabie built his conceptualized SME growth model. According to Aislabie's research (1992) on the expansion of small businesses, the control-level profitability is affected by the assets and turnovers, which in turn determines the sequence of singularities observed in simulating this growth. Aislabie offered a two-way categorization of wealth, with "asset-poor" on one end and "asset-rich" on the other, and he used catastrophe theory to show that asset value and turnover are incompatible. Three distinct patterns of behavior were uncovered by the research: bimodality, hysteresis, and divergence. Hysteresis occurs when changes in entry conditions impact the growth of the firm and lead to its decline, while bimodality describes a growth path that can go in either direction (growth or regression).

As opposed to convergence, divergence shows how slightly different entering conditions can lead to drastically distinct growth pathways, one of which ends up at the bottom of the plane and the other at the top (Aislabie, 1992, p. 209). The examination of income distribution in the econophysics literature challenges the widely accepted notion that the log-normal distribution adequately accounts for the entire process. Although income distribution conforms to distributions like log-normal, exponential, or Gompertz for values under a certain threshold, the Pareto distribution is employed to account for extreme values. This leads to the observation that income distribution operates in two distinct regimes (Eser, 2021).

The sustainable models

There has been an increasing focus on sustainable development, highlighting the need for responsible use of natural resources, and the establishment of social standards that will benefit future generations. While sustainable development is typically linked with macroeconomic policies, individual enterprises and corporations are also adopting principles of corporate social responsibility (CSR) as a way to promote sustainable practices. According to Smith (2011, p.6) a, sustainable growth of an enterprise implies three fundamental aspects: economic, ecological, and social. The escalating challenges of climate change, overpopulation, diminishing resources, and environmental deterioration call for a paradigm shift towards sustainable business practices. As posited by G.H. Brundtland (WCED 1987), sustainable development entails a harmonious integration of resource exploitation, investment direction, technological advancements, and institutional transformation, aimed at fulfilling both present and future human needs and ambitions. Corporations, as key drivers of economic growth, play a critical role in the pursuit of sustainable development (Wilson, 2003). Sustainable development contributes to corporate sustainability in two ways: by delineating focal areas for organizations and fostering a shared societal objective encompassing environmental, social, and economic sustainability. The imperative for businesses to embrace sustainability is unquestionable; the primary concern lies in the transformation of organizations to bolster sustainable development.

According to S.W. Bocken et al. (2014), the connection between delivering social and environmental value and achieving profit and advantage in a competitive market for the company is not always clear. To achieve sustainability, all aspects of the enterprise must undergo a transformation guided by sustainability dimensions, as noted by Ciemleja (2010). In his view, the sustainability of an enterprise is contingent upon its management system, with all processes that support sustainability being interdependent and functioning through the dimensions of sustainability. These dimensions are implemented at each management level as a functional process. Schaltegger et al. (2016) defined a sustainability business model as a framework that enables a company to present, analyze, manage, and communicate its sustainable visions and values to its customers and other stakeholders.

John Elkington's Triple Bottom Line (TBL) model, introduced in 1997, facilitates decision-making by incorporating the 3P framework: People, Planet, and Profit. Sustainable organizations consider not only profitability but also natural and social capital (Ožalienė 2017).

Start-up perspective on growth and development

This perspective is particularly interesting due to the fact that in some studies, game companies are referred to as startups or being directly compared to them. Erno Vanhala (et al., 2015) in his model of development of game developers defined the first stage as a different period of start-up phases. Antero Järvi (et al. 2013) describing some game developers as "Game start-up" indicates their similar features and the use of similar methodologies in their activities compared to software start-ups. The classification of video game companies as start-ups has been a topic of discussion within both the academic and industry realms (Edery & Mollick, 2009; Kerr, 2017). While some video game companies exhibit characteristics commonly associated with start-ups, such as innovation, rapid growth, and scalability, not all companies within the industry meet these criteria (Chang, 2017). For instance, independent (indie) game developers, who often operate without the support of large publishers, may display start-up traits through their focus on creating novel game experiences and business models (Tschang, 2007). However, it is essential to recognize that the classification of video game companies as start-ups is contingent on their specific characteristics and objectives, as not all developers aim to build scalable businesses (Kerr, 2017). For this reason, analyzing frameworks and theories on technology start-up growth can provide guidance and form the basis for building a conceptual model for the development of game producers.

Historically, the notion of start-ups can be traced back to the dot-com bubble, during which the emergence of high-growth technology companies surged in response to the internet's global expansion. However, the term "start-up" lacks a universally accepted definition within the professional community, leading to inconsistencies in the literature and hindering the development of a unified body of knowledge (Paternoster et al., 2014). To address this issue, Luger & Koo (2005) proposed evaluating a company's status as a start-up based on three criteria: novelty, activity, and independence. Consequently, start-ups are often associated with concepts such as innovation, growth, risk, uncertainty, and agility (Rus et al., 2016). Typically, start-ups rely on external financing in the form of investments, anticipating future returns once the venture becomes profitable, is sold, or issues shares (Nikiforova, 2018). According to Swanson & Braid (2003), start-ups are typically small enterprises with a high emphasis on innovative technology, offering novel products or services in a highly uncertain market environment with the goal of rapid growth. However, due to inherent resource constraints, such as personnel and funding, these ventures often face considerable challenges in their early stages (Bosch et al., 2013).

Founded on groundbreaking ideas, start-ups contribute to economic volatility by driving innovation and disruption across various industries (Pomerol, 2018). Furthermore, an increasing number of start-ups are expanding their operations internationally, focusing on global growth strategies as a critical aspect of their business objectives (Bailetti, 2012).

The conventional business lifecycle model and its stages differ significantly from those of start-ups. A common issue contributing to start-up failures and competitive challenges is the attempt to employ the same strategies as those used by established companies, which typically operate in more stable market environments (Ries, 2011). Start-ups encounter unique circumstances that do not readily permit the application of established companies' customer value proposition concepts. Start-ups face considerable uncertainty when formulating their offerings due to factors such as an absence of an existing customer base, limited experience in developing products, and difficulty in drawing comparisons with similar products and markets (Kirchberger et al., 2020). Consequently, start-ups operate under uncertain conditions, creating and offering highly differentiated products and services for niche market segments, making it challenging to predict and develop in-demand customer value (Kirchberger et al., 2020). Failed start-ups often struggle with issues such as insufficient funding, inadequate business knowledge, personnel management, technological deficiencies, bureaucratic obstacles, marketing and public relations, outsourcing, innovation, product/service expansion, logistics, patents, competition, process management, and customer care (Salamzadeh & Kawamorita Kesim, 2015; Šenký et al., 2020). However, when start-ups successfully address these challenges, they can quickly transform into highly successful companies.

Researchers have identified various stages of start-up development, with some common characteristics across different frameworks. Osnabrugge and Robinson (2000) propose a four-stage model: 1) Seed stage, where the initial idea undergoes analysis, development, and validation; 2) Start-up stage, when the venture begins to work on product development and marketing, usually with a small team; 3) Early stage, when the venture expands and the product or service enters production and marketing, typically taking less than five years and potentially still unprofitable; 4) Later (expansion) stage, marking the company's maturity, profitability, and predictable cash flows.

Tech (2014) presents a three-stage model: 1) Early, 2) Growth, and 3) Later, with each stage characterized by distinct organizational, product, market, and funding aspects.

Paschen (2017) also offers a three-stage breakdown: 1) Pre-start-up stage, when the founder assesses the feasibility of the idea, identifies competitors, partners, and suppliers, and

engages with the target market; 2) Start-up stage, when the entrepreneur refines the product prototype and develops a viable business plan after validating the business idea and model; 3) Growth stage, when the start-up becomes profitable and expands its market presence, having already gained market approval.

Salamzadeh and Kesim (2015) divide start-up development into three stages: 1) Bootstrapping stage, when the entrepreneur initiates activities to implement the idea, acquire initial funding, and manage high uncertainty while showcasing the product's benefits, team, financial management, and customer interest; 2) Seed stage, characterized by high uncertainty, product prototype creation, market entry, and the pursuit of additional support mechanisms, such as incubators, accelerators, and investments; 3) Creation stage, when the product is sold, employees are recruited, and the company seeks additional funding while striving to become mature, profitable, and open to growth, diversification, and internationalization.

Jakub Ulc (2021) presented an interesting framework of technology and software based startups lifecycle. In his definition technology start-ups are considered new enterprises defined by a high level of innovation. Their aim is not only to develop groundbreaking technologies but also to find innovative ways to combine existing technologies for a competitive edge in a highly uncertain environment. They strive to produce products or provide services with substantial societal impact while being guided by the potential for rapid future growth. His framework (Ulc 2021) distinguished five phases in the life cycle of startups, which are:

- pre-seed/idea stage,
- seed / launch stage,
- growing / scaling stage,
- maturity stage,
- exit / IPO / acquisition stage

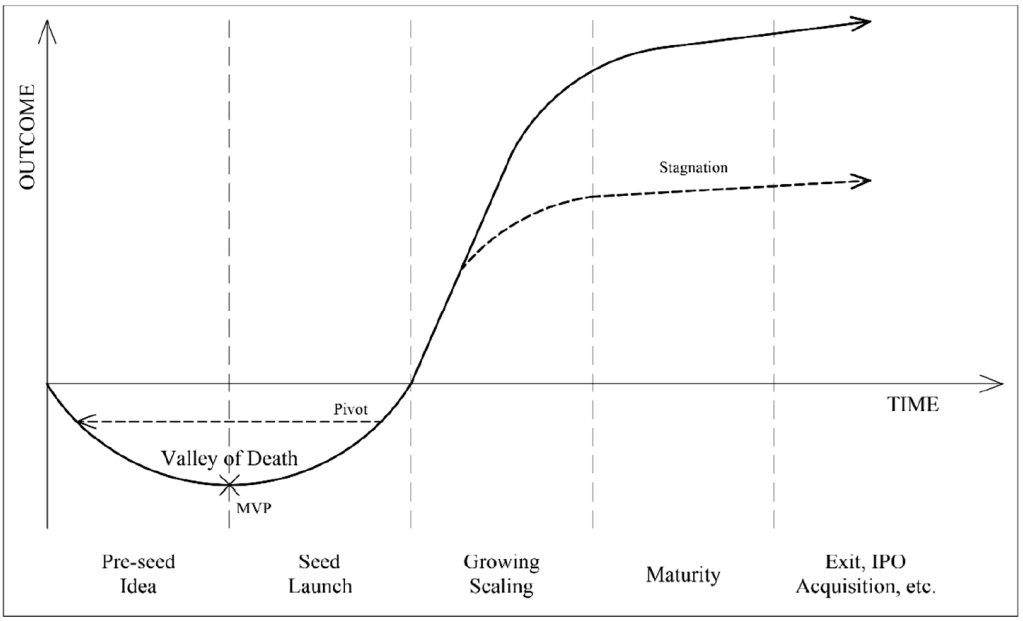
Each of these states have different main areas of interest presented in Table 3.

Table 3. Characteristics of technology start-up lifecycle stages

Objective	Pre-seed idea	Seed launch	Growing scaling	Maturity	Exit, IPO, acquisition
Funding	Bootstrapping, FaF, own resources, incubators	Angel investment, accelerators, crowdfunding	Venture capital, accelerators	Late VCs, Private Equity firms, Banks, Hedge	IPO, Acquisition
Product	Preparing MVP	Validate MVP	Continuous improvement of product	Stable high-quality product	Depends on the situation of exit
Type of Customer	Innovators	Innovators Early-adopters	Early-majority	Early-majority Late-majority	Late-majority Laggards
Customer Development	Customer Discovery	Customer Discovery / Validation	Customer Creation	Company - building	Depends on the exit situation
Risk	High risk	High risk	Medium risk	Medium risk	Medium risk
Business plan / model	Preparing business plan	Preparing business model and iterated it	Working business model	Repeatable business model	Working high-level business model
Focus on	Problem / solution fit	Customer / market	Increase market share, revenues	Retain customers, preparing for exit	Evaluation of a start-up
Notables	Idea	Pivot, Lean principles, Valley of Death	Exponential growth, scaling, stagnation	Expansion	Depends on the exit situation

Source: (Ulc 2021)

Figure 6. Technology Start-up lifecycle



Source: (Ulc 2021)

Based on the technology start-up stages and their descriptions, this study outlines the main areas of interest for each stage (Table 3), following a comprehensive concept that can be applied in practice. The findings can help founders, domain experts, and other stakeholders determine the current stage of a technology start-up's lifecycle and establish the primary objectives for each stage. A graphical representation of the newly developed lifecycle is presented (Figure 6). Ulc did not focus on financial indicators such as costs or market valuation; instead, the vertical axis displays the general output of a technology start-up. In the first two stages, this output is theoretically below the horizontal axis due to financial resource consumption, while in subsequent stages, the output increases, potentially at a rapid pace if successful.

A technology start-up can fail at any stage, with the first two stages being particularly critical, often referred to as the "valley of death" (Salamzadeh & Kawamorita Kesim, 2015). Additionally, not all start-up exits are considered successful, as some may not experience rapid growth or market saturation. Many start-ups transition to a more traditional business form, which is less appealing to investors and considered less successful compared to their high-growth counterparts. This phenomenon, known as "stagnation," is believed to be most common in the growth/scaling stage.

1.1.3 Determinants of growth and competitiveness of SMEs

In considerations of the growth and development of enterprises, it is essential to take into account the crucial issues concerning what can influence this growth and what hinders it. The determinants of growth and the models of growth of enterprises are two related but distinct concepts (Hitt et al., 2017). The determinants of growth refer to the factors that influence the growth and development of an enterprise, such as access to finance, human resources, and access to markets. These determinants vary depending on the industry, location, and size of the enterprise. On the other hand, the models of growth refer to the frameworks or approaches used to explain how enterprises grow over time. While the determinants of growth focus on the external factors that influence growth, the models of growth focus on the internal processes and strategies that drive growth. Understanding both the determinants of growth and the models of growth is essential for policymakers, investors, and entrepreneurs to develop effective strategies and policies to support enterprise growth and development (Beck et al., 2017).

The video game industry is primarily composed of Small and Medium Enterprises (SMEs), and according to the International Game Developers Association (IGDA), over 50% of game

developers are employed by SMEs . SMEs account for a significant share of the global video game market, with many of these firms specializing in the development of independent and niche games (IGDA, 2019).

Small and Medium Enterprises (SMEs) are a vital component of the modern economy, with their unique characteristics differentiating them from larger enterprises. SMEs are typically characterized by their limited resources, low levels of market share, and a high degree of flexibility in adapting to changing market conditions. They are also often owner-managed and exhibit a strong entrepreneurial spirit (Carree & Thurik, 2010). Furthermore, SMEs often operate in niche markets, offering specialized products and services to meet the needs of customers that larger firms may not be able to provide. SMEs also have a higher propensity to engage in innovation activities and invest in research and development, which helps them create new products and services that meet the needs of consumers (Zahra & Wright, 2011). Lastly, SMEs often have a strong connection to their local community and contribute to the local economy by creating jobs and supporting local suppliers and service providers (Acs et al., 2018).

The performance of a firm is posited to be influenced by a combination of characteristics specific to the enterprise, qualities of the entrepreneur, and the regulatory environment established by the government. Different approaches can be taken to gauge firm size, including assessing the number of employees, the value of assets, or the generated business income (Mateev, 2010).

Liedholm (2002), utilizing the number of employees hired within a specific year to measure enterprise growth, discovered that growth is affected by factors such as the urban location, age of the enterprise, and human capital, which includes vocational training or previous business experience. Likewise, Keith (1998) found that the growth of a firm is significantly impacted by the urban location when employee count is used to measure firm size.

Employing total assets as an indicator of firm size, Mateev and Anastasov (2010) identified that key firm-specific characteristics that play a role in explaining enterprise growth and performance are leverage, liquidity, future growth prospects, factor productivity, and internally generated resources. Davidsson and Henrekson (2002) observed that in Sweden, government regulatory institutions and policies have created obstacles for entrepreneurial activities in some sectors.

Siropolis (1997) suggests that SME growth does not have a singular definition and can be measured using various indicators such as an increase in a firm's total assets, annual revenue, or employee count. Each of these indicators has its own merits, with the number of employees

offering benefits like protection from inflation, transparency, and simple measurability. Nonetheless, irrespective of the chosen growth indicator, there are divergent theoretical perspectives on the factors that influence SME growth.

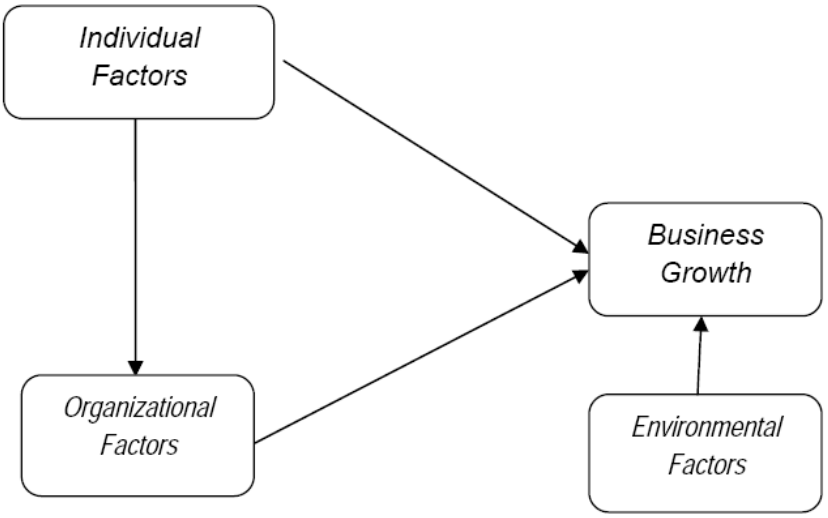
Storey (1994) contends that SME growth is dependent on both the entrepreneur's characteristics and the firm's attributes. Entrepreneurial qualities include factors such as age, managerial experience, education level, and motivation for starting the business. Conversely, firm attributes involve aspects like the firm's industry, age, and geographical location. Storey maintains that SME growth is positively correlated with factors such as extensive managerial experience, high educational qualifications, substantial firm experience (age), and an urban location.

Contrarily, Davidsson and Henrekson (2002) argue that the growth of a firm is not exclusively determined by the entrepreneur's characteristics or the external attributes of the firm, such as industry, age, and location. They suggest that internal firm characteristics related to financial structure and production efficiency are also essential contributors to SME growth. These characteristics include aspects like firm leverage, liquidity, physical capacity, and factor productivity

Research on the business performance of small and medium enterprises can be categorized into two main groups that examine individual and organizational aspects. The individual aspect encompasses personality traits, demographic factors, and competencies, while the organizational aspect examines the resources, competencies, culture, and structure of the company (Sarwoko, 2013).

In their study, Sarwoko et al. (2016) adopted the concept that the growth of SMEs is determined by a combination of individual, organizational, and environmental factors. His study aimed to examine the impact of individual factors on organizational factors in determining SME growth. Relations between each type of factors is presented in Figure 7.

Figure 7 - Conceptual Framework of SME growth determinants



Source: (Sarwoko, 2016)

In the proposed framework, the determinants of business expansion can be categorized into three primary groups: individual, organizational, and environmental factors.

- Individual factors encompass personal characteristics, growth motivation, individual competencies, and personal history.
- Organizational factors consist of the firm's attributes, strategic approach, corporate resources, and dynamic capabilities.
- Environmental factors pertain to market conditions, technological advancements, and diversity initiatives.

Business expansion is assessed by juxtaposing the owner/manager's perception of business performance with established objectives. The evaluation incorporates three indicators: sales growth, profit growth, and capital growth.

Gerrit de Wit & Haibo Zhou (2009) in their analysis adopted a similar approach to Sarwoko, distinguishing individual, organizational, and environmental determinants of development, but further detailing and expanding it with specific sub-categories of determinants. In their approach, Individual determinants consist of personality features; motivation for growth, competences of an individual and personal history. Organizational determinants consist of company features, its strategy and specifics, resources; and its structure. Environmental don’t have a subcategory.

Table 4. Individual, organizational and environmental determinants of SME growth.

Individual Determinants
The expansion of a company can determined by choices and characteristics of the entrepreneur like ambition and personal skills, especially: 1. **Personality traits** Representing entrepreneurs personality and proclivities which include: ○ **Need for achievement** The higher the need, the greater the likelihood of undertaking actions requiring responsibility and entrepreneurial attitudes. ○ **Risk taking propensity** Represents a propensity to take risks as a result of searching for new development opportunities. ○ **Locus of control** Determines the perception of one's actions and decisions as the main factor influencing the outcomes. ○ **Self-efficacy** The belief that one's own skills and competencies significantly affect the performance of the company. ○ **Extraversion** The ability to build relationships, networks, and connections with cooperating entities and the business environment. **2. Growth motivation** Often the result of personality traits of an entrepreneur. Growth can be driven by intrinsic motivation, representing entrepreneurs personal ambitions. Not all entrepreneurs perceive growth as their main goal. **3. Individual competencies** Refers to entrepreneurs level of knowledge, skills and competencies. Both managerial and technical/industry related have strong influence on firm's growth. **4. Personal background** Refers to entrepreneurs age, education and most importantly the experience in specific industry
Organizational Determinants
Relates to effective organization, strategy and ability to use available resources in providing quality products or services, which can be divide into: **1. Firm attributes** Refers to firm's age and size. However it is still unclear whether younger firms tends to grow faster. The size of the company is expressed in the number of employees. **2. Firm strategies** Expressed with a lot of different firm's approaches, eg. through market orientation or entrepreneurial orientation. It comes down to how effectively a company can efficiently sell its products and services to customers, which significantly impacts its growth. **3. Firm specific resources** Key resources that a company has at its disposal, defining its potential pace of development. These include financial resources, human resources, intangible assets, and know-how. **4. Organizational structure** Represents the allocation of responsibilities among agreed structural units of the firm. Its effectiveness can directly influence the firm's growth. **5. Dynamic capability** Refers to a firm's ability to actively reconfigure its action or relocate its resources, answering to changes in the business environment.
Environmental Determinants
Environmental determinants play a significant role in shaping firm growth. Factors such as market dynamics, technological advancements, political stability, and socioeconomic conditions can influence the growth potential of a company. Firms operating in dynamic environments with rapidly changing markets and technologies may encounter

increased opportunities for growth. Conversely, hostile environments characterized by intense competition and unfavorable market conditions may hinder a firm's expansion. In heterogeneous markets, niche-oriented small businesses may find relatively more accessible growth opportunities compared to homogeneous markets. Ultimately, understanding and adapting to these environmental determinants is crucial for achieving sustainable firm growth.

Source: own study based on: (Okurut et al., 2016)

Targalski (2014) suggests that the factors contributing to business development can be primarily divided into two categories: external influences and internal determinants. External influences consist of economic globalization, economic prosperity, conditions in foreign and domestic markets, technological innovations, governmental fiscal policies, legal regulations, economic growth levels, and unrestricted movement of goods and services. Conversely, internal determinants comprise company processes, material resources, management efficacy, entrepreneurial personalities, business alliances, objectives and strategies, human capital, quality assurance, and competitiveness of products and services.

Igielski (2021) conducted an analysis of literature and observed economic processes in the Polish market, classifying the factors that impact enterprise growth into five groups: economic, social, administrative/legal, cultural, and management determinants. These categories consist of specific aspects that may either promote or deter individuals from initiating their own businesses. However, the author emphasizes that the inception of a specific enterprise ultimately relies on the idea and personal attributes, knowledge, experience, skills, and competencies of the individual. As highlighted in a separate study by the author, these personal factors are crucial in shaping an individual's decision to establish a business.

Table 5. Categories of determinants of enterprise development in Poland

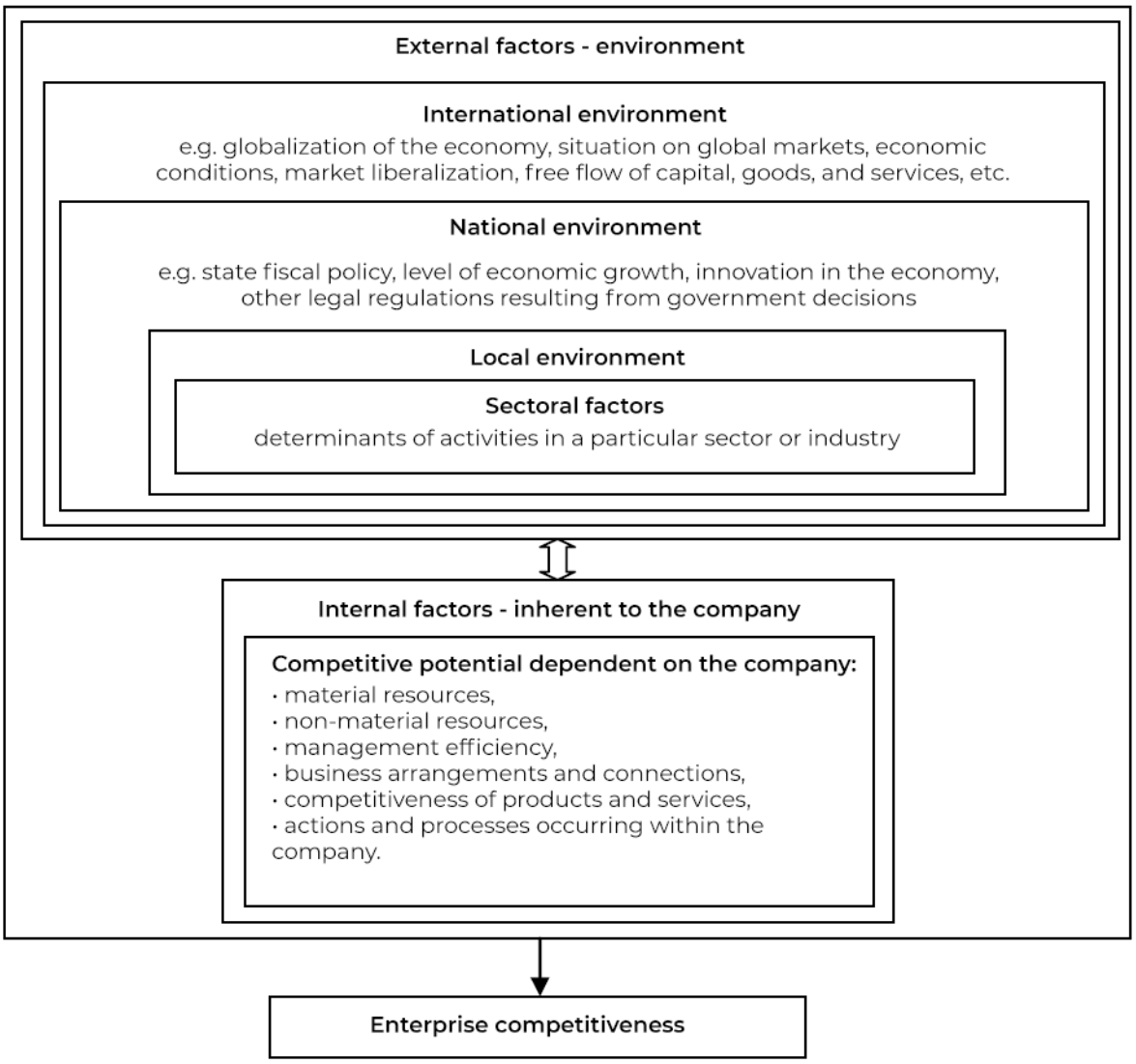
Economic determinants
A business's ability to raise external capital, especially with a favorable offer, can be an incentive for starting one's own business. Sources of external capital can be categorized into three main types: 1. Equity capital, which includes cash or in-kind contributions from the owner or co-owners to facilitate business development or start-up. F 2. Foreign or debt capital, which involves financing the enterprise through various sources based on contractual agreements such as credit, leasing, and bonds. 3. Grants and subsidies from the European Union can also serve as a source of external capital for businesses.
Social determinants
Aside from the financial benefits, owning a business can also fulfill other aspirations for individuals, such as the desire to create employment opportunities for themselves and potential employees, and to attain self-fulfillment, independence, well-being, and prestige. These factors can play a significant role in an individual's decision to become self-employed.
Administrative/legal determinants
In recent years, starting a business has become a simpler process due to changes in the registration system. The amendment of the Act of 2 July 2004 on freedom of economic activity has enabled entrepreneurs to register their businesses online, making the process much more convenient and accessible.
Cultural determinants
The correlation between a country's culture and the nature and extent of entrepreneurship has been a subject of research for some time. In order to investigate this relationship, specific areas of business management were identified for the survey, with an emphasis on those that might be influenced by cultural factors.
Management determinants 1. Entrepreneurial orientation. 2. Market orientation. 3. Human resource management model. 4. Styles of managing people. 5. Management methods and techniques

Source: (Igielski 2021)

Mitek et al. (2012) contend that a more comprehensive division of external factors (based on local, national, and international environments) and internal factors (directly managed by the company) enables the identification of contemporary determinants of private enterprise development and establishes decision-making responsibility for specific factors that generally affect the competitiveness of flourishing companies (Figure 8). It appears that external factors exhibit greater dominance due to their impact on internal factors. Moreover, globalization processes augment this influence, including through the development of competition resulting from market access for companies with global reach. After defining external economic conditions, it is vital to effectively manage owned resources, influence internal conditions, and maintain a continuous competitive advantage in the market. The company's financial

management primarily determines its economic strength and competitiveness. Its effectiveness is manifested in the capital supply, both owned and foreign, which ensures a current financial balance and sustained development.

Figure 8. Determinants of enterprise growth



Source: (Mitek et al. 2012)

The SME sector is a part of the economy that is developing dynamically. The ability to quickly adapt to changes in the market is an advantage of SMEs, which distinguishes them from large economic entities characterized by less flexibility. The development of small and medium-sized enterprises in economic niches comes down to improving the efficiency of the entire economy. In Poland, SMEs often encounter barriers that effectively hinder their development, among which one can distinguish (Krezymon, 2018):

- lack of financial resources,
- barriers related to demand on the local or regional market,
- high taxes,
- organizational and legal conditions,
- limited access to innovation and technology,
- restricted flow of economic information,
- competition from the gray economy or business entities benefiting from tax exemptions,
- complicated and inflexible labor law, tax and administrative procedures,
- lack of qualified personnel on the labor market.

For years, the main problem for newly established companies has been the possibility of obtaining financial resources. Despite the wide range of loans, guarantees and other forms of assistance, banks are reluctant to help companies that do not have a long enough track record on the market. The implementation of new technologies entails costs that can often be covered only from one's own resources, which is usually the case with companies entering the market. Tax law is a significant barrier to development. The classification of barriers determining the development of enterprises prepared by Krajewski (1999) allows for a better understanding of the categories of difficulties and challenges that Small and Medium Enterprises must face in their activities.

Table 6. Barriers determining the development of enterprises

Legal barriers	• complicated procedures for starting and running a business • lack of effective protection of property rights in the form of a trademark • lack of knowledge of EU regulations
Economic barriers	• government fiscal policy • access to financial services • level of depreciation rates that prevent the recovery of assets • relatively high share of labor costs due to the level of social security contribution rates • cost of bank loans
Management barriers	• lack of knowledge of modern management techniques • lack of ability to use information from the environment • lack of tendency to learn
Personnel barriers	• high employee turnover • low qualifications of staff
Educational barriers	• low use of the Internet • inadequate access to business information
Social barriers	• lack of acceptance of social stratification • inadequate culture of entrepreneurship.

Source: (Krajewski 1999)

Enterprise competitiveness

The notion of competitive advantage is subject to various influences and may be contingent upon the matter at hand, the viewpoint, and the goals for which it is established. As a result, this concept can pertain to enterprises, commodities, markets, entire industries, and nations where organizations conduct their operations. Piatkowski (2012) noted that a universally agreed-upon definition of competitiveness remains elusive in scholarly literature. This lack of a unified definition can be attributed to the continual evolution of competitiveness theory.

However, as underscored in "A Study on the Factors of Regional Competitiveness" (Martin, 2004), there is a relatively unambiguous and direct comprehension of competitiveness at the organizational level. This understanding is predicated on a firm's capacity to compete, expand, and generate revenue. Competitiveness at this level stems from an enterprise's consistent and lucrative creation of goods that fulfill the demands of an open market in terms of pricing, quality, and other factors. All businesses must satisfy these criteria to remain operational, and the more competitive a firm is relative to its competitors, the greater its ability to capture market share. In contrast, firms lacking competitiveness will see a decrease in market share, and any persistently uncompetitive business, barring artificial support or protection, will ultimately fail.

To uncover the origins of the competitive advantage concept for companies, it is crucial to examine economic theory. Competitiveness is perceived differently within this realm. A literature review revealed the key factors of competitiveness in major economic theory schools (table 7). Small and medium enterprises (SMEs) are increasingly vital for domestic and international market growth, fostering sustainable progress in trade, manufacturing, and service sectors by drawing investments. Additionally, SMEs play a crucial role in maintaining economic equilibrium and are the primary source of job creation in society. As such, determining the factors that contribute to their competitiveness is an important area of inquiry.

Enterprises, whether they manufacture goods or offer services, develop their competitive advantage and competitiveness through various means. Lemańska and Tomski (2014) found that most service providers, a distinct category of companies indicative of contemporary society, employ conventional methods to achieve and sustain competitiveness. For example, Zvirblis et al., in their study "Backgrounds of Aggregated Assessment of SMEs Competitive Advantage Determinants," (2012) identify eight determinants of competitiveness (with a focus on Baltic countries: Lithuania, Latvia, Estonia). These factors encompass innovation capacity, market

dominance and sophistication, value chain extent, company-level technology assimilation, production process refinement, local competition intensity, and cluster development state.

Piatkowski (2012) posits that when identifying determinants of enterprise competitiveness, it is essential to acknowledge its dual nature. On one side, it arises from a fluctuating environment over which the company generally lacks control and from mechanisms with varying time scales; on the other, it hinges on decisions made within the organization. The role of the owner (particularly in SMEs) is to initiate actions based on strategies and long-term plans that aim to bolster the firm's competitive standing. Moreover, while discussing the creation and development of a company's competitiveness potential, it is possible to mention its inception, but it should never be considered a completed process.

Academic literature highlights the pivotal role of innovation in cultivating a competitive advantage. Research on small and medium enterprises (SMEs) demonstrates that these organizations can effectively establish their competitive edge through innovation. This advantage can be attributed to their greater flexibility and responsiveness to market fluctuations (Stock et al., 2002), diminished bureaucracy in research and development (R&D) management, and the absence of owner-manager conflicts (Hozer, 2002). Nevertheless, a company's innovativeness relies on both its innovation potential and the conditions of its proximate and remote environment. External factors are particularly significant because, despite having characteristics that foster innovation growth (e.g., heightened flexibility and reduced bureaucracy), SMEs often possess limited resources, impeding their ability to independently transform ideas into practical implementations. Regrettably, as Sipa's (2012) research indicates, only a small number of SMEs can sustainably and competitively utilize their innovative potential over an extended period.

Scholarly sources outline diverse approaches taken by companies in relation to innovation and the development of competitive advantage. By this view, innovation is commonly examined by the lenses of large enterprises, as they possess greater capacity to acquire knowledge along with resources that increase possibility for entering new markets. This allows them to more effectively capitalize on unexpected innovations. Koc (2007) posits that innovation enables an organization to endure and prosper in the present and the future. Bielski (2000) defines innovation as the ability to efficiently allocate resources to create the best combination of competitive advantages, being the result of a reciprocal interaction between Research and Development, the market, and production (Janasz, 2002). For SMEs, financial resources may serve as a crucial determinant of innovation. However, most lack the means to develop innovative solutions and face significant challenges in securing external funding (unlike large

corporations). Consequently, they are compelled to collaborate with other entities, public institutions, and R&D centers to implement and disseminate their innovation (OSLO, 2005). Given SMEs' higher flexibility and adaptability to emergent market changes, they should be more adept at fostering innovation and constructing their competitive advantage (Stock, 2002). The innovation of small businesses is perceived as the owner's inclination to explore and integrate innovation from both internal and external markets (Verbees, 2004; Tomski, 2014). Small firms must optimize their use of production resources and workforce and continually seek novel technical and organizational solutions. According to Gilder (1988), the innovative advantage of such organizations should stem from their enhanced adaptability to market shifts and their ability to evade bureaucratic stagnation.

Table 7. Key competitive factors by selected economic theory

Economic theory	**Key competitive factors**
Classical theory	The primary competitive factors are grounded in the concepts of comparative advantage and absolute advantage (Ricardo, 1817; Smith, 1776). According to these principles, firms should specialize in producing goods and services for which they possess the greatest comparative advantage, thereby maximizing their efficiency and profits.
Neoclassical Economic Theory	emphasizes the importance of competition, marginal productivity, and economies of scale as key competitive factors for firms (Marshall, 1890). This theory suggests that companies can gain a competitive edge by achieving lower production costs and increasing productivity through the optimal allocation of resources.
Keynesian Economic Theory	Highlights the role of aggregate demand and fiscal policy in determining a firm's competitiveness (Keynes, 1936). According to this perspective, companies can enhance their competitive position by focusing on product differentiation, marketing, and demand stimulation in times of economic downturns.
Schumpeterian Economic Theory	Innovation, technological progress, and creative destruction are the main drivers of a firm's competitiveness (Schumpeter, 1942). Firms that can successfully innovate and adapt to changing market conditions are more likely to maintain a competitive advantage over their rivals
Resource-Based View	This perspective suggests that firms can achieve a sustainable competitive advantage by identifying, developing, and exploiting their unique resources and capabilities
Development Economics Perspective	Firms can enhance their competitive position by investing in workforce development, participating in strategic sectors, and adapting to shifts in economic structure.
New Economic Growth Theory	Companies can achieve a competitive advantage by investing in research and development, promoting innovation, and fostering a skilled workforce.
New Trade Theory	Firms can enhance their competitive position by exploiting economies of scale, differentiating their products and services, and leveraging network effects to gain market share.

Source: (Sipa, 2015)

1.2. The rise of creative industries

In light of their unique approach, motivations, and influence on the theory of firm growth, creative sector enterprises should be considered a "special case," as emphasized by Ellen Loots and Arjen Van Eitteloostuijn (2018) in their study. Numerous scholarly sources support this view. Undoubtedly, the analysis of companies operating within the creative sectors should be conducted carefully, as creative sectors encompass a wide range of activities that can differ significantly. As the knowledge in this area expands, new theories emerge that describe the differences between individual subcategories of creative industries or various research perspectives on creative entrepreneurs and how they internationalize. Investigating video game creators, their motivations, and development cannot be carried out without first analyzing creative industries. Although the scientific literature on the development and motivation of creative enterprises is extensive, there is a lack of research focused on game creators. In this subchapter, the main focus is on the analysis of creative sectors, their specific features, and unique characteristics, as well as current attempts to define creative entrepreneurs, the growth of creative companies and the way they internationalize. This subchapter will serve as a foundation for further considerations about game creators in the next chapter, allowing for their positioning within existing theory. The theoretical framework obtained in this way will also enable to assess whether game creators fit the concept of creative enterprises or if they themselves represent a "special case."

1.2.1 Creative industries characteristics and the role of creativity

The emergence of creative industries has been a defining characteristic of the modern economy, driven by the growing recognition of creativity, innovation, and intellectual property as key drivers of economic growth and competitiveness (Howkins, 2001). This shift has been facilitated by technological advancements, globalization, and changing consumer preferences, which have created new opportunities and challenges for creative sectors such as film, music, design, and gaming (Caves, 2000). The importance of creative industries in the modern economy can be observed through their contributions to job creation, GDP growth, and exports, as well as their potential for fostering regional development and cultural diversity (UNCTAD, 2018). As the creative industries continue to evolve and adapt to a rapidly changing global landscape, understanding their unique characteristics and dynamics will be crucial for developing effective policies, strategies, and interventions aimed at supporting their growth and sustainability

(Bakhshi et al., 2013). Video game producers contribute to the creative industries by fostering collaboration among multidisciplinary teams, encouraging innovation, and driving the evolution of gaming platforms and technologies (Whitson, 2018). As such, the role of game producers is critical to the sustained growth and success of the video game sector and the broader creative industries.

The notion of creative industries encompasses a diverse array of activities, integrating various sectors with distinct characteristics. Primarily, this concept unites capital-intensive and industrialized sectors, such as the music and film industries, with more labor-intensive sectors that can be broadly categorized as craftsmanship, including arts, craft, and design. Additionally, it links highly commercialized sectors, like advertising and marketing, to those predominantly sustained by public subsidies, such as visual and performing arts (Flew et al, 2010). The creative industries concept embodies the fusion of art and commerce. On one side, culture has undergone an economic transformation, resulting in the adoption of business standards across a range of cultural activities. Conversely, the process of acculturation of the economy has occurred, signifying that economic systems are influenced by cultural and ethical values (Dziurski 2016).

The emergence of the creative industries paradigm can be traced back to the United Kingdom in the late 20th century, from where it swiftly disseminated across the globe. This concept has garnered substantial attention in both public and scholarly discussions. While the development of the creative industries was initially shaped by political determinants, it also reflects two primary transformations that transpired around the turn of the century. The first of these transformations is the accelerated advancement of information and communication technologies (ICTs), which have significantly impacted both the supply and demand aspects of the market. This includes enhancements in productivity as well as the evolution of novel methods for engaging with creative and cultural products and services. The second transformation involves the escalation of socio-economic intricacy and unpredictability. Consequently, the creative industries framework represents a nexus between the art, media, and design, and the spheres of digitalization, creativity, and intellectual capital. It serves as a bridge that connects creativity, culture, economy, and technology within the context of an ever-evolving global landscape (Creative Economy Report 2008).

According to the Department for Digital, Culture, Media and Sport (DCMS) in the UK, Creative industries are “those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property” (UK Government 2021).

According to Hesmondhalgh (2002), creative industries are characterized by activities rooted in individual creativity, skills, and talents, possessing the potential to generate wealth and employment opportunities through the development and utilization of intellectual property. Caves (2000) defines creative industries as encompassing economic activities that involve the creation, production, and distribution of goods and services bearing cultural, artistic, or entertainment value, relying on the labor, skills, and talents of individuals. Flew (2012) contends that creative industries comprise sectors in which the production and distribution of goods and services are founded on intellectual property, and that these industries both generate and capitalize on creativity, knowledge, and information.

Lampel et al. (2000) argue that cultural and creative industries exhibit distinct differences from the majority of other industries. Specifically, their products elicit deeply personal experiences and engage with values and aspirations that transcend utilitarian or commercial purposes. These industries largely rely on the effective utilization of creativity, which is an inherently uncontrollable resource. As the authors suggest, this distinction sets cultural and creative industries apart from other businesses, thereby contributing to an environment characterized by ambiguity and dynamism. However, it is important to acknowledge that these attributes are not exclusive to cultural or creative industries, as they are prevalent across various organizations.

Products and services generated within creative industries do not consistently serve a problem-solving function (Loots & Simone van Bennekom, 2022) and, instead of solely catering to market demand, often stem from the artistic beliefs of their creators. The existing body of literature has extensively explored the dual performance objectives, managerial paradoxes, and identity challenges prevalent in creative industries.

Table 8. Creative Industries by segments.

Creative Industries			
HERITAGE	ARTS	MEDIA	FUNCTIONAL CREATIONS
Traditional cultural Expressions Art crafts Festivals Celebrations	**Visual arts** Paintings Sculpture Antique Photography, etc.	**Publishing and printing Media** Books Newspapers Press and other publications	**Design** Interior Graphic Fashion Jewellery Toys
Cultural sites Historical monuments Museums Libraries Archives, etc.	**Performing arts** Live music Theater Dance Opera Puppetry Circus, etc.	**Audio-visuals** Film Television & radio Broadcasting **New media** Digitized content Software Video games Animations, etc.	**Creativity services** Architecture Advertising Creative R&D Cultural services Digital services, etc

Source: UNCTAD, 2008.

Creativity plays a crucial role in the success and growth of companies operating within the creative industries. As the driving force behind the development of innovative products, services, and processes, creativity contributes to enhancing organizational performance and establishing competitive advantage (Bilton & Leary, 2002). Companies that foster creativity are better equipped to adapt to the rapidly evolving market landscape and cater to the diverse needs of their consumers (Florida, 2002). Moreover, creativity not only facilitates the generation of novel ideas but also enables organizations to capitalize on the intellectual property associated with these ideas, thereby stimulating economic growth and job creation (Hesmondhalgh, 2002). Given the inherently dynamic and uncertain nature of the creative industries, companies that prioritize and harness creativity are more likely to thrive and maintain a sustainable competitive edge in the long run (Caves, 2000). In the literature on the subject, one can find many definitions of the term "creativity" approached from different perspectives. All definitions revolve around the same idea, but it is worth comparing them together to see the full picture (Table 9).

Table 9. Defining Creativity in Creative Industries

Authors	Definition
Amabile (1983)	the generation of innovative and valuable ideas by an individual or a small collaborative group.
Paulus and Nijstad (2003)	the conception of ideas, insights, or problem-solving approaches that are both original and potentially beneficial
Sternberg and Lubart (1999)	creativity encompasses the capacity to produce work that is not only novel (original, unexpected) but also appropriate (useful, adaptive with respect to task constraints)
Bilton and Leary (2002)	creativity refers to the inception and execution of unique ideas, products, or processes that enhance organizational performance and foster competitive advantage
Woodman, Sawyer, and Griffin (1993)	describe creativity in the domain of economy and business as the formulation of innovative and practical ideas that can result in the creation of groundbreaking products, processes, or services, ultimately bolstering an organization's growth and competitiveness.
Florida (2002)	creativity in the realm of economy and business entails the ability to produce new ideas, processes, or products that hold value and relevance in the market, thereby promoting economic growth, job creation, and overall prosperity.
Csikszentmihalyi (1996)	creativity as any action, notion, or output that either alters a pre-existing domain or transforms it into a novel one. The critical factor lies in whether the innovation generated by the individual is accepted and incorporated into the field
Rollo May (1994)	Creativity is a process through which novel entities are brought into existence. This process necessitates dedication and fervor, as it unveils what was once concealed and propels it towards rejuvenation. The experience of creativity is often characterized by a sense of euphoria.

Source: Own research

These various definitions demonstrate a consensus that creativity typically embodies elements such as novelty, innovation, originality, and uniqueness. Although on rare occasions, creativity might not necessarily result in something entirely new, it consistently possesses an innovative aspect that confers an original and distinct character to the creative outcome.

1.2.2. Determinants of creative industries development

A stable and supportive political environment is essential for the development of creative industries, as it fosters investment, entrepreneurship, and innovation within the sector (UNCTAD, 2018). Governments can promote the growth of creative industries through various policy instruments, such as intellectual property rights protection, public funding for arts and culture, and tax incentives (Bakhshi et al., 2013). Moreover, international collaboration and trade policies play a significant role in shaping the global competitiveness of creative industries, as they facilitate the exchange of ideas, talents, and resources across borders (UNCTAD, 2018). In addition, the implementation of education policies that prioritize the development of creative skills can significantly enhance the human capital required for creative industries to thrive (Eikhof & Warhurst, 2013). However, it is important to note that the effectiveness of these policy interventions may vary depending on the specific context and needs of different countries and regions (Flew, 2012).

According to Marta Mackiewicz and others, when considering the determinants of the development of creative sectors, attention should be paid to the fact that they are diverse due to (Mackiewicz et al, 2009):

- the scale of activities, e.g. the size of production, as a large part of creative sector companies deal with mass production or distribution;
- added value, in this case the nature of the product, intellectual input, etc. are important, as in the case of "added value" according to some definitions
- the economic conditions of the conducted activities, in which case the issue of classifying companies based on their economic conditions is important.

Florida's (2002) "Triple T Framework" encompasses three primary factors that contribute to the development of creative industries and economic growth: Technology, Talent, and Tolerance. Each of these factors significantly impacts the creative industries sector, leading to economic repercussions.

The first factor, Technology, being recognized as a driving force of economic growth, as advancements in technology continually reshape industries. The degree of technological development within a country can be assessed by indicators such as the patent number, research and development involved, and employment in the R&D sector, as well as productivity metrics.

The second factor, Talent, is an equally crucial determinant of development. Knowledge, creativity, and the generation of new ideas stem from talented individuals. Talent is an elusive

concept to quantify, often requiring the analysis of multiple indicators or indices, such as educational attainment, innovation indices, and the proportion of creative professionals within the workforce. The Creative Vitality Index (CVI) is an example of a measurement tool developed in the United States to assess talent, taking into account both community participation and employment in creative sectors. Factors such as age demographics and access to cultural activities also influence talent development.

Lastly, the Tolerance factor, though sometimes met with skepticism from economists, is essential for a region's capacity to attract and leverage creative talent (Florida, 2002). Locations that are open to new ideas and able to draw creative individuals from around the world can amplify their technology and talent capabilities, thus providing a significant economic advantage. Tolerance is typically assessed by examining a region's openness to different cultures, ethnicities, immigrants, and other minority groups. Proposed classification of these factors within his theory of creative industries and economic evolution, is illustrated in Table 10a.

Table 10a. Classification of factors, influencing creative industries

Investment and supply of input factors	**Qualitative improvement of input factors**	**Growth of demand**	**Institutional change and efficiency**
Subsidies from the state	Education	Cultural participation	Greater number of cultural activities
Interest rate	R&D	Age and structure of demand	Easies access of cultural activities
Price indexes	Patents	Education	Tolerance
Unemployment rate	Innovation index	Income rate	
GDP growth			

Source: Martinaitytė, E., Kregždaitė, R. (2015)

1.2.3. Creative entrepreneurs

The evolution of creative sectors have led to the emergence of the term "creative entrepreneurs," which refers to individuals operating within these industries. Lasur & Tafel-Viia (2018) highlight that creative entrepreneurship is often considered a separate category due to the distinctive interaction between cultural, creative, and commercial activities. Although various contexts and definitions exist, creative industries share several common features. It should be noted, however, that some of these features may also be found in manufacturing or service

sectors. The most prominent aspect of creative businesses is their focus on product or service uniqueness and symbolic value.

Creative enterprises are primarily characterized by their micro and small-scale nature, which sets them apart from medium and large-sized businesses. A comparison between creative enterprises and other highly innovative firms, such as technology startups, could be intriguing. The latter often have products with uncertain value and share similar attributes, such as a project-based working style and social objectives aimed at transforming conventional practices and enhancing convenience. Consequently, they face considerable market risks. However, a crucial distinction lies in scalability; while the products and services of high-tech startups can typically be scaled significantly, the endeavors of most creative enterprises are based on uniqueness, with the exception of certain IT-related products and services, such as games (Lasur & Tafel-Viia 2018).

Throsby (2011) describes creative and aesthetic entrepreneurs, as business executives operating within the creative industries sector, exhibit unique characteristics that impact those around them due to the distinct nature of creative industries, their societal position, and their interactions with others involved in their business operations . These individuals collaborate to achieve success in the innovation ecosystem, where diverse co-innovation opportunities arise in terms of cooperation, competence, competition, and co-creation within a flexible and uncertain environment. Creative professionals often need to maintain a balance in their network by engaging in various connections simultaneously. These connections encompass a distinct combination of relationships focused on collaboration, competition, co-innovation, coordination, and coaching to enhance their own and others' skills while creating valuable outcomes.

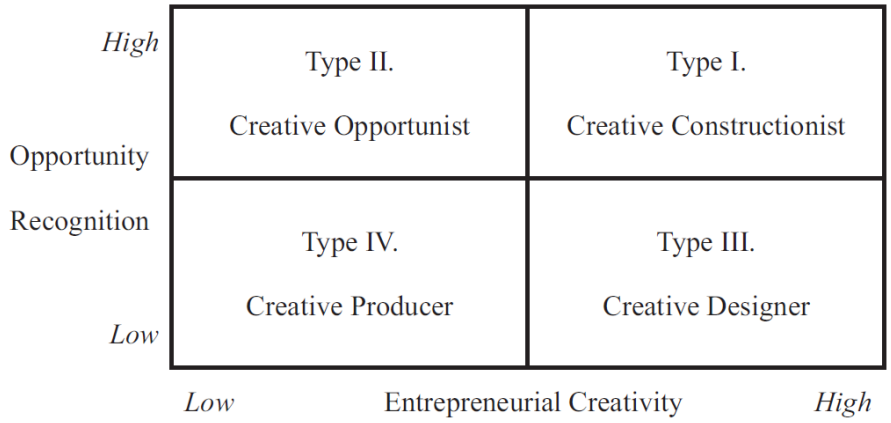
Entrepreneurs in the creative industries exhibit distinct goals and behaviors, as their entrepreneurial identities are shaped by their cultural and creative backgrounds. Their objectives often extend beyond monetary success, encompassing aspects such as interpersonal work dynamics, personal satisfaction, and community involvement (Wach et al., 2016). Highly creative entrepreneurs are skilled at identifying market opportunities and achieving career milestones; however, these accomplishments do not always translate into financial gains. Opportunity recognition is associated with enhancing an entrepreneur's social status, improving their abilities, and addressing the needs of potential customers. Some creative entrepreneurs prioritize work-life balance and social reputation, content with meeting basic financial requirements (Chen et al., 2017). Studies on small business owners (Georgievski et al., 2011) have highlighted alternative measures of success, focusing on elements like personal gratification, customer and

employee happiness, work-life equilibrium, public recognition, and societal impact, rather than exclusively on financial outcomes.

Entrepreneurship in the creative industries is a multifaceted and intricate concept, encompassing a range of factors that contribute to its unique qualities. These industries often display a distinct relationship between artistic expression and commercial activities, leading to an overlap between the roles of artists and entrepreneurs. Howkins (2002) and Henry et al. (2004) have further investigated the notions of "creative entrepreneur" and "art entrepreneur," highlighting them as individuals who leverage their creative mindset to address both external, business-focused triggers and internal, personally-driven challenges. This notion aligns with Schumpeter's differentiation between "entrepreneur" and "inventor," showcasing that creative entrepreneurs not only develop innovative ideas, akin to artists or inventors in Schumpeter's framework, but also participate in the commercialization of their creative work. Thus, entrepreneurship within the creative domain can be characterized as the process of augmenting the value of creative contributions or creative endeavors. This often involves a dynamic value chain, as described by de Bruin (2003), which encompasses various stages where value is added to the creative output, from its inception to its eventual commercialization, with the artist potentially assuming the creative entrepreneur role at different points throughout this process.

Ming-Huei Chen et al in their research (2018) investigate the relationship between creative entrepreneurs' characteristics and their venture outcomes, proposing a typology based on entrepreneurial creativity and opportunity recognition. W tym miejscu bym dał macierz. Four types are identified: creative constructionists, creative opportunists, creative designers, and creative producers.

Figure 9. A typology of creative entrepreneurs



Source: (Ming-Huei Chen et al, 2018)

1. Creative constructionists, found in the first quadrant of Figure 1, excel in entrepreneurial inventiveness and opportunity identification. They balance market considerations and personal fulfillment, aligning their artistic creations or innovative products with potential clients' pleasure-driven demands. This positions them to harmonize creativity for its own sake and business purposes (Eikhof and Haunschild, 2006; Fillis, 2010).

2. Creative opportunists demonstrate high opportunity recognition but low entrepreneurial creativity. They discern opportunities by interpreting market trends and predicting future cultural consumption. Focusing on catering to consumer needs, they often lack experience in creative production or come from non-creative backgrounds.

3. Creative designers, found in Figure 1's third quadrant, possess high entrepreneurial creativity but struggle with opportunity recognition. Driven by self-fulfillment, they prioritize originality and maintaining loyalty to their style, while paying less attention to market trends. Their groundbreaking ideas may not always lead to commercial success.

4. Creative producers engage in direct commercial production to sustain their business but lack originality and opportunity recognition. They often adopt conservative approaches, replicating successful strategies from leading creative industry companies.

Chen's research highlights the importance of entrepreneurial creativity and opportunity recognition in creative sectors, providing an effective typology for distinguishing creative entrepreneurs based on their behavior in entrepreneurial activities.

1.2.4. Growth and development of creative enterprise

The growth of creative companies and the role of creative entrepreneurs have become increasingly prominent in today's global economy, as they contribute substantially to economic development, employment, and innovation (UNCTAD, 2018; Florida, 2002). Creative industries, which encompass a wide range of sectors such as arts, design, media, and entertainment, rely on the generation and commercialization of intellectual property and intangible assets, distinguishing them from traditional industries (Caves, 2000). Traditional entrepreneurship theories may not fully capture the unique dynamics, challenges, and opportunities that creative industries present, underscoring the importance of tailored research (De Beukelaer & Spence, 2019). Given these unique characteristics, it is crucial to explore what is known about creative companies growth, what distinct creative entrepreneurs and the key success factors that enable them to thrive in this dynamic and competitive landscape (De Beukelaer & Spence, 2019). This section aims to identify and examine the critical elements that foster success in creative industries, highlighting the distinct attributes of creative companies and entrepreneurs that set them apart from their counterparts in other sectors.

According to Eurostat (2021) in 2019, cultural and creative industry activities comprised nearly 3.7% of EU employment, which translates to 7.4 million jobs. Numerous European governments have implemented strategies to support the growth of creative industries (Bakhshi et al., 2013). The present study investigates whether creative entrepreneurs exhibit distinct sets of business motives and success objectives compared to those in traditional industries.

Caves (2000) identifies seven distinct features that set companies within creative industries apart from other types of businesses:

- **Nobody knows** - This refers to the high degree of uncertainty in creative industries. Because these industries revolve around creating unique, never-before-seen content, it's impossible to predict with certainty how well a product will perform in the market. An artwork or a movie that seems promising might not resonate with the audience, while a seemingly obscure idea might turn into a sensation.

- **Art for art's sake** - In creative industries, creators often derive satisfaction purely from the act of creating. Monetary gains, while important, may be secondary to the joy of creation. This intrinsic motivation can lead to unconventional or risky projects that might not be pursued in other sectors.
- **Motley crew** - Creative projects often require a diverse set of specialized skills. For instance, a film production might require actors, directors, cinematographers, sound engineers, costume designers, and more. Each of these contributors plays a critical role and must deliver work of a certain quality and quantity for the project to be successful.
- **Diversity** - Creative industries are characterized by a high level of diversity in terms of the inputs (the creative talents and ideas) and the outputs (the final products). Every creative project is unique, requiring a different mix of skills, ideas, and resources.
- **A list/B list** - In creative industries, small differences in talent can lead to large disparities in income. A-list actors, for example, can command much higher salaries than B-list actors, even though the difference in talent may be subjective or minimal.
- **Time flies** - Timing is critical in creative industries. This involves coordinating the diverse elements of the production process, as well as timing product releases to coincide with market demand. A delay in any part of the production process can be costly, and a poorly timed release can lead to a product being overlooked by its audience.
- **Ars longa** - The products of creative industries often have a long lifespan. A good movie, for instance, can be enjoyed by audiences for generations. Similarly, the benefits derived by the creators from their creations, either in terms of royalties or reputation, can last for a long time.

Dziurski in his work (2016) highlights the importance of understanding critical success factors (CSFs) in achieving success within creative industries. CSFs are essential elements that managers must consider to attain a competitive position and enable organizational growth. The Pareto principle (80/20) underpins the analysis of CSFs, suggesting that focusing on a few critical factors rather than numerous trivial ones is key to success.

The article distinguishes between CSFs and market success factors (MSFs), with the latter being valued by clients. While both analyses are crucial, they are complementary rather than substitutable. CSF analysis provides a broader view and may prevent potential crises caused by an excessive focus on MSFs.

Inf creative industries, there are key success factors (KSFs) that pertain to each particular segment, alongside general KSFs that are relevant across the whole industry. Eight broad KSFs

have been pinpointed, encompassing fields like technology, human resources, legal aspects, collaborations, finance, promotional strategies, business models, and global expansion. While KSFs unique to each sector mainly connect to market success factors (MSFs), they're supplemented by the broader list of general KSFs, which helps to balance out the potential overemphasis on market variables.

Dziurski (2016) emphasizes that recognizing and prioritizing both general and sector-specific CSFs are essential for achieving success in creative industries. This approach helps organizations develop a well-rounded strategy and navigate the complexities of today's business landscape.

Table 10b. Critical Success Factors in Creative Industries

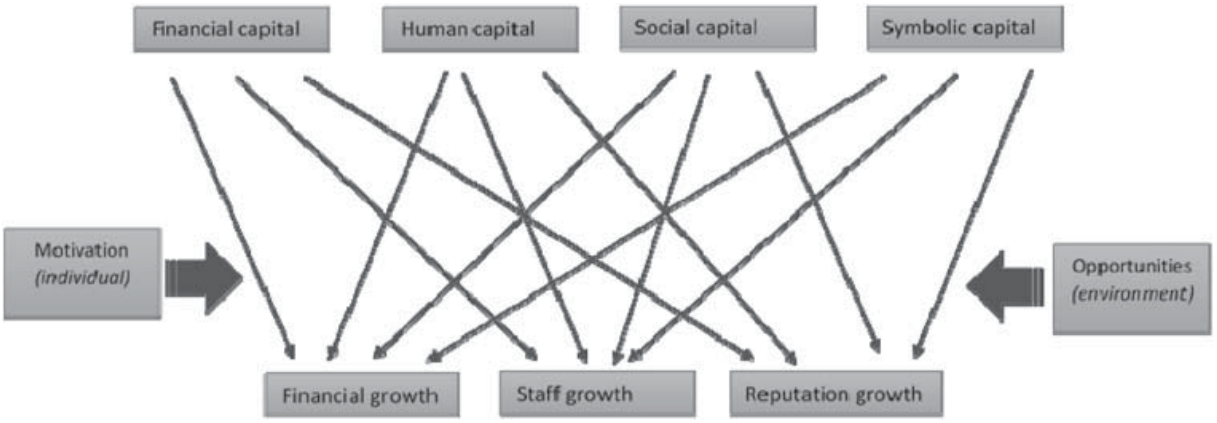
General Critical Success Factors in Creative Industries			
High ability to adopt new technologies High ability to attract and maintain talents High ability to protect and to explore intellectual property Great cooperation capabilities Diversified funding sources Effective brand management Innovative business model Successful international expansion			
Sector-specific Critical Success Factors in Chosen Sectors in Creative Industries			
Advertising agencies	Computer programming activities	Architectural activities	Photographic activities
Effectiveness in winning auctions Experience in specific projects Good reputation Success of previous campaigns Wide range of products and services	Experience in specific projects High ability to engage clients in projects High familiarity and understanding of clients' needs High intuitiveness of solutions High quality of software	Effectiveness in winning architectural contests Great number of recommendations High diversity of projects Rich portfolio	Convenient localization High quality of products and services Rich portfolio Wide range of products and services

Source: (Dziurski 2016)

Loots and Arjen Van Eitteloostuijn (2018) in their study explore the unique aspects of growth in the creative industries and attempts to develop a tailored theory of growth for these industries. The author emphasizes that creative industries are fundamentally different from non-creative industries in terms of micro-level motivational drives of individuals and the meso-level opportunity structure. Their research concludes that creative individuals are

intrinsically motivated by the act of creation itself, which makes delegating production to employees challenging, thus limiting firm growth in terms of staffing. The creative industries have a natural tendency to overproduce due to the intrinsic motivation of creatives, which pushes the industry towards perfect competition and low prices and profits. Drawing from the aforementioned theoretical exploration and the evidence gathered on the Dutch creative industries, they devised a model of creative firm growth, as illustrated in Figure 10. This foundational model encompasses three dimensions of growth (revenue, staff, and qualitative growth), four primary growth determinants (human, social, financial, and symbolic capital), and two moderating variables – one situated at the individual creative level (motivation) and the other at the environmental level (opportunities).

Figure 10. A theoretical model of firm growth in the CCI



Source: Loots & Arjen Van Eitteloostuijn 2018

The CCI's growth model is centered around five propositions: (1) creative individuals are motivated by the act of creation, (2) their interest in revenue or staff growth is limited, (3) the motivation to create and preference for reputation leads to oversupply and low profits, (4) opportunities in the CCI rely heavily on state subsidies, philanthropic support, and gatekeeper communities[2], and (5) CCI growth is driven primarily by net firm entry rather than firm growth, facilitated by external support and gatekeeper communities.

Silja Lassur and Kulllki Tafel-Viia (2018) investigate the internal growth perspectives of

[2] In the context of the creative and cultural industries (CCI), a "gatekeeping community" refers to a group of individuals or organizations that play a crucial role in determining which creative products or services reach the market, gain exposure, or receive funding. These gatekeepers possess the power to filter and evaluate the offerings of creative enterprises, both before (ex ante) and after (ex post) their introduction to the market. Examples of gatekeepers in the CCI include art critics, curators, publishers, distributors, and funding bodies (Becker, 1982)

creative companies. They propose an analysis model, incorporating various growth-related aspects on both personal and company levels, derived from entrepreneurial and creative industries literature.

The authors identify three possible types of growth orientations in creative companies:

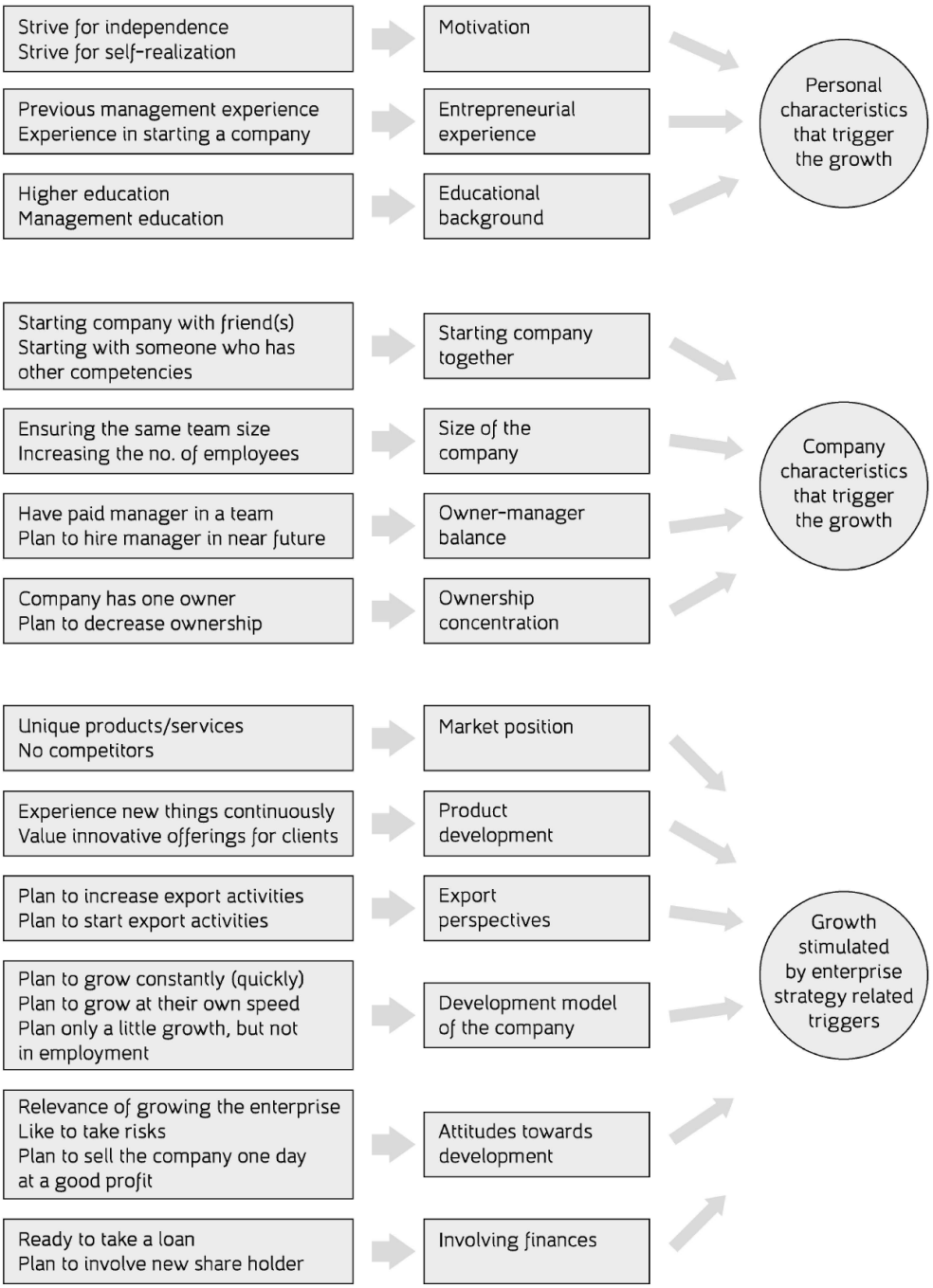
- classical growth-oriented creative enterprises;
- creative enterprises with some characteristics of growth;
- lifestyle enterprises.

The study demonstrates that growth in creative enterprises is often seen through value creation and brand development, with a strong focus on export markets rather than organizational size. The analysis model revealed that creative companies are highly motivated by self-actualization but don't necessarily pursue high-growth ambitions. Previous entrepreneurial knowledge or experience plays a significant role in growth orientation in creative industries companies. Their study concludes that understanding the growth orientation of creative companies requires considering a variety of factors from both personal and company levels. Creative companies display diverse ambitions and are not solely lifestyle companies. The analysis model (Figure 11) can be applied to various creative sub-sectors and may provide useful insights for policy development and international comparisons. Future research could explore differences in growth orientation across creative industries, sub-sectors and other industry sectors, as well as the impact of socio-cultural factors on growth ambitions.

Loots and Bennekom (2022) concluded a comprehensive literature analysis that examines growth patterns and development in creative industries, highlighting the non-linear nature of firm growth and the importance of impact over profitability. The study finds that creative firms focus on artistic priorities, leading to an "accordion" growth strategy that consists of growing and shrinking stages (Sigurdardottir and Candi; 2019). Additionally, the growth process in creative industries is iterative and characterized by trial and error, resulting in alternating successes and failures. The study also emphasizes that traditional indicators, such as size and profitability, may not accurately reflect a creative firm's success. Instead, market recognition, peer or expert opinion, and impact are more relevant indicators. Creative entrepreneurs prioritize quality and impact over profit maximization, engaging in a quality competition to overcome information problems and establish a reputation in the market (Caves, 2000). Symbolic capital, which signals a reputation of good quality, plays a crucial role in creative industries, as it helps reduce demand uncertainties and can snowball into economic capital (Scott 2012). However, achieving

exponential growth requires market expansion, resource munificence, and strategic digitalization and internationalization efforts by alert firm founders. The article concludes that different paths can lead to firm growth in creative industries, and future studies should validate the robustness of these findings, taking into account contextual factors affecting business development and growth where profitability is not the main focus.

Figure 11. The growth orientation analysis model



Source: Silja Lassur and Kulllki Tafel-Viia (2018)

1.2.5. Creative companies internationalization in digital economy

The rapid growth of the digital economy has brought about significant changes in the way companies operate and compete in the global market. In particular, the creative industries, which encompass a wide range of economic sectors such as advertising, architecture, arts and crafts, design, fashion, film, video games, music, publishing, and software, have been at the forefront of these transformations (UNCTAD, 2010). From an academic standpoint, the characterization of the digital economy remains diverse and confined. A study by Bukht and Heeks (2017) uncovers 21 distinct definitions of the digital economy within the scholarly context. For the purpose of this dissertation, the definition provided by the OECD is employed, which describes the digital economy as: "The facilitation and execution of the exchange of goods and services through electronic commerce on the internet" (OECD, 2012, p. 5). Additionally, the OECD report emphasizes the significance of network effects in a digital economy. Network effects emerge when the value for users increases as the number of other users of the product grows. This encourages demand-side economies of scale, where the platform's popularity attracts further users (OECD, 2012).

Among the creative industries, the video game sector has emerged as a leading player in the digital economy, with a market value surpassing the film and music industries combined (Newzoo, 2021). As a result, understanding the internationalization strategies and methods adopted by video game producers has become essential for both scholars and practitioners interested in the globalization of the digital economy.

Internationalization, defined as the process through which companies expand their operations and markets beyond their home country's borders (Welch & Luostarinen, 1988), is vital for firms operating in the digital economy. The digital nature of products and services in this context has facilitated the reduction of entry barriers and increased the reach to potential consumers across the globe (UNCTAD, 2017). Thus, creative companies, especially video game producers, need to adopt effective internationalization strategies to capitalize on the opportunities presented by the global market and to stay competitive.

Moreover, the globalization of production networks and the diffusion of digital technologies have fostered the emergence of new internationalization models, such as the Born-Global phenomenon, which is characterized by firms that internationalize from inception or shortly thereafter (Knight & Cavusgil, 1996). This phenomenon has been particularly relevant in

the digital economy, as companies can leverage digital platforms and global value chains to achieve rapid growth and international market presence (Autio et al., 2000).

At this point it's important to discuss the main concepts and models of internationalization, with a special focus on their application in the context of creative companies operating in the digital economy, particularly video game producers. The key terms and models to be described include:

- Born-Global Concept: A company that pursues internationalization at an early stage of its development, commonly utilizing digital technologies and networks to quickly establish a global market presence (Knight & Cavusgil, 1996).
- Uppsala Model: An incremental and step-by-step approach to internationalization that highlights the significance of experiential knowledge and the development of business connections in overseas markets (Johanson & Vahlne, 1977).
- Network Approach: A viewpoint that underscores the importance of networks and relationships in propelling the internationalization process, particularly pertinent in the context of the digital economy (Johanson & Mattsson, 1988).
- International Entrepreneurship: The process of identifying, assessing, and capitalizing on opportunities beyond national boundaries to generate value (McDougall & Oviatt, 2000).

In their foundational work, Johanson and Wiedersheim-Paul (1975) established the stage theory of internationalization, arguing that companies engage in a step-by-step approach to international expansion in order to minimize risks and enhance learning. To select target countries for entry, they posited that firms consider psychic distance and market size as key factors. Later, Johanson and Vahlne (2009) revisited the Uppsala model and portrayed the internationalization process as an effort by firms to improve their position within networks, enabling them to better seize opportunities. Johanson and Vahlne (2009) introduced two crucial ideas: the advantage of insidership in networks for achieving success and the challenge of outsidership, where a company faces obstacles in conducting business without an existing, pertinent network in a specific country. These researchers underscored the vital role of business relationships, learning, and commitment for small game development enterprises. Additionally, they linked internationalization to entrepreneurship, a connection that aligns with the experiences of smaller firms during the internationalization process.

Oviatt and McDougall (1994) present a novel theoretical framework that identifies a

growing trend in international business: companies striving for a competitive advantage by leveraging resources from various countries from their inception. The framework outlines four elements that define an International New Venture. First, the new venture should engage in transaction internalization, meaning that the company must generate value in a certain area to obtain economic benefits in transactions, although this does not always involve owning foreign assets. Second, due to resource constraints, new ventures often lean toward alternative governance structures, which may involve hybrid arrangements such as franchising, licensing with partners, or adopting network structures. Third, International New Ventures can pinpoint foreign location benefits by transferring resources (for example, knowledge or software) between countries and integrating them with resources in the target country. Finally, these firms possess distinctive resources that could include prior experience, connections, organizational culture, or management approach.

Mathews (2006) introduces an alternative theoretical framework, specifically designed for emerging enterprises in developing countries, with three main components:

- Linkage;
- Leverage;
- Learning.

Linkage pertains to firms' pursuit of external advantages, predominantly found on an international scale. By accessing or establishing networks, such as partnerships or joint ventures, challenger companies can compensate for their limited resources. Leverage emphasizes resource management, including the imitation, transfer, or substitution of resources. Learning emerges as companies engage in multiple cycles of linkage and leverage, thereby expanding their knowledge and capabilities.

An increasing body of research explores how smaller born-global firms leverage alliances and networks to accelerate their internationalization process (Freeman, Edwards, & Schroder, 2006). Despite facing challenges due to the liability of smallness (struggle with limited resources and no economies of scale), these businesses manage to overcome such limitations by employing networks and advanced technologies (idem). Freeman et al. (2006) found that factors such as: (i) a perception of a limited domestic market; (ii) strong entrepreneurial commitment to internationalization; (iii) well-established personal networks; (iv) access to cutting-edge technology; (v) growth based on supplier and distribution partner relationships; (vi) adaptability and flexibility; and (vii) utilization of various foreign market entry strategies; positively correlate

with swift internationalization.

In examining the internationalization of creative industries, it is essential to investigate and distinctly delineate the intricacies of the process. This is due to the fact that, for organizations within creative industries, internationalization is not invariably connected to exportation. Excluding export, the internationalization process in creative industries can be categorized into four types: (a) the implementation of foreign creative projects domestically, (b) outsourcing to foreign nations, (c) international co-production, and (d) the establishment of international companies (Table 11). As all segments of creative industries employ project-based structures, the internationalization of cultural products, including international co-production and outsourcing, proves to be economically and creatively viable (Mitkus & Maditinos, 2017).

Table 11. Internationalization typology in creative industries and its description

Internationalization types in creative industries	Definition
Implementation of foreign creative projects domestically	Implementation of a creative project by local companies offering specific services. It represents the most prevalent form of international operations within the creative industries. In the European Union, numerous countries employ indirect public support mechanisms to encourage foreign creative projects to be executed within their borders (Lorenzen 2007; Wright 2006). Such tax incentives are commonly found in the film, animation, and video game sectors (Palmer, Davoudi 2012). However, in certain countries, these tax benefits are also extended to the theater, music, and publishing industries (Rossmartin 2016; KEA 2007).
Outsourcing to foreign nations	Delegation of specific components of a creative project to firms located in foreign countries. In creative industries, the initial stages of a project are typically regarded as the most innovative and creative, leading to the outsourcing of predominantly late-production tasks to other companies (Yoon 2015). Lorenzen (2007) contends that the primary determinant in selecting an outsourcing destination is the appeal of the financial incentive mechanisms available.
International co-production	Collaborations between two or more production companies (from distinct countries) to implement a creative project. The core principle underlying this concept is that co-producing companies are entitled to a portion of the profits generated by the cultural product. In the European Union, this form of internationalization within creative industries is encouraged both at international and national levels (Creative Europe 2009).
Establishment of international companies	Maintaining offices in multiple countries. Given that the overwhelming majority of creative businesses are classified as small or medium-sized enterprises, this occurrence is relatively uncommon in the creative industries. Typically, creative profile organizations embark on this internationalization process to tap into a more extensive talent pool (Lorenzen 2007).

Source: (Mitkus & Maditinos, 2017)

This phenomenon is primarily attributed to the digital revolution, which has unlocked unprecedented opportunities for the majority of creative industry segments. It is crucial to recognize that digital advancements have not only fundamentally transformed the methods of producing modern cultural products but also their distribution. Consequently, numerous technological tools and platforms currently facilitate effective global communication and real-time collaboration in project implementation among team members situated in various geographic locations. As a result, digitalization significantly contributes to the robust engagement of creative industries in the global markets of creative products and services. Nevertheless, it is imperative to acknowledge that digitalization has also introduced certain challenges that must be addressed to fully harness the potential of creative industries (Creative Europe 2009).

The research by Mitkus & Maditinos (2017) investigates the born-global phenomenon in creative industries, focusing on the Lithuanian animation industry. The study examines three hypotheses regarding born-globals in creative industries: dominance, internationalization driven by artistic logic, and less dependence on public subsidies.The research findings reveal that born-globals are indeed the dominant type of enterprise within the Lithuanian animation industry, supporting their hypothesis. These companies are more likely to participate in international industry events, which are considered a vital investment for producing high-quality animation projects. The global market is viewed as an essential aspect of their operations.The second hypothesis is also supported, as the study finds that internationalization in creative industries is highly motivated by artistic logic. Companies prioritize the opportunity to enhance the scale of their creative projects over increasing economic income.

A research by Jakobsson & Döring (2016) investigates the internationalization process of Swedish computer gaming companies concerning the pursuit and assimilation of knowledge. The research question posed is, "How do Swedish computer gaming companies internationalize in relation to the pursuit and absorption of knowledge?" The study aims to examine how these firms discover, internalize, and utilize knowledge, leading to internationalization. The results reveal that Swedish computer gaming companies follow a non-traditional sequence in internationalization, diverging from the Uppsala model, as they select their target markets after a game's release, given the industry's digitized nature. This intensely competitive and knowledge-focused sector demands that game developers pinpoint specific niches where they can establish a competitive edge. Key findings include the reversed order of internationalization among Swedish computer gaming companies and their ability to identify particular niches for competitive advantage. This research adds valuable insights to the field of international business,

where limited research has been conducted, particularly focusing on this growing industry and its digital products. Simultaneously, the practical perspective emphasizes how these companies strategically utilize knowledge in their pursuit of international expansion.

Similar conclusions were drawn by Walther (2022). In his study he examines the relationship between digital internationalization of Small and Medium-sized Enterprises (SMEs) and the role of digital platforms in the video game industry. The research primary objective was to explore how digitalization has transformed the internationalization process for SMEs, with a specific focus on the video game sector. Walther (2022) points out, that digital platforms have significantly impacted the internationalization process for SMEs in the video game industry. These platforms enable SMEs to easily reach global markets, often without the need for large publishers. This has led to the rise of "born global" firms in the industry, due to the ease of internationalization. In other words the ease of distribution and internationalization facilitated by digital platforms in the video game industry has led to the emergence of Born Globals. These are firms that internationalize almost from inception, as they can directly access global markets without being reliant on publishers. The research highlights that the process of internationalization has become less of a challenge for video game companies, thanks to digital platforms. The internationalization process for video game companies has shifted from a focus on targeting specific countries to selecting suitable digital platforms. This change in approach is driven by the ease of global distribution facilitated by digital platforms. The research suggests that internationalization in the video game industry is no longer a gradual, knowledge-based process, as proposed by the Uppsala school, but rather an instantaneous process enabled by digital platforms owned by digital giants.

In conclusion, the internationalization of creative industries, particularly video game developers, has been shown to diverge from traditional internalization processes (Madsen & Servais, 1997). Instead, these firms tend to commence their operations as international startups or Born Globals (Walther, 2022). The literature emphasizes the critical role digital platforms play in this unique approach to internationalization, as they facilitate global distribution and access to markets. However, most studies primarily focus on the distribution of video games via these digital platforms, while neglecting other aspects of internationalization.

It is important to acknowledge that the current body of research offers limited insight into the internationalization of video game companies through cooperation with foreign, international partners such as publishers, investors, and business partners. This gap in the literature suggests that there is significant potential for further research to explore these underrepresented aspects

of internationalization in the video game industry. By examining the various ways in which video game developers collaborate and engage with international partners, future studies can provide a more comprehensive understanding of the internationalization process in this dynamic and rapidly evolving industry.

Chapter 2

2.1 The Evolution of video game industry

The development of video games has been marked by continuous change, innovation, and competition over standards, as well as periods of growth and decline. The industry's journey has included an initial phase dominated by small-scale inventors, followed by an expansion and legitimization stage facilitated by widespread acceptance and the potential for profitability. The sector has entered a maturation and diversification phase, characterized by the plethora of genres and the advanced capabilities offered by the latest gaming systems. This stage has been enabled by high-volume sales that have demonstrated the viability of profitable submarkets and suitable distribution channels for emerging genres sustained profitability became evident in the late 1980s and continued to increase in the late 1990s (Newman, 2012).

The genesis of the video game industry can be traced back to the 1950s and 1960s when computer scientists and engineers began to develop rudimentary games as part of their research (Kent, 2001). The first interactive electronic game, "Tennis for Two," was created by physicist William Higinbotham in 1958 (Williams 2002). The game, played on an oscilloscope, provided the foundation for future innovations in the realm of interactive entertainment.

The commercialization of video games began in the early 1970s with the introduction of arcade machines (Wolf, 2001). The first commercially successful video game, "Computer Space," was developed by Nolan Bushnell and Ted Dabney in 1971 (Kent, 2001). Bushnell and Dabney went on to found Atari in 1972, which would later become one of the most iconic brands in the video game industry.

Atari played a pivotal role in the early days of the video game industry, releasing the first home console, the "Atari 2600," in 1977 (Herman, 2017). The console revolutionized the market by enabling players to enjoy a variety of games on their television sets. Atari's success led to an influx of competitors, including Magnavox, the creators of the "Odyssey" home console, and Coleco, which released the "ColecoVision" in 1982 (Wolf, 2001).

In Japan, the video game industry was taking shape with the emergence of companies like Nintendo, Sega, and Taito (Herman, 2017). Nintendo, originally a playing card company, entered the video game market with the "Color TV Game" series in 1977 (Consalvo, 2016). Their early success in the arcade market, with games like "Donkey Kong," paved the way for the introduction of their iconic home console, the "Nintendo Entertainment System" (NES), in 1983.

The global expansion of the video game industry is inextricably linked to the rapid advancements in technology and the proliferation of personal computers in the 1980s and 1990s. This period saw the rise of new players in the market, such as Microsoft and Sony, which leveraged their expertise in hardware and software to develop gaming consoles like the "Xbox" and "PlayStation" (Herman, 2017).

The 1990s also marked the beginning of the "console wars," with companies like Nintendo, Sega, Sony, and Microsoft vying for market dominance (Kent, 2001). This intense competition spurred the development of innovative technologies, such as 3D graphics and CD-ROM storage, that revolutionized the way games were designed and played (Gorges, 2017).

The video game industry has continued to evolve in the 21st century, with new platforms and business models emerging. The advent of the internet has given rise to online gaming, digital distribution, and esports, all of which have significantly impacted the industry's dynamics (Gouglas et al., 2017). Mobile gaming, spurred by the widespread adoption of smartphones and tablets, has also become a dominant force in the market, with companies like Supercell, King, and Tencent generating substantial revenue from their games (Patnaik, 2017).

Independent game development, or "indie games," has flourished in recent years, with smaller studios and individual developers creating innovative and experimental games that often challenge conventional genres and gameplay mechanics (Daglow 2018). Platforms such as Steam, the PlayStation Network, and the Nintendo eShop have enabled these developers to reach global audiences, further diversifying the industry.

Table 12 presents a comprehensive overview of the general phases in the history of the video game industry, including time periods, key development points, and descriptions of each phase. The time intervals provide a general framework for understanding the evolution of the industry, with some phases overlapping as trends and innovations emerged concurrently. A short description is provided for each phase to summarize its significance and impact on the industry.

Table 12 - Phases in the history of the video game industry.

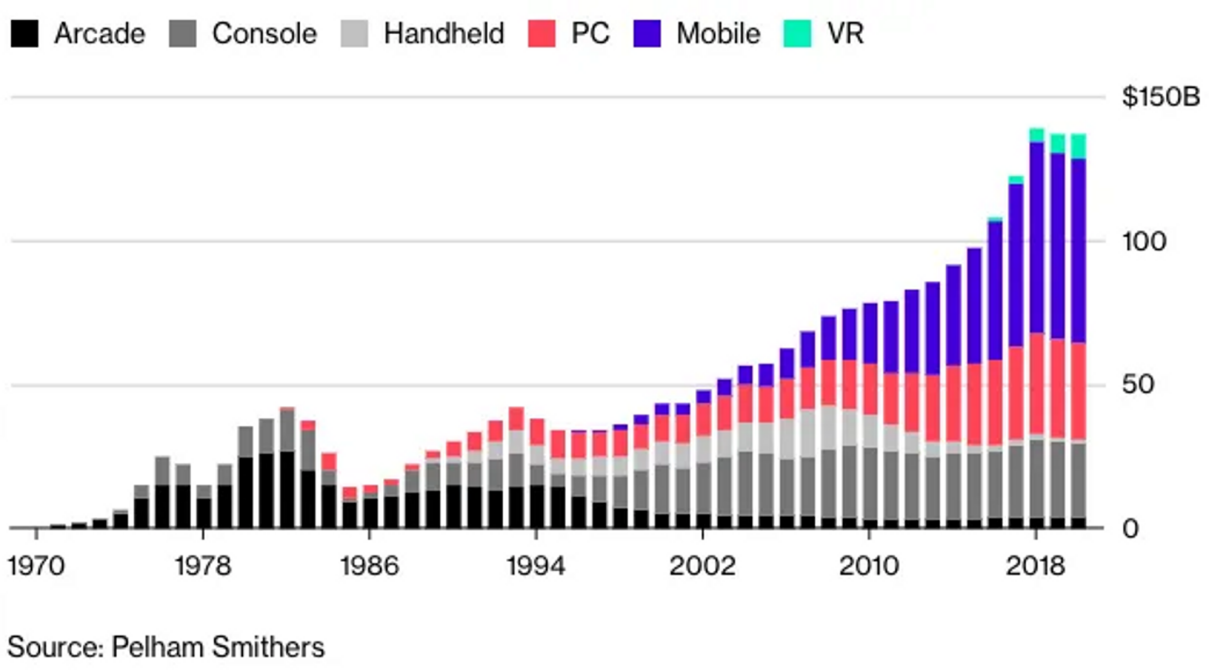
Phaze	Description	Examples
Early Experimentation - Creation of the first video games (1958-1971)	Researchers and engineers created the first video games as experiments with computer graphics and interactivity, paving the way for the industry.	Tennis for Two (1958), Spacewar! (1962), Computer Space (1971)
Arcade Boom - Rise of the arcade industry (1972-1985)	Coin-operated arcade machines become popular, introducing video games to a wider audience and establishing the industry as a profitable venture.	Atari's Pong (1972), Space Invaders (1978), Pac-Man (1980), Donkey Kong (1981)
First Home Consoles - Introduction of home consoles 1972-1983	Home consoles are developed, bringing video games into households and expanding the market for gaming.	Magnavox Odyssey (1972), Atari 2600 (1977), Intellivision (1979), ColecoVision (1982)
Console Wars - Competition among major console manufacturers (1983-2000)	Console manufacturers, primarily Sega and Nintendo, engage in fierce competition, driving technological advancements and innovations.	Nintendo Entertainment System (1983), Sega Genesis (1988), Super Nintendo (1990)
3D Gaming Revolution - Emergence of 3D graphics and CD-ROM technology (1994-2005)	Advancements in 3D graphics and CD-ROM technology allow for more complex and immersive games, transforming the gaming experience.	Sony PlayStation (1994), Nintendo 64 (1996), Sega Saturn (1994), 3DFX Voodoo (1996)
Handheld Gaming - Expansion of handheld gaming devices (1989-2010)	Portable gaming devices emerge, allowing users to play video games on the go and expanding the reach of the industry.	Nintendo Game Boy (1989), Atari Lynx (1989), Sega Game Gear (1990), Neo Geo Pocket (1998)
Online Gaming - Expansion of online gaming and multiplayer 1997-present	Online gaming becomes more prevalent, enabling large-scale multiplayer experiences and changing the way gamers interact.	Ultima Online (1997), EverQuest (1999), Xbox Live (2002), World of Warcraft (2004)
Mobile & Casual - Rise of mobile gaming and casual gaming (2007-present)	The rise of smartphones and casual gaming attracts new audiences to the industry, diversifying the market and expanding its reach.	Bejeweled (2001), Angry Birds (2009), Candy Crush Saga (2012), Flappy Bird (2013)
Indie Development - Emergence of independent game development (2004-present)	Independent developers create unique and innovative games, demonstrating the creative potential of the industry.	Cave Story (2004), Braid (2008), Minecraft (2011), Undertale (2015)
Virtual & Augmented - Introduction of virtual and augmented reality (2016-present)	Virtual and augmented reality technologies emerge, offering new immersive gaming experiences and expanding the boundaries of the medium.	Oculus Rift (2016), HTC Vive (2016), PlayStation VR (2016), Pokémon GO (2016)
Streaming & Cloud - Adoption of game streaming and cloud-based services (2010-present)	Game streaming and cloud-based services develop, changing the way games are distributed and accessed by players.	OnLive (2010), GeForce Now (2015), Xbox Game Pass (2017), Google Stadia (2019)
eSports - Growth of competitive gaming and professionalization of eSports (2000-present)	Competitive gaming grows in popularity, turning video games into a spectator sport and creating new opportunities for the industry.	StarCraft II (2010), League of Legends (2009), The International (2011), Overwatch (2016)

Source: Own study

A research conducted by Pelham Smithers (Nakamura, 2019) shows that in terms of the revenue the video game industry has experienced a remarkable evolution in scale over the past five decades expanding exponentially across various platforms. Beginning in 1971 with a modest

revenue of $1 billion generated solely by arcade machines, the industry's earnings skyrocketed to an astounding $138.5 billion in 2018. This growth can be attributed to the diversification of platforms, as game consoles, PCs, handhelds, and mobile devices have all contributed to the industry's revenue in varying degrees. While console revenues have remained relatively stable since 2003, ranging between $20 and $25 billion with a peak of $27 billion in 2018, PC revenues have exhibited a steady increase since 1982, reaching $35 billion in 2018. In contrast, the handheld game market has diminished over time, claiming only a 1% share, approximately $2 billion, of the overall revenue in 2018, a sharp decline from its 24% ($16 billion) peak in 2007. Mobile gaming, however, has emerged as a dominant player in recent years, accounting for 48% of all game revenue in 2018. Despite projections for a temporary downturn in the industry in 2019 and 2020, the video game sector has demonstrated a remarkable capacity for growth and adaptation across an ever-changing landscape of platforms.

Figure 12. Revenues of video games industry in last 50 years



In conclusion, the dynamic nature of the video game industry, marked by its responsiveness to technological advancements and ever-changing trends, makes understanding the determinants of game studios' growth and development a complex endeavor. The industry's continuous evolution highlights the need for a nuanced and multifaceted analysis that takes into account the adaptive strategies employed by game developers, as well as the contextual factors

that influence their decisions. A comprehensive examination of these elements is critical to shedding light on the intricate interplay between the industry's transformations and the characteristics of video game studios. By delving deeper into these aspects, the resilience and creativity of the game creators but also uncover the underpinning factors that drive the ongoing expansion and diversification of the video game industry should be appreciated.

2.2 The Economic impact of Video Game Industry

In this section, we synthesize the existing body of literature on the economic impact of the video game industry, with a focus on empirical studies and relevant theoretical frameworks. We discuss the direct and indirect effects of the industry on job creation, regional development, and innovation, as well as the broader implications for cross-industry dynamics and policy considerations. Finally, we identify gaps in the current literature and suggest avenues for future research.

The rise of the video game industry has had profound effects on various aspects of society, extending well beyond its economic significance. As a pervasive form of entertainment, video games have become deeply ingrained in modern pop culture, influencing artistic expression, social interactions, and even shaping public discourse (Bogost, 2017). As a result, the impact of this rapidly growing industry extends into numerous social, cultural, and economic domains that warrant comprehensive scholarly exploration. This subchapter, however, focuses specifically on the multifaceted economic consequences of the video game industry, delving into aspects such as employment, regional development, innovation spillovers, and cross-industry influences.

The video game industry has experienced tremendous growth over the past few decades, evolving from a niche form of entertainment to a mainstream cultural phenomenon. With global revenues surpassing $184 billion in 2022 (Newzoo, 2022), the industry has become a significant force in the global economy, outpacing the film and music industries combined (Khan, 2021). This meteoric rise has not only spurred innovation in technology and storytelling but has also generated a variety of economic ramifications that warrant scholarly attention.

The video game industry has led to the creation of numerous high-skilled jobs, with an estimated 2.7 million people employed worldwide in 2020 (Statista, 2021). This employment growth has been particularly pronounced in regions with established game development clusters, such as North America, Europe, and East Asia, where the presence of large game companies has stimulated local economies and fostered an ecosystem of smaller studios, service

providers, and educational institutions (Santo & Ruffino, 2020).

Moreover, the video game industry has fostered innovation and technological advancements that have spilled over into other industries. The development of cutting-edge hardware and software has pushed the boundaries of computer graphics, artificial intelligence, and virtual reality, with applications in fields such as healthcare, education, and automotive design (Khan, 2021; Kultima et al., 2020). Additionally, the popularity of video games has driven the growth of complementary industries, such as streaming platforms and esports, which have generated new revenue streams and further expanded the industry's economic footprint (Cunningham et al., 2021).

Despite the growing recognition of the video game industry's economic significance, there is a notable gap in the existing literature concerning its worldwide or global impact. Much of the research conducted so far has primarily focused on the domestic or regional consequences of developing video game industries within specific countries or areas (e.g., De Prato et al., 2014; Kultima et al., 2020; Santo & Ruffino, 2020). While these studies have provided valuable insights into the local effects of the industry, they often overlook the broader, cross-border implications of the video game industry on the global economy. As the industry's supply chains, distribution networks, and consumer markets continue to expand and integrate across borders, understanding the industry's global economic dynamics becomes increasingly crucial. Therefore, further research examining the international interdependencies, trade relations, and spillover effects generated by the video game industry is warranted in order to provide a more comprehensive understanding of its true economic impact.

The Report created by TEConomy Partners for The Entertainment Software Association (2020) is a comprehensive study that examines the video game sector and its extensive influence in the US. Notable findings from the report are:

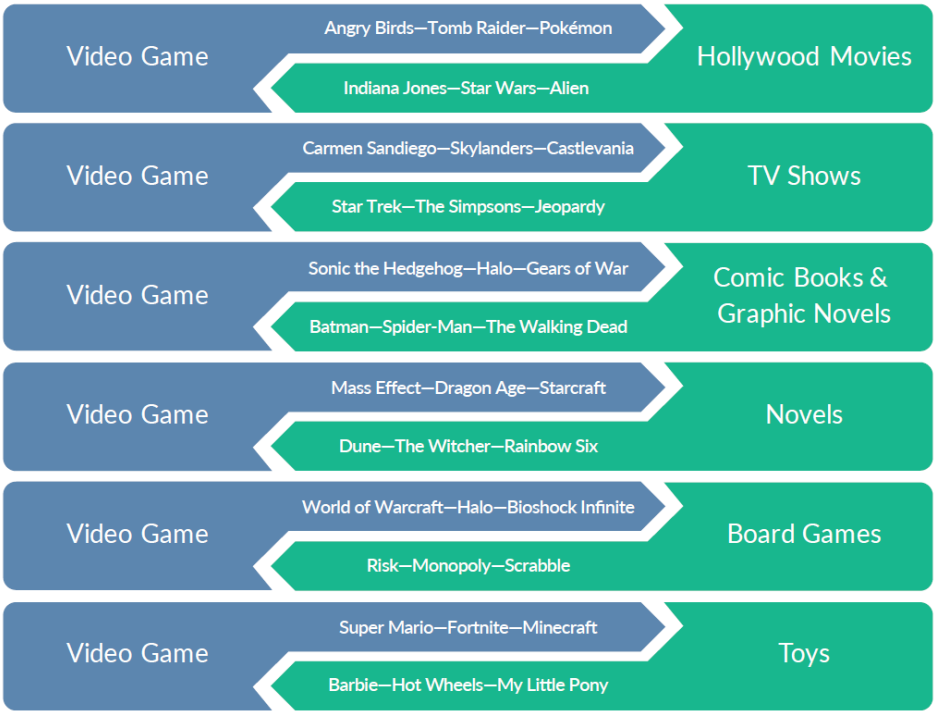
- In 2019, the video game sector produced a direct economic output surpassing $40.9 billion, which led to a total output in the U.S. of over $90.3 billion, factoring in the multiplier effect.
- A total of 143,045 individuals are directly employed by the U.S. video game sector. Considering direct, indirect, and induced economic effects, the industry and its related expenses sustain 428,646 jobs in the U.S.
- The economy-wide income (comprising salaries, wages, and benefits) amounts to $35.28 billion, with $17.37 billion in direct remuneration for video game industry employees (averaging $121,459 per employee).

- The industry's innovative and technological nature yields substantial positive ripple effects for other U.S. sectors.
- The video game sector demonstrates considerable potential for continued economic expansion and the development of new technologies and innovations.

The report emphasizes the substantial economic influence of the video game sector in the U.S., including its role in job creation, income generation, and technological innovation. The study also indicates a bright future for the industry's ongoing growth and progression.

A worth mentioning observation in TEConomy Report (2020) in the context of video game impact is the entertainment cross-over effects which emphasizes the interrelated nature and effects of video games across multiple entertainment domains. As the industry has expanded, its reach has extended into fields like films, TV shows, comics, literature, toys, and collectible figures. Simultaneously, video games have become a crucial revenue source and cross-promotion strategy for other creative sectors looking to broaden their intellectual properties. The growth of the industry has given rise to many prominent entertainment franchises rooted in video games. Moreover, elements and characters from video games have been adopted in a variety of commercial applications, including costumes for children and adults, apparel, promotional merchandise, and advertising initiatives. In summary, the video game industry's inventive and groundbreaking contributions have left a lasting mark on American culture and various entertainment industries, showcasing its widespread cross-over influences. This effect across multiple medias is presented in Figure 13.

Figure 13. Examples of cross-overs to other entertainment forms



Source: Tripp S., Yetter D., Grueber M., (2020)

In numerous cases, extensive entertainment media franchises have been created using original video games as their foundation. Various case study examples demonstrate the profound cross-over impact of this phenomenon in table 13.

Table 13. Examples of cross-overs to other entertainment forms

Video Game	Primary Movie Crossover	Other Entertainment Crossovers
Mortal Kombat. Created in 1992 by the American company Midway Games,now published by Warner Brothers Games. The franchise has grown to over 20 games.	Turned into two feature films: Mortal Kombat (1995) and Mortal Kombat: Annihilation (1997), distributed by New Line Cinema, scoring $173.6 million at the global box office.	The franchise has expanded to include two animated films, live-action and animated television series, comic books, novels, music, a live theatrical show tour, and physical card games.
Pokémon. Began as a video game introduced by Nintendo in 1996. It has since expanded to more than 30 games.	The 2019 film Pokémon Detective Pikachu, released by Warner Bros. Pictures, earned $433 million worldwide.	Pokémon has also branched out into numerous animated films, a TV show, a well-liked trading card game, comics, toys, and more.
Tomb Raider. Game series initially developed by the UK-based Core Design and first launched in 1996. Today includes 18 games.	The 2001 film Lara Croft: Tomb Raider grossed $275 million, while its 2003 sequel, Lara Croft: Tomb Raider—The Cradle of Life, brought in $156 million. Both were distributed by Paramount Pictures.	The first issue of the Tomb Raider comic book became the top-selling comic book of 1999.
Resident Evil. Released in 1996 by the	Beginning with the 2002 film now	Besides the live-action films, the

Japanese company Capcom under the original title Biohazard.	includes six films, with a combined worldwide box office total of $1.23 billion. Screen Gems handled the distribution.	franchise encompasses animated films, comic books, novels, audio dramas, and various merchandise.
Prince of Persia. Created by American Jordan Mechner, produced by several companies and is currently managed by Ubisoft. The series features over 15 video game titles.	Prince of Persia: The Sands of Time, released by Walt Disney Studios in 2010, accumulated a worldwide box office of $336.4 million.	The franchise has inspired the creation of a graphic novel and Prince of Persia Lego sets.
Assassin's Creed. Developed by Ubisoft and first launched in 2007, the franchise includes 11 video games. Characters from this series also make appearances in other Ubisoft video games.	The film adaptation of Assassin's Creed, released in 2005, earned a worldwide box office of $240.6 million. It was distributed by 20th Century Fox.	As a diverse entertainment franchise, Assassin's Creed has produced three short films, 11 comic books, nine novels, two board games, and a live music tour with visual effects.
Angry Birds. Initially introduced in 2009 by the Finnish company Rovio Entertainment, the Angry Birds franchise now comprises 18 video games	The animated feature The Angry Birds Movie, released in 2016, was distributed by Sony Pictures and grossed $352.3 million worldwide. A sequel to the film generated $154.7 million at the box office.	The franchise has spawned a range of additional products, such as TV series, toys, board games, books, and comic books.

Source: Tripp S., Yetter D., Grueber M., (2020)

The report presented by the Mayor's Office of Media and Entertainment (2021) focusing on the digital sector is focusing on the video game sector impact in New York (US). The study provides a comprehensive and detailed analysis of the socio economic aspect of developing the gaming industry in that region. The digital gaming sector in New York City exhibits rapid growth, sustaining over 7,600 jobs, contributing $762 million in total wages, and generating $2 billion in overall economic output. According to this study, this sector employment has tripled in less than 10 years, with an average wage of a professional of around 106,000 USD.

According to the New York's report, the game industry can be divided into six segments:

- Game developers
- Publishers
- Retail & Arcades
- Professional & Finance services
- Esports
- Non-profits & Education.

The digital games industry in New York City contributes to the economy through four distinct types of impacts:

- Direct - refers to employment, wages, and economic output generated within the central industry itself.
- Indirect - encompasses the employment, wages, and economic output stemming from suppliers of goods and services that cater to the primary industry.
- Induced - Constitutes the employment, wages, and economic output resulting from employees in the core industry and its indirect sectors, who spend their earnings within New York City.
- Ancillary: Involves spending and economic activities that arise as secondary outcomes of activities within the core industry.

A Typology of Socioeconomic Impact of the Video Game Industry

Based on literature review this section synthesizes and proposes a typology of the socioeconomic impacts of the video game industry on the economy. It is organized into five major types of influence: direct economic impacts, indirect economic impacts, employment and human capital development, innovation and technological advancements, and cultural and social impacts. Detailed examples are provided for each type of impact in table 14.

Table 14. Typology of Socioeconomic Impact of Video game Industry

Indirect Economic Impacts	
Effect:	**Examples:**
Supply Chain and Ecosystem	Hardware Manufacturing; Software Development; Retail and Distribution.
Spillover & Crossover	Film and Television; Merchandising; eSports;
Complementary Industries	Mobile Gaming; Virtual Reality (VR); Augmented Reality (AR):
Tourism	Gaming Events and Conventions; Game-Themed Attractions;
Direct Economic Impacts	
Revenue Generation	Software Sales; Hardware Sales; Subscription Services; In-game Purchases: Advertising
Tax Contributions	Corporate Taxes; Employee Income Taxes; Sales Taxes

Export Earnings	International Sales; Licensing and Intellectual Property:
Investment in Infrastructure and Research	Research and Development; Infrastructure and Facilities; Education and Training
Employment and Human Capital Development	
Job Creation	Direct Employment; Support Roles; Freelance and Contract Work; Content Creators and Streamers
Skill Development	Technical Skills; Creative Skills; Project Management
Talent Attraction and Retention	Global Talent; Employee Mobility
Educational Partnerships and Initiatives	University Collaboration; Industry-Specific Training Programs; STEM Education
Innovation and Technological Advancements	
Technological Innovations	Graphics and Rendering; Artificial Intelligence (AI); Virtual Reality (VR) and Augmented Reality (AR); Cloud Gaming and Streaming
Industry Cross-pollination	Education; Healthcare; Architecture and Urban Planning; Military and Defense
Cultural and Social Impacts	
Storytelling and Narrative	Interactive Storytelling; Transmedia Storytelling;
Art and Aesthetics	Game Art; Music and Sound Design
Social Interaction and Communities	Online Communities; Inclusivity and Representation
Learning and Education	Educational Games; Game-based Learning
Cultural Exchange and Globalization	Cultural Exchange; Globalization

Source - own study

In conclusion, the economic impact of the video game industry is substantial and multidimensional, spanning direct and indirect financial contributions, employment generation, technological innovation, and wide-reaching socio-cultural influences. Analyzing the economic impact of the video game industry is a fundamental component in understanding and strategically planning for the growth and development of companies within this sector.. An

understanding of the economic aspects of the industry can help companies predict, manage, and mitigate these risks. Understanding the economic impact of the industry can provide critical insights into potential returns on investment, the affordability of new initiatives, and the financial risks associated with various strategic choices. Finally, the economic impact of the industry can reveal new market opportunities, potential partnerships, and strategic directions. It can identify emerging trends, consumer demands, and growth sectors, such as esports or mobile gaming, that companies can capitalize on to fuel their growth.

2.3. Industry Structure

The video game industry has grown into a complex and multifaceted ecosystem, encompassing a diverse range of actors and intricate interconnections that contribute to its expansion and prosperity. As the industry continues to evolve, a comprehensive understanding of the modern actors and their relationships within this ecosystem becomes vital for grasping the dynamics and determinants of video game developers' growth and development. By synthesizing and organizing information about the myriad actors, such as publishers, distributors, hardware manufacturers, service providers, and influencers, we can identify the key factors and driving forces that shape the industry and its various components.

2.3.1. Video Game industry actors and their relations

A deep understanding of industry actors and their interdependencies can reveal critical insights into the resources, networks, and opportunities that developers can leverage to fuel their growth. For instance, developers can form strategic partnerships with publishers, who can provide access to capital and marketing support, thereby increasing the likelihood of a game's commercial success. Additionally, strong relationships between video game developers and hardware manufacturers, platform holders, or professional services companies can lead to higher recognizability and better chance for commercial success(przypis). A comprehensive analysis of the video game industry's actors and their characteristics and interconnections can provide valuable insights into the forces that drive the industry and the factors that influence developers' growth and success. By unraveling this intricate network, researchers and industry professionals can identify trends, opportunities, and strategies that enable developers to thrive in the ever-evolving gaming ecosystem.

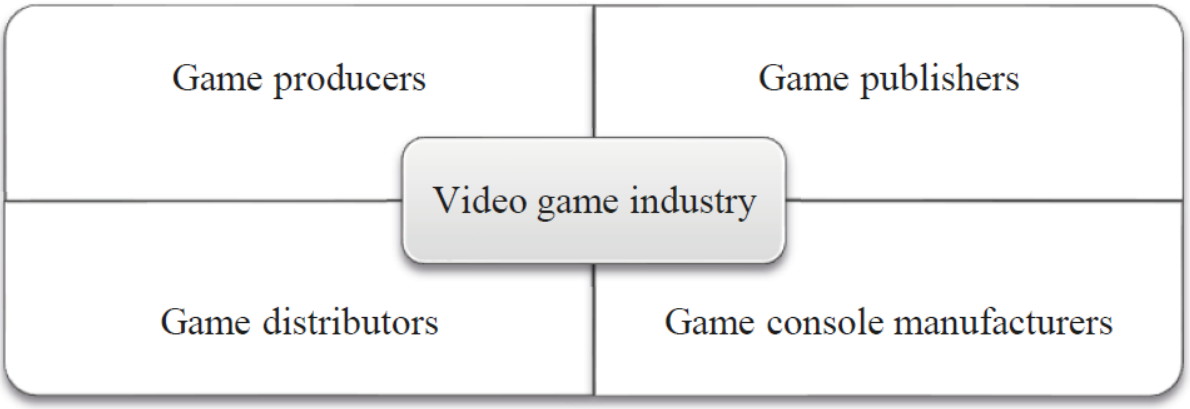
In recent years, the video game industry has witnessed a surge in self-sufficient developers who have managed to achieve growth and commercial success through

self-publishing and self-financing, while minimizing their connections with other industry actors. This phenomenon can be attributed to the democratization of game development tools, the accessibility of digital distribution platforms, and the rise of crowdfunding as an alternative funding source (Kerr, 2006). By leveraging these resources, independent developers can retain greater creative control and ownership over their projects, while avoiding the pressures and constraints that often accompany partnerships with external stakeholders (Walther 2022).

Moreover, the proliferation of social media and content sharing platforms has enabled self-sufficient developers to directly engage with their target audience and cultivate a loyal community of players. This direct line of communication not only allows developers to gather valuable feedback and iterate on their designs but also facilitates grassroots marketing efforts that can significantly contribute to a game's success. Additionally, the growing prominence of indie game-focused events and awards has further increased the visibility and credibility of independent developers within the industry.

According to Cadin and Guerin (2006), the video game industry consists of interlinked basic segments - game producers, publishers, distributors and console manufacturers.

Figure 14 - Model of video game industry



Source: (Cadin and Guerin, 2006).

Flew & Sal (2005) in their approach extended the structure of this industry, which can be broken down into six interconnected and unique “layers”:

- Product and talent layer - encompasses game developers, designers, and artists
- Capital or publishing layer - focuses on funding the creation of new games and earning returns through licensing agreements.

- Production and tools layer - responsible for generating game development tools, middleware, adaptable game engines, and production management resources.
- Distribution layer - also known as the "publishing" sector, takes care of creating and promoting game catalogs for both physical and digital distribution channels
- Hardware layer - supplies the foundational systems, which can be console-based, accessed online, or available on mobile devices.
- Consumer layer - consists of the end-users of games, such as casual gamers, esports teams, and content creators.

While much of the existing research on the video game industry primarily focuses on the main four actors (as Cadin and Guerin list in their model), the contemporary landscape of the industry is more intricate and diverse with overlapping specializations of some of the actors for other areas, therefore it’s harder to assign a single role for each actor. Also, with the ongoing evolution and expansion of the video game sector, a wide range of specialized services and roles have emerged, contributing to the industry's complexity and shaping its current form. To understand the complexity and interdependence of players in the gaming market, we should start by analyzing the specific actors of this market broken down into basic categories. The table 15 presents a list of contemporary actors in the video game industry divided into 6 key, wide categories (Game Production; Hardware & Software; Publishing & Distribution; PR & Marketing; Professional Services; Financing) depending on their specialization, providing a more comprehensive picture of this specific ecosystem. Each of these actors plays a crucial role in the overall success and functionality of the industry, often operating behind the scenes to ensure the delivery of high-quality gaming experiences to an increasingly global audience.

Table 15. Main game industry actors divided in key categories

Game Production	
Companies and individuals specialized in development of the key industry products, such as games or its content.	Game developers Game content creators (artists, freelancers)
Hardware & Software	
Companies specialized in production of the key industry products, such as games, software for their creation and use; hardware enabling their production and use.	Platform holders Console manufacturers Game engine and software providers Hardware manufacturers
Publishing & Distribution	
Service companies specialized in introducing games to the market, reaching target audiences, physical distribution for retail, and ensuring worldwide access to products for digital distribution.	Publishers Digital distribution platforms Physical distributors
PR & Marketing	
Service companies specializing in promoting digital games and spreading information about new game titles. Also, private individuals publicizing new titles through their own creativity.	PR & Marketing agencies Games News Services & Journalists Influencers and content creators
Professional Services	
Service companies specializing in supporting the production process and optimizing and adapting the product to current consumer needs, regions, and market trends.	Quality Assurance Agencies Localization Agencies External Development Studios Tech Services (Mocap etc.)
Financing	
Market entities or service companies providing diversified forms of financing for production, which are available and frequently used by game developers.	Venture capital Private Investors Crowdfunding platforms Stock Market Government Institutions

Source: Own study based on (Patnaik, 2017); (Marchand, 2013); (Tschang, 2007); (Greenspan, 2014)

In this approach, consumers (gamers or end users) are intentionally left out of this classification, as their participation in shaping the video industry is not a part of their professional work, being a side-effect of consumers preferences and purchases. Although the role of the gamers community and its engagement cannot be neglected and is still an important part of the development process and a part of PR & Marketing activities (Walther, 2022). Still, the fixed classification into categories for each actor is becoming more problematic. For example, it seems unclear whether External Development Studios should be classified as a Professional services category or as a Game Production in cases when an External Development Studio was hired for development of a whole game - in this case, priority was determined on the basis of the actor's business model (provision of services) and its relationship with the product (contract execution). However, this case illustrates the huge diversity of the industry and its connections. In order to get to know it, it seems necessary to thoroughly understand the characteristics of individual entities and mutual dependencies.

Game developers

These individuals or companies are responsible for creating the content, design, and programming of video games. They conceptualize and build the game world, characters, storylines, and gameplay mechanics. Developers range from small indie studios to large multinational corporations. They are the foundation of the game production process, and their work relies heavily on the tools, technology, and hardware provided by the other two actors in this category (Van Dreunen, 2020). A full description of Game Developers characteristics, practices and challenges will be included in section 2.4 of this chapter.

Game content creators

Encompass a diverse group of artists, freelancers, and writers who contribute to the development of video games by generating various types of creative content. These individuals may work independently on their own projects or collaborate with game developers as contractors or in-house team members. Their skills and expertise play a crucial role in shaping the aesthetic, narrative, and overall experience of a game (Van Dreunen, 2020).

Platform holders vs Console Manufacturers

In the video game industry, the terms "platform holder" and "console manufacturer" are often used interchangeably, but they do have distinct meanings. A platform holder is a company

that owns, manages, and controls a particular gaming platform or ecosystem. This can include hardware (such as a console), software, and digital distribution services. Platform holders are responsible for setting the rules and guidelines that govern the ecosystem, including the approval of third-party games and applications. They also have the authority to create, develop, and publish games for their platform. Prominent examples of platform holders include Sony, Microsoft, and Nintendo (Canpolat, 2016).

On the other hand, a console manufacturer is a company that focuses primarily on the design, production, and distribution of gaming hardware, such as video game consoles. While console manufacturers often own and operate their own gaming platforms, this is not always the case. Some console manufacturers partner with platform holders or even operate as subsidiaries of larger platform holder companies. While it is common for a platform holder to also be a console manufacturer, it is not always the case. For example, EPIC Games is a platform holder for its digital distribution platform, but does not manufacture any consoles. Conversely, there are console manufacturers like Nvidia, which produces the Nvidia Shield, that do not own or control a gaming platform (Newman, 2012).

In summary, a platform holder is a company that manages and controls a gaming platform or ecosystem, while a console manufacturer focuses on the design, production, and distribution of gaming hardware. Although many companies, such as Sony and Nintendo, are both platform holders and console manufacturers, there are instances where a company can be one without being the other.

Game engine and software providers

These companies develop and license the core technology that game developers use to build their games. Game engines provide the framework for rendering graphics, handling physics, and processing user inputs, while middleware tools offer specialized solutions for specific aspects of game development, such as AI, audio, or networking. By using these tools, game developers can streamline their workflow, reduce development time, and focus on creating unique gameplay experiences. The success of game engine and middleware providers depends on their ability to offer versatile, efficient, and user-friendly tools that cater to the needs of game developers (Messaoudi, 2015).

Hardware manufacturers

These companies produce gaming peripherals, and accessories needed to play video

games, as well as the components for gaming PCs. The hardware produced by these manufacturers directly influences the performance, compatibility, and user experience of the games developed. Game developers must ensure that their creations are optimized for the various hardware platforms to provide a smooth and enjoyable gaming experience for players. In turn, hardware manufacturers often collaborate with game developers to showcase their products' capabilities and support exclusive game titles, which can drive sales and increase brand loyalty (Kleinstein, 2005).

Publishers

The role of publishers in the video game industry is multifaceted and crucial to the successful development, marketing, and distribution of video games. As intermediaries between game developers and consumers, publishers undertake a range of responsibilities that can significantly impact a game's commercial success and overall reception. Publishers can be broadly categorized into two types: major publishers, such as Electronic Arts, Ubisoft, and Activision Blizzard, and smaller, independent publishers, often referred to as "indie" publishers, like Devolver Digital and Annapurna Interactive. Major publishers typically have extensive resources, allowing them to fund, market, and distribute games on a global scale, while indie publishers may focus on niche markets and adopt more targeted marketing strategies (Van Dreunen, 2020).

The responsibilities of video game publishers encompass various aspects of a game's life cycle, including funding, marketing, distribution, and quality control. They provide financial support for game development, which is especially important for developers who lack the resources to self-fund their projects (Kline et al., 2003). Publishers also assume responsibility for marketing and promoting games, leveraging their industry knowledge and connections to create targeted marketing campaigns and generate public interest (Kerr, 2017). Furthermore, they oversee the distribution of games, both through physical retail channels and digital platforms, ensuring that games reach their intended audience. Additionally, publishers play a role in quality control, providing feedback on game design and working with developers to address any issues that arise during the development process.

Collaboration between publishers and developers is vital to the successful production and release of video games. Publishers often enter into strategic partnerships or licensing agreements with developers, wherein they provide financial support and access to proprietary technologies or intellectual property in exchange for a share of the game's revenue. These

relationships can take various forms, from one-off collaborations to long-term partnerships or even the acquisition of development studios by publishers . Ultimately, the role of publishers in the video game industry is integral to bringing games to market and ensuring their success, as they bridge the gap between developers and consumers while providing essential resources and expertise (Greenspan, 2014)

Digital distribution platforms

Digital Distribution Platforms, independent of console manufacturers, play a significant role in the video game industry by providing a marketplace for developers to sell and distribute their games directly to consumers (Walther 2022). Examples include Valve's Steam, Epic Games Store or GOG.com, but also Google Play and App Store for mobile games. These platforms have revolutionized the distribution landscape, allowing developers to bypass traditional retail channels and reach a global audience more efficiently (Kerr, 2012). They offer various tools and services to assist developers in marketing, monetizing, and supporting their games, such as user reviews, community features, and content updates (Humphreys, 2017). By facilitating more direct connections between developers and players, digital distribution platforms have altered the power dynamics within the video game industry and enabled a more diverse range of games, including indie titles, to find success in the market (Walther 2022).

Physical distributors

These companies specialize in the logistics of shipping, warehousing, and inventory management for physical game copies. They ensure games are available at retail stores and handle the process of returns and stock replenishment (Greenspan, 2014).

PR & Marketing agencies

These specialized agencies manage public relations and communications for game developers and publishers. They create and implement strategies to shape public perception, manage media relations, and coordinate events to promote games and engage with the gaming community (Eriksson, 2019).

Games News Services & Journalists

These individuals and organizations provide news, reviews, and commentary on video games, as well as industry trends and events. They play a role in shaping public perception and

consumer decisions related to gaming (Newman, 2012).

Influencers and content creators

These specialized agencies manage public relations and communications for game developers and publishers. They create and implement strategies to shape public perception, manage media relations, and coordinate events to promote games and engage with the gaming community (Greenspan, 2014).

Quality Assurance Agencies

These companies provide testing and quality assurance for video games, ensuring that games function as intended, are free of bugs and glitches, and meet performance standards. QA and testing services help developers identify and resolve issues before the game's release, ensuring a smooth and enjoyable player experience .

Localization Agencies

These companies provide translation and localization services to adapt games for different markets and languages. They ensure that the game's content, including text, audio, and cultural references, is accurately and appropriately adapted to cater to the target audience in various regions

External Development Studios

These studios provide outsourced development services, such as art, animation, level design, or programming, to support game developers in completing their projects. They can help manage workload, meet deadlines, and provide specialized expertise that may not be available in-house.

Tech Services (Mocap etc.)

Companies specializing in specific technologies like motion capture (mocap), photogrammetry, or sound design offer their services to game developers. These specialized tech services enable developers to create more realistic, immersive, and polished experiences by incorporating cutting-edge technologies into their games.

Venture capital firms (Greenspan, 2014).

Private Investors

These firms invest in more mature game companies, often providing capital for expansion, acquisitions, or restructuring. Like venture capital firms, private equity firms typically receive equity in the companies they invest in and may take an active role in guiding business strategy (Wolf, 2012).

Crowdfunding platforms

Platforms like Kickstarter and Indiegogo allow game developers to raise funds directly from the public for their projects. Developers typically offer backers various rewards, such as early access or exclusive content, in exchange for their financial support (Van Dreunen, 2020).

Stock Market

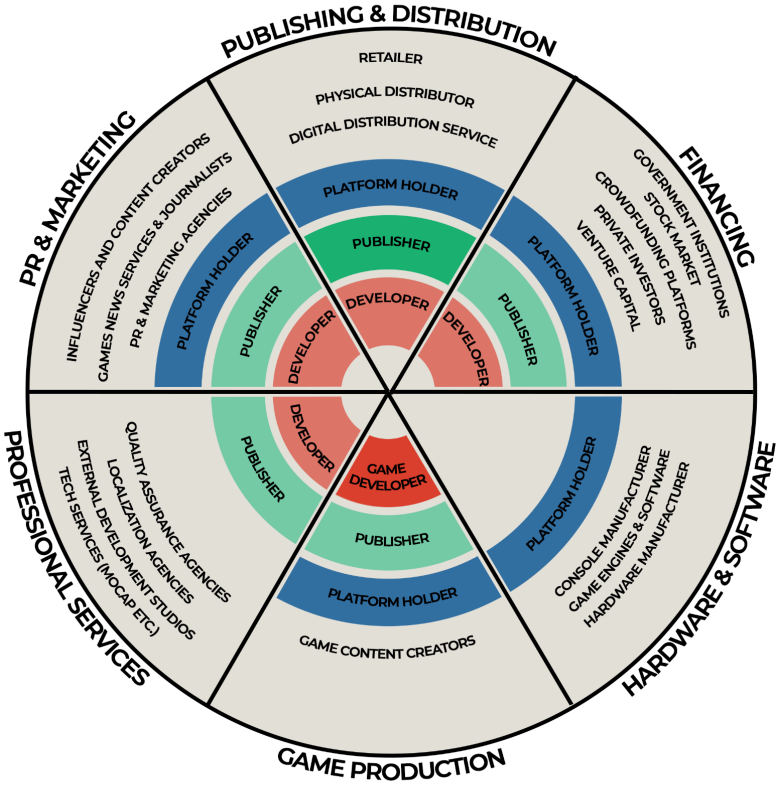
Publicly traded game companies can raise capital through the stock market by issuing shares to investors. This allows them to access a broader pool of funding sources, which can be used to support development, acquisitions, or other strategic initiatives.

Government Institutions

Various government agencies and programs provide financial support to the video game industry in the form of grants, tax incentives, or other forms of funding. This support can help promote the growth and development of the industry, foster innovation, and create jobs within a region.

A synthesized structure of the video game industry ecosystem is presented in figure 15, where all its actors are divided into their focus categories. In the video game industry, three key players hold significant importance: game developers, publishers, and platform holders. These entities serve as the focal point for all other actors, fostering collaboration and coordination. In essence, game developers and publishers can directly engage with every actor on this list, as well as with one another (Van Dreunen, 2020). This manifests as game developers hiring PR firms, quality assurance agencies, or localization services; entering contracts with private investors; closely collaborating with game engine and software providers; and utilizing digital distribution platforms, among other activities. Publishers often follow similar practices, forming partnerships with various actors within the industry (Kerr, 2006).

Figure 15. The Game Industry Ecosystem



Source: Own study

However, the roles and responsibilities of game developers and publishers often extend beyond their core activities, as shown in figure 15. While game developers may primarily concentrate on production-related tasks and benefit from publishers' financial support and professional services of other actors. However, in practice, these roles frequently overlap and game developers may diversify their activities. For instance, game developers might opt to self-publish, becoming self-reliant in other aspects by establishing dedicated departments specializing in distinct areas. This can include self-financing and providing professional services for their own projects or for external clients (Freeman, 2019). Game developers also open their own publishing department, offering support and financing to smaller game developers - such as the Polish company 11 Bit Studios (11 Bit Studio, 2020). Although we do not observe game developers manufacturing their own consoles or hardware, we do observe developers starting their own dedicated platform for digital distribution of their own games, for example:

- Rockstar Games Social Club (https://socialclub.rockstargames.com/)
- Ubisoft Store (https://store.ubisoft.com/)
- EA Play (https://www.ea.com/pl-pl/games)
- Blizzard Battlenet (https://www.blizzard.com)

Despite the increasing viability of self-sufficiency in the video game industry, it is essential to recognize that these developers still operate within a complex ecosystem and may benefit from strategic collaborations with other industry actors when necessary. For example, collaborating with hardware manufacturers for platform-specific optimizations or partnering with influencers to generate buzz around a game's release can enhance a developer's reach and competitive advantage. Therefore, while the shift towards self-sufficiency has undoubtedly expanded the opportunities available for some independent developers, understanding the broader industry structure and dynamics remains crucial for navigating the ever-evolving gaming landscape. The structure of the video game industry allows both for creating a vast net of partnerships and collaboration with other industry actors, or for staying as self-sufficient and independent as possible, and still achieve commercial success (Marchand, 2013). First it is needed to analyze the vast variety of actors in the industry, their role and relations.

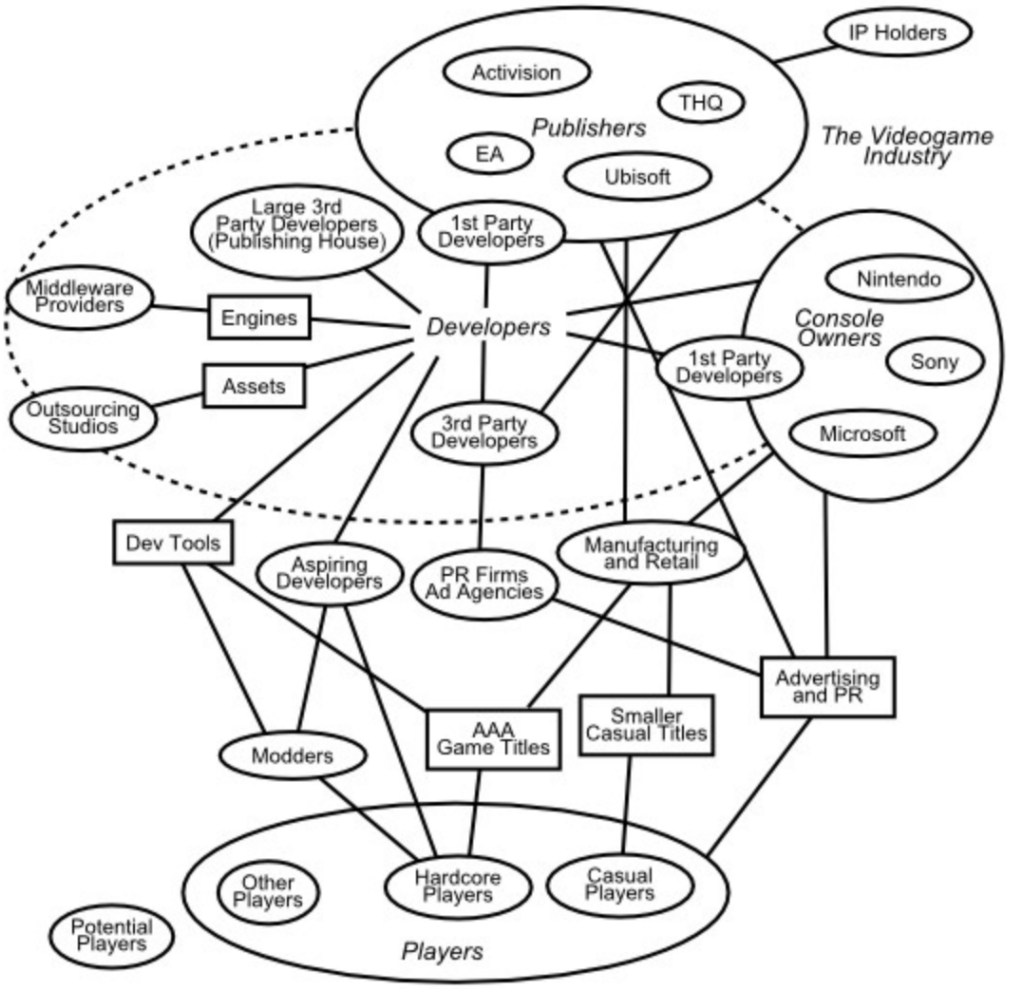
Similarly, publishers can also expand the scope of their activities, delving into various aspects of the video game industry. By offering financial support to game developers, they can help facilitate the production process, enabling developers to bring their creative ideas to life. In addition, publishers can provide PR and marketing services, leveraging their industry experience and networks to promote and distribute games more effectively. Furthermore, publishers may even venture into in-house game production under their own brand, allowing them to exercise greater control over the development process and potentially reap the rewards of successful game launches. By diversifying their operations in this manner, publishers can strengthen their position within the industry, foster synergies between their different business areas, and ultimately deliver a more comprehensive range of services to game developers and other industry partners (Van Dreunen, 2020).

Platform holders, as mentioned before, are another crucial player in the video game industry, exert considerable influence by controlling a specific gaming ecosystem (Newman, 2012). Their involvement spans across multiple areas in the industry, from manufacturing their own consoles and managing digital distribution platforms to financing and publishing games developed by others. Platform holders often maintain a dedicated division for creating their own games, which allows them to showcase the capabilities of their platforms and shape the overall gaming experience for their users. By participating in nearly every aspect of the industry, platform holders are able to establish a cohesive gaming environment that caters to the needs of both developers and gamers alike. They set the rules and guidelines for their platforms, approve third-party games and applications, and maintain the overall quality of the ecosystem.

Furthermore, their extensive involvement in various industry facets enables them to foster strategic partnerships and collaborations with developers, publishers, and other stakeholders, ensuring a vibrant and dynamic gaming landscape. This comprehensive approach allows platform holders to not only maintain a strong presence in the market but also to steer the direction of their gaming ecosystems and stay ahead of evolving trends and consumer demands.

For this reason, understanding the full structure, dependencies, and relationships among video game industry actors, beyond their basic roles, is a highly complex task. Existing literature models depicting these networks are either too generalized, failing to capture the entire structure, or solely focused on one actor's perspective. Christiansen's (2013) industry actor network model () also places game developers at the center. Platform holders are referred to as "Console Owners," and the author further categorizes game creators into subgroups.

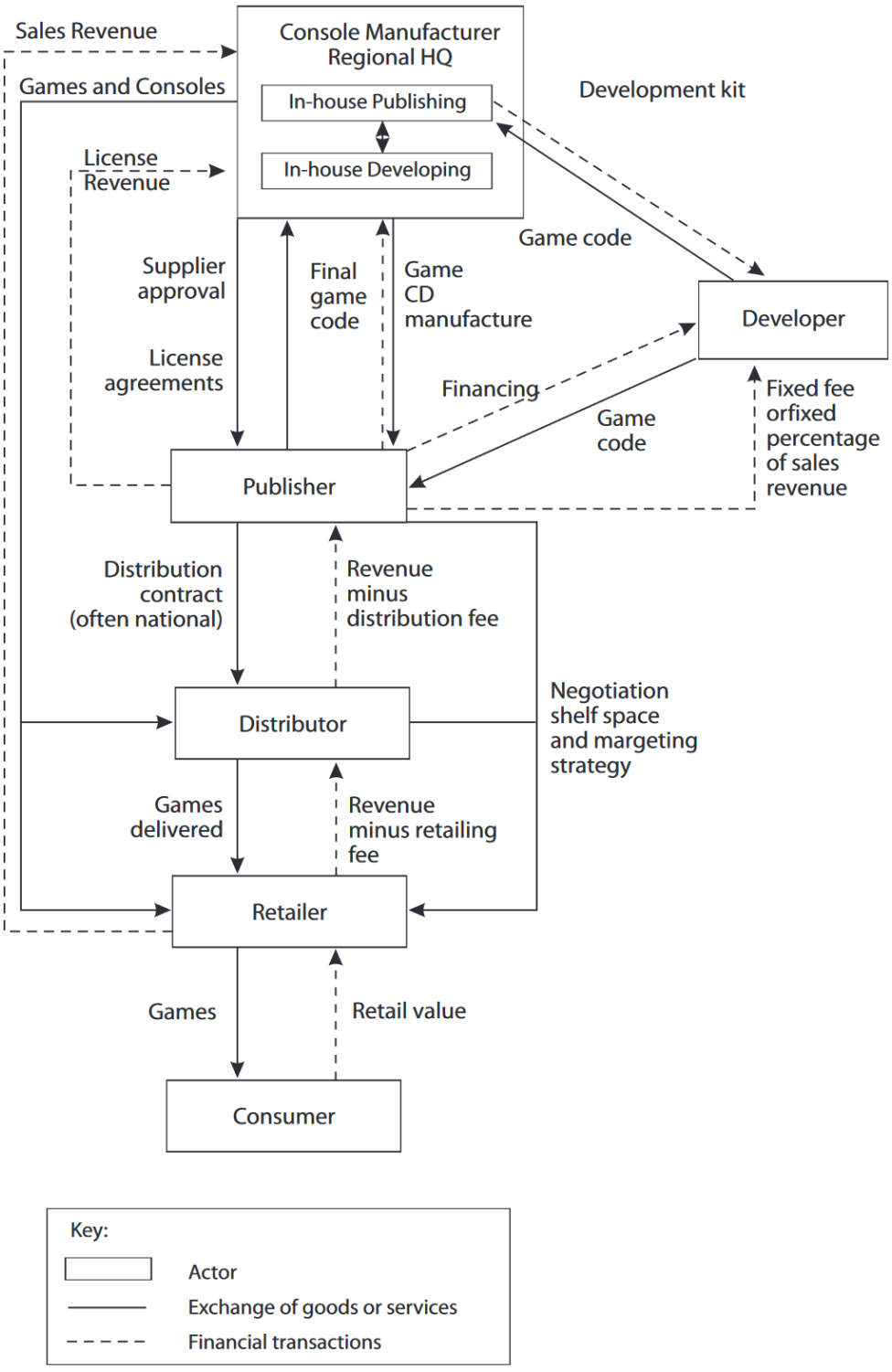
Figure 16 - Actor-network map of the mainstream video game industry.



Source: (Christiansen 2013)

John's model (2005) being more structured and concise, also illustrates the division of roles and relationships among industry actors, representing their connections (both financial transactions and exchange of goods or services) in a graphical format. Notably, this 2005 model does not allow developers to reach consumers without the involvement of a publisher, distributor, and retailer – a common practice today through digital distribution. This example highlights that, in a relatively short period, new technologies (such as digital distribution) have led to significant changes in the industry's structure. Models of this type quickly become outdated, further complicating the task of grasping the actual relationships, connections, and roles of individual actors in the video game market. Despite this, the model is frequently cited in subsequent publications, such as those by Ahokangas et al (2010) and Patniak (2017).

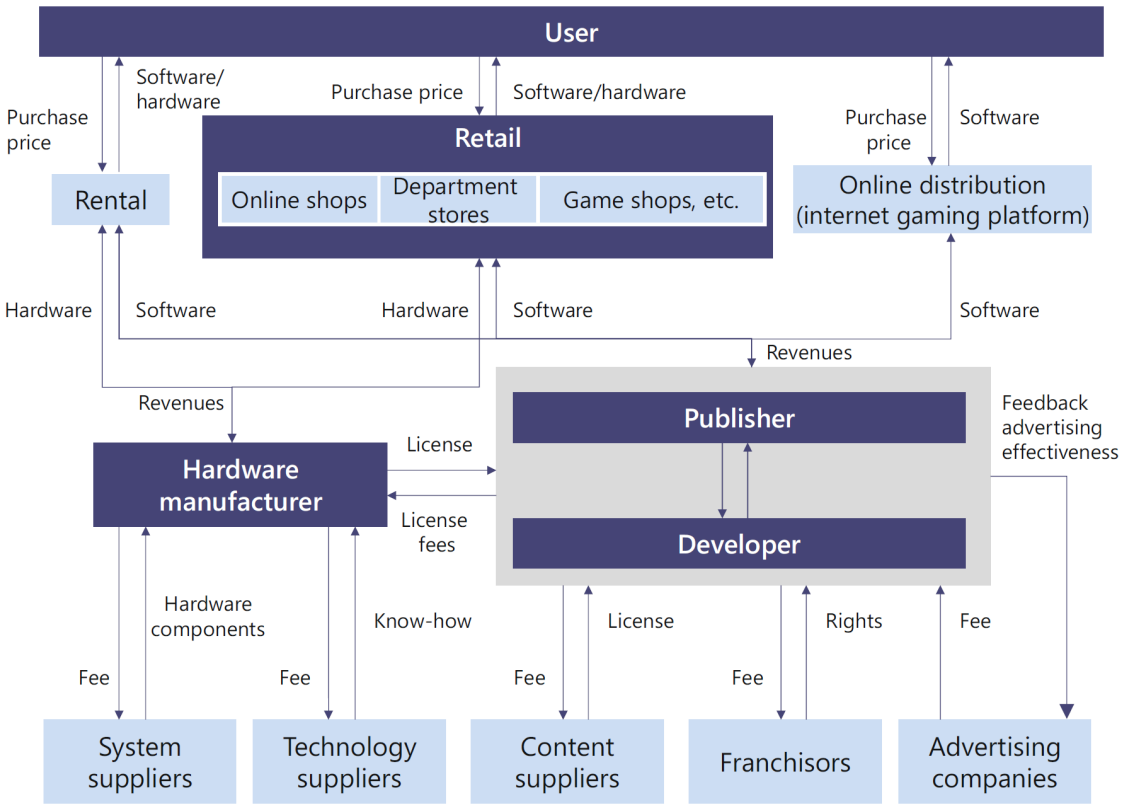
Figure 17. The actors and their relationships in the video game industry



Source: (Johns, 2005)

Wirtz (2020) proposed a more up-to-date and accurate representation of actors and their relationships within the video game industry. His model (Figure 18) incorporates online distribution, professional services, hardware manufacturers, and the main connections between actors. Interestingly, this model presents publishers and developers as a single, coherent entity, and does not assume self-sufficiency of studios in terms of self-publishing on digital distribution platforms. However, if we treat publishers and developers as equivalent entities that could be separate units with all existing connections (and an additional link between them), this model aptly represents the complexity and relationships of industry actors. Nevertheless, the model does not account for the broad role of the platform holder as a distinct entity with extensive influence and connections in most categories.

Figure 18. Interactions in the video and computer game market.

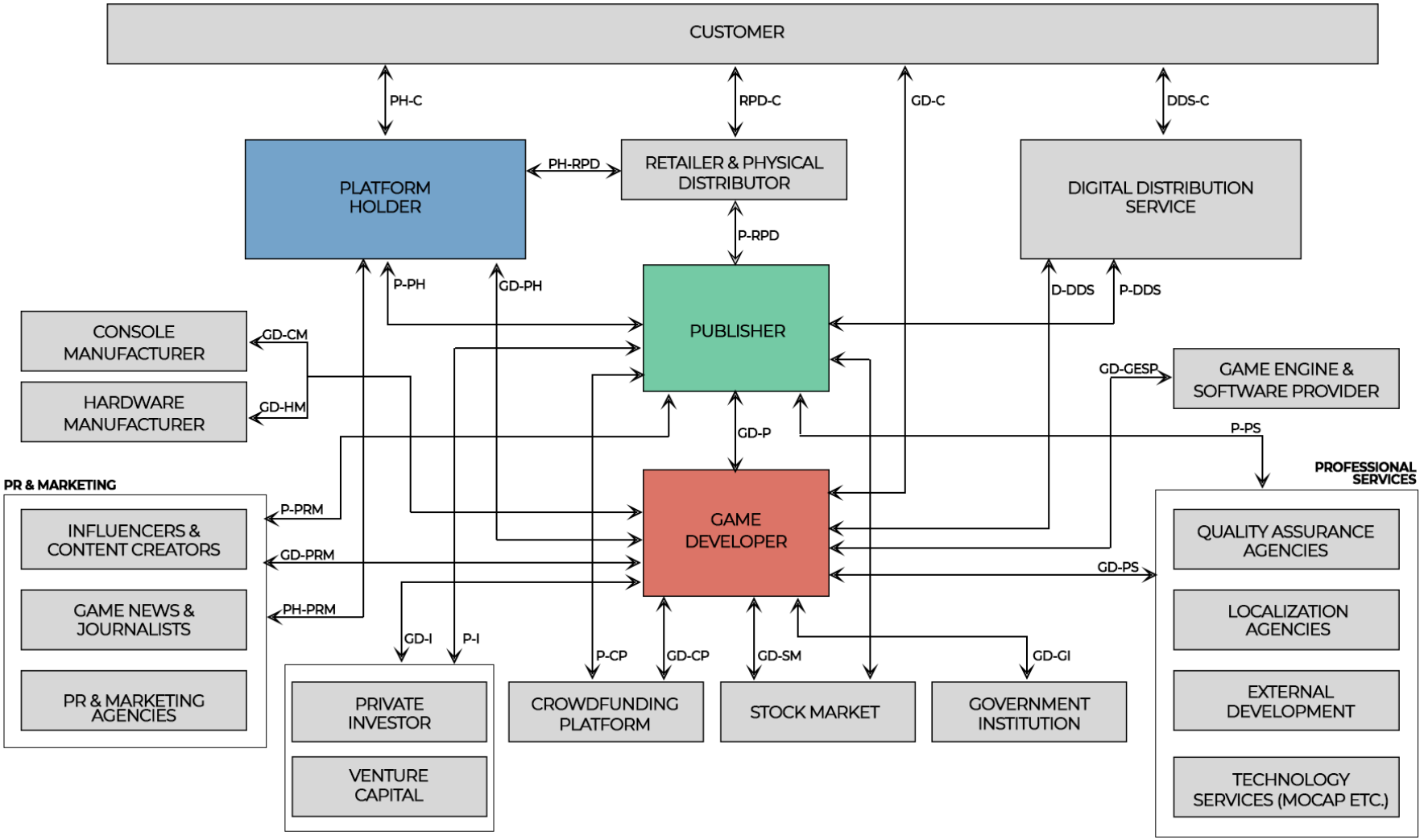


Source: (Wirtz, 2020)

The 'Video Game Industry Actors Relations' diagram (Figure 19) provides a comprehensive visualization of the complex and dynamic ecosystem that constitutes the modern video game industry. This industry is characterized by a multitude of actors, each with their unique roles and functions, that interact and collaborate in various capacities. These entities range from game developers, platform holders, and publishers to diverse stakeholders such as

professional services providers, digital and physical distributors, marketing entities, and investors. The intricate network of relationships and interconnections among these actors underlines the multifaceted nature of video game production, distribution, and sales. This visualization captures these complexities, offering insight into the interplay between different industry players and their shared role in bringing a video game from conceptualization to the hands of consumers. It serves as a testament to the intricacy and dynamism of today's video game industry, reflecting its evolution into a sophisticated and multifaceted business landscape.

Figure 19. Video Game Industry Actors Relations Diagram



Source: Own Study

The following table provides a detailed legend to elucidate the various connections represented in Figure 19. Each entry succinctly explains the nature of the interactions and relationships between different industry actors as depicted in the figure.

Table 16. Video Game Industry Actors Relations explanation

GD-PH	Collaborative relationship between Game Developers and Platform Holders. In this arrangement, the platform holder takes on the roles of publisher and primary distributor for the developer's game, handling marketing while earning a share of profits. The developer, on the other hand, is responsible for delivering and supporting the game.
P-RPD	Signifies the distribution relationship between Publishers and Retailers & Physical Distributors. This shows how publishers supply physical copies of their games to retailers and distributors, who then sell these games to customers.
PH-RPD	Represents the transactional relationship between Platform Holders and Retailers & Physical Distributors. This indicates how platform holders supply physical copies of their games to retailers and distributors for onward sale to customers.
PH-PRM	Illustrates the promotional relationship between Platform Holders and PR & Marketing entities. This shows how platform holders engage with marketing agencies or promotional channels to advertise their platforms and associated games.
P-PH	Depicts the collaborative relationship between Publishers and Platform Holders. This may involve the publisher providing games for distribution on the platform, with both parties sharing in the profits from game sales.
P-DDS	Represents the distribution relationship between Publishers and Digital Distribution Services. This indicates how publishers provide digital copies of their games to online platforms, who then distribute these games to customers.
P-SM	Signifies the financial connection between Publishers and the Stock Market. This illustrates how publishers can acquire capital from stockholders through the issuance of stocks.
P-PS	Depicts the relationship between Publishers and Professional Services. This signifies the outsourcing of services such as QA and localization by publishers, which are typically paid services.
P-PRM	Represents the promotional relationship between Publishers and PR & Marketing entities. This shows how publishers engage with marketing agencies or promotional channels to advertise their games.
P-CP	Illustrates the funding relationship between Publishers and Crowdfunding Platforms. This signifies the raising of funds through platforms like Kickstarter, with the platform taking a commission.
P-I	Depicts the investment relationship between Publishers and Investors. This signifies the inflow of capital from private investors or venture capitalists in exchange for a share in profits.
PH-C	Represents the transactional relationship between the Platform Holder and the Customer. This line signifies the direct distribution and sales process, either through physical or digital means, where the customer purchases games directly from the platform holder (e.g., Sony PlayStation).
RPD-C	Represents the transactional relationship between Retailers & Physical Distributors and Customers. This signifies the distribution of physical copies of games, with customers purchasing games directly from retailers or distributors.
DDS-C	Denotes the connection between Digital Distribution Services and Customers. This indicates the process where customers purchase games via digital platforms, such as STEAM.
GD-GESP	Illustrates the interaction between Game Developers and Game Engine & Software Providers. This signifies the use of game engines and software by developers to create their games, typically requiring

	payment of license fees.
GD-C	Represents the direct relationship between Game Developers and Customers when developers operate their own distribution services. This bypasses digital distribution platforms, with customers purchasing games directly from developers.
GD-P	The collaborative relationship between Game Developers and Publishers. This signifies the division of roles where developers create games, while publishers handle marketing, distribution, and platform holder relations. Profits from game sales are usually shared
GD-PS	Interaction between Game Developers and Professional Services. This indicates the outsourcing of services such as QA and localization by developers, which are typically paid services.
GD-GI	Depicts the financial relationship between Game Developers and Government Institutions. This signifies the receipt of grants and funding from government programs by developers.
GD-SM	Financial connection between Game Developers and the Stock Market. This signifies capital acquisition from stockholders through the issuance of stocks.
GD-CP	Illustrates the funding relationship between Game Developers and Crowdfunding Platforms. This represents the fundraising process through platforms like Kickstarter, with the platform taking a commission.
GD-I	Represents the investment relationship between Game Developers and Investors. This signifies the inflow of capital from private investors or venture capitalists in exchange for a share of the profits.
GD-PRM	Relationship between Game Developers and PR & Marketing entities. This signifies the use of marketing agencies, paid advertisements, sponsored content, or influencers to promote games.
GD-CM	Relationship between Game Developers and Console Manufacturers. This signifies the procurement of specialized development kits by developers to facilitate game development for specific consoles.
GD-HM	Relationship between Game Developers and Hardware Manufacturers. This signifies the acquisition and use of latest equipment, hardware or controllers by developers to keep their games up-to-date with technological advancements, including the procurement of high-tech computers for game development.

Source: Own Study

In conclusion, the video game industry presents a complex ecosystem characterized by the interplay of numerous actors, each with their unique roles and responsibilities. Game developers, publishers, and platform holders are central figures in this intricate web of relationships, often assuming overlapping functions and expanding their activities to encompass a broader range of services. This dynamic environment requires flexibility and adaptability from all players involved, as they navigate the ever-evolving landscape of the gaming world.

Given their central position in the industry structure, game developers must carefully consider all potential avenues for development and growth. By assessing various collaboration possibilities with other industry stakeholders, such as publishers and platform holders, developers can identify opportunities that align with their strategic objectives and resources. This holistic approach is essential for ensuring the success and sustainability of game developers in a highly competitive and rapidly changing industry.

The interconnection between various actors in the video game industry is important for understanding the industry's overall structure and dynamics. The diverse range of stakeholders, including game developers, publishers, distributors, hardware manufacturers, and service providers, all play critical roles in shaping the landscape and contributing to the growth and success of game developers (Kerr, 2006). These actors are highly dependent on one another to ensure that games are developed, marketed, and distributed effectively. Service providers such as localization and quality assurance companies are instrumental in ensuring that games are accessible and enjoyable to a global audience. This intricate web of relationships and dependencies illustrates the complexity of the video game industry and highlights the importance of studying these interconnections to better understand the factors that drive the industry's growth and success (Nieborg & Poell, 2018).

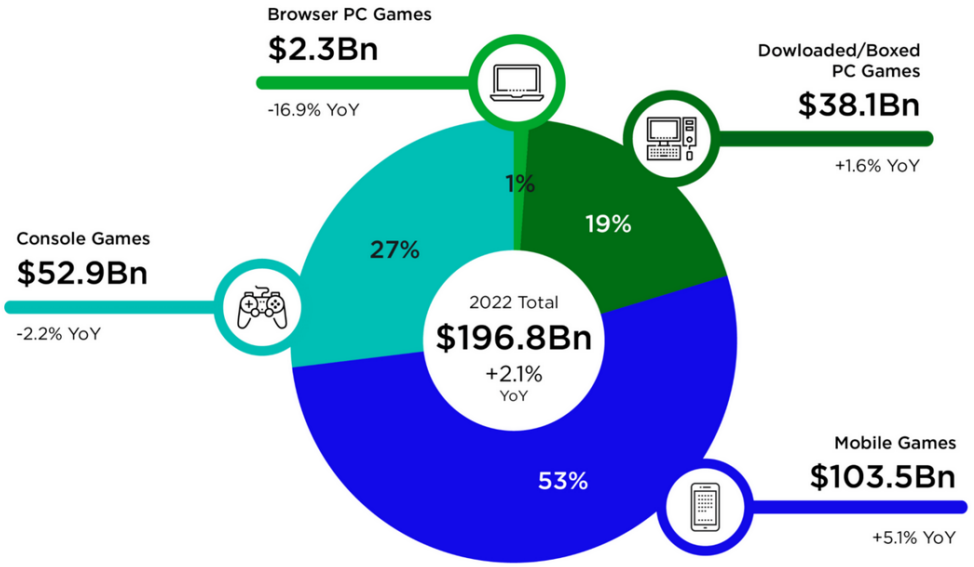
Ultimately, understanding the complexity of the video game industry ecosystem is vital for all actors involved, as it enables them to make informed decisions and adapt to the constant shifts in consumer preferences, technological advancements, and market dynamics. By recognizing the interconnected nature of the industry and the fluidity of roles and responsibilities, stakeholders can forge stronger partnerships, drive innovation, and contribute to the ongoing growth and evolution of the global gaming landscape.

2.3.2. Market Segmentation

The video game industry has evolved tremendously over the past few decades, becoming one of the most lucrative and influential sectors in the entertainment world. It encompasses various market segments, each offering unique characteristics, trends, and growth drivers. This growth has been fueled by rapid advancements in technology, the emergence of new gaming platforms, and a diverse range of gaming experiences. As a result, understanding market segmentation in the video game industry has become increasingly important for both developers and stakeholders seeking to capitalize on these opportunities (Eriksson, 2019).

Market segmentation is the process of dividing a market into distinct groups of consumers with similar needs, preferences, and behaviors (Kotler & Keller, 2016). In the context of the video game industry, these segments can be primarily defined based on the type of games being developed and the platforms on which they are played. Key platforms include personal computers (PC), mobile devices, consoles, browser games, virtual reality (VR), and the emerging metaverse. Each of these platforms caters to different types of gamers and has unique characteristics that can influence the development and monetization of games. Newzoo's 2022 report highlights that the global game market's primary growth catalyst is mobile gaming, projected to produce $103.5 billion in revenue in 2022, capturing 53% of the market. This reflects a growth rate of +5.1%. The chart provided below indicates a marginal growth in revenue for PC gaming, which constitutes 21% of the market, at +1.6% year on year, reaching $40.4 billion. Conversely, the console gaming sector is predicted to experience a slight downturn of -2.2% year on year, amounting to $52.9 billion (Newzoo, 2022).

Figure 18. 2022 Global Game Market Per Segment with Year on Year Growth Rates



Source: Newzoo (2022)

Console

Console gaming, traditionally dominated by major players such as Sony, Microsoft, and Nintendo, offers immersive experiences with high-quality graphics and performance. Console gaming has remained a significant segment of the video game industry since the inception of the first home console in the 1970s (Patnaik, 2017). This market segment is primarily characterized by its hardware platforms developed by major industry players, such as Sony's PlayStation, Microsoft's Xbox, and Nintendo's Switch. Console gaming offers a more immersive and social experience, as it is typically played on larger screens and is designed to accommodate multiple players. The continuous release of next-generation consoles with improved performance and enhanced features drives the growth in this segment. Additionally, the rise of digital distribution platforms like PlayStation Network and Xbox Live enables easier access to a vast library of games, which also contributes to the expansion of this market segment (Greenspan, 2014).

PC

PC gaming, a well-established platform, has fostered an active community of gamers and developers. It represents a substantial segment in the video game industry, with its roots tracing back to the earliest days of computer games. This market segment is characterized by its versatility, as personal computers can be customized to cater to various gaming preferences (Kline et al., 2003). PC gaming provides a broader range of genres, including strategy, simulation, and massively multiplayer online games (MMOGs), which are less common on consoles

(SuperData, 2020). This segment's growth is driven by technological advancements, such as high-performance processors and graphics cards, which enable the development of more sophisticated games. Moreover, digital distribution platforms like Steam and GOG.com have revolutionized the accessibility and affordability of PC games (Patnaik, 2017)

Mobile

Mobile gaming has become an increasingly prominent segment in the video game industry, thanks to the widespread adoption of smartphones and tablets (Statista, 2021). This market segment is characterized by its accessibility, portability, and affordability, making gaming more convenient and appealing to a broader demographic (Hamari, 2015). Mobile games encompass various genres, ranging from casual puzzle games to more complex strategy and role-playing games. The growth of this segment is driven by the continuous improvement of mobile devices, offering enhanced graphics, processing power, and battery life, which facilitate the development of more sophisticated games. Furthermore, the prevalence of free-to-play games with in-app purchases and advertising has contributed to the expansion and monetization of mobile gaming (Mäyrä & Alha, 2020).

Virtual reality

VR gaming represents an emerging and rapidly growing segment in the video game industry. It involves the use of head-mounted displays and specialized controllers, creating immersive and interactive gaming experiences (Cummings & Bailenson, 2016). While still a relatively small market segment, VR gaming has attracted significant investment and interest due to its potential to revolutionize the gaming experience (Gaudiosi, 2015). The growth of this segment is primarily driven by advancements in VR hardware, such as the Oculus Rift, HTC Vive, and PlayStation VR, which provide increasingly realistic and responsive gaming experiences (Bailenson, 2018). Additionally, the development of innovative VR content, as well as the integration of social and multiplayer aspects, contributes to the increasing appeal and adoption of VR gaming (Endsley et al., 2017).

Browser games

Browser games represent a unique segment in the video game industry, characterized by their accessibility and the ability to play directly within a web browser without requiring any additional software or hardware (Kultima & Alha, 2011). These games are typically built using web technologies such as HTML5, JavaScript, and WebGL, enabling cross-platform compatibility

and playability on various devices (Khan et al., 2016). Browser games often cater to casual gamers, offering quick and engaging experiences that can be enjoyed during short breaks or downtime (Granic et al., 2014). The growth of this segment can be attributed to the increasing penetration of high-speed internet access, as well as the continuous improvement of web technologies, which enable the development of more advanced and interactive browser-based games (Kultima & Alha, 2011). Additionally, the rise of social networking platforms has facilitated the growth and popularity of browser games, as they often incorporate social elements and can be easily shared among friends (Kücklich, 2015).

Metaverse

The metaverse represents a nascent and rapidly evolving concept in the video game industry, referring to a shared, virtual, and interconnected universe that encompasses multiple digital spaces, platforms, and experiences (Castronova, 2007). The metaverse can be considered as an extension of existing online virtual worlds and MMOGs, where users can interact, socialize, and participate in various activities within a persistent digital environment (Bartle, 2004). The growth of this segment is driven by advancements in technology, such as the development of blockchain, virtual reality, and artificial intelligence, which enable the creation of more sophisticated and immersive metaverse experiences (Huynh-The et al, 2023). Additionally, the metaverse has the potential to transform not only the gaming landscape but also various aspects of society, such as social interaction, commerce, and education, as it offers a platform for users to engage in diverse experiences and interactions within a single, interconnected virtual space.

In today's gaming landscape, developers often produce games for multiple platforms, leveraging the unique strengths of each to cater to a wider audience (Lee et al., 2019). Furthermore, game developers employ a multitude of business models to monetize their products. These range from traditional, one-time purchase models to subscription-based services, in-game purchases, advertising, and free-to-play models with optional microtransactions (Hamari et al., 2017). The choice of business model depends on the target market segment, platform, and game genre, among other factors.

In addition to the platform-based segmentation discussed earlier, the video game industry can also be segmented according to game genres and target audiences. Game genres encompass a wide array of categories, such as action, adventure, role-playing, strategy, simulation, sports, and puzzle games (Khaleghi & Lugmayr 2012) These genres cater to different tastes, preferences, and playstyles, allowing developers to target specific niches within the

gaming community. Moreover, some genres are more prevalent on certain platforms, which further diversifies the market landscape. For example, mobile gaming is often dominated by casual and puzzle games due to the platform's inherent constraints and user preferences.

Target audiences also play a critical role in market segmentation, as developers seek to tailor their games to specific demographic groups, such as age, gender, cultural background, and gaming experience. In terms of consumer segmentation within the video game industry, three primary categories are typically identified: hardcore gamers, casual gamers, and the mass market (Ksiądzyna, 2018). Hardcore gamers, who constitute the majority of the industry's sales volume, approximately 70-80%, are characterized by their willingness to spend heavily on both hardware and software and are frequently early adopters of new technologies and games. Casual gamers, while they play games regularly, exhibit greater price sensitivity and contribute to around 15-25% of the total sales volume (Ksiądzyna, 2018). Lastly, the mass market segment, accounting for roughly 5% of sales, primarily gravitates towards free-to-play games or free offers, and does not regularly invest in gaming hardware or engage in consistent gameplay. Despite the significant sales volume driven by hardcore gamers, the current market growth is largely propelled by the casual gamer segment. This phenomenon can be attributed to the relatively lower barriers for non-gamers to transition into casual gaming, coupled with the proliferation of smartphones, particularly in Asian markets, which serves as a primary catalyst for this growth (Ksiądzyna, 2018). Research has shown that there are marked differences in gaming preferences and behaviors among different demographic groups, further emphasizing the importance of considering target audiences in market segmentation (Yee, 2006).

In summary, the video game industry's segmentation can be examined from multiple dimensions, including platforms, game genres, and target audiences. A comprehensive understanding of these various aspects is crucial for developers and stakeholders to make informed decisions about game development, marketing, and monetization strategies. By taking a multi-dimensional approach to market segmentation, this study aims to provide valuable insights into the complex and dynamic nature of the video game industry.

2.3.3. Business Models

In academic literature concerning the video game industry, the terms "business model," "revenue model," and "monetization model" are often used interchangeably, albeit they possess nuanced differences. All these terms relate to how video game companies generate income from their products – games. However, the business model of a company is a broader concept, encompassing the overall strategy employed by the company to create, deliver, and capture value. This strategy includes the company's value proposition, key activities, resources, partnerships, customer relationships, channels, cost structures, and revenue streams (Klimas, 2018; Wirtz, 2020) .

Revenue and monetization models, on the other hand, are subsets of the business model. They focus specifically on the methods used to generate income. The revenue model describes the various sources of revenue for the company, which can include sales of games, subscriptions, in-game purchases, and advertising revenue (Eriksson, 2019). The monetization model refers to the tactics used to convert users or gameplay into revenue, often through in-game transactions in free-to-play games (Alha et al., 2014). Today's video game developers employ a multitude of monetization models to generate revenue from their products and services, often utilizing more than one model simultaneously (Hamari et al., 2017). Traditional monetization models, such as one-time purchase models, where consumers pay upfront for a game, have gradually evolved into more complex and dynamic revenue-generating strategies. Subscription-based services, for instance, provide players with access to a library of games for a recurring fee (Kumar et al., 2020). Free-to-play games, which initially gained traction in the mobile gaming sector, have expanded to other platforms and rely on optional in-game purchases and microtransactions to monetize gameplay (Alha et al., 2014). Table 17 presents a compilation of monetization models for products or services, as discussed in the literature and employed by game developers. These models are categorized based on the platforms where they are most frequently applied or on which game creators specialize.

Table 17. Video Game developers Revenue Models

Revenue / Monetization Model	**Description**	**Platform**
Premium	One-time purchase of a game, providing full access to its content without further monetary investment	Console, PC
Subscription-based (game library)	Recurring fee for access to a library of games, often including online multiplayer services. This model is mostly used by Platform owners or Distribution platforms.	Console, PC
Subscription-based (single game)	Recurring fee for access to a single title, usually an online, multiplayer game	PC, Console
Free-to-play (F2P)	Base game is free, with monetization through in-app purchases, ads, and virtual currency	Mobile, PC, Browser
Ad-supported	Free access to games with advertising as the primary revenue source	Mobile, Browser
Microtransactions	Purchase of in-game items, virtual currency, or cosmetic enhancements with real money	Console, PC, Mobile, Browser
Gacha mechanics	A randomized, loot box-style system where players spend in-game or real currency for virtual items	Mobile
Crowdfunding	Games financed by the community through platforms like Kickstarter, offering rewards for contributions	Console, PC
Pay-what-you-want (PWYW)	Players can choose the price they pay for a game, often in limited-time promotions or bundles	PC
Freemium	Free access to a limited version of a game, with an option to upgrade to a premium version	Mobile, Browser
External Development	Providing professional services in the creation of games or their components to external clients.	-

Source: own study

While these models are critical for understanding how video game companies make money from their games, they often overlook other aspects of the business, such as service delivery. For example, external development or outsourcing is a significant part of many game studios' business models, where they offer their services to other companies. This side of the business is typically not covered when discussing revenue or monetization models, illustrating the need for a broader and more comprehensive understanding of business models within the video game industry. This model involves a video game studio offering its services to other companies, typically to assist with specific tasks or stages of game development. External development can encompass a wide range of services, such as programming, art and animation, level design, testing, and localization (Gallagher & Park, 2002). One prominent example of a studio that has successfully leveraged the external development model is Virtuos. Founded in

2004, this Singapore-based company has provided development services to numerous high-profile clients, including Electronic Arts, Ubisoft, and Sony. Virtuos specializes in game development, art design, and software engineering, and it has contributed to many successful games across various platforms (Virtuos, 2022).

In conclusion, the video game industry presents a multitude of opportunities for developers to monetize their products and services, adding complexity to the analysis of growth strategies. Developers often utilize multiple revenue models concurrently, applying different strategies for the same or different products depending on their lifecycle stage. For instance, a game developer may leverage crowdfunding and external development to fund and support the early stages of a project, then transition to a premium model upon the game's completion. This multi-model approach allows developers to optimize their revenue streams, adapt to changing market conditions, and mitigate financial risks.

This dynamic interplay of various revenue models complicates the analysis of growth strategies in the video game industry. It requires researchers to take a holistic and flexible approach when examining a developer's business model, considering the temporal, contextual, and strategic factors that influence the choice and effectiveness of different revenue models. Further, it highlights the need for research that explores the intersections and synergies between different revenue models, as well as their implications for a game developer's growth and sustainability. Moreover, this complexity underscores the value of longitudinal and case-based studies in capturing the evolving nature of business models in the video game industry. As the industry continues to grow and innovate, it offers a fertile ground for exploring new monetization strategies, examining their impacts, and developing theories and frameworks that can guide future business practices and research in this field.

2.4. Video game studios characteristics, classification & growth

Video game developers represent a vast and diversified group, with a wide array of approaches to running their businesses and varied motives for creating games. These differences come from numerous factors, including the size and structure of the company, the types of games they produce, the platforms they target, and their overall business strategies (Dyer-Witheford & de Peuter, 2003). The diversity among video game developers makes it challenging to analyze them as a singular segment, underscoring the need for nuanced and context-specific approaches. Research has indicated that the operational realities and growth

drivers of video game companies can only be fully understood by taking into account these varied characteristics (Kerr, 2017). This section aims to navigate this complexity by delving into the intricacies of video game companies, examining their operational structures, game production processes, driving motives, and unique factors that influence their operational realities. By examining these elements, we aim to provide a comprehensive understanding of the operational realities and unique characteristics of video game companies. This understanding is pivotal for deriving effective strategies to foster growth and navigate the numerous challenges in the rapidly evolving video game industry.

2.4.1. Characteristics of video game studios

Bethke (2003) emphasizes that game development is a subset of software development, integrating elements of art, audio, and gameplay into the software. He argues that game developers should not separate themselves from formal software development methodologies, advocating instead for organized and repeatable production processes to ensure timely and budget-compliant game creation. However, as posited by McShaffry et al. (2005), the development of video games is distinctly different from traditional software development. Video games typically have a significantly shorter lifespan than standard software products, often necessitating expedited development timelines, as pointed out by Ampatzoglou & Stamelos (2010). Consequently, every phase of the development lifecycle tends to be condensed. The primary maintenance work for most games involves corrective measures, such as bug fixing, given that new game versions are typically released every six months. However, successful games that spawn sequels may undergo enhancements based on user feedback. The need for game development companies to rapidly bring their products to market often results in schedule extensions and issues with time estimation. As a result, the management of game development projects diverges significantly from the management practices in traditional software development.

Pulsipher (2009) challenges the commonly held belief that "game development" is synonymous with programming. According to him, the term "game developer" should encompass a broader range of roles and talents that contribute to the creation of a game. Pulsipher posits that the core of game creation is design and art, rather than programming, which he views as a support function. He also highlights that the term "game developer" tends to create confusion, suggesting instead the term "game creator" to more accurately reflect the diversity of skills and roles involved in the process.

In Van Dreunen’s view (2020) video game developers, also referred to as studios, constitute the core of the gaming industry. They are typically composed of a diverse mix of creatives and technical experts, including programmers, artists, animators, game designers, audio professionals, and quality assurance testers. As of 2017, the U.S. alone housed approximately 2,500 such studios, a figure that has likely expanded in subsequent years.

Game development is a high-risk endeavor owing to a multitude of factors that could jeopardize a project's success. These include internal discord among studio management, financial instability, shifting economic conditions, emergence of new competitors, changes in technology, and the unpredictable nature of consumer preferences. Independent studios often find themselves in precarious financial situations, dependent on the project-based income cycle and reliant on building relationships with publishers to gain access to the consumer market.

According to Van Dreunen Talent (2020) is a critical asset in game studios. With the cost of developing in-house tools being prohibitive, studios often rely on the same technologies, making their talent pool a primary differentiator. Hence, acquiring, nurturing, and retaining top talent is integral to a studio's success. The emphasis on human resources strategy and the creation of a collaborative and attractive work environment are common characteristics across studios. However, managing the balance between creative aspirations and the pressures of the broader business environment poses a challenge. Studios often adopt distinct strategies for managing their workforce, ranging from independent studios operating informally, to large companies enforcing rigorous work cultures to meet shareholder expectations.

Another significant aspect of game studios is their competition for talent, which is influenced not just by salaries and perks, but also by the company's reputation and culture. A recent study reveals that the diversity and level of experience within development teams is a key driver behind a game's success and critical acclaim. Work practices, work-life balance, and career mobility in the industry are areas that need further exploration. While designers are instrumental in shaping a game's creative vision, they are not the highest paid, which leads to a skewed distribution of talent. Some studios, like Naughty Dog, known for their high-quality productions and demanding work culture, seek to offset the harsh work hours with an unorthodox development process that offers employees a greater sense of ownership and input into the final product.

A crucial aspect of successful game development is the capacity to innovate, perform well throughout the development process, and deliver on time. Studios typically employ a gated process to ensure they do not commit to projects beyond their capacity, safeguarding against

demand uncertainty and preserving resource allocation. Despite the intuitive nature of this process, it can constrain the studio's decision-making based on current industry information, which may become problematic if market conditions change unexpectedly (Patnaik, 2017).

2.4.2. Video game studios classifications

The world of video game development is a multifaceted landscape that has experienced exponential growth over the past few decades. As the industry evolves, the diversity and heterogeneity of game studios become increasingly apparent. From small, independent studios, to multinational corporations, there are countless nuances and distinctions among developers that warrant closer examination (Smith, 2020; Johnson, 2021). In response to this complexity, various classification frameworks have been proposed, each offering unique perspectives on how to categorize these creative entities (Davies, 2019; Lee, 2020). Currently, the video game industry typically classifies developers into several categories based on various factors, such as size, funding, focus, and distribution channels. Below is an overview of the common types of game developers:

1. AAA Studios: These are large-scale game development studios that typically have hundreds or even thousands of employees. They have substantial financial resources and often develop high-budget, high-quality games that target a broad audience. Examples include studios like Electronic Arts, Ubisoft, and Rockstar Games.
2. AA Studios: These studios occupy a middle ground between AAA and indie studios. They typically have more resources than indie studios but not as much as AAA studios. AA studios develop games with moderate budgets and may specialize in specific genres or platforms. Examples include studios like Remedy Entertainment and Obsidian Entertainment.
3. Independent (Indie) Studios: Indie studios are smaller, often self-funded or funded through crowdfunding platforms, and are known for their creative freedom and innovation. They develop games with lower budgets and may target niche markets. Examples include studios like Supergiant Games, Team Cherry, and Playdead.
4. Mobile Game Developers: These studios specifically focus on developing games for mobile platforms, such as iOS and Android. Mobile game developers range in size from small indie studios to large multinational corporations. Examples include studios like King, Supercell, and Niantic.

5. Casual Game Developers: These developers create games that are designed to appeal to a broad audience with simple mechanics and short play sessions. They may develop games for various platforms, including PC, console, and mobile devices. Examples include studios like PopCap Games and Big Fish Games.
6. Middleware Developers: These studios focus on creating tools, engines, or assets that other game developers can use in their projects. Middleware developers might specialize in areas such as game engines (e.g., Unity Technologies, Unreal Engine), audio middleware (e.g., FMOD, Wwise), or art assets (e.g., SpeedTree, Quixel).
7. Outsourcing Studios: These studios provide services to other game developers, such as art, animation, programming, or quality assurance. Outsourcing studios enable developers to focus on core aspects of game development while offloading time-consuming or specialized tasks. Examples include studios like Virtuos and Sumo Digital.

Other type of classifications is based on the relationship between the game developer and the platform on which their games are released (Tschang, 2007):

1. First-party developers: These are studios that are owned or directly controlled by a platform holder, such as a console manufacturer. Their primary goal is to create exclusive games that showcase the capabilities of the platform and attract consumers. The games developed by first-party studios are usually exclusive to the platform owned by the parent company. Examples include:
    - Sony Interactive Entertainment (PlayStation)
    - Nintendo (Nintendo Switch)
    - Microsoft Studios (Xbox)
2. Second-party developers: These are studios that have a close relationship or exclusive partnership with a platform holder but are not directly owned by them. They often receive financial support or resources from the platform holder and develop games exclusively or primarily for that specific platform. Examples of second-party relationships include:
    - Insomniac Games (before its acquisition by Sony) had a long-standing partnership with Sony and created exclusive games for PlayStation platforms, such as the Ratchet & Clank and Spider-Man series.

- Game Freak, which develops the mainline Pokémon games, has a close relationship with Nintendo, although it remains an independent company.

3. Third-party developers: These are independent studios that develop games for multiple platforms, including consoles, PCs, and mobile devices. They have no direct affiliation with platform holders and often create multiplatform titles or port games between different platforms. Examples of third-party developers include:
    - Electronic Arts (EA)
    - Ubisoft
    - Square Enix
    - Capcom

While existing classifications of video game developers provide a basic understanding of the industry landscape, they fail to capture the full complexity and diversity of game studios operating in the current market. The dynamic nature of the industry necessitates a more comprehensive and nuanced classification system that takes into account factors such as scale, strategy, ambitions, aspirations, and stage of growth, as well as the role of sustainability and industry veterans in shaping the studio's identity and objectives. By proposing a new framework for categorizing video game studios, this research aims to facilitate a deeper understanding of the diverse landscape of game developers, thus enabling more accurate analyses of industry trends, fostering more effective collaboration between studios, and informing better policy-making and business decisions for stakeholders within the gaming ecosystem.

2.4.3. Cultural entrepreneurship & sustainability among indie game studios

Whitson, Simon & Parker (2018) critically examines the indie game industry with a focus on sustainability and growth, delineating its unique characteristics, practices, and ideological leanings. In stark contrast to the typical software and start-up industry narratives, success in the indie game scene is rarely defined by studio expansion, profit growth, acquisitions, or initial public offerings. Instead, indie developers find success in their ability to maintain operations, or “keep on keeping on,” illustrating a significant ideological discrepancy with broader software start-ups and revealing a disconnect with the larger funding infrastructure of the gaming industry that primarily rests upon a growth model of success.

Indie game developers place a premium on maintaining the integrity of their team, countering the individualizing tendencies of creative work (McGuigan, 2010) and highlighting a

fundamental challenge to the conceptualizations of cultural work, which are typically centered on the production of aesthetic, political, or economic value and distinction. The developers seem to place value not merely in the games themselves, or the accumulation of capital, but in the ongoing collective effort of creating and sharing games.

However, the industry's precarious economic climate and its internal discourse raise questions regarding sustainability. Critical and market successes can lead to increased anxiety and depression, often distancing developers from their community and practice (Parkin, 2014; Schreier, 2017). Interestingly, growth is often perceived as a threat to creative autonomy, and some developers prioritize sustainability efforts by resisting studio expansion, opting for less profitable monetization models, and maintaining a focus on social organization and equitable resource distribution within small teams. Developers' emphasis on sustainability is largely seen in the context of continued collective engagements, rather than individualized successes.

The discourse around cultural production and entrepreneurship is also explored, noting that the line between creativity and entrepreneurship is becoming blurred in response to increasing precarity and neoliberal pressures. Kate Oakley (2014) suggests that cultural workers turn into cultural entrepreneurs not out of a desire to be self-employed, but as a path of least resistance to finding creative work. Therefore, a reframing of economic growth, particularly in relation to cultural entrepreneurship and sustainability, is necessary.

Whitson, Simon & Parker (2018) argues that focusing on sustainability in game development could potentially guide cultural entrepreneurship discourse in more positive directions. It contends that policy makers should reevaluate their perception of success in the indie game industry, with developers expressing that commercial and artistic success are means towards the end of predictable, long-term collaborative practices, or ‘good work’. Policies that prioritize collective organizations over small enterprise growth are also proposed as potential solutions, but these require further investigation. Authors highlight the necessity to prioritize social organization and relational labor in the gaming industry to counteract the industry's unpredictable nature. Indie developers currently struggle with managing production processes without a producer, which leads to a range of issues including self-exploitation, exhaustion, and potential instrumentalization of social ties. The goal is to facilitate more informed discussions about sustainable development, organizational models conducive to 'good work', and to make invisible labor more visible, thereby promoting practices and techniques that foster 'good work' and creative justice more widely.

Similar research by Banks & Keogh (2021) shed light on the independent video game

development industry, exploring the complex dynamics surrounding labor practices and sustainability in Australia. Their analysis focuses on developers' motivations, values, and aspirations, emphasizing the importance of considering these in the context of the precarious and rapidly transforming landscape of indie game development. Authors underline the emergence of a distinctive indie game culture in Australia, marked by the refusal of traditional game industry models and the embracing of novel approaches. This culture fosters a collective ethos where developers provide mutual support and share resources, contributing to a shared sense of cultural capital.

The study highlights the diversity within the indie game development scene, with developers holding varying understandings of what making video games entails, and diverse visions for their future in terms of sustainability. Some developers exhibit a strong drive to achieve commercial success and sustainability, often leading to self-exploitation, while others resist commodification and choose to maintain their game development activities as a hobby.

One of the critical conclusions drawn by Banks & Keogh (2021) is the need to redefine the concept of sustainability, moving beyond just commercial viability and personal fulfillment. The authors argue that sustainability also involves maintaining and supporting the dynamic community that facilitates game development. It also necessitates taking into account local factors and larger global structural constraints that influence indie game development. Additionally, the authors acknowledge the significant role of class, age, gender, and social background in shaping the opportunities and the perception of what sustainability may look like, and whether it is even achievable. They note the gendered nature of the values associated with asserting craft skills and identities in the industry. The study points to questions concerning the role of governments and educational institutions in perpetuating the entrepreneurial promise of jobs as video game developers, considering the reality that only a small number of individuals are likely to make a living income from this pursuit.

Both Whitson, Simon & Parker (2018) and Banks & Keogh (2021) have provided invaluable insights into the indie game industry, with a particular focus on sustainability, which suggests a necessity for further investigation into this aspect. They both underscore the unique ideological view within the indie game industry that prioritizes the sustainability of creative autonomy and collective efforts over traditional growth models. However, while Whitson et al. (2018) focus more on the organizational and policy level changes needed for sustainable game development, Banks & Keogh (2021) extend this view by emphasizing the need to redefine sustainability to include support for dynamic communities and consideration of social factors.

Notably, both works suggest that the industry's view on sustainability is a response to the precarious economic climate and neoliberal pressures. This indicates a potential for exploring a broader spectrum of sustainability in the gaming industry that includes social, economic, and policy aspects, all of which could contribute to the longevity and health of the industry as a whole. The diversity of experiences and views within the indie game development scene, as highlighted by both studies, supports the need for a multidimensional approach to sustainability in future research.

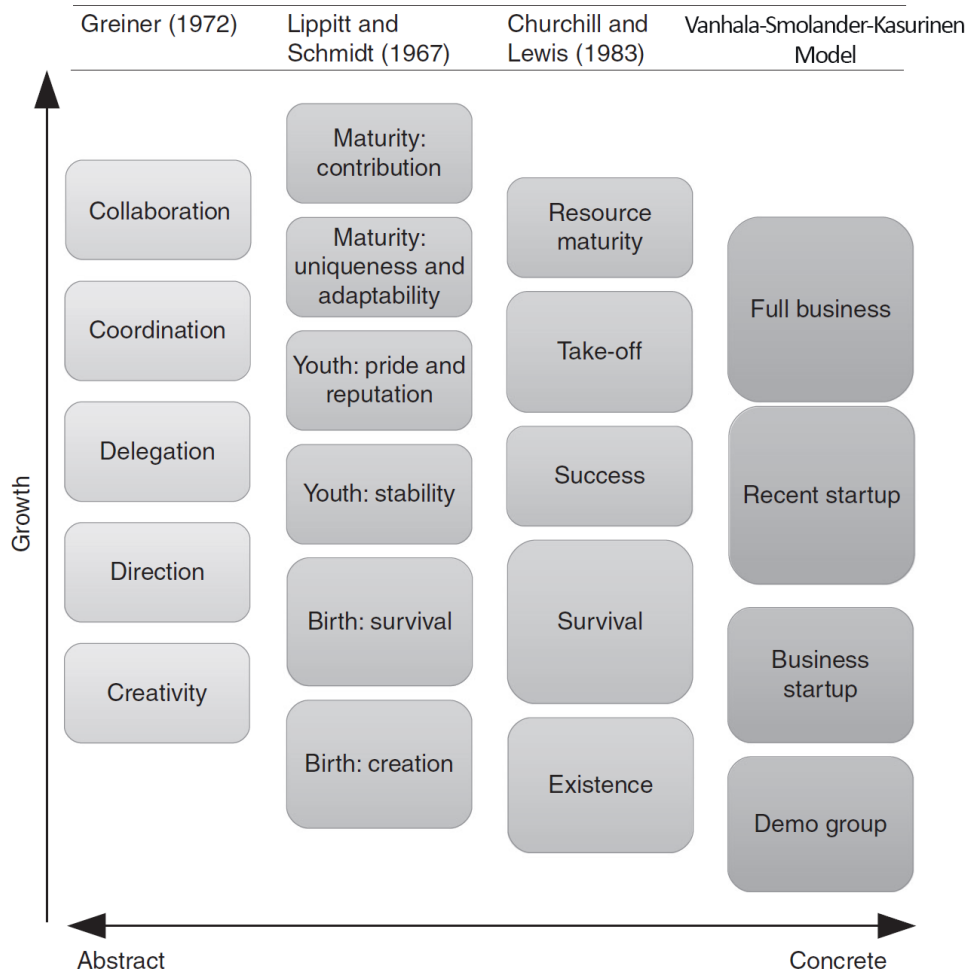
2.4.4. Growth and Development

The study of growth trajectories in the video game industry presents a compelling yet challenging academic endeavor. The scarcity of research focusing on the developmental patterns of video game companies is evident, despite the industry's significant economic impact and cultural influence. A key factor contributing to this gap in the literature is the inherent diversity and dynamism of the industry. Companies in the video game sector range from independent developers to multinational conglomerates, each with unique strategic objectives, market niches, and organizational structures. Moreover, the industry is characterized by rapid technological change, shifting consumer preferences, and intense competition, factors that can lead to unpredictable market outcomes. Consequently, attempting to distill uniform growth patterns or to propose a one-size-fits-all conceptual model for video game companies can be a complex task. Notwithstanding these challenges, there is a growing need for scholarly attention to better understand the evolutionary pathways of video game companies, given their increasing relevance in the global digital economy.

A notable work by Vanhala et al (2015) provides an in-depth analysis of the evolution of these organizations. Vanhala proposed a model that specifically outlines the growth of computer game companies, identifying four distinct phases: demo group, business startup, recent startup, and full business. This model was created based on observations of actual computer game organizations and their unique evolution patterns. The transition from a non-legal entity (demo group) to a fully operational business is emphasized as a distinctive feature in the growth of such companies. The study also underscores the importance of a core team, usually comprising a game designer and developers, which is subsequently augmented with artistic and business skills as the organization growths. Interestingly, the role of partners and outsourcing shifts

concurrently, transitioning from a source of game components to a provider of financial support and marketing assistance. Vanhala's findings were compared with existing organizational growth models, such as those of Greiner (1972), Lippitt and Schmidt (1967), and Churchill and Lewis (1983). The research pointed out that many of these models do not adequately capture the unique evolution patterns and challenges encountered by computer game startups, particularly during the "demo group" phase. The model that aligns most closely with Vanhala's findings is that of Churchill and Lewis (1983), which focuses more on the initial stages of small business development. This study thus represents a significant contribution to the understanding of the growth and development of video game companies, a topic that warrants further investigation given the industry's rapid growth and relative youth.

Figure. Computer games companies growth model



Source: Vanhala et al (2015)

While Vanhala's model provides valuable insights into the progression of computer game organizations, it's essential to consider its inherent limitations. The model, like many others, presumes a linear pathway from the 'demo group' stage to the 'full business' phase. This approach might risk oversimplifying the diversity and complexity of pathways that companies in creative industries like video game development can undergo. The linear model, for instance, doesn't fully accommodate for the possibility of non-sequential development, stagnation, or regression that can occur due to multiple internal and external factors such as market dynamics, technological advancements, or organizational culture. Furthermore, the assumption of a predetermined sequence of stages implies an inherent predictability and uniformity in the growth process, which may not necessarily reflect the realities of a sector characterized by innovation, disruption, and a high degree of uncertainty. Additionally, the focus on growth as the main objective might not account for various strategic choices that firms can make depending on their goals, resources, and market positioning. Therefore, while Vanhala's model offers a critical starting point, future research should consider developing more flexible, non-linear models that capture the diverse trajectories and strategic choices of companies in the video game industry.

Autier and Picq (2003) investigates the complex relationship between artistic creativity and business imperatives within the video game industry, focusing specifically on human resources management strategies. By applying the Resource-Based View (RBV) of the firm and the Strategic Human Resources Management (SHRM) perspective, the authors provide an in-depth analysis of how video game companies balance the dual demands of art and business. The research was conducted through an empirical study of 20 French video game companies between January and June 2001. The video game industry, characterized by the coupling of high-level technical expertise with creative artistic talent, presents a unique opportunity to examine the tension between creativity and commercialism. The authors discovered a paradoxical trend: as these companies mature and grow, they progressively decouple Art and Business activities. This development often involves the reduction or even the elimination of creative activities and personnel, shifting towards a more conventional, business-oriented management system.

Surprisingly, this trend contradicts the tenets of the Resource-Based View, which posits the value of rare, specific, and hard-to-imitate human resources. The same attributes that are considered valuable in the RBV model - specificity, non-imitability, and social complexity - appear to drive the decision to externalize creative activities in the video game industry. The authors propose that this paradox may arise from the inherent difficulties of managing highly specific and

individual human resources, especially when these resources display extreme characteristics in terms of mobility, wage demands, authority rejection, fluctuating motivation, and demands for career opportunities. This argument is supported by Coff (1997) and Galunic & Anderson (2000) who note the unique challenges of managing strategic human resources. Moreover, the paper illuminates the systematic shift in human resources strategy from specialized, individual resources to more generic, collective ones, which is also contradictory to the RBV and SHRM frameworks. This shift appears to be driven by the high-risk nature of managing specific resources, the unpredictability of the industry, and the complex coexistence of Art and Business activities.

Autier and Picq (2003) present a detailed analysis of the video game industry, focusing on the evolving dynamics of Human Resource Management (HRM) as companies transition through different stages of growth. The authors propose a typological model to encapsulate this evolution, highlighting four distinct stages.

1. Studio stage: The initial stage is characterized by small teams (10-20 people) working on a single project. HR practices are largely informal, with an emphasis on fostering a collegial, creative culture. The key attraction for recruitment is the technology, previous successes, and the firm's work environment.
2. Conscious Firm stage: As firms expand to handle multiple projects (15-70 people), they enter the Conscious Firm stage. Here, a shift towards management by projects is observed (Picq, 1999; Jolly and Muller, 1998; Ecosip, 1993), reflecting an increased focus on structured resource allocation and project coordination. Although HR practices still retain some informality, they begin to evolve, with innovative recruitment strategies being employed.
3. Editor stage: With further growth, firms transition to the role of editors, developing, marketing, and distributing games. This strategic shift necessitates a more structured organizational layout and incites changes in HR practices. These practices become more formalized, with the introduction of sophisticated pay systems, such as stock options, to incentivize staff loyalty.
4. Multinational Editor stage: The final stage involves firms operating globally, increasingly outsourcing or acquiring games via licenses. The organizational structures become highly differentiated, often involving international delocalization of production. HR practices are

professionalized, including a dedicated HR function and the hiring of HR professionals with experience from other industries.

Autier and Picq conclude that the evolution of HR practices in video game companies is intrinsically linked to their development stages. As companies expand and their organizational structures become more complex, their HR practices need to concurrently adapt and evolve. This framework highlights the significance of flexibility and adaptability in HRM within the video game industry, and potentially other creative industries, providing insights into the shifting nature of HR practices as companies transition from small, project-focused studios to multinational entities.

2.5. Video Game industry in Poland

The evolution of the Polish gaming industry is a narrative marked by resilience, innovation, and strategic adaptation to market needs and constraints. Beginning in the 1960s, the earliest documented Polish games were adaptations of traditional games for mainframes. However, due to low computer literacy rates and a virtually nonexistent legal market, Polish developers initially struggled to compete with their Western counterparts. A significant turning point came in the 1980s with the advent of home computing. As hobbyists began to produce simple games, the industry began to grow, albeit at a slow pace (Wolf, 2021).

Despite the challenges posed by the Iron Curtain, some Polish developers managed to penetrate the Western market, with some even establishing successful gaming companies abroad. Within Poland, developers often focused on niches that were overlooked by Western developers, such as text adventures in Polish and educational software. They also capitalized on the market transitions, notably from the ZX Spectrum to 8-bit Atari computers, and later to the Commodore 64 and the Commodore Amiga. Polish developers often found success when these platforms were declining in the West, allowing them to fill the market void with their products (Filiciak, 2015).

The transition to PC gaming in the mid-1990s presented further challenges, as the PC was a vibrant platform with a steady influx of Western games. The need for Polish language games dwindled as many Western games were localized. This led to two main strategies: producing low-budget games or striving to create games competitive with Western ones. This era saw the rise of companies like Metropolis Software and Techland, which were successful in creating

globally recognized games (Wolf, 2021).

The advent of the independent gaming scene in the early 2000s opened up new possibilities, allowing developers to create diverse games that did not necessarily have to fill any particular niche. This period witnessed the creation of several successful independent games and the rise of globally recognized companies like CD Projekt. The success of these companies, along with the continually innovative strategies of Polish developers, underscores the resilience and adaptability of the Polish gaming industry. Despite initial hurdles, the industry has managed to evolve and thrive, carving out its own unique niche in the global gaming landscape (Wolf, 2021).

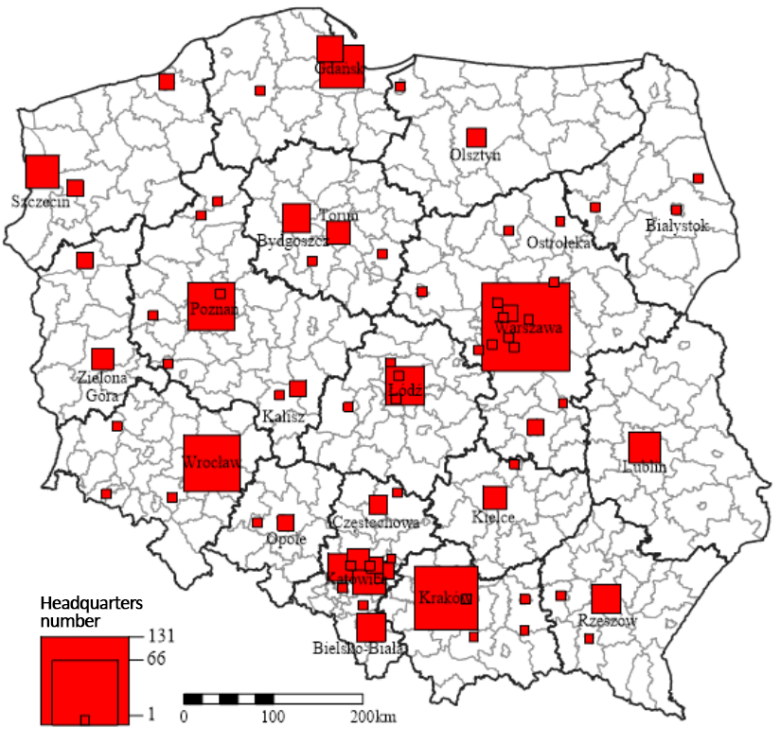
Establishing an exact count of active game developers in Poland at any given time presents a complex challenge due to a range of factors. Firstly, the fluid structure of many game studios contributes to this difficulty. Several entities operate without formal, registered business activity, functioning as individuals or informal teams instead. These 'invisible' developers, despite their informal status, are capable of creating and publishing games, thereby contributing to the industry's output while remaining largely unaccounted for in official tallies. Secondly, the nature of game development itself often leads to periods of opacity where studios may be engaged in long-term projects that do not yield public output for several years. This extended invisibility makes it difficult to ascertain whether these studios are active or have ceased operations. Thirdly, the fluidity of the industry's landscape further complicates the count. Studios frequently undergo transformations, including name and legal form changes, mergers with other entities, or even closures followed by the establishment of new studios. This dynamics often obscures the continuity of activity and makes it challenging to maintain an accurate, up-to-date census of active developers. Lastly, the absence of a single, official register of Polish game developers exacerbates these challenges. While industry reports such as those from the Polish Agency for Enterprise Development (PARP) and unofficial registers like polskigamedev.weebly.com or http://gameindustry.pl/ provide invaluable insights, they may not fully represent the present situation. These sources, while crucial, may overestimate or underestimate the actual number of active developers due to the aforementioned factors.

The most comprehensive and specialized sources of information for researchers focusing on the Polish video game industry are periodic reports such as The Gaming Industry of Poland (2021) and The State of Polish Video Games Industry, prepared by industry researchers and video game specialists, these reports provide an invaluable, in-depth insight into the complexities of the industry. They delve into the intricate details of industry trends, structural dynamics, strategic approaches, and economic impact.

Marszałkowski et al (2021) estimated that approximately 470 game publishers and game studios were operational in Poland as of August 2021, while in the previous edition of this report (2020) estimated over 440 studios and game companies with different business models. According to non-formal register (polskigamedev.weebly.com) there were 611 video game studios in Poland as of may 2023, including small, informal teams who work on their own video games.

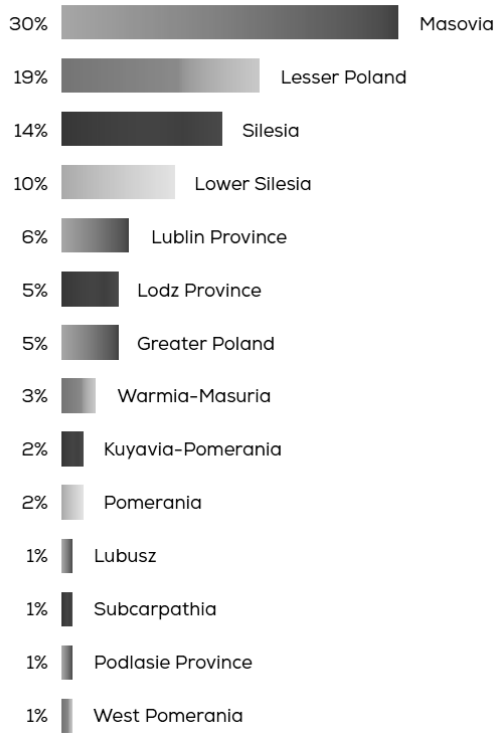
Miodońska (2019) presented the geographic distribution of game producers in Poland presented in Figure 19. On a national scale, game producers were located in merely 81 municipalities, which constituted less than 3.3% of the country's municipalities. Of these, nearly 27% of all entities were concentrated in Warsaw, 12.5% in Krakow, 9.6% in Wroclaw, and 6.5% in Poznan. Such a distribution indicates a propensity to locate operations in major business and technological centers. However, it is crucial to remember that this does not portray a complete picture of the spatial distribution of studios, as it does not account for unregistered and informal creators, as well as dispersed developer groups. The spatial distribution largely aligns with the study conducted by Gałuszka et al. (2020), although some discrepancies are observable when analyzing Figures 2 and 3. As a result of their research, Gałuszka et al. determined the provinces with the highest concentration of game creators, primarily based on company registries identifying themselves as game creators or directly associated with them. In contrast, Miodońska's study also included other creative sector companies that indicated the potential for work in the gaming industry. The three-year time difference between these studies should also be taken into account.

Figure 19. Spatial distribution of video game producers in Poland - as of the end of 2017



Source: Miodońska (2019)

Figure 20. The province where the company's headquarters is located (2020)



Source: (Gałuszka et al, 2020)

The Polish video game industry has been dynamically developing and creating profits for development studios despite its relatively small share in the global market. With a market value reaching $625 million in 2021 and projected growth to $752 million in 2024, the industry is becoming increasingly significant (Statista, 2022). The Polish gaming industry has evolved from being dominated by a single player - CD Projekt - to a market where other brands have recorded substantial revenue growth. In 2021, there were over 12,000 individuals, representing a growth of 24% respectively compared to the previous year (Marszałkowski et al, 2021). The retail value sales in the video games market reached 4.3 billion PLN in 2021, an increase of 19% compared to the previous year. Steady growth is forecasted over the next few years. While CD Projekt remains an important player, the industry has seen a rise in the relevance of other Polish gaming companies. These companies adopt strategic approaches that include meticulous planning, a focus on quality over quantity, and a keen attention to user experience. They also invest in technology and other resources to enhance their market positions, and exploit market opportunities and trends to innovate and expand their product offerings. Examples include Techland's 'Dying Light 2' and Bloober Team’s 'The Medium'. Table 18 Presents the biggest video game companies on the Polish market with their estimated net worth and most renown game titles.

Table 18. Largest Video game companies in Poland

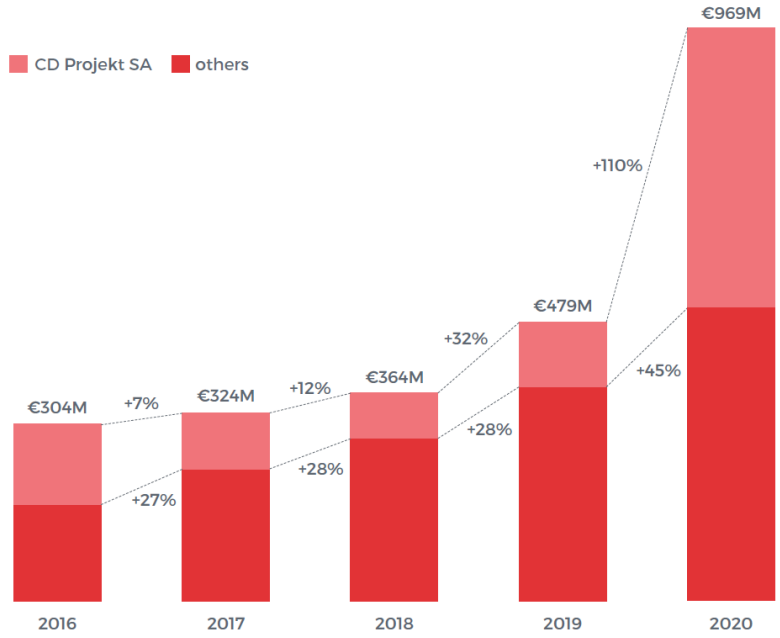
Rank	Studio name	Net worth (mln PLN)	Main Game Titles
1	CD Projekt	12 157	The Witcher series, Cyberpunk 2077
2	Techland	6 720	Dead Island series, Dying Light series
3	PlayWay	1 723	Car Mechanic Simulator, House Flipper
4	Huuuge Inc	1 504	Huuuge Casino, Billionaire Casino
5	PCF Group	1 405	Painkiller series, Outriders
6	11 Bit Studios	1 176	This War of Mine, Frostpunk
7	Ten Square Games	1 134	Fishing Clash, Let's Fish
8	Frozen District	706	House Flipper, Garden Flipper
9	1CE	581	Men of War series, King's Bounty series
10	Creepy Jar	405	Green Hell
11	Flying Wild Hog	360	Shadow Warrior series, Hard Reset
12	CI Games	320	Sniper Ghost Warrior series, Lords of the Fallen
13	Boober Team	290	Layers of Fear, Blair Witch, The Medium

14	Farm 51 Group	275	World War 3, Chernobylite
15	Superhot Team	215	SUPERHOT, SUPERHOT: MIND CONTROL DELETE
16	Boombit	200	Tanks A Lot!, Dancing Line
17	Reality Games	176	Landlord Tycoon, World of Dots
18	Forever Entertainment	159	Panzer Dragoon: Remake, Fear Effect Sedna
19	Big Cheese Studio	158	Cooking Simulator
20	One More Level	155	Ghostrunner

Source: Forbes 2022, modified by the Author

The gaming industry in Poland has consistently showcased a robust growth pattern, ever since the inception of its tracking. However, the analysis of this upward trend becomes somewhat complicated due to the irregular revenue inflows associated with CD Projekt SA's publishing schedule. Therefore, this Fobes report delineates the sector's revenue, distinguishing between the industry as a whole and the earnings attributable to 'The Witcher' creators. Such a distinction allows us to appreciate the Polish game industry's nearly 30% annual growth rate over the past three years, a rate that even gained further momentum in 2020, as shown in figure 21. By all accounts, 2020 was a financially successful year for Polish game developers, with 73% of the publicly traded companies that disclose their financial statements reporting revenue increases. In 2020, Poland's gaming industry achieved a significant milestone - becoming a net exporter of games (Marszałkowski et al, 2021). This accomplishment sets the gaming sector apart from other creative and cultural industries in Poland, such as film, music, and publishing, which still import more than they export. This achievement places Poland in a unique group of countries worldwide that are net exporters of games.

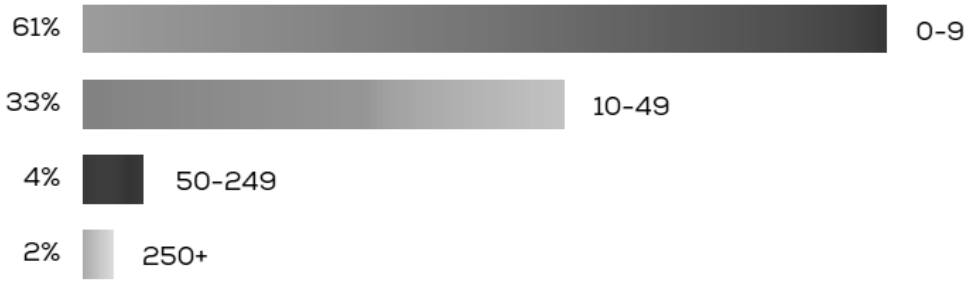
Figure 21. Revenues of game developers in Poland



Source: Game Industry Conference 2021

While the global market primarily highlights the roles of the largest Polish game producers, and the media focus on them, in Poland, the overwhelming majority are micro, small, and medium-sized enterprises employing up to 50 workers. As Gałuszka (2020) indicates, companies employing 0-9 workers constitute 61%, and those employing 10-49 workers make up 33% of all game creators (Figure 22). Meanwhile, firms with 50-249 employees account for 4%, and companies with more than 250 employees represent merely 2%. Notably, there are differences compared to other studies, such as Marszałkowski et al (2021), where a different size scale was applied with employee ranges of 0-5 (33%), 6-16 (38%), 16-40 (15%), above 50 (10%), and above 100 employees (4%). Despite their size, these small firms demonstrate agility and innovation, often delivering pioneering solutions and unique gaming experiences. Marszałkowski's et al (2021) study, despite using a different employee range scale, supports this assertion, emphasizing the significance of these smaller entities. Therefore, while the spotlight often shines on larger corporations, it is crucial to acknowledge the profound impact of smaller firms on Poland's gaming industry. Their size allows for flexibility and creativity, contributing to the diverse landscape of the industry, and playing an indispensable role in shaping Poland's reputation as a leading player in the global gaming market.

Figure 22. Size of the game companies in Poland



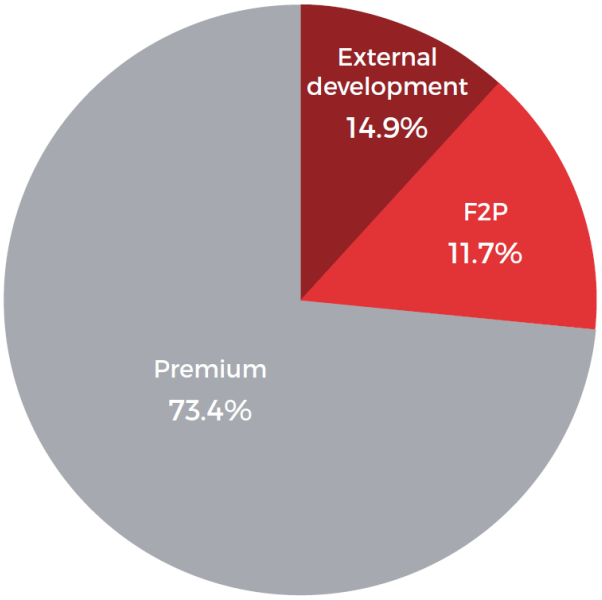
Source: (Gałuszka et al, 2020)

The Polish video game industry is primarily anchored in PC game development. Although game releases often extend to Xbox and PlayStation, smaller firms predominantly create games for PCs first, before porting to consoles. This trend, although slightly affected by shifts like the movement towards Free-to-Play (F2P) mobile gaming, has been consistent over the years. Poland has also seen success with the Nintendo Switch, especially with premium productions (Marszałkowski et al, 2021).

Unique to the Polish context is the substantial mobile game development that happens without primary reliance on the F2P business model, typically involving mobile versions of PC premium games. Interestingly, external development is more popular than F2P, with the majority of companies primarily focusing on premium games development, as shown in Figure 23a. Other business models like licensing, premium with in-game purchases, and PlayToEarn (blockchain gaming) also feature, but many developers did not clearly specify a primary model. A range of other platforms is used for development, with profitable games being developed even for non-mainstream platforms.

Internationally, Poland has a leading role in PC game production, particularly for Steam. As of August 2021, Poland held global leadership with 38 games in the Top 200 most anticipated titles on Steam wishlists. Although the USA and Sweden outperform Poland in the Top 100 and Top 20 respectively, Poland's dominance expands when considering any larger section, indicating its strong presence in indie and AA+ game production (Marszałkowski et al, 2021).

Figure 23a. Declared primary business model among Polish developers

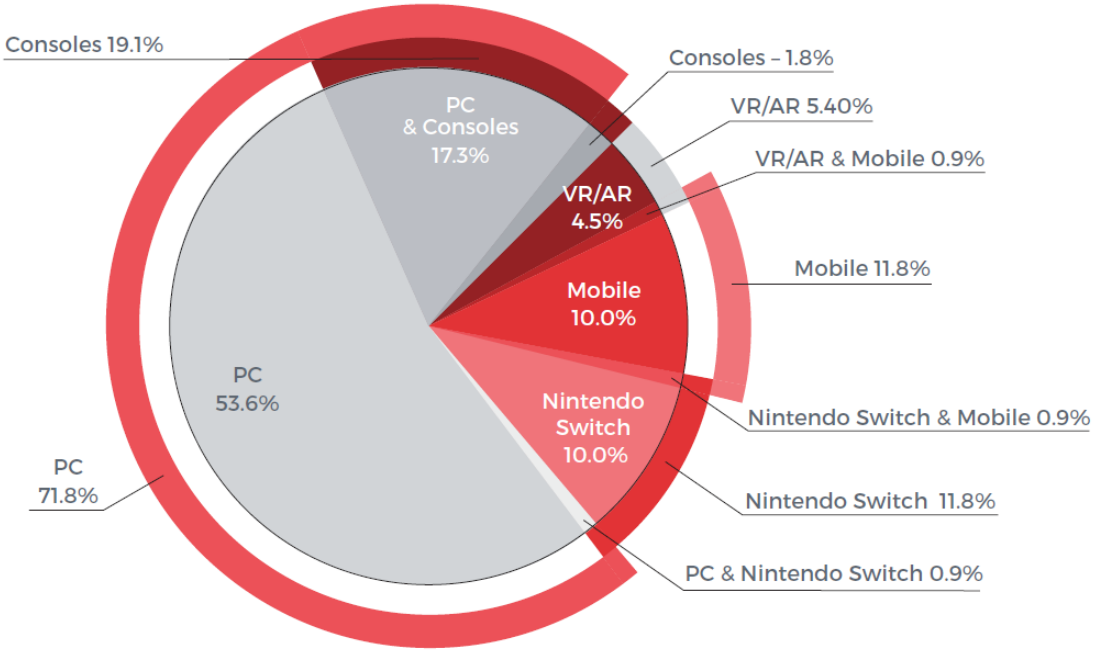


Source: Game Industry Conference 2021

Interestingly, by analyzing the primary business model among developers in the Polish video game landscape Figure 23a, there exists a substantial yet less frequently highlighted sector dedicated to external development, that includes production of graphical game elements, translations services, character voice overs, or video production. There's also a collection of services indirectly linked to game production, including PR and marketing, player support, community management, legal services, investment, and services related to the stock exchange. Companies such as Keywords, Lionbridge, QLOC, Roboto Global, Sperasoft, Testronic, and Platige Image, each employing hundreds of individuals, offer high-quality services to international clientele. Excluding the latter, these companies constitute what could be described as a Polish hub for quality assurance and localization, representing the largest European concentration of such industry services in the gaming field. However, numerous smaller companies also offer similar services. This sector exhibits two contrasting trends: some companies integrate these activities with first-party development, often being perceived more as developers than service providers, while others opt to concentrate their expertise in external development or services.

The pie chart titled "Primary platforms declared by Polish developers" provides an insightful overview of the platforms for which Polish game developers produce their games. The chart is uniquely structured, comprising an inner section that presents percentages based on the platform combinations a game is developed for, and outer rings that indicate the standalone percentages of each platform, counting duplications if a game appears on multiple platforms.

Figure 23b. Primarily platforms business model among Polish developers



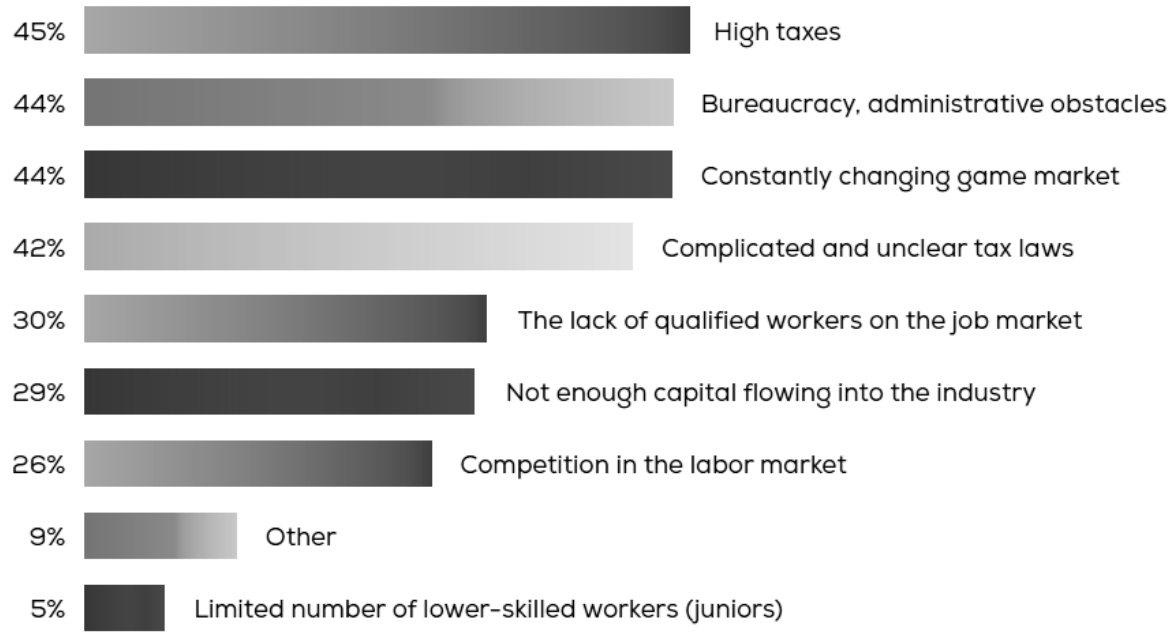
Source: Game Industry Conference

The inner section of the pie chart indicates that a majority of Polish developers primarily develop games for PC only, accounting for 53.6% of the total. The next substantial share is held by developers who create games for both PC and consoles, comprising 17.3% of the total. A notable 10% of developers produce games exclusively for mobile or Nintendo Switch platforms each. A small segment of developers, 1.8%, focuses solely on console game development. VR/AR games make up 4.5% of the total, with a fraction of 0.9% also developing for mobile.

The outer rings of the chart represent a different perspective, treating each platform separately and acknowledging games appearing on multiple platforms. In this view, the PC platform holds a majority with 71.8% of games developed for it. It's important to note that this figure is a cumulative total of 'PC Only' (53.6%), 'PC & Consoles' (17.3%), and 'PC & Nintendo Switch' (0.9%). Among the consoles, Xbox holds a significant portion with 59% of the games developed for it. Other platforms like VR/AR, Mobile, and Nintendo Switch hold 5.4%, 11.8%, and 11.8% respectively. A significant 72% of the games are premium titles, further emphasizing the importance of this category in the Polish gaming industry.

The pie chart clearly illustrates the dominance of PC gaming in the Polish development landscape while also highlighting the significance of multiple platform development and the role of premium games.

Figure 23c. Factors adversely affecting the company's development in 2019



Source: (Gałuszka et al. 2020)

Figure 23c presents a range of challenges faced by Polish video game companies. The chart quantifies these obstacles in terms of their relative prominence among the surveyed organizations. The most prominent challenge, as stated by 45% of companies, is the burden of high taxation rates. This is closely followed by two interrelated issues, each reported by 44% of respondents: bureaucratic hurdles and the ever-evolving nature of the gaming market. The complexities and lack of clarity in taxation laws also pose a substantial challenge, indicated by 42% of the organizations. The deficit of skilled labor in the job market is a concern for 30% of the companies, while 29% of them cite a dearth of investment capital flowing into the industry as an impediment to growth. Competition for employees in the labor market is a barrier for 26% of the firms. Other, less frequently mentioned factors are miscellaneous challenges (9%) and a limited availability of lower-skilled or junior-level employees (5%). This data largely reflects external obstacles encountered by video game development companies in Poland. It's worth noting, however, that most industry reports tend to focus on these external factors shaping the growth of video game studios. Internal aspects such as management style, strategic decision-making,

and organizational strategy are often overlooked. These internal factors, although not explicitly represented in this chart, are nonetheless crucial components of a company's developmental trajectory and warrant further academic exploration.

Based on the existing body of literature and data, it is evident that the Polish video game industry is experiencing a significant surge in growth and development. The industry has emerged as a crucial player in Europe's creative sectors, contributing substantially to the region's economic vitality and cultural dynamism. This upward trajectory can be attributed to factors such as technological advancements, a thriving talent pool, and an evolving gaming market that adapts to consumer preferences.

However, it's important to note that much of the existing research and analysis tends to focus on broad industry trends and the role of larger, more established firms. While these entities undoubtedly play a crucial role in shaping the landscape of the industry, the contributions and potential of smaller studios, particularly those in their developmental stages, are often overlooked.

These nascent entities constitute a vibrant and integral part of the industry, often serving as incubators for innovative ideas and new gaming experiences. Yet, there is a scarcity of information detailing the factors that drive their growth and development. This gap in the literature underscores the need for more in-depth exploration of the internal dynamics within these smaller companies. Factors such as organizational culture, leadership style, strategic decision-making, and human resource management, to name a few, are critical determinants of a company's growth trajectory.

In conclusion, while the Polish video game industry continues to flourish and establish its prominence in the European creative sector, future research should strive to offer a more nuanced understanding of the industry. This should involve delving deeper into the underexplored areas such as the growth mechanisms of smaller studios and the internal factors that influence their development. This will not only enrich the understanding of the industry but also provide valuable insights that could potentially foster the sustainable growth of these emerging entities.

2.6. A conceptual model for video game studios growth

The unique dynamics of the video game industry necessitate the development of new, more suitable growth models. The conventional linear growth models, such as the Greiner Model or Churchill & Lewis Model, have their roots in the traditional industrial sectors and tend to assume that the ultimate goal of a firm is to expand and increase profits (Churchill & Lewis, 1983; Greiner, 1972). However, video game development studios, much like other creative industry organizations, often have different goals, with many prioritizing passion, creativity, and sustainability over sheer profit and growth (DeFillippi, Grabher, & Jones, 2007).

This proposed model of non-linear development for video game studios, therefore, attempts to fill this gap in our understanding of growth and development in the video game industry. It acknowledges and caters to the idiosyncratic, non-linear trajectories that these studios often exhibit.

Model Assumptions:

1. **Variety in Growth Objectives**: The model assumes that not all game development studios primarily aim for financial growth. Many studios prioritize artistic vision, innovation, or social impact over profitability.

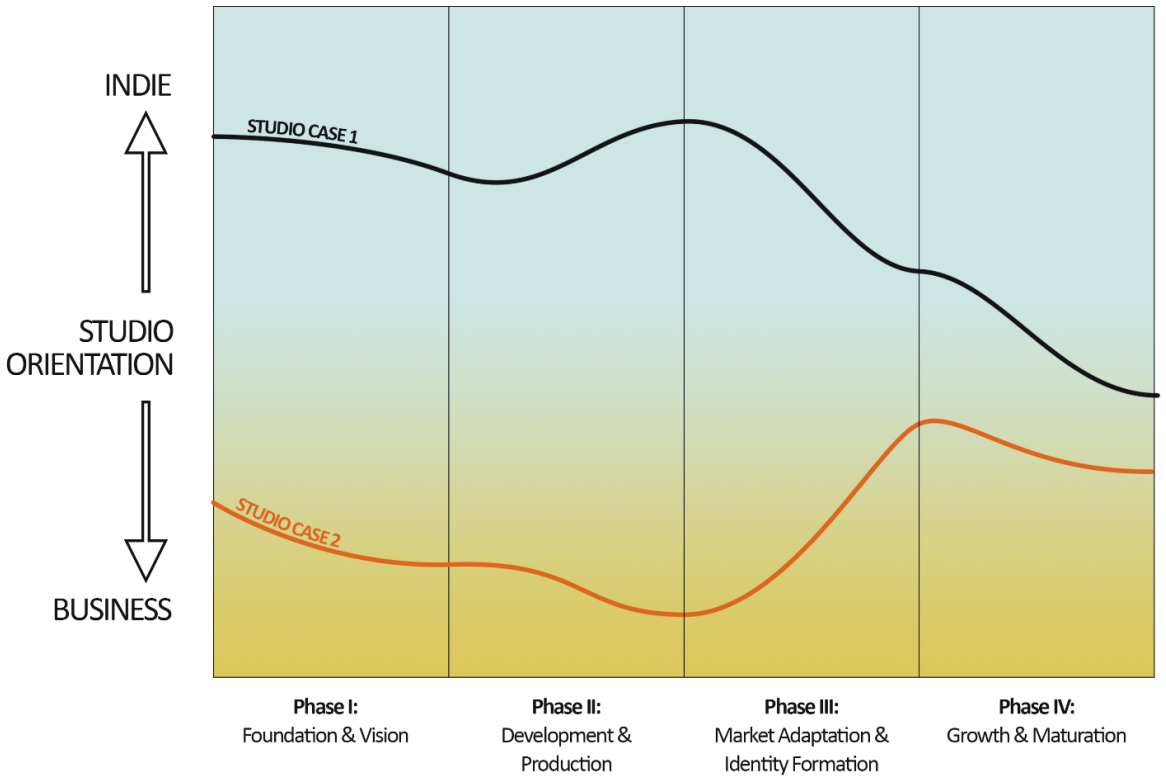
2. **Phase-Based Development**: The model assumes that studios progress through distinct phases of growth, but the transition between phases can lead to directional changes in their development trajectory.

3. **Dynamic Orientation**: The model acknowledges the variety of orientations in the video game industry, ranging from profit-focused business ventures to passion-driven indie studios. This diversity is often overlooked in traditional models, which focus primarily on business-oriented growth. The model assumes that studios can shift between a more business-oriented focus and a more passion-driven focus, in response to both internal and external stimuli.

4. **Decision Points**: The inclusion of decision points reflects the reality of strategic pivots in a studio's journey. These points often represent critical junctures where studios reassess their goals and direction based on experiences and feedback (Mintzberg & Waters, 1985).

5. **Non-Linearity**: Conventional growth models assume a predictable, linear progression, often equating growth with increasing size and profits. However, creative industries like video game development often exhibit non-linear trajectories, shaped by factors such as market feedback, creative breakthroughs, or shifts in team dynamics (Caves, 2000).

Figure 24. Conceptual model for video game studio growth



Source: own study

The proposed model graphically represents the growth and development of video game development studios over time and along the spectrum of their strategic orientation. The horizontal X-axis represents the progression of time as the studio evolves through four distinct phases: Foundation & Vision, Development & Production, Market Adaptation & Identity Formation, and Growth & Maturation. The vertical Y-axis signifies the orientation of the studio, ranging from a "Business-oriented" focus at the bottom to an "Indie/Artistic" focus at the top. The Y-axis, as such, reflects the strategic orientation and operational ethos of a game development studio. A more business-oriented orientation towards the lower end of the Y-axis emphasizes commercial success, revenue generation, growth in team size, and strong relationships with influential business partners like investors or publishers. These studios often prioritize their game's marketability and profitability. On the other hand, an indie/artistic

orientation towards the higher end of the Y-axis signifies a focus on independence, artistic expression, and intrinsic motivation, often over profit. These studios usually consist of smaller teams and might be less influenced by external stakeholders such as publishers or investors. They prioritize their creative vision, even if it does not necessarily translate into financial success. Each point on the graph represents the studio at a particular point in time, and the trajectory of these points visualizes the studio's growth and development path. This path can move both horizontally, as the studio progresses through the different phases over time, and vertically, as the studio might shift its orientation between business and indie/artistic focuses.

As the studio evolves, it reaches key decision points at the end of each phase, where it can choose to shift its orientation and change its trajectory. For instance, a studio might start with a strong indie orientation during the Foundation & Vision phase, but then pivot towards a more business-oriented focus during the Development & Production phase, based on market feedback or changes in leadership vision. Conversely, a studio with a business orientation might decide to shift towards a more indie focus during the Market Adaptation & Identity Formation phase due to internal changes or strategic decisions.

This approach recognizes the non-linear, dynamic nature of growth in the video game industry, where studios' trajectories are shaped not just by time and stages of development but also by their shifting orientations and strategic decisions. This provides a more nuanced understanding of the development of video game studios compared to traditional linear growth models.

Model phase and decision descriptions:

Phase 1: Foundation & Vision

During this initial phase, the seeds of a game studio are planted. It involves assembling a team, setting up the infrastructure, and most importantly, defining the studio's vision. The vision may include what types of games they want to create, what narratives they want to explore, or the kind of impact they want to have on the gaming community. It could also be shaped by the skill set of the team and the resources available. This phase ends with a clear plan for the first game or set of games, representing the concrete embodiment of their **initial vision.**

Phase 1 decisions:

- *Forming the Team*: A critical decision at this stage is the selection of team members. Skills, experience, and compatibility with the vision of the studio are all important considerations.

- *Defining Vision and Strategy*: The founders decide the long-term vision for the studio. This includes determining the type of games they will develop (genre, platform), their target audience, and their unique value proposition in the crowded gaming market.
- *Securing Initial Funding*: Depending on the scope of their initial project, the studio might need to secure funding. They need to decide whether to self-fund, seek investment, or use a combination of the two.

Phase 2: Development & Production

In this phase, the game studio is actively working on its first project(s), bringing its vision to life. This involves going through all the stages of game development – from concept and design, to coding, testing, and eventually, launching the game. It is a phase marked by creativity, problem-solving, and collaboration. The studio might also need to navigate early challenges, such as securing funding or addressing technical issues. This phase concludes with the launch of their first game(s), marking their official entry into the market.

These refinements provide more detail about the tasks and decisions at each phase, emphasizing the complexity and dynamism of the game studio's journey. The model acknowledges the unique challenges and opportunities in the gaming industry, making it a powerful tool for understanding and predicting a studio's growth trajectory.

Phase 2 decisions

- *Game Design Decisions*: This includes deciding game mechanics, storylines, graphics style, etc. These decisions should align with the studio's vision and appeal to their target audience.
- *Production Management*: The studio needs to establish efficient workflows and manage resources effectively. They also have to decide on development tools and platforms.
- *Marketing and Launch Strategy*: How and when to start marketing their game is another critical decision. They must plan the game’s launch, deciding on things like release date and distribution platforms.

Phase 3: Market Adaptation & Identity Formation

After a game studio has released its first products, they get an initial understanding of how the market responds to their work. This includes user feedback, media reception, sales data, and more. All this information informs their decision-making process moving forward. During this phase, the studio also solidifies its identity—what types of games it wants to make, what audiences it wants to reach, etc. Importantly, it’s during this phase that a company has to decide whether it wants to stick to its original vision or adapt to market

feedback. This can be a turbulent period as the studio might face a dichotomy between their original artistic vision and the market reality.

Phase 3 decisions

- *Response to Market Feedback*: After the first game launch, the studio will receive feedback and gain insight into how their game is perceived. They need to decide how much to let this feedback influence their future direction.
- *Company Identity Refinement*: Based on market response and internal reflections, the studio might decide to refine its identity. This could involve changing their target audience, game genre, or overall business strategy.

Phase 4: Growth & Maturation

After a company has formed its identity and chosen its path, it starts to grow and mature. During this phase, a studio might decide to scale up their operations, diversify their game portfolio, or establish a stable niche for themselves. It's a phase of strategic decisions related to market positioning, company size, product line, etc. This phase often entails figuring out how to maintain creative energy while dealing with increased complexity, and how to manage the relationship between artistic ambition and commercial goals.

These phases acknowledge that a video game studio's development isn't linear but dynamic, filled with critical decisions and possible changes in direction. Each phase presents opportunities for studios to reassess and redefine their trajectories based on the evolution of the market and their own growth objectives.

Phase 4 decisions

- *Growth Strategy*: The studio has to decide how it wants to grow. This could involve scaling up production, diversifying their portfolio, specializing in a niche, or expanding to new markets.
- *Balancing Creativity and Business*: As the studio grows, it needs to maintain its creative spark while also managing a larger business operation. This could involve decisions around company culture, hiring, management structure, etc.

All these decisions are influenced by various factors, including the studio's initial vision, market feedback, internal capabilities, and external opportunities or challenges. This model highlights the importance of these strategic decisions in shaping a studio's trajectory and identity over time.

Comparison to Other Models

Unlike conventional growth models, this model emphasizes the potential for shifts in a studio's orientation and the influence of key strategic decisions. While models like the Greiner Model focus on managing the crises associated with different stages of organizational growth, this model recognizes the impact of external market feedback and internal strategic decisions in shaping the studio's trajectory.

This model aligns more closely with Mintzberg's idea of strategy formation as a 'pattern in a stream of decisions' (Mintzberg & Waters, 1985). However, it extends this idea by applying it to the unique context of the video game industry, highlighting the potential for studios to shift between business and passion orientations.

Chapter 3

3.1. Quantitative research methodology

3.1.1. Research Objective

The principal objective of this research was to conduct an in-depth exploration of the characteristics, motivations, and developmental stages of video game studios in Poland. The research aimed to examine the dynamism of the burgeoning video game industry, probing the factors that shape the inception, growth, and evolution of these enterprises.

Video game development studios possess unique characteristics and face distinct challenges at different stages of their life cycles. Understanding these features can provide critical insights into the mechanics of this industry. This investigation focused on these distinguishing attributes, specifically their operational activities, motivational drivers, and defining characteristics at each stage of the studios' life cycle. The goal was to discern whether there are distinct types of video game studios that can be categorized based on these features and whether there are discernible variations in their underlying motivations.

A significant aspect of the research was to comprehend the motivations driving the inception of game development studios. By delving into these motivational aspects, the study aimed to uncover the ambitions, aspirations, and the driving forces behind the establishment of these enterprises. This understanding is crucial for illuminating the entrepreneurial spirit underpinning the video game industry, thus providing a lens to examine the industry's evolution and dynamism.

In addition, the research aimed to shed light on the developmental trajectories of these studios. The intent was to create a roadmap detailing the evolution, growth, and expansion of video game companies. This aspect of the study contributes to the creation of a conceptual framework that encapsulates the lifecycle of video game studios. By charting these growth trajectories, the study endeavored to uncover the underlying patterns and trends shaping the industry's landscape.

The overarching goal of this research was to illuminate the intricate dynamics of the

video game industry in Poland. This study's findings could offer valuable insights, contributing to the academic discourse on video game development, and inform industry practitioners, policy makers, and entrepreneurs seeking to enter or expand within this vibrant field. This research also has the potential to enhance the theoretical understanding of industry dynamics, entrepreneurial motivations, and growth trajectories in the context of the video game industry, an area that is currently underexplored in the literature.

3.1.2. Sample

The sample population for this research was composed of all active video game studios in Poland at the time of the survey, totaling 532 studios. The foundation for determining the sample population was based on the reports "The Game Industry of Poland - Report 2021" and "The Game Industry of Poland - Report 2022." It should be noted that due to the voluntary participation nature of these reports, the listed studios varied and did not fully coincide between the two reports. Therefore, to create a more comprehensive sample, the databases from both reports were merged.

In addition to these reports, the author utilized the unofficial "Baza Polski Gamedev" register (https://polskigamedev.weebly.com/), which includes studios that operate informally and are not registered as legal entities. This expanded the breadth of the sample population to incorporate a wider range of studio types, enhancing the representativeness and inclusivity of the study.

To ensure accurate contact data, the author meticulously reviewed each studio's current website or social media page, enabling the collection of the most recent contact email for each studio. Consequently, a database of 532 email addresses was compiled, representing the totality of the sample population. This comprehensive and inclusive sample population strategy strengthens the research's validity, enhancing the generalizability of the study's findings within the context of Poland's video game industry.

3.1.3. Sampling Method

Given the study's objective to encompass the full spectrum of video game studios in Poland, irrespective of their stage of development, a census sampling method was employed. This approach ensures the inclusion of all identified studios in the sample population, from nascent and emerging enterprises to established ones. Thus, every studio within the identified

sample population of 532 received the survey, reflecting the methodological choice of a total population sampling.

This method was chosen due to the critical importance of capturing the widest possible range of experiences, operational modalities, and motivational factors across the varied development stages of the video game studios.

3.1.4. Survey Design

The research implemented an online survey using the specialized survey creation tool "Survey Sparrow" (surveysparrow.com). The survey comprised 31 questions employing a mix of single choice, multiple choice, Likert scale, and matrix questions. The design and structure of the survey were crafted to progressively delve into various aspects of the video game studios.

The survey was initiated with questions primarily focusing on identifying the basic characteristics of the studio. These encompassed queries about the studio's legal form, size, age, preferred game genres, and platforms, mostly utilizing single and multiple choice formats.

Subsequent questions aimed to gauge the experience and operational dynamics of the studio. These inquiries explored the founders' experience, differences in industry experience within the team, the number of games published, and whether the studio offers external outsourcing services.

To further examine the studios' relationships and collaborations, a set of matrix questions was used. These questions assess whether the studio has an investor or a publisher, collaborates with other entities, the duration of these connections, and whether these partners are domestic or international.

The next set of matrix questions employed the Likert scale, aimed at capturing the studios' perspectives on the key factors contributing to success, their interpretation of success, their needs at the current stage of development, and their growth plans.

At the conclusion of the survey, participants were asked about their willingness to participate in a subsequent phase of the research involving semi-structured interviews. This enabled the identification of potential candidates for further qualitative investigation, thereby adding an additional layer of depth to the study's findings. Table 19 presents the full list of survey questions, their codes and types.

Table 19. Survey questions codes and types.

Question Code	Question content	Type
P1	What is The legal form of your gamedev studio?	Single choice
P2	How long does your studio work as an official entity or permanent team?	Single choice
P3	How many people currently work in your team/studio?	Single choice
P4	Estimate how many people operated in your team/studio in the initial period of their activity as a starting team.	Single choice
P5	On what platforms your studio publishes or plans to publish games?	Multiple choice
P6	What kind of genre your studio's games are - both published or upcoming?	Multiple choice
P7	Specify the share of competences in the production process of your team.	Scale
P8	How many games have your studio published so far?	Single choice
P9	How many games is your studio currently working on?	Single choice
P10	Determine the estimated time needed to complete a typical game title (ready for publication) by your team.	Single choice
P11	Does your studio provide services of creating games, graphics, assets or programming (external development / outsourcing) and how important is this aspect of activity in the adopted business model of the studio?	Single choice
P12	Customers using the services of your studio in creating games/graphics/asset/programming are (Nationality):	Single choice
P13	What countries usually come from the foreign entities, which are customers of your studio in the field of creating games/graphics?	Input
P14	Has any of the games published by your studio achieved sales success?	Single choice
P15	Determine the diversity of key members of your team in terms of seniority.	Single choice
P16	Rate the degree of specialization of teams/team members.	Scale
P17	Determine the level of experience of key team members in the gamedev or related industry in the initial period of the studio's activity.	Single choice
P18	With what industry entities is your studio currently cooperating or had cooperated and how long did this cooperation last/or is still lasting?	Matrix
P19	Determine whether they are domestic or foreign entities.	Matrix
P20	What countries do foreign entities, with which your studio cooperates, come from?	Input
P21	Indicate aspects in which support from the publisher with whom your studio cooperated or cooperated was obtained.	Multiple choice
P22	How do you assess your studio's experience with the publisher?	Single choice

P23	Indicate aspects in which support from the investor, with whom your studio cooperated or cooperated, was obtained	Multiple choice
P24	How do you rate your experience with an investor?	Single choice
P25	How does your studio finance its activities at present?	Multiple choice
P26	What main engine does your studio use to create games?	Multiple choice
P27	Specify the importance of the following factors to achieve your studio's success.	Matrix with Likert scale
P28	Which of these points describe the success of your studio at its current stage of development?	Multiple choice (with choice limit)
P29	Which of these activities most accurately describe the development plans of your studio in the perspective of the year.	Multiple choice (with choice limit)
P30	Does your studio currently use one of available digital distribution platforms (STEAM, Epic Games, PlayStation Store, Google Play etc.?)	Single choice

3.1.5. Data Collection

The survey was disseminated via email to all 532 identified video game studios in Poland. Each email contained an introduction to the research, the purpose of the study, instructions for completing the survey, and information regarding data collection practices. In particular, assurances of anonymity were communicated, stating that the survey did not gather any information allowing identification of the respondents or their respective studios.

To enhance response rates, two follow-up reminders were sent to those who had not yet responded or explicitly declined participation.

A total of 180 responses were received from the distributed surveys, yielding a response rate of approximately 34%. It is important to note that no incentives were offered for participation, and this rate is purely voluntary. The response rate and voluntary nature of participation contribute to the validity of the study's findings, as it minimizes potential response bias and upholds the ethical considerations of voluntary participation.

3.1.6. Data Analysis

The raw data from the survey was exported to XLS format using Survey Sparrow, and subsequently cleaned, sorted, and organized using Microsoft Excel. This software also facilitated the creation of basic statistical representations of the gathered data.

The data analysis stage involved the application of a range of statistical techniques to validate the hypotheses. These methods included:

1. Two-Step Clustering: This is a combination of hierarchical and partitioning clustering methods, useful for categorizing large data sets. In this study, it would be useful in creating sub-groups within identified clusters based on additional attributes, further refining the understanding of the different types of studios.
2. Mean Comparison: This technique compares the mean values of different groups to understand the differences between them. In the context of this study, it would help to compare the characteristics of different types of studios, their motivations, operational activities, etc.
3. Binary Logistic Regression: This is a form of regression analysis where the dependent variable is a binary variable. It could be used in this study to identify the variables that influence specific outcomes, such as whether a studio would offer external outsourcing or not, or if it works with a publisher or investor.
4. ANOVA (Analysis of Variance): This technique tests the hypothesis that the means of two or more populations are equal. In the context of this study, it could be used to test whether different types of video game studios (based on size, age, etc.) have different views on success or their needs at their current stage of development.

Each of these statistical methods was selected for its ability to provide insights into the diverse attributes of the studios, their operational modalities, and motivational drivers, and to understand the relationships and variations between different studio types, contributing to the overall objective of the study.

3.1.7. Validity and Reliability

To ensure the validity and reliability of the survey, a pilot test was conducted with three game studios before distributing the survey to the entire sample population. This preliminary testing served as an invaluable step for ensuring the clarity and understandability of the questions, and the overall functionality of the survey.

The studios involved in the pilot test were asked to validate the survey by providing critical feedback on its design, the interpretability of questions, and the overall survey experience. Their feedback was instrumental in identifying and rectifying potential issues and ambiguities in the questionnaire. Based on their responses, certain questions that were found to be unclear, highly subjective, or considered "too confidential" were either removed or rephrased for better comprehension. This process enhanced the validity of the survey by ensuring that the

questions accurately measure what they are intended to measure.

In terms of reliability, the pilot test helped ascertain the consistency and dependability of the survey. By ensuring the questions were clear and unambiguous, the pilot test helped to minimize measurement errors, thereby improving the reliability of the survey. The iterative feedback and refinement process helped to increase the precision of the survey and ensure that it provides consistent and reliable data for the research.

3.1.8. Ethics

The survey was designed to adhere to rigorous ethical standards in research. At the onset of the survey, an explanation was provided to inform the participants that the survey was part of a research study. This explanation emphasized that participation was completely anonymous, and that the survey would not solicit the studio's name, any personal data, or any confidential or finance-related information.

Participants were required to acknowledge their understanding of these terms by checking an "I understand" checkbox. This ensured that participants were adequately informed about the purpose of the survey, the confidentiality of their responses, and their rights as participants, thereby promoting informed consent.

Moreover, no tracking links were utilized in any part of the survey, thereby maintaining participant anonymity and data confidentiality. Additional security measures were provided by the survey software used (Survey Sparrow), which is designed with advanced security features to ensure data integrity and protection.

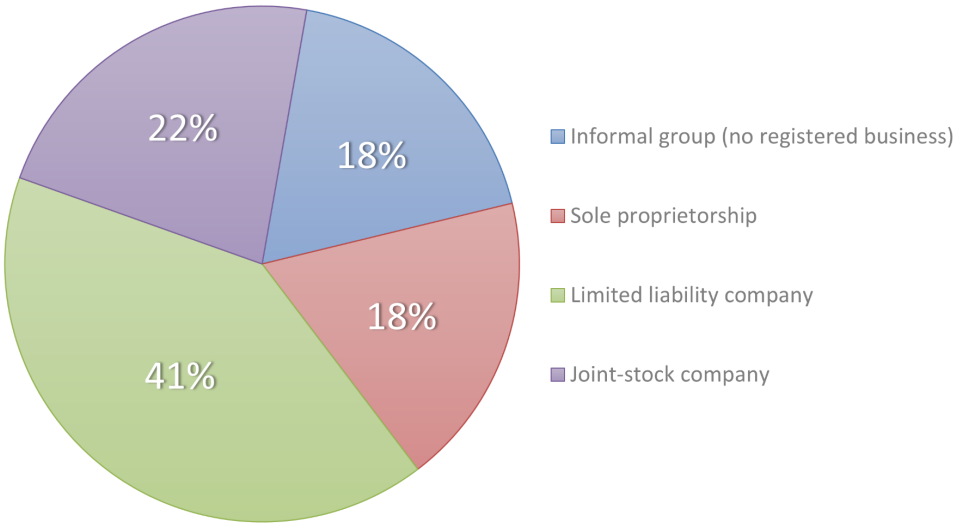
By adhering to these ethical practices, the study ensures respect for participant privacy, voluntary participation, and data security, maintaining the trust and goodwill of participants and upholding the integrity of the research.

3.2. Respondents characteristics

In this subchapter, we delve into the rich and diverse array of data gathered from our survey. This data provides a comprehensive view of the characteristics of the responding video game studios, which predominantly include small and medium-sized entities. The survey, comprising an array of questions, was meticulously designed to capture a broad spectrum of information, thereby illuminating the multifaceted nature of these game development studios. It should be noted that the video game industry is characterized by a significant degree of

heterogeneity. This diversity is mirrored in our data, which encompasses studios with different specializations, orientations, games produced, team sizes, levels of experience and its approach to business and partnerships. In the forthcoming sections, we will present a detailed analysis of this data, shedding light on the varied features and attributes of the participating studios. By doing so, we aim to present a rich and nuanced picture of the small and medium-sized studios operating in today's vibrant video game industry.

Figure 25. The legal forms of video game studios

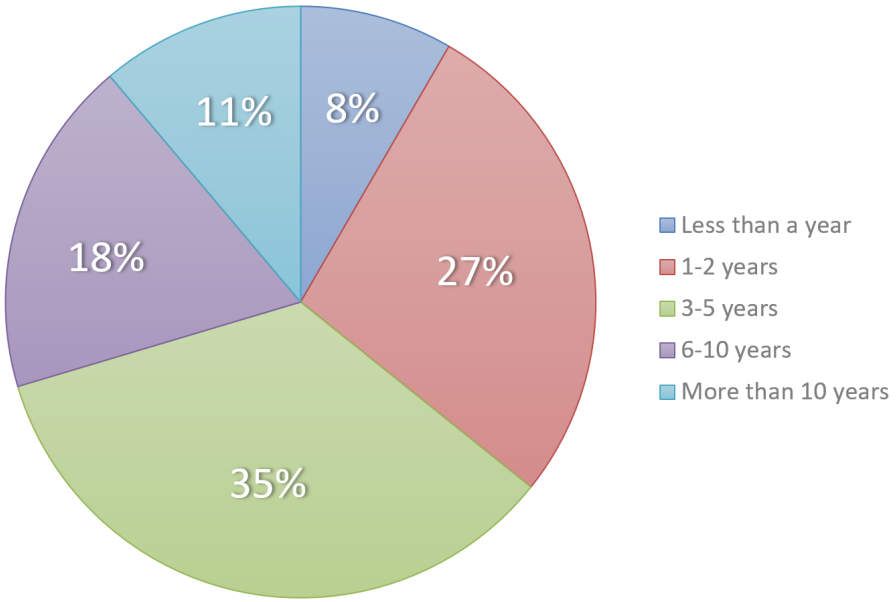


Source: Data from Authors' survey

The diversity in the legal forms of video game studios speaks volumes about the broad scope of structures within the industry. Interestingly, a considerable proportion of these entities, accounting for 18%, function as informal groups with no registered business. This category, which is often overlooked in similar studies, plays a significant role in the gaming ecosystem and contributes to its vibrancy and dynamism. Similarly, sole proprietorships make up another 18%, indicating the presence of individual entrepreneurs steering their own ventures in the industry. Most notably, however, Limited Liability Companies (LLCs) dominate the industry with a representation of 41%. This underlines the attractiveness of the LLC structure for video game studios, likely due to its flexibility, limited personal financial liability, and favorable tax treatments. Joint-stock companies comprise the remaining 22%, suggesting a substantial presence of larger and potentially publicly traded entities. In conclusion, these results offer a testament to the diverse legal structures that underpin the small and medium-sized studios in the video game industry, underlining the necessity to consider and include all forms, including

the often omitted informal groups, in research studies.

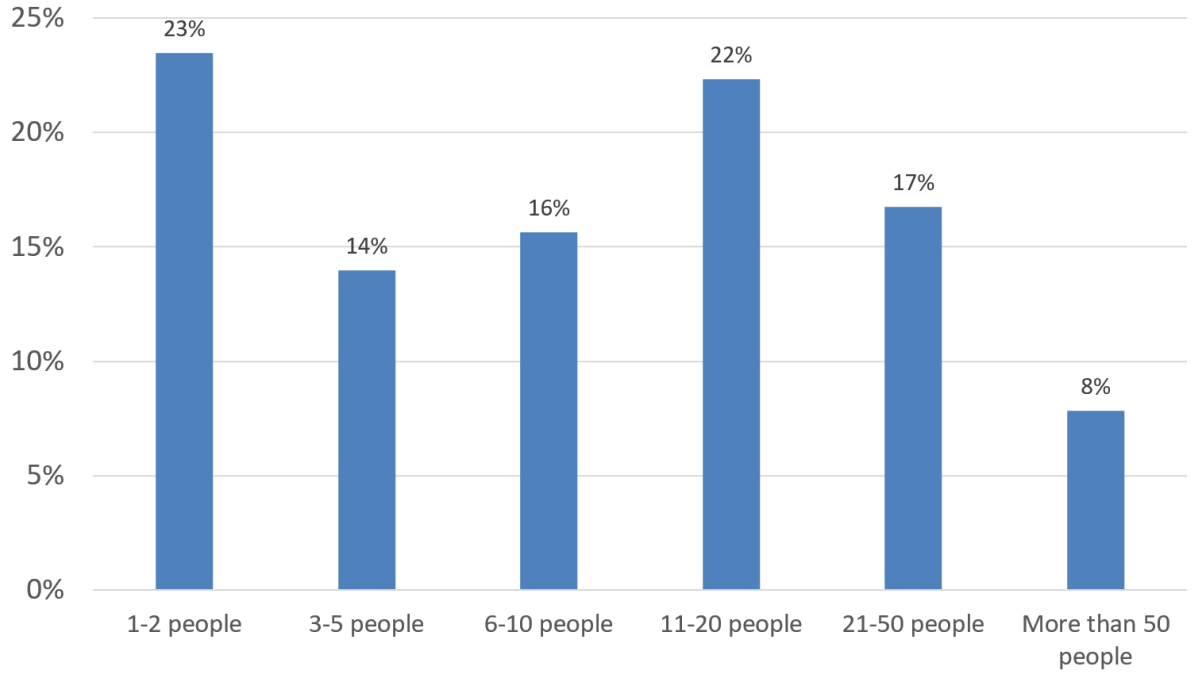
Figure 26. The age of video game studios in Poland



Source: Data from Authors' survey

The age distribution of video game studios in Poland unveils a relatively young and vibrant sector, still in a stage of growth and evolution. Of note, 8% of the studios are less than a year old, which signifies an ongoing influx of fresh players in the industry, illustrating its attractiveness and potential profitability.The bulk of the studios, a significant 62%, are within the 1-5 year range, suggesting a burgeoning industry characterized by a large number of startups and entrepreneurial ventures. These young studios represent the dynamic nature of the industry and its ability to attract and foster new talent and ideas. Studios aged between 6 to 10 years account for 18%, indicating a solid group of companies that have survived the initial startup phase and successfully established themselves within the market. These studios are likely to have developed a level of stability and resilience, and may represent significant contributors to the industry. Studios over ten years old constitute 11% of the surveyed entities, signifying the presence of seasoned, mature companies that have successfully navigated the challenges of the industry. These long-established studios provide historical continuity and potentially serve as mentors or models for younger firms. In conclusion, the video game industry in Poland, characterized by its youth and dynamism, appears to be a fertile ground for entrepreneurship and innovation, while also hosting a significant number of more mature studios.

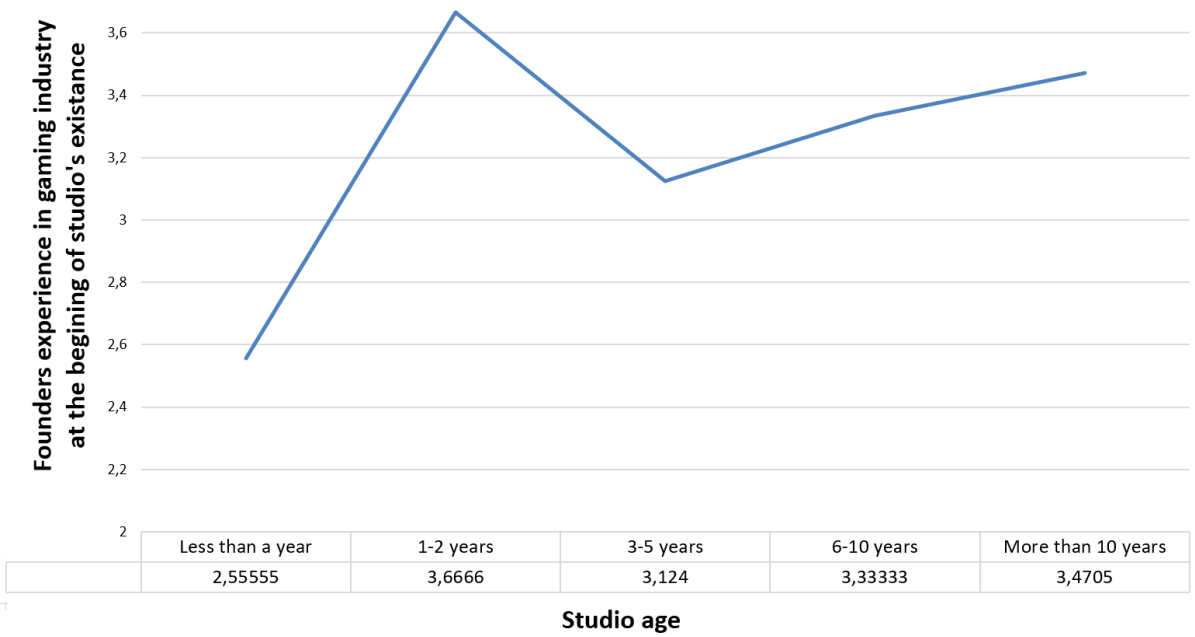
Figure 27. The Size of video game studios in Poland



Source: Data from Authors' survey

The size distribution of video game studios in Poland is somewhat diverse, reflecting a wide array of organizational structures within the industry. At one end of the scale, there is a considerable percentage (23%) of small studios consisting of 1-2 people, indicative of a large number of indie developers or entrepreneurial entities, which contributes to the dynamism and innovative spirit within the industry. Medium-sized studios, with 3-5 and 6-10 people, constitute 14% and 16% respectively. These sizes may be representative of studios that have experienced some growth or are perhaps focusing on more complex projects that require a larger team. The largest percentage is observed in the 11-20 people category, accounting for 22% of the total. This suggests a healthy portion of the industry has transitioned beyond the startup phase into more mature business operations. Studios with 21-50 people represent 17%, and those with more than 50 people make up 8% of the studios. These proportions imply that there are also a significant number of larger, more established companies in the Polish game development sector. Overall, the size distribution portrays a healthy and diverse industry, with a broad spectrum of studio sizes each potentially contributing different strengths and innovations to the Polish game industry.

Figure 28. Founders experience in relation to game studio age



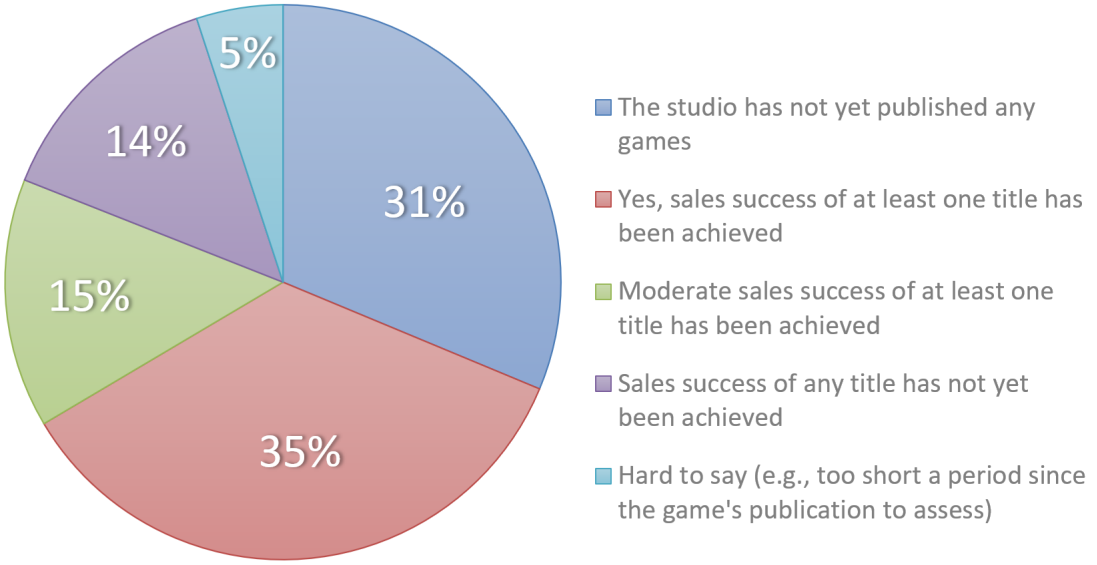
Source: Data from Authors' survey

Figure 28 offers interesting insights into the relationship between the industry experience of founders and the size of video game studios in Poland. The graph highlights an intriguing pattern: studios that have been in existence for 1-2 years demonstrate the highest mean industry experience of the founders, which stands at 3.6666. This suggests that these relatively new studios are often established by individuals with substantial industry experience. This observation might be indicative of a dynamic trend in the Polish video game industry where experienced professionals are increasingly venturing into entrepreneurship.

Studios that have been in existence for less than a year, understandably, show the lowest mean experience level of 2.5555. The growth of mean experience over time is not linear, with longer-existing studios (6-10 years and more than 10 years) presenting lower mean experience levels compared to the 1-2 year category, which might be due to various factors such as industry dynamics, generational shifts, or evolving career trajectories in the game industry.

This data suggests that the Polish video game industry is characterized by a vibrant entrepreneurship environment where industry veterans are taking the lead in founding new studios. It would be worthwhile to further investigate the factors that contribute to this trend and its implications for the growth and development of the industry.

Figure 29. Commercial successes of published games

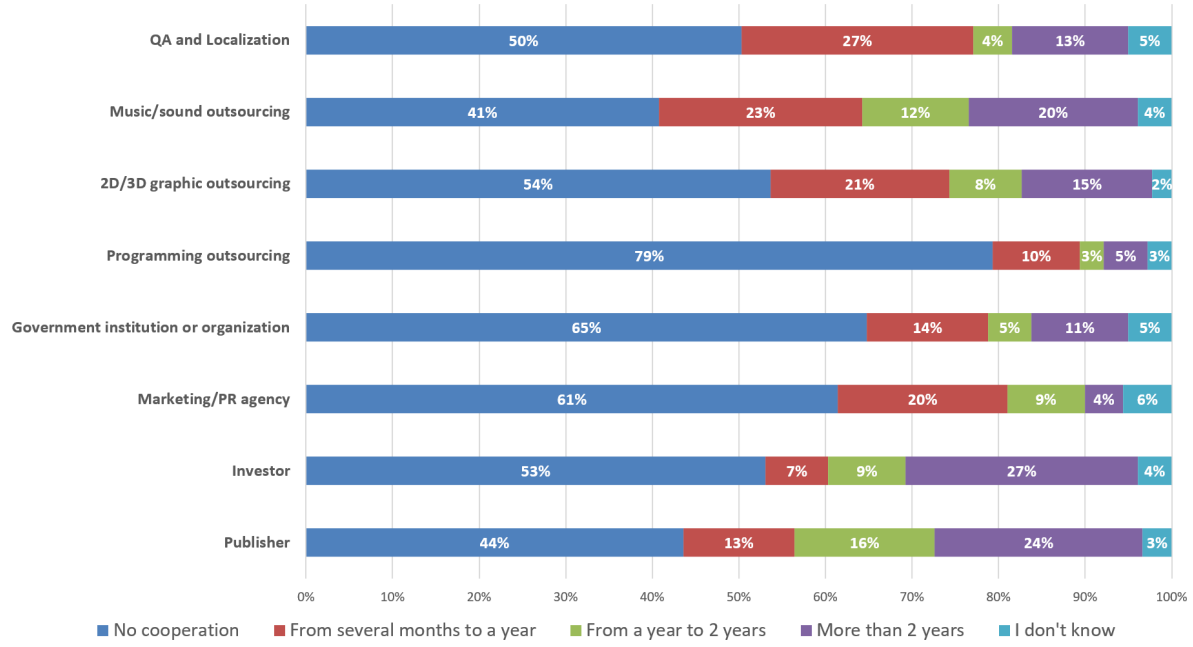


Source: Data from Authors' survey

Figure 29 illustrating the commercial successes of published games by Polish game developers reveals interesting aspects of the industry's current state and possible future trajectories. Notably, 31% of studios have not yet published any games, indicating a substantial number of emergent developers potentially adding to the industry's future diversity and expansion. Within studios that have published games, the chart provides a nuanced understanding of what commercial success means in this context. A significant 35% of studios reported achieving sales success with at least one title. In the survey, this was defined as the sales from the published game meeting or surpassing the expectations of the game creators. This indicates that over a third of game studios in Poland have seen their expectations met or even exceeded, which is a promising indicator of the industry's health. Additionally, 15% of studios have reported moderate sales success with at least one title. Here, "moderate sales success" is defined as the game not meeting the initial expectations, but still covering the cost of production. This suggests that even though not all games reach their projected targets, a significant portion is still commercially viable, which can have positive implications for the sustainability of these studios. Contrastingly, 14% of studios have not yet achieved sales success, a reminder of the inherent risk and unpredictability in the game development industry. Lastly, a small fraction of studios (5%) find themselves in the early stages following their game's publication, making it too soon to assess their commercial success. Overall, this chart suggests a

vibrant and dynamic Polish video game industry with a promising commercial success rate and a considerable pipeline of emerging game studios, potentially driving future industry growth.

Figure 30. Cooperation with other industry parties



Source: Data from Authors' survey

The chart presenting the cooperation between Polish game developers and other industry parties highlights several key trends about the industry's interconnectedness and potential for synergy. One striking observation is that there is a high level of independence among game studios, as indicated by the substantial proportion of studios reporting no cooperation with various external parties. Most notably, 79% of studios do not outsource programming, and 65% have no engagement with government institutions or organizations. Similarly, a significant percentage of studios do not cooperate with investors (53%) or marketing/PR agencies (61%). However, longer-term relationships of more than two years are more common with investors (27%) and publishers (24%). This could imply that once these relationships are established, they tend to be stable and long-lasting, perhaps due to the substantial mutual benefits and trust built over time. In terms of outsourcing specific tasks, the data shows a relatively higher tendency to outsource music/sound (41% have no cooperation, implying that 59% do cooperate to some extent) and 2D/3D graphics (46% cooperation) compared to programming and QA (Quality and Assurance) & Localization. This may suggest that Polish studios prefer to retain technical control internally while benefiting from external expertise in more specialized creative fields. In conclusion, while there is a considerable degree

of independence among Polish game studios, there is also evidence of meaningful cooperation in specific areas, hinting at a hybrid model of in-house control mixed with targeted outsourcing and strategic partnerships. These patterns provide insight into the industry's organizational dynamics and could offer valuable guidance for new studios seeking to understand the industry's collaborative landscape.

Table 20. The importance of the different factors in achieving studio's success

Importance of different factors for achieving success (1 - not important, 5 - extremely important)					
Factor influencing studio's success	**1**	**2**	**3**	**4**	**5**
External financing of game production	30%	12%	21%	12%	25%
A good, original game idea	3%	3%	17%	32%	44%
Competent and permanent team	4%	2%	9%	23%	61%
Cooperation with the publisher	33%	23%	22%	16%	7%
Professional, experienced management	20%	11%	18%	24%	28%
High-class computer equipment and technological facilities	25%	34%	25%	9%	7%
Cooperation with experienced business partners	22%	21%	28%	19%	10%
Participation in development and acceleration programs	53%	28%	11%	5%	3%
Creativity and innovation in the field of created projects	6%	7%	22%	32%	34%
Location providing access to companies related to the industry	51%	26%	15%	4%	4%

Source: Own study

The table 20 reveals crucial insights about which factors Polish game studios consider most crucial for their success. Of paramount importance, according to the survey respondents, is a "competent and permanent team," with 61% rating it as very important (5). This finding highlights the crucial role of human capital in the game development process. A "good, original game idea" is another factor of significant importance, with 76% of respondents rating it 4 or 5. Similarly, "creativity and innovation in the field of created projects" was considered critical (66% of respondents chose 4 or 5). This accentuates the value of innovation and uniqueness in the competitive landscape of game development. On the other end of the spectrum, "participation in government and acceleration programs" and "studio location" seem to be considered as relatively less important factors for success, with most respondents rating them 1 or 2. This suggests that internal factors and capabilities are considered more crucial for success than external support or geographical advantages. Interestingly, "external financing of game

production" received a mixed response, with 25% considering it very important, but a larger 30% believing it to be not important. Similarly, "cooperation with the publisher" was perceived as less important, with 56% of respondents giving it a rating of 1 or 2. These results may indicate a trend towards self-funding and independence in the game development process among Polish studios. Overall, the data suggests that Polish game studios view their success as heavily contingent on their internal capabilities, particularly the team's competence and the originality of their ideas. They seem to place less emphasis on external funding and cooperation, geographical advantages, and government support.

Table 21. Video game developers success perception

Success variant	Score
Fulfillment of the artistic vision of the game and its assumptions according to the studio's philosophy	19%
Completion of game production, meeting budget and schedule assumptions	18%
Positive reviews and high ratings of the released game/games issued by the community and critics	19%
High sales results of released games or offered services	18%
Achieving recognition and reputation of the game/studio at the international level	9%
Constant cooperation with experienced business partners	5%
Improvement of the studio's position and image against the competition	3%
Development of unique know-how	9%

Source: Own study

The survey data provides an insight into how video game developers perceive and define their success in table 21. What makes this perspective even more compelling is the carefully designed approach used to quantify these insights, which mixes both artistic-non financial and business-financial considerations. In the survey, the respondents were presented with eight statements, each representing different dimensions of success. Developers were allowed to select a maximum of three options that best captured their definition of success. This allowed the developers to indicate what they prioritize in their pursuit of success and demonstrate the balance they strike between creative satisfaction and financial prosperity. To elaborate on the methodology, each of the eight statements was assigned a 'weight' based on its orientation towards a financial-business versus a non-financial artistic criterion. For example, "Fulfillment of the artistic vision of the game and its assumptions according to the studio's philosophy" was considered entirely non-financial, while "High sales results of released games or offered services"

was seen as a pure business-financial factor. This weighted approach allowed a more nuanced understanding of how studios perceive success in terms of a financial vs non-financial spectrum. The results revealed an interesting distribution across these dimensions. Both "Fulfillment of the artistic vision of the game..." and "Positive reviews and high ratings of the released game/games issued by the community and critics" garnered 19% each, emphasizing a strong non-financial orientation towards success. On the other hand, "High sales results of released games or offered services" and "Completion of game production, meeting budget and schedule assumptions" received 18% each, indicating an equally significant business-financial perspective of success. Other important but less prioritized factors included "Achieving recognition and reputation of the game/studio at the international level" (9%), "Development of unique know-how" (9%), "Constant cooperation with experienced business partners" (5%), and "Improvement of the studio's position and image against the competition" (3%).

In summary, these findings highlight the multidimensional nature of success in the video game industry, a mix of fulfilling creative ambitions and attaining tangible business goals. It also underscores the diverse priorities and orientations of different studios within the industry, ultimately reflecting the complex dynamics of this creative field.

3.3. Results of quantitative study of Polish video game studios

The comprehensive survey conducted amongst Polish video game studios has yielded a wealth of data, illuminating the inherent structure and diverse characteristics prevalent within the industry. This dataset, encompassing various facets of studio operations, activities, and motivations, has been processed and key variables identified for subsequent analysis. The study then pivoted towards the critical task of hypothesis verification, employing a suite of sophisticated statistical instruments. Through the use of Cluster Analysis, Two-Step Clustering, Mean Comparison, Binary Logistic Regression, and ANOVA (Analysis of Variance), the research offered a nuanced and multi-faceted interpretation of the data. As a result, this detailed and rigorous analysis has significantly enhanced our understanding of the operational modalities and growth trajectories of video game studios in Poland.

3.3.1. Determinants of development of video game studios

The aim of this section isto identify the determinants of video game studio development, a challenging task given the inherent heterogeneity of these creative entities. The vibrant video game industry is composed of a multitude of studios, each with its unique blend of talent, strategy, and creative output. This variety contributes to a broad spectrum of developmental paths, making the task of discerning universal trends or determinants a complex endeavor.

A comprehensive survey was conducted, amassing a rich array of data that offered an insightful glimpse into the multifaceted world of video game studios. The gathered information served to illuminate the various behaviors, differences, and strategies employed by these entities, each aiming to carve out a niche in the highly competitive gaming market. The data, drawn from a myriad of studio profiles, was methodically processed and analyzed in search of those elusive factors that might propel the development and success of video game studios.

In the course of this meticulous investigation, several potential determinants emerged, one of which was the variable P15. This element, representing the diversity of key members' experience in the gaming industry, stood out as a significant predictor in our logistic regression model. It was not the sole focus of our research, but its prominence in our findings warrants a detailed examination. As for the variable V285, which stands for the studio or its games achieving international recognition, this potential determinant warrants further exploration due to its theoretical importance, despite the current model not providing a clear insight into its effect on studio success.

Table D1. The binary logit regression for probability of development (V285-P15)

V285	Coef.	Std. Err.	z	P> |z|	[95% Conf. Interval]	
P15	.4953859***	2337392	2.12	0.034	.0372654	.9535064
_cons	-2.185954	.5360308	-4.08	0.000	-3.236555	-1.135353

Source: Own study

This logistic regression analysis investigates the influence of the diversity of key members' experience in the gaming industry (variable P15) on the odds of a video game studio achieving international recognition (variable V285).

Looking at the coefficients, for the variable P15 (diversity of key members' experience in the gaming industry), the coefficient is positive (0.4953859). This coefficient represents the change in the logged odds of the dependent variable (V285) for a one-unit increase in P15. Thus, for every unit increase in P15, the log odds of achieving international recognition increase by about 0.4953859.

The p-value (P>|z|) for P15 is 0.034, which is less than the standard significance level of 0.05. This means we can reject the null hypothesis that the coefficient of P15 is zero, suggesting that P15 does have a significant effect on the odds of a studio achieving international recognition (V285).

The constant (_cons) coefficient is -2.185954, which is the predicted log odds of V285 when all the predictors (in this case, only P15) are zero. As P15 cannot be zero (it ranges from 1 to 3), this can be seen as the baseline odds of achieving international recognition when the diversity of key members' experience is at its lowest (P15=1). The very low p-value associated with _cons suggests that this coefficient is also significantly different from zero.

The 95% confidence intervals for P15 and _cons give us a range of values that, with 95% certainty, contain the true coefficient value. For P15, this interval is 0.0372654 to 0.9535064, indicating a positive influence on V285 at the 95% confidence level.

In conclusion, based on the logistic regression results, the diversity of key members' experience in the gaming industry (P15) significantly influences the odds of a video game studio achieving international recognition (V285). More diverse experience is associated with a higher likelihood of recognition, although the effect size, as indicated by the Pseudo R2, is small. However, the analysis also indicates that the model does not explain a substantial proportion of the variability in the international recognition of video game studios, suggesting that other factors not included in the model also contribute significantly to a studio's international recognition.

The second model suggests that the level of cooperation with business partners such as investors, publishers, and subcontractors (P18) significantly impacts the combined achievement of artistic vision, good reviews, and international recognition (V28_135). This emphasizes the importance of strategic collaborations and alliances within the industry. Partnering with the right entities could provide essential resources, complementary skills, industry knowledge, and potentially broaden a studio's reach, enhancing its chances of achieving multi-faceted success.

Table D2. The binary logit regression for probability of development (V28_135 - P18)

V28_135	Coef.	Std. Err.	z	P> |z|	[95% Conf. Interval]	
P18	.4040989	.1641998	2.46	0.014	.0822733	.7259246
_cons	.62081944	.4325728	-1.44	0.151	-.2270076	-1.468646

Source: Own study

While these findings are statistically significant and provide valuable insights, it's crucial to note that the Pseudo R2 values in both models are relatively low. This indicates that while the variables P15 and P18 are significant predictors, they explain a relatively small portion of the variability in a studio's success. Thus, other important factors not included in these models likely also play a significant role.

Looking at the coefficients, the one for P18 is 0.4040989. In the context of logistic regression, this indicates that a one-unit increase in P18 (moving from no cooperation to some or from some to strong cooperation) is associated with an increase of 0.4040989 in the log odds of achieving success (V28_135), holding all other factors constant. As the p-value associated with P18 is 0.014, less than the conventional threshold of 0.05, this suggests that P18 has a statistically significant effect on the odds of success.

Next logistic regression analysis (table D3) explores the relationship between the diversity of key members' experience in the gaming industry (P15) and a video game studio's ability to create quality representative demos or prototypes of games (V292). Both these variables are of considerable interest in identifying the factors driving a video game studio's development and success.

The coefficient for P15 (.3745652) represents the change in the log-odds of the studio being able to create quality prototypes for a one-unit increase in P15. This indicates that increased diversity of key members' experience is associated with a positive impact on a studio's ability to create quality game demos or prototypes. However, the p-value associated with P15 is 0.056, just above the conventional threshold of 0.05. This suggests the relationship between P15 and V292 is marginally significant, meaning we need to be cautious in interpreting this result.

Table D3. The binary logit regression for probability of development (V28_135 - P18)

V28_135	Coef.	Std. Err.	z	P> |z|	[95% Conf. Interval]	
P15	.3745652	.1958558	1.91	0.056	-.0093051	.7584355
_cons	-.7419453	.4216989	-1.76	0.079	-1.56846	.0845693

Source: Own study

The 95% confidence interval for P15 ranges from -0.0093051 to .7584355. Because this interval straddles zero, it suggests that the effect of P15 on V292 could be null, further reinforcing the need for cautious interpretation.

In terms of understanding the development of video game studios, this analysis suggests that while the diversity of key members' experiences may have some impact on a studio's ability to create quality prototypes, this relationship is not statistically robust and explains a relatively small portion of the variance. It underlines the notion that while diversity of experience might play a role in the prototype development, other unaccounted factors are likely to be significant.

Despite the tentative nature of this result, it serves to highlight an important aspect of video game development. The creation of quality representative demos or prototypes is a crucial success factor in the industry, as it allows for validation of game concepts and an opportunity to generate early interest and secure funding. Therefore, any variables influencing this ability, such as team diversity, warrant further investigation.

In conclusion The diversity of key members' experience within the gaming industry can be a critical determinant for the development and success of video game studios. This diversity, particularly when it incorporates a high degree of experience—such as more than ten years—can foster an environment conducive to learning, innovation, and enhanced problem-solving capacity.

Highly experienced individuals within a team contribute to a wealth of knowledge and bring a depth of understanding that only time in the industry can provide. They typically possess a broad understanding of the gaming landscape, including past trends, technological evolutions, audience preferences, and industry standards. This extensive insight, coupled with their likely encounters with numerous challenges and opportunities throughout their careers, enhances their problem-solving capabilities and decision-making acumen, both of which are invaluable in the dynamic and highly competitive gaming industry.

On the other hand, young employees tend to bring fresh perspectives, innovative ideas, and a keen understanding of contemporary trends to the table. They may be more willing to take risks and explore unconventional paths, which can be crucial in an industry where originality and creativity are key success drivers.

The confluence of these two generational approaches can create a synergetic effect. Younger employees benefit from the experiential wisdom of their more seasoned colleagues, learning industry nuances, absorbing effective strategies, and understanding pitfalls to avoid. Conversely, the fresh, perhaps even disruptive, ideas from younger members can stimulate the more experienced team members to think outside the box, challenge status quo, and explore new directions.

3.3.2. Perceived success determinants

In the dynamic and highly competitive landscape of the video game industry, one of the most direct indicators of a game development studio's success is the ability of its games to meet the financial expectations of its creators. This measure not only reflects the financial viability of the studio but also its capacity to convert creative ideas into commercially successful products. Given its centrality to the operational and financial health of the studio, it is crucial to delve deeper into this aspect to understand the various factors that influence it. From the size of the initial team to the age of the studio, from the role of external development services to the experience differential within the team, and from the level of team specialization to the studio's cooperative relationships with business partners — each of these variables can potentially shape the studio's success trajectory. By undertaking a comprehensive examination of these variables, we aim to illuminate the underlying dynamics that lead some studios to achieve their financial goals, while others fall short. This will not only enhance the understanding of the determinants of success in the game development industry but also offer valuable insights for game studios to strategize their operations more effectively.

This study utilized logistic regression analysis to investigate the factors influencing the likelihood of financial success for game development studios. Our primary interest was to ascertain the impact of six key variables:

1. P2: Studio Age - Denotes the length of time the studio has been operational, with higher values indicating a longer existence.

2. P10: Game Production Time - Indicates the average duration taken by the studio to produce a game. A higher value represents a longer production time.
3. P11: External Development Offering - This variable signifies the studio's involvement in providing external development services. Higher values suggest that external development forms a crucial part of the studio's income.
4. P15: Team Experience Difference - Indicates the extent of variation in the gaming industry experience among team members, with a higher value representing a greater difference.
5. P16: Team Specialization - Reflects the degree of specialization of the team members, with higher values representing a more multidisciplinary approach.
6. P18: Business Partner Cooperation - Depicts the level of collaboration the studio maintains with other business partners. Higher values suggest a more extensive cooperative network.
7. P14: A binary dependent variable where 0 = no success, 1 denotes financial success.

Table 22. The binary logit regression for probability of financial success of produced games

P14	Coef.	Std. Err.	z	P> |z|	[95% Conf. Interval]	
P2	1.090594***	.2379881	4.58	0.000	.6241458	1.557042
P10	-.5422885***	.1794135	-3.02	0.003	-.8939325	-.1906444
P11	-.557134**	.2712717	-2.05	0.040	-1.088817	-.0254512
P15	.4736245	.2917296	1.62	0.104	-.0981549	1.045404
P16	.500731***	.1547895	3.23	0.001	.197349	.8041129
P18	.5763502***	.1787446	3.22	0.001	.2260173	.9266831
_cons	-4.100859	1.415437	-2.90	0.004	-6.875064	-1.326654

*** - significant at 1% level

** - significant at 5% level

* - significant at 10% level

Source: Own study

The validity of this analysis hinges on the assumptions of binary logistic regression, including the requirement of linearity in the logit for continuous independent variables, absence of multicollinearity among the predictors, and a large sample size.

As per o logistic regression model, it appears that the studio's age (P2), typical game production time (P10), offering of external development services (P11), level of team specialization (P16), and level of cooperation with other business partners (P18) are all statistically significant predictors of business success.

The positive coefficient for P2 implies that studios with a longer operational history are more likely to report business success, given other variables are held constant. This could be attributed to their established market presence and experience.

Conversely, studios with a longer game production time (P10) were found to be less likely to have business success, suggesting that efficient production might be crucial for financial prosperity.

Interestingly, studios offering external development services (P11) were less likely to have business success, potentially highlighting the benefit of focusing on internal projects.

Further, findings indicate that teams with a more multidisciplinary approach (P16) and studios maintaining extensive cooperation with business partners (P18) were more likely to attain business success, emphasizing the value of diversified skills and strategic partnerships in the gaming industry.

However, the difference in team experience (P15), while positive, did not achieve statistical significance, indicating that our study didn't provide strong evidence of its impact on business success.

The model as a whole was statistically significant (Prob > chi2 = 0.0000), suggesting that it provides a better fit to the data than a model devoid of predictors. The Pseudo R2 of 0.2944 implies that approximately 29.44% of the variability in business success can be explained by these predictors in our model. Pseudo R-squared: This is a general term for a range of different statistics that attempt to provide a similar measure to R^2 for models where traditional R^2 can't be applied, such as logistic regression or other generalized linear models. Unlike R^2, pseudo R^2 does not have a standard interpretation and its value can vary depending on the method used to calculate it. It's called "pseudo" because it attempts to mimic the interpretation of R^2 but doesn't exactly match it.

However, while these results indicate associations, they do not establish causality. Additionally, the findings are based on the specific sample of studios included in this study, and results might vary for different samples or broader populations of studios. Further studies might be required to validate these findings in different contexts and settings.

3.3.3. Hypothesis verification

Hypothesis 1

Hypothesis H1 is crucial in its exploration of the growth strategies within the video game industry, as it acknowledges the diversity of these strategies and their dependency on individual company objectives. The inherent legitimacy of this hypothesis lies in its recognition of the highly dynamic and competitive nature of this industry. By positing that growth strategies are not uniform but vary contingent on specific company achievements and objectives, this hypothesis accounts for the wide range of organizational forms, strategic approaches, and outcomes within the industry. The necessity to scale, adapt, and evolve according to individual company goals and past successes is an inherent characteristic of the industry's competitive landscape. Therefore, understanding this relationship between objectives, achievements, and strategic approaches to growth is of pivotal importance. It helps us build a comprehensive picture of the industry's dynamics and provide strategic insights for stakeholders. In conclusion, Hypothesis H1 constitutes a significant and valid inquiry into the understanding of growth strategies and the role of company-specific factors in shaping the future of the video game industry.

H1: The growth strategies employed by companies within the video game industry exhibit diversity and are contingent on the specific objectives that the company has successfully attained.

Hypothesis H1 investigates the dynamic nature of growth strategies in the video game industry, positing that they are diverse and contingent upon a studio's specific objectives and achievements. This hypothesis provides a nuanced perspective on growth in the industry, recognizing that varying business orientations (V2) and team sizes (P3) can significantly influence a studio's strategic approach and output (P8).

Looking at the data (Table 1), it's clear that as the business orientation of a studio (V2) increases, there is a tendency towards larger team sizes (P3) and higher numbers of published games (P8). This suggests that studios with a stronger business focus may adopt growth strategies that involve scaling their operations and boosting their output. Conversely, smaller, less business-oriented studios may employ different strategies, perhaps focusing on a smaller portfolio of niche games.

Table 23. Means comparison - number of games and size of studio for business orientation levels

V2	mean (P8)	mean (P3)
1	1.8125	2.65625
2	2.34286	3.08571
3	2.34585	3.41818
4	3.04545	3.68182

Source: Own study

Furthermore, the ANOVA results (Table 2) lend further support to the hypothesis. There is a statistically significant difference in the number of games published (P8) across different levels of business orientation (V2), reinforcing the notion that studios with different business orientations employ diverse growth strategies. Studios that are more business-focused tend to publish more games, suggesting a strategy centered around scaling output.

Table 24. Anova results - number of games published (P8) across different levels of business orientation (V2)

	Number of obs = 179			R-squared = 0.0807	
	Root MSE = .88993			Adj R-squared = 0.0596	
Source	Partial SS	df	MS	F	Prob > F
Model	12.0986721	4	3.02466803	3.82	0.0053
V2	12.0986721	4	3.02466803	3.82	0.0053
Residual	454.085901	174	.792086871		
Total	472.916201	178	.842257234		

Source: Own study

In addition to this, the newly provided ANOVA data (Table P3 V2) suggests a correlation between a studio's business orientation (V2) and its team size (P3). Though the F-value is not statistically significant at the 5% level (Prob >F = 0.0774), the data suggests a potential trend. As the business orientation increases, the team size tends to increase as well, further suggesting that a business-focused growth strategy may involve scaling the team size.

Table 25. Anova results - studio size (P3) across different levels of business orientation (V2)

	Number of obs = 179			R-squared = 0.0382	
	Root MSE = 1.6122			Adj R-squared = 0.0217	
Source	Partial SS	df	MS	F	Prob > F
Model	18.0571914	3	6.01906379	2.32	0.0774
v2	18.0571914	3	6.01906379	2.32	0.0774
Residual	454.085901	175	2.59919434		
Total	472.916201	178	2.65683259		

Source: Own study

Despite the insightful trends revealed in the data, it's crucial to interpret these results with caution. The complexity and dynamism of the video game industry mean that a wide array of factors can influence a studio's growth strategy. While the data supports the hypothesis, it does not firmly establish causality, indicating the need for additional, more in-depth research.

In summary, the data and analysis provide preliminary support for Hypothesis H1, underscoring the notion of diverse and contingent growth strategies within the video game industry. The findings highlight the potential influence of business orientation on a studio's team size and production output. Nonetheless, given the industry's intricate nature, a comprehensive understanding of these strategies warrants further exploration.

Hypothesis 2

Hypothesis 2 offers a valuable inquiry into the dynamics of strategic orientation within the video game industry, highlighting how perceptions of sales success can influence a studio's approach to its operations. This question is important given the considerable economic implications and the pivotal role of strategy in shaping the trajectories of game development studios. Understanding this interplay between perceived sales success and strategic orientation is crucial, as it can impact the long-term sustainability and growth potential of studios. It provides insight into the psychological factors that may drive a studio's decision-making processes, potentially influencing resource allocation, product development, and marketing strategies. This insight, in turn, could prove instrumental in guiding management decisions, informing policy, and shaping the broader strategic narrative within the industry. Moreover, the dichotomy this hypothesis proposes between a business-oriented strategy and an artistically focused one touches on a longstanding debate within creative industries. By examining how perceptions of sales success can shift this balance, this hypothesis offers a new lens through which to understand and navigate this tension. It could also inform a more balanced strategy, where financial success and artistic integrity are not viewed as mutually exclusive, but rather as interconnected facets of a holistic approach to game development.

H2: The perception of achieving sales success bolsters the business orientation of video game studios. Conversely, the perception of sales success shortfall tends to encourage these studios to focus more on an artistically oriented strategy

Hypothesis 2 (H2) provides an insight into the potential psychological impact of sales success on the strategic orientation of game studios. This hypothesis posits that the perception of sales success might influence a studio to adopt a more business-focused approach, while a perceived sales shortfall may push the studio towards a more artistically oriented strategy. The

variables under consideration for this hypothesis are the orientation of the studio (V2) and the perceived achievement of financial success (P14).

The data presented in table 26 shows the mean values of perceived financial success (P14) across different levels of business orientation (V2). An observable trend indicates that as the business orientation of the studio increases, the perceived level of financial success also tends to increase. Studios with a stronger business orientation (higher V2 value) seem to perceive higher levels of sales success (lower P14 values), suggesting that perceived financial success might be reinforcing their business-oriented approach.

Table 26. Means comparison - perceived success of published games (P14) for business orientation levels

V2	mean (P14)
1	.78125
2	1.4
3	1.3636364
4	1.2727273

Source: Own study

Further evidence to support this hypothesis comes from the ANOVA results (table 27). The analysis reveals a statistically significant difference in perceived financial success (P14) across varying degrees of business orientation (V2) at the 5% significance level (Prob >F = 0.0378). This suggests that the perception of sales success is indeed related to the strategic orientation of studios, aligning with the claim made by Hypothesis H2.

Table 27. Anova results - studio size (P3) across different levels of business orientation (V2)

	Number of obs = 179			R-squared = 0.0564	
	Root MSE = .901679			Adj R-squared = 0.0347	
Source	Partial SS	df	MS	F	Prob > F
Model	8.4554385	4	2.11385963	2.60	0.0378
v2	8.4554385	4	2.11385963	2.60	0.0378
Residual	141.466349	174	.813024995		
Total	149.921788	178	.842257234		

Source: Own study

However, it's important to approach these results with a degree of caution. The complexity of the video game industry and the many factors influencing both strategic orientation and perceptions of success warrant a careful interpretation of the data. While the data provides support for the hypothesis, it doesn't conclusively establish causality and further research may be required to fully understand these dynamics.

In conclusion, the data and analysis lend preliminary support to Hypothesis H2, emphasizing the potential psychological interplay between perceived sales success and strategic orientation within game studios. The findings suggest that perceived financial success might reinforce a more business-oriented strategy, while perceived shortfalls could encourage a more artistically focused approach. However, a comprehensive understanding of these intricate dynamics requires further, more detailed investigation.

Auxiliary Hypothesis 1

This hypothesis essentially correlates two integral factors of a video game studio's growth - the fostering of international partnerships and the broadening of market reach. The globalization of industries, including the video game industry, has led to an increased interconnectedness between different geographical markets, leading to opportunities for international collaboration. It suggests that the active engagement in such partnerships and the subsequent expansion of sales to international markets are linked to an enhanced business-centric approach in studios. Understanding this relationship can offer a deeper insight into a studio's growth dynamics and potentially inform strategies to maximize business-oriented results. The focus on business orientation suggests an alignment of artistic creativity with profit-driven strategies, which is a pertinent consideration in the fast-paced, competitive landscape of the video game industry. Hence, this hypothesis presents a significant, valid question that merits in-depth examination and has potential implications for game studios' strategic decision-making processes.

aH1: Participation in international partnerships, coupled with the expansion of sales to international markets, bolsters the business-centric approach of video game development studios.

Starting with the variable V1 (studio age), there's a visible correlation between studio maturity and the use of global digital distribution platforms (P30), as evident in table 28. This aligns with the hypothesis as mature studios are more likely to have established international partnerships and expanded sales to international markets. The regression analysis (Table 29) confirms this relationship as statistically significant with an adjusted R-squared value of 0.0982, indicating that approximately 9.82% of the variation in P30 can be explained by the studio's age.

Table 28. Means comparison - the use of global digital distribution platforms for different studio maturity levels

V1	mean (P30)
1	.75
2	.96842104
3	1

Source: Own study

Table 29. Anova results - studio age (v2) and the use of digital distribution platforms (P30)

	Number of obs = 179			R-squared = 0.1033	
	Root MSE = .608909			Adj R-squared = 0.0982	
Source	Partial SS	df	MS	F	Prob > F
Model	7.55804175	1	7.55804175	20.38	0.0000
P30	7.55804175	1	7.55804175	20.38	0.0000
Residual	65.6263158	177	.370770146		
Total	73.1843575	178	.411148076		

Source: Own study

Similarly, the variable V2 (studio orientation) shows a significant correlation with P30 in table 29 and through the regression analysis in Table 30. This analysis also aligns with Hp1, showing that studios with a higher business orientation (higher V2) tend to utilize digital distribution platforms (higher P30). While the adjusted R-squared of 0.0375 is lower than for V1, it still confirms the significance of this relationship.

Table 30. Means comparison - the use of global digital distribution platforms for different business orientation

V2	mean (P30)
1	.75
2	.94285715
3	.89090908
4	.95454544

Source: Own study

Table 31. Anova results - the use of global digital distribution platforms for different business orientation

	Number of obs = 179			R-squared = 0.0537	
	Root MSE = .303046			Adj R-squared = 0.0375	
Source	Partial SS	df	MS	F	Prob > F
Model	.911811652	3	.303937217	3.31	0.0214
V2	.911811652	3	.303937217	3.31	0.0214
Residual	16.0714286	175	.091836735		
Total	16.9832402	178	.095411462		

Source: Own study

The last three tables investigate the variable P8 (number of games published) for studios with different maturity levels and a high level of internationalization (P19==3). Here, it's evident that the mean number of games published (P8) increases as studios mature, suggesting a business-centric growth strategy.

Table 32: Number of games published with different maturity levels and a high level of internationalization (P19==3)

mean P8 if P19>==3 & V1 ==1

Mean estimation — Number of observations = 18

	Mean	Std. Err.	[95% Conf. Interval]	
P8	1.611111	.2160079	1.155374	2.066848

mean P8 if P18 >=3 & V1 ==2

Mean estimation — Number of observations = 31

	Mean	Std. Err.	[95% Conf. Interval]	
P8	3.064516	.2315701	2.591587	3.537445

mean P8 if P18 >=3 & V1 ==3

Mean estimation — Number of observations = 11

	Mean	Std. Err.	[95% Conf. Interval]	
P8	3.636364	.3636364	2.826131	4.446596

Source: Own study

Nonetheless, despite supporting aH1, the data provides only a correlational view, making it essential to remember that correlation does not imply causation. While the presented data suggests a link between international partnerships, global sales, and a business-centric approach, other confounding factors not included in the model might also be influencing these relationships. Therefore, although the hypothesis is supported by the data, more comprehensive research or data would be needed to fully verify it and explore any potential causal mechanisms at play.

To summarize, the hypothesis aH1 posits a relationship that appears to be supported by the provided data. Yet, it's crucial to interpret these results within the limitations of the study and consider the possibility of external influences and variables. This research offers valuable insights into the dynamics of business orientation in video game studios and provides a strong foundation for further study.

Auxiliary Hypothesis 2

This hypothesis represents an area of investigation within the context of the video game industry. As a component of the creative industries, video game studios often emerge from a passionate, artistic pursuit, primarily focused on creating unique and engaging experiences. However, as these studios grow and their teams expand, they must grapple with the intricate balance between maintaining their original artistic vision and managing a viable business. Examining this evolution is of particular importance because it can elucidate the complex dynamics of growth and strategic orientation within the industry. As team size increases, studios may face pressures to adopt a more business-oriented perspective, prioritizing financial performance to support the larger operation. Yet, the tension between maintaining the artistic integrity of the games and securing financial stability can pose significant challenges. This hypothesis therefore explores a critical transition point in the lifecycle of a video game studio. It allows us to better understand how these studios navigate growth and change, shedding light on broader industry trends and offering insights that may help other emerging studios plan their strategic trajectory. By studying this hypothesis, we contribute to the larger discourse on how creative enterprises negotiate the interface between artistry and commerce as they grow, a question of enduring interest in the field of creative industries studies.

aH2: The magnitude of employment within a company in the video game industry enhances its propensity towards a business-oriented approach.

Looking at Table 33, which presents the mean size of the team (P3) for each level of business orientation (V2), a clear trend is noticeable. The mean size of the studio increases along with the business orientation of the studio, suggesting a positive correlation between team expansion and a more financially oriented perspective.

Table 33. Means comparison - the size of the studio for different levels of business orientation

V2	mean (p3)
1	2.65625
2	3.08571
3	3.41818
4	3.68182

Source: Own study

However, the ANOVA test in Table 3, which explores the relationship between the business orientation (V2) and the size of the studio (P3), doesn't provide a statistically significant, at 10% level, result (p = 0.0774). This means that while there seems to be a trend suggesting an orientation shift towards a more business-centric perspective as studios expand, this relationship is not statistically strong.

Table 34. Anova results - size of the studio and different levels of business orientation

Number of obs = 179 R-squared = 0.0382

Root MSE = 1.6122 Adj R-squared = 0.0217

Source	Partial SS	df	MS	F	Prob > F
Model	18.0571914	3	6.01906379	2.32	0.0774
v2	18.0571914	3	6.01906379	2.32	0.0774
Residual	454.085901	175	2.59919434		
Total	472.916201	178	2.65683259		

Source: Own study

In conclusion, while there is a discernible trend in the data, the evidence supporting the aH3 remains somewhat weak. It indicates that the expansion of the studio may have some relationship with a shift in orientation towards a more business-centric perspective. However, this relationship is not statistically significant, suggesting that other factors could also be

influencing the studio's orientation. Further research is needed to understand the complexity of the orientation shift in video game studios as they expand.

Auxiliary Hypothesis 3

This hypothesis poses a significant inquiry within the academic understanding of the video game industry, specifically concerning strategic evolution. It questions the prevailing understanding across industries that a firm's age and market experience typically correlate with its strategic orientation - more mature firms are often expected to take on a more business-centric approach, leveraging accumulated resources and capabilities to drive growth and market share. However, this hypothesis argues that in the context of the video game industry, this might not necessarily be the case. The dynamics and characteristics of the video game industry, with its fast-paced technology advancement, shifting consumer preferences, and the artistic nature of the content, may mean that even as studios age, they maintain an artistic-centric approach. Alternatively, they might adopt a mixed strategy, balancing the drive for business growth with a strong artistic orientation. Understanding this aspect is crucial because it provides insights into the strategic behaviors of video game studios. It adds complexity to our understanding of how these studios grow and evolve, offering valuable insights for practitioners and researchers alike into the strategic choices that successful studios make in this dynamic and creative industry. Furthermore, this hypothesis can shed light on the interaction between a firm's external market orientation and its internal strategic focus. Unpacking this relationship may, in turn, contribute to broader discourses within the field of strategic management and organizational theory, offering a nuanced perspective on strategic choice and adaptation in creative, technology-driven industries.

aH3: The duration of a company's presence on the market does not dictate its strategic orientation, whether it leans towards a business-centric focus or an artistic-centric approach

The Hypothesis refers to the strategic adaptation of video game studios, indicating that their orientation is not significantly influenced by their age.

For this hypothesis, the primary data concern lies in understanding the relationship between the age of a studio (V1) and its strategic orientation (V2). The analysis includes several ANOVA tests and mean comparisons across the studio's age. Firstly, we examined the strategic

orientation across different studio sizes (P3) as shown in Table 1 and conducted an ANOVA test (Table 2). However, these results do not contribute significantly to the analysis of Hp3 as they relate to the size of the studios rather than their age. Hence, these results can be disregarded for the specific evaluation..

Table 35. Means comparison - levels of business orientation for different size of the studio

P3	mean (V2)
1	2.11905
2	2.24
3	2.39286
4	2.5
5	2.5
6	2.71429

Source: Own study

On the other hand, Table 3 offers a comparison of the strategic orientation across different studio ages, revealing that the strategic orientations of young (V1=1; mean V2 = 2.21875), maturing (V1=2; mean V2 = 2.46316), and mature studios (V1=3; mean V2 = 2.45) are relatively close to each other. These statistics indicate that there is no significant variation in strategic orientation due to the studio's age, which lends support to Hp3.

Table 36. Means comparison - levels of business orientation for age of the studio

V1	mean (v2)
1	2.21875
2	2.46316
3	2.45

Further, the ANOVA test results, which specifically explores the relationship between V1 and V2, reinforces the inference drawn from Table 3. With a p-value of 0.2398 (which exceeds the typical threshold of 0.05), we do not find statistically significant evidence to reject the null hypothesis that the age of the studio does not affect its strategic orientation.

In summary, both the descriptive and inferential statistics appear to uphold Hypothesis Hp3. They suggest that the duration of a studio's presence in the market does not dictate its strategic orientation, whether it leans towards a business-centric focus or an artistic-centric approach. However, as always, such interpretations should be subject to considerations of the specific context and the limitations of the data.

3.3.4. Classification of small and medium game developers

As outlined in the research objectives of this dissertation, the current taxonomy of game developers does not adequately encapsulate the nuanced landscape of small and medium-sized game development studios. These studios, often termed "indie developers," exhibit a rich diversity in their strategies, motivations, and growth trajectories that conventional classifications fail to capture. To address this research gap, one of key objectives involves conducting a comprehensive survey of game developers, followed by an intricate data analysis process. Utilizing advanced statistical techniques like two-step cluster analysis, this study aims to delve into this uncharted territory and delineate distinct types of game developers based on their unique characteristics and stages of growth. The findings from this explorative study are anticipated to provide a nuanced understanding of the heterogeneity inherent in the indie game development industry, thereby enriching the discourse around game developers' typologies.

Table presents the results of a cluster analysis conducted to understand different "kinds" or "types" of game developers based on the survey data collected from 123 participants, as from the group of 179 respondents, these 123 were the one that provided a full information regarding the experience and the number of studio founders. The main aim of this analysis was to observe if there are identifiable patterns or groups that suggest categorizing indie game developers regarding their growth characteristics and motivations.

Table BIC: Schwarz's Bayesian Criterion (BIC) for the optimal number of clusters

Number of Clusters	Schwarz's Bayesian Criterion (BIC)	Change in BIC	Ratio of BIC Change	
1	9704,794			
2	9446,697	-258,097	1	1,611
3	9422,265	-24,431	0,095	1,391
4	9505,351	83,085	-0,322	1,239
5	9641,449	136,099	-0,527	1,046
6	9787,358	145,909	-0,565	1,199
7	9968,389	181,031	-0,701	1,028
8	10154,246	185,856	-0,72	1,008
9	10341,387	187,142	-0,725	1,018
10	10531,521	190,133	-0,737	1,076
11	10733,573	202,053	-0,783	1,067
12	10945,36	211,787	-0,821	1,032

13	11161,658	216,297	-0,838	1,009
14	11379,278	217,621	-0,843	1,065
15	11605,515	226,236	-0,877	1,024
a. Changes refer to the previous number of clusters given in the table.				
b. Ratios of changes refer to the change at two clusters.				
c. Ratios of distance measures are calculated based on the ratio of the current and previous number of clusters.				

Source: Own study

Schwarz's Bayesian Criterion (BIC) was used to determine the optimal number of clusters for this dataset. BIC is an effective model selection criterion in cluster analysis, which provides a balance between model complexity and goodness of fit. A lower BIC score suggests a better model fit.

The BIC initially decreases from one cluster to two, and again slightly from two to three, indicating that a model with two or three clusters might provide a better fit compared to a model with just one cluster. This initial decrease suggests that there are indeed different types of indie game developers according to their growth characteristics and motivations, and these different types are better captured with two or three clusters.

However, as the number of clusters increases beyond three, the BIC increases, indicating non optimal models. This suggests that dividing the game developers into more than three types might result in overfitting, capturing noise rather than true underlying patterns.

The "Change in BIC" column further supports these interpretations, demonstrating how the BIC change magnitude diminishes after moving from one to two clusters and then increases when the number of clusters exceeds three.

The "Ratio of BIC Change" column reflects the relative changes in BIC with respect to the change when moving from one to two clusters. The decreasing trend here suggests that the gain from adding more clusters decreases after the second cluster, further supporting the notion of an optimal solution around two or three clusters.

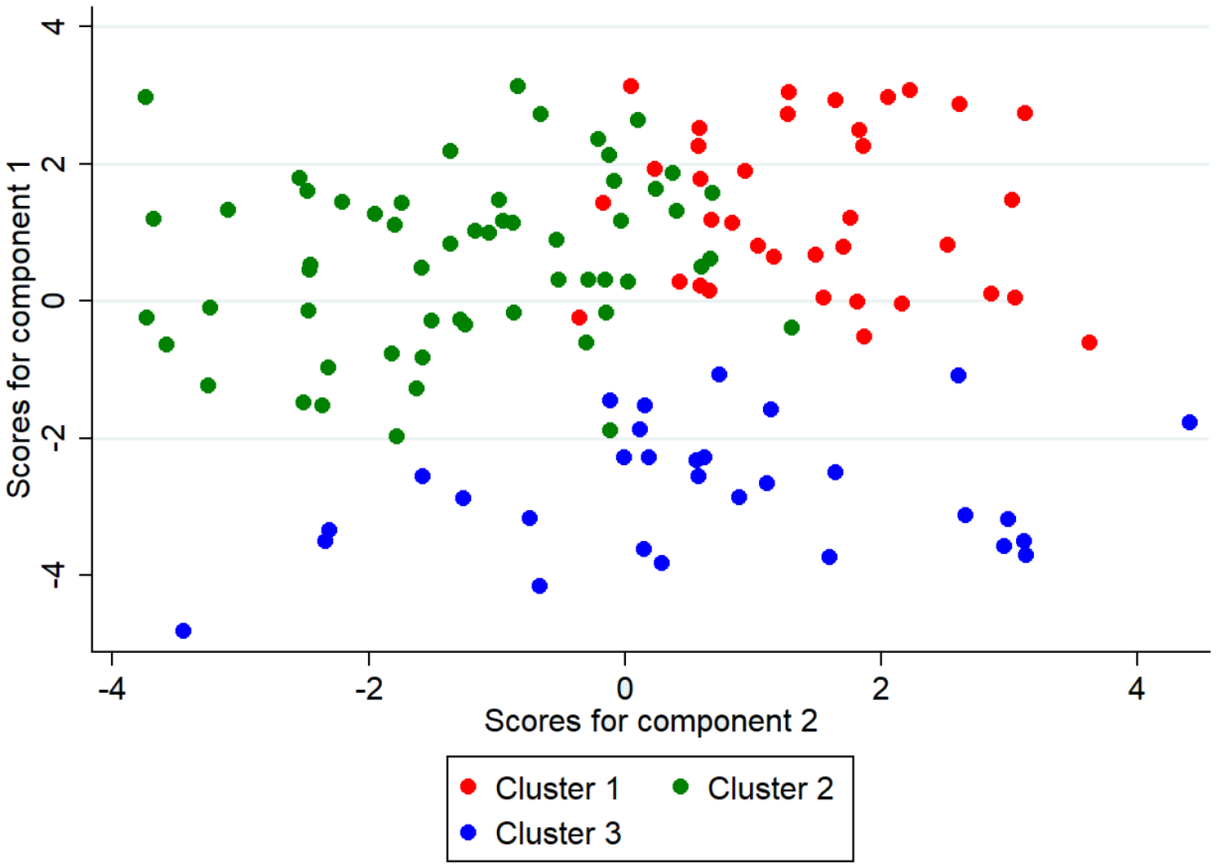
The "Ratio of Distance Measure" provides insight into the compactness of the identified clusters. Lower values indicate denser clusters, suggesting that the game developers within each cluster are more similar to each other in their characteristics and motivations. The trend here also seems to suggest that two or three clusters provide a better fit, as the compactness decreases as the number of clusters increases.

In conclusion, the cluster analysis suggests that the surveyed game developers can be optimally grouped into two or three types according to their growth characteristics and motivations. Further analysis of these clusters could provide valuable insights into the different kinds of indie game developers, potentially informing targeted support strategies, growth models, and motivation-based interventions.

In this study, a two-step cluster analysis was conducted to categorize game developers based on their characteristics and growth stages. The chosen method allows for the automatic determination of the optimal number of clusters through the examination of a range of potential cluster solutions.

The results of the two-step cluster analysis were visualized through a scatterplot and a dendrogram. The scatterplot, plotted on the basis of scores for two principal components, revealed a distribution of 123 game developers across three distinct clusters. Each dot on the scatterplot represented a game developer and their location was determined by their scores on the two components, derived from a principal component analysis (PCA). The different colors denoted the different clusters. Developers in Cluster 1 and 2 were characterized by relatively higher scores on Component 1, indicating the prevalence of certain characteristics or growth stages among these developers. In contrast, developers in Cluster 3 had lower scores, indicating less prevalence of these characteristics or growth stages.

Figure 31. Scatterplot on the basis of scores for two principal components



Source: Own study

The scatter plot graph in the study provides a visual representation of multivariate data along two dimensions, Component 1 and Component 2, derived from a statistical technique known as Principal Component Analysis (PCA). PCA is employed to reduce the dimensionality of the dataset by creating new uncorrelated variables (components) that maximize the variance of the original data.

Component 1, in this analysis, is majorly determined by variables such as P3 (studio size), P2 (studio age), P18 (level of cooperation with business partners), P1 (legal form of the studio), P8 (number of games published), P9 (number of games currently in development), and P19 (level of internationalization). Each of these variables contributes to the value of Component 1. Similarly, Component 2 is chiefly influenced by V2 (orientation of the studio), P2 (studio age), P8 (number of games published), P27b (perceived importance of external financing), and P28 (plans for notable team expansion). The negative sign before V2, P2, and P8 signifies that these variables are inversely related to Component 2: the lower their value, the higher the Component 2 value.

Moving on to the clustering outcomes, we observe three distinct groups of game developers.

Cluster 1 is typified by high values of P27b (external financing importance), P1 (legal form), P27c (unstated variable), and P28 (plans for expansion), coupled with low values of V2 (orientation), P2 (age), and P8 (number of published games). This grouping possibly indicates more commercially oriented, formally structured, external financing-reliant studios that are relatively newer and have fewer published titles.

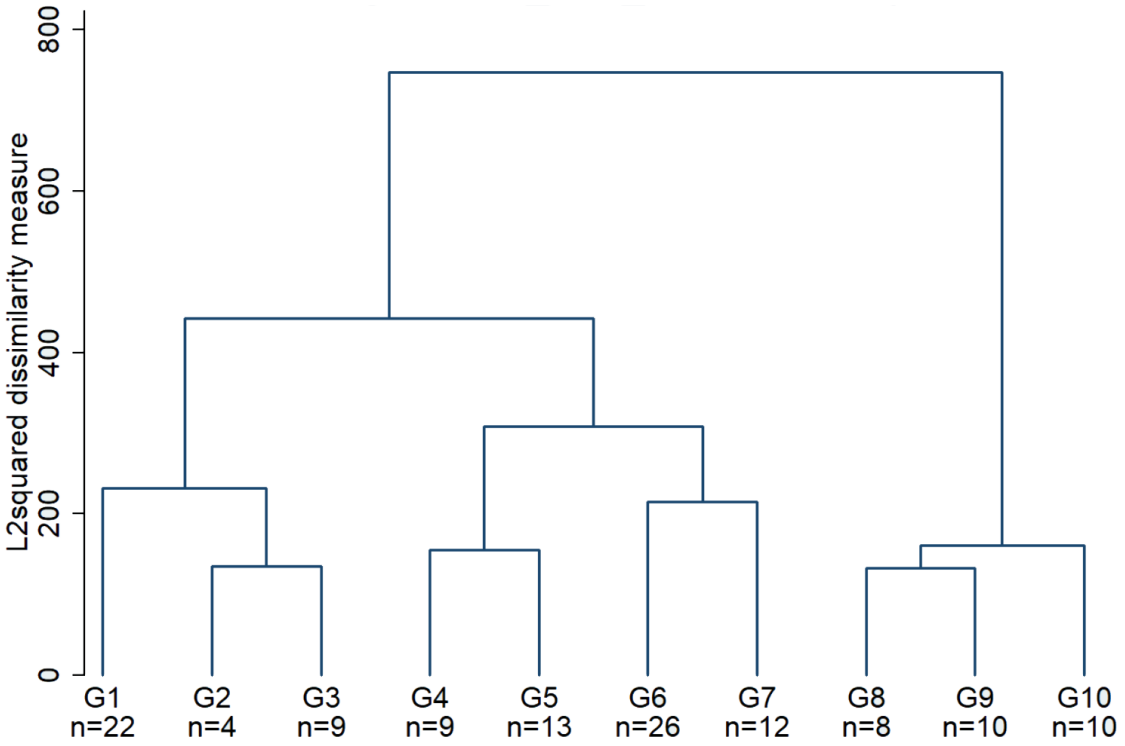
In contrast, Cluster 2 exhibits the reverse profile in terms of variable values, implying studios that are more artistically oriented, perhaps less formally structured, less reliant on external funding, more seasoned, and having a greater number of published games.

Lastly, Cluster 3 is discerned by lower values for Component 1, indicative of smaller studios with shorter existence, less cooperation with business partners, fewer published games, fewer games in development, and lower levels of internationalization. This category likely represents independent, organically growing game development studios.

These clusters allow for a granular understanding of game developers, each presenting a unique combination of development approach, growth strategy, and business orientation.

The dendrogram provides a visual representation of the dissimilarities between different clusters. Each leaf of the dendrogram represented a group of developers and as one moved up the y-axis, groups were progressively merged based on their similarity. This graph provided a hierarchical view of the clusters and how they would change if a different number of clusters were chosen.

Figure 32. Clustering dendrogram



The two-step cluster analysis, guided by Schwarz's Bayesian Criterion (BIC), suggested that the surveyed game developers could be optimally grouped into two or three types based on their characteristics and growth stages. The scatterplot and the dendrogram visually supported this finding. This categorization of game developers can provide valuable insights into the different types of developers and can serve as a foundation for future research or practical interventions targeted towards specific types of developers.

Drawing on the data gathered through the survey of 123 game developers and the subsequent application of a two-step cluster analysis, the study allows empirically delineating three distinct types of game developers based on their characteristics and growth stages. The scatterplot visualization clearly displayed the unique segregation of three clusters, each characterized by differing scores on components one and two. These scores can be interpreted as underlying dimensions defining the unique features of these clusters. The dendrogram further supported this three-cluster solution by demonstrating the optimal "distance" at which the sample could be divided into distinct groups. The branches of the dendrogram and their associated "L2 squared dissimilarity measure" provided further evidence of the optimal separation into three clusters.

In essence, the data-driven two-step cluster analysis technique, as visualized through the

scatterplot and the dendrogram, allowed for the extraction of these three distinctive types of game developers, which can be seen as a reflection of the variety of motivations and strategies present in the game development industry.

The clusters were then interpreted based on the survey responses of the game developers who comprised them. This allowed for the detailed characterization of each cluster, therefore describing the 3 distinctive types of small and medium game developers, which are:

Cluster 1: "Growth-Oriented Commercial Powerhouses"

These studios, characterized as growth-oriented commercial powerhouses, have transcended the traditional definition of indie developers by embracing substantial growth and commercial success. They strategically use business and financial indicators as a measure of their success and growth. Their employee base expands considerably over time, and they engage in the development of large, complex games that require a lengthy production period. By managing a portfolio of multiple games concurrently, they diversify their risk and increase the chances of commercial success. Founders of these studios often bring a significant amount of industry experience to the table. To supplement their internal capabilities and reach wider markets, they frequently collaborate with numerous entities, primarily publishers and investors. This indicates a business-savvy approach and a willingness to engage with commercial aspects of the industry that go beyond game development itself. Their level of internationalization is moderate, suggesting a balanced focus between local and international markets.

Cluster 2: "Artisanal Veterans with Dynamic Growth"

The second cluster is marked by studios founded by industry veterans. These artisanal veterans pride themselves on the quality of their games, rather than the quantity. Despite their smaller size and fewer titles, they emphasize extended development times to ensure the high quality and artistic value of their games. These studios often maintain a workforce of up to 20 people and usually work on 1-2 games at a time, channeling their energy and resources into producing exceptional work. Their business model leans towards self-sufficiency, seldom relying on external services while having a publisher or investor to support their operations. Though international collaborations are rare, this group has a comprehensive view of success. It acknowledges the importance of various internal, external, and financial factors, likely attributed to the extensive industry experience of their founding members.

Cluster 3: "Indie Craftsmen: Independent and Sustainable"

The third cluster comprises studios that embody the ethos of independence and sustainability. Often smaller, with up to 5 members, these studios pride themselves on being self-sustaining and avoid rapid expansion. Their modest size doesn't compromise their productivity, as they consistently produce multiple games within a shorter time frame. These indie craftsmen value the collective experience of their team, often marked by a low variation in tenure and a multidisciplinary skill set, which enables them to execute projects efficiently. Founders in these studios bring prior industry experience, bolstering their ability to navigate the indie scene. The studios mainly collaborate with subcontractors, maintaining their independence by avoiding investor or publisher tie-ins. The limited international collaborations suggest a concentrated focus on local markets. Their operational philosophy doesn't prioritize external funding or market conditions as key success drivers, reflecting a strong emphasis on independence and organic growth.

This categorization diverges from existing classifications, which often offer a somewhat broad and arguably outdated overview of game development studios, by providing a more detailed, contemporarily relevant insight into their operational dynamics, development approaches, and growth strategies. Practically, this typology may better guide the decision-making process of various stakeholders, including developers themselves, investors, publishers, policy-makers, and researchers, who can now more effectively tailor their strategies and practices to the unique needs, capacities, and ambitions of each category. For instance, potential investors might better align their funding decisions with the different growth trajectories and risk profiles of these clusters.

In terms of knowledge production, this classification broadens our understanding of the game development studio ecosystem's diversity, complexity, and dynamism. It not only contributes to the literature by offering a more granular, empirically-grounded understanding of these organizations, but it also challenges traditional, binary views that tend to categorize game developers merely as indie or triple-A studios. By acknowledging the broad spectrum of strategies and structures within the game development community, this research promotes a more inclusive and realistic image of the industry, reflecting its current state and potential future directions.

In conclusion, the development of this novel classification system serves as a testament to the evolution of the game development field, inviting further exploration and application in both academic and industry contexts. It marks a pivotal step in acknowledging the heterogeneity among small and medium game developers, illuminating the multi-dimensionality of their operational practices and growth patterns, and thus enabling more relevant, effective, and sustainable engagement with this vibrant sector.

3.4. Qualitative research methodology

3.4.1. Research Objective

Qualitative research in this study was conceived as a crucial step to build upon and expand the quantitative data gathered through the initial survey. The rationale for this sequential, mixed-methods approach was rooted in the understanding that while the survey could provide a broad, numerical snapshot of the state of Polish game development studios, it may not capture the full depth and complexity of the phenomena at hand (Creswell & Plano Clark, 2017). Surveys, by nature, tend to limit responses within predefined categories, potentially overlooking unanticipated but significant aspects of the subject matter. The interviews, on the other hand, provided an opportunity to delve into these subtleties, to explore the nuances, and to understand the phenomena in the context of the unique experiences and perspectives of the participants (Brinkmann, 2018).

As such, the semi-structured interviews served not only to enrich the data but also to humanize it, breathing life into the statistical representations generated by the survey. By fostering direct dialogue with game developers, the interviews unearthed rich, qualitative insights that are critical to painting a comprehensive picture of the growth trajectories, challenges, motivations, and visions of game development studios - insights that could not be gleaned from quantitative data alone (Johnson & Onwuegbuzie, 2004).

The primary objective of this study was to comprehensively explore the growth trajectories and development characteristics of game development studios in Poland. The aim was to glean nuanced, in-depth information on these diverse facets of game development studios, thereby offering a holistic view of their growth and evolution patterns within the competitive landscape of the gaming industry.The research was specifically designed to:

1. Illuminate the nature of the studio's development: whether it unfolded rapidly and unexpectedly, followed a deliberate and planned strategy, or proceeded at a steady, gradual pace.
2. Identify and analyze the factors and conditions that could have influenced these various growth patterns, including detailed attributes of the individual game studios.
3. Examine the significant obstacles encountered by these studios throughout their evolution and operation.

4. Uncover the underlying motives that spurred the creation of these game development studios. The study aimed to discern whether these studios were established as part of a strategic business plan, or primarily arose from a passion for game development.
5. Determine the critical success factors, as perceived by the studios themselves, which played pivotal roles in their accomplishment and progression in the gaming industry.
6. Explore the individual studio's conception of 'success', thus providing an insight into their unique aspirations and benchmarks of achievement.
7. Investigate the mistakes or missteps made by these studios over the course of their existence, fostering an understanding of their learning and adaptation processes.

3.4.2. Sample

The sample for this study was selected from a group of game development studios in Poland that had participated in an initial quantitative survey. As a condition of inclusion in the study, the studios were required to express willingness to partake in follow-up semi-structured interviews. The selected sample ensured representation from small to medium-sized enterprises (SMEs), reinforcing the study's focus on exploring the dynamics within this specific business size range. In this way, the study adopted a purposive sampling strategy, which enabled the selection of information-rich cases that suitably met the requirements of the research. This method of sampling allowed for the inclusion of studios that could provide detailed and relevant insights into the growth patterns, operational challenges, motivational factors, perceived success indicators, and experienced missteps in the context of Polish game development SMEs.

3.4.3. Interview Design & Data collection

The interview followed a semi-structured format, with a pre-determined set of nine open-ended questions serving as a general guide for the conversation. This approach allowed for flexibility, with the potential to pursue topics of interest as they emerged during the dialogue, while still ensuring a level of consistency across interviews. At the onset of each interview, the participants were informed about the purpose of the research to ensure their understanding and cooperation. The discussion began with foundational queries about the motives and incentives behind establishing a game development studio. These initial questions set the stage for more in-depth exploration into the distinct attributes, visions, growth trajectories, and challenges of each company. A semi-structured interview is a qualitative data collection method that utilizes both open-ended and closed-ended questions to gather in-depth information. This method combines the structured

format of surveys with the free-flowing nature of an interview, allowing researchers to guide the conversation while also leaving room for participants to provide rich, descriptive data (DiCicco-Bloom & Crabtree, 2006). In this study, semi-structured interviews were deemed the most suitable data collection method due to the exploratory nature of the research. The primary objective was to obtain nuanced understandings of the growth and development characteristics of Polish game development studios, an objective that required more than mere quantitative data. The semi-structured interview approach allowed for a standard set of questions to ensure consistency across all interviews, while simultaneously allowing flexibility for participants to express their individual experiences, insights, and perspectives. This ensured a depth and richness of data that could not be achieved through a strictly structured method, thereby providing valuable insights into the unique features, visions, growth trajectories, and challenges of each game development studio (Galletta, 2013).

The questions were designed to delve progressively deeper into the specifics of each studio's journey, allowing the interviewees to elaborate on their experiences and reflections freely. By encouraging participants to respond expansively, the interviews aimed to glean comprehensive insights into the multifaceted aspects of game development within the context of Polish SMEs. This semi-structured interview format enabled the capturing of rich, detailed, and nuanced data, providing a more intimate understanding of the studios' experiences, perspectives, and dynamics.

Data for this study was primarily collected through online teleconferences, facilitated by Google Meets. Out of the 14 participating studios, 13 were interviewed in this virtual manner, with the remaining one being conducted in-person, albeit supported by a computer and a microphone. Regardless of the mode of the interview, each session was recorded using OBS software to ensure accurate capture of all information shared. Informed consent to record the interviews was sought from all participants prior to the start of each session. The shortest interview took 43 minutes of recording, while the longest 134 minutes.

During the interviews, participants were presented with the questions in the form of slides, one question per slide viewed on the screen with it’s explanation. The slide with the question was during the whole time of answering and discussion about it This visual aid provided a clear context for the conversation and allowed participants to reflect on each query in a structured manner. Each question was explained briefly to ensure its intent was understood, and additional prompting questions were occasionally used to guide participants' responses or to explore specific points in greater depth. Simultaneously, the researcher took notes throughout the interview process to document key observations, maintain a record of emergent themes, and identify potential areas for

further inquiry. This combination of audio-visual recording and note-taking facilitated a comprehensive collection of the interview data, enabling an in-depth analysis later.

Each participant was given the option to anonymize their interview and their company's name in the research findings, thereby ensuring respect for their privacy and the confidentiality of their responses. This approach underscored the ethical considerations integral to the research process.

3.4.4. Data Analysis

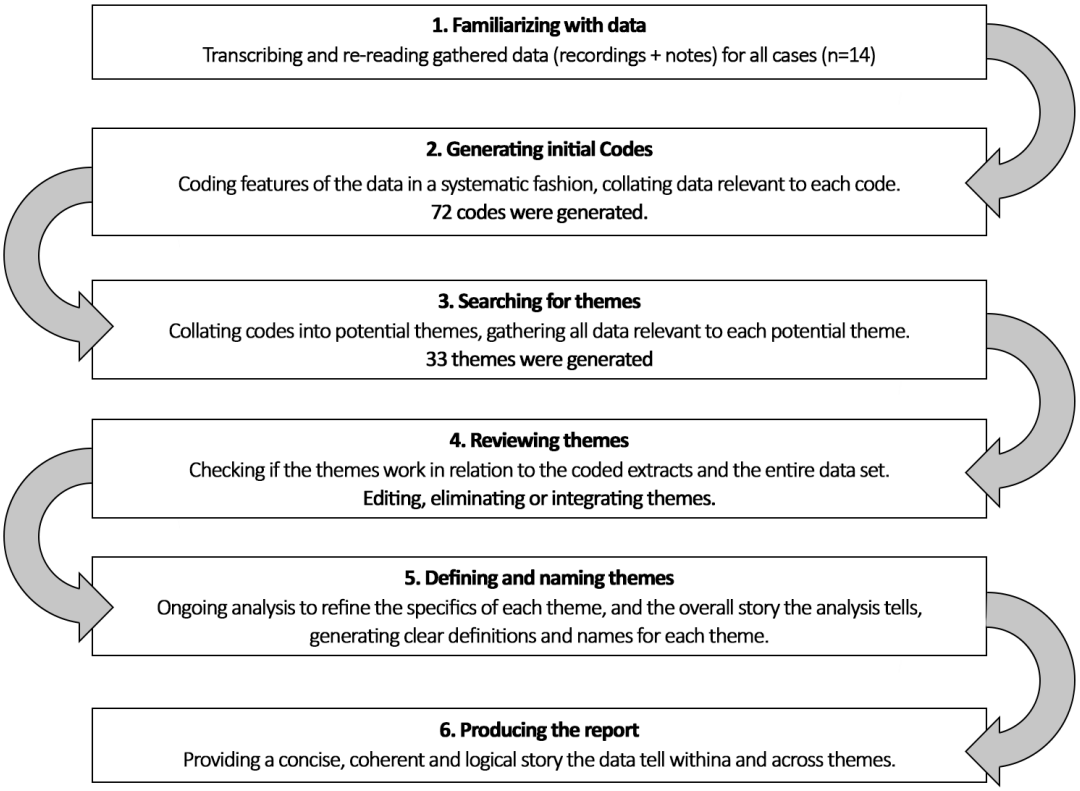
The data collected from the interviews was analyzed using a thematic analysis approach, a qualitative method that allows for the identification, examination, and interpretation of patterns or 'themes' within the data set. Thematic analysis is a qualitative research method that involves identifying, analyzing, and reporting patterns or "themes" within data (Braun & Clarke, 2006). It provides a flexible and rich, yet complex, account of data. Thematic analysis goes beyond merely counting phrases or words in a text but identifies implicit and explicit ideas within the data (Guest, MacQueen, & Namey, 2012).

For this particular study, the thematic analysis approach was chosen due to its inherent flexibility and capacity to provide detailed insights while allowing for a complex representation of the data. Considering the diverse motivations, growth trajectories, challenges, and visions of the game development studios under investigation, the thematic analysis was deemed the most suitable. This approach enabled the identification of overarching patterns or 'themes' that emerged across the interviews, highlighting commonalities and variations in experiences and perceptions amongst the Polish game development studios. This level of detail is valuable in understanding not only what factors contribute to success in this specific industry context but also how these factors are experienced and perceived by the studios themselves.

In the analysis of the interview data for this study, an inductive approach was employed to generate themes. An inductive approach involves deriving themes directly from the data, allowing the data itself to guide the identification and formulation of themes. This process is typically guided by the researcher's familiarity and repeated engagement with the data, and not by pre-existing hypotheses or theoretical frameworks (Thomas, 2006). The thematic analysis in this study adhered to the six-step process delineated by Braun & Clarke (2006). This procedure includes: (1) familiarizing oneself with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and finally, (6) producing the report. This comprehensive and iterative process ensures a robust and nuanced analysis of the qualitative data,

enabling the emergence of rich and meaningful themes.

Figure 33 - Thematic analysis steps adapted from Braun & Clarke.



Source: Own study based on Braun & Clarke (2006)

The first step in this analysis process involved a detailed review of the interview transcripts, during which key sentences or interesting explanations were highlighted. This was followed by an in-depth process of coding, wherein these highlighted segments were organized into broader 'themes' or categories based on their commonalities. For instance, responses to the question about motives and drives for running a game development studio were divided into themes such as 'passion-driven' or 'business plan-oriented', among others. Each theme was then further explored to understand its nuances and significance in the broader context of the research objective. This approach ensured that the analysis not only captured the similarities and differences across the participant responses, but also facilitated the understanding of the complex factors driving the growth and development of game studios. The emergent themes formed the foundation of the study's findings and provided a basis for interpreting the data in relation to the research objectives. This methodological approach allowed for a rich, detailed, and complex account of the data,

reflecting the multifaceted experiences and perspectives of the Polish game development studios.

3.4.5. Ethics

Ethical considerations were carefully attended to throughout this research. Prior to the interviews, participants were informed about the purpose, procedures, and potential implications of the study, allowing them to make a fully informed decision about their participation. This was reinforced by providing an overview of the research before the interview, and ensuring that informed consent was given for both participation and recording of the discussions.

Participants were assured that they could decline to answer any questions they found to be uncomfortable or too sensitive. They were also informed that they had the right to withdraw from the study at any point without penalty, further promoting a sense of security and autonomy in their participation.

Potential conflicts of interest were addressed proactively, and while no explicit conflicts emerged during the study, the design of the research allowed for flexibility and sensitivity to potential concerns.

The data collected was securely stored using a private cloud service (Google Drive), with stringent privacy settings and two-factor authentication in place. This ensured that the information remained confidential and was accessible only to the researcher, providing an additional layer of data protection.

In cases where participants had questions or concerns post-interview, the researcher remained available and responsive to address these, though none were reported in this study. Furthermore, to respect participant privacy, each was given the option to anonymize their interview and their company's name in the research findings. These measures ensured that the research was conducted ethically, respecting the rights, privacy, and autonomy of the participants, and prioritizing the secure handling and storage of data.

To ensure the credibility of the study, the responses from the interviewees were cross-compared for corroboration. This means that the information provided by companies with similar backgrounds and characteristics was analyzed for consistency, and it was observed that similar types of studios generally responded in comparable ways. This mutual verification of data from similar sources served to enhance the credibility and trustworthiness of the research findings.

Transferability was addressed by providing detailed and nuanced descriptions of the data

and its context, enabling future researchers to assess the potential applicability of these findings to other settings or groups. Given the specificity of the research sample (Polish game development studios identified as small to medium enterprises), the results are particularly relevant to similar contexts. It is anticipated that the insights gleaned from this study can be beneficially transferred to other small and medium-sized game development companies.

3.5. Case studios description

The brief descriptions of the game development studios participating in this study were compiled using a multi-source approach. Primary data was collected through the survey responses and in-depth interviews, providing first-hand insights into each studio's characteristics, growth trajectory, and perspectives. To enhance the completeness and accuracy of these descriptions, supplementary data was gleaned from the studios' official websites. This approach ensured a comprehensive understanding of each studio's unique identity and strategic orientation, thus providing a robust basis for the analysis and interpretation of the interview data. The combination of these sources allowed for an enriching understanding of each studio, capturing both their self-perception and their public presentation.

Studio A

Studio A, based is a small yet experienced entity, operating in the gaming industry for over a decade. The team of five focuses on developing casual HTML5 games, a category characterized by short gameplay sessions and broad accessibility, typically employing freemium or ad-based models (Juul, 2010). This approach has led to the creation of more than 100 games, some of which have achieved significant financial success. In addition to game development, the studio offers outsourcing services. While their network is not extensive, they have occasionally collaborated with a publisher and hired freelancers or professional service companies. Central to Studio One's ethos is a distinctive 2D art style and a commitment to creative freedom and independence.

Studio B

Founded in 2015, Studio B is a dedicated game development entity, employing a team of over 20 professionals. The studio specializes in the development of Virtual Reality (VR) games, employing a premium business model which involves selling games through online distribution platforms. To date, Studio B has successfully published four VR titles, with at least one game achieving notable commercial success. The studio's operational model diverges from typical external development practices; instead, it is forging collaborations with other game developers, functioning

in a publishing capacity. Having been established as a subdivision of an experienced software house, Studio B carries a solid business heritage. This background influences their operational strategy, which includes close collaborations with a network of long-term subcontractors, and a reliance on support from primarily domestic investors. Central to Studio B's strategic vision is a commitment to consolidating their position within the VR industry, focusing on expanding their game portfolio. The studio's business-oriented ethos places a significant emphasis on financial success markers, as well as the importance of fostering strong partnerships and achieving global visibility.

Studio C

A relatively young addition to the game development scene, having been established in 2020 by a single, experienced game developer and tech artist . Although this small studio has not yet published any games, it has begun offering external development services, albeit not as a significant part of its business model. The studio heavily relies on external financing and is actively seeking investors or publishers to fund its upcoming game. Its past experiences with government financing programs underscore its commitment to securing external funding. Studio C harbors ambitious aspirations: to create large, atmospheric, high-quality Role-Playing Games (RPGs), hoping to position these as AAA titles in the market. Given its size and the scale of its projects, the studio's current focus is on developing a representative demo version of its inaugural game to present to potential investors and publishers. Studio C is deeply committed to the artistic and cultural aspects of game creation, viewing it as a craft that can yield significant profits when developed with experience and passion. This emphasis on the craft of game development illustrates a dedication not only to the commercial success of its games but also to their intrinsic artistic value.

Studio D

Established in 2009 and situated in Krakow, is an experienced game development studio with a sizable workforce exceeding 50 professionals. The studio was originally launched as a subdivision of another prominent game studio, indicating a solid foundation in the gaming industry. Over the years, Studio D has successfully published six games, encompassing genres such as visual novels, horror, and action, primarily for PC and consoles. At least one of these titles has achieved considerable commercial success and worldwide recognition, affirming the studio's ability to deliver globally appealing products. While Studio does offer external development services, this is not a significant part of its business model. The studio is experienced in collaborating with foreign partners, including publishers and contractors from various parts of the world, suggesting a broad operational network and capability to navigate international collaborations. Following the

substantial commercial success of one of its games, Studio experienced a swift expansion, growing from around 30 to over 70 employees within a short period. This rapid growth presented considerable management challenges, leading to a subsequent downsizing. Currently, the studio emphasizes the development of quality games and fostering a high-quality organizational culture. Artistry and visual excellence are central to Studio development philosophy. This artistic focus manifests in their commitment to high-quality graphics and innovative, narrative-driven game design, further highlighting their dedication to delivering an immersive and visually impressive gaming experience.

Studio E

Established in 2016, specializes in the development of First-Person Shooter (FPS) and Simulation games for PC and consoles. Over the years, it has released five games, some of which have attained some financial success, affirming its competence in developing profitable titles. This studio enjoys a sustained relationship with domestic publishers and investors, a cooperation that has been ongoing for over two years. This collaboration underscores the studio's successful integration into the gaming industry and its ability to secure crucial support for its endeavors. Interestingly, Studio E does not engage in external development. Its business model is centered around the creation of its own titles, with the team often working on two games simultaneously. This strategic focus on in-house projects reinforces the studio's commitment to control the entire development process of its games, allowing for a high degree of creative and operational autonomy. The primary genre focus of Studio E is on popular, user-friendly simulation games. Recognizing the significant market for these types of games, the studio strategically targets this genre to secure financial stability. This stability, in turn, allows the studio to achieve and maintain its creative freedom, allowing for the exploration of innovative ideas and the continued production of engaging, high-quality games.

Studio F

founded in 2010, initially emerged as a developer of VR-AR applications. However, in 2019, it transitioned to focus on video game development, specifically virtual reality (VR) games. This strategic pivot involved a comprehensive rebranding process and a significant restructuring of its staff, affirming its commitment to this new direction. The studio is now fully dedicated to developing complex VR games, with a particular focus on simulation and action genres. A testament to its successful transition is its main game title, which achieved worldwide commercial success. This milestone solidifies the studio's proficiency in the field of VR game development and indicates its

potential to deliver globally appealing VR experiences. Unlike some counterparts, Studio F does not offer its development services to other companies. Instead, it emphasizes the creation of its own products following a premium-based model. This approach suggests a business strategy rooted in exclusivity and quality, seeking to deliver high-value experiences to players. Studio F has been working with a domestic investor for over two years, demonstrating a successful engagement with financial partners. However, it does not engage extensively with professional service providers, indicating a preference for in-house capabilities. The studio firmly believes in the strategy of specializing in VR games, an approach aligned with its skillset and experience. This decision showcases the studio's recognition of the burgeoning VR market and its intention to leverage its unique competencies to carve a niche in this dynamic and innovative space.

Studio G

Studio G is a rebranded entity, functioning as a stable team for roughly five years. With a core team drawn from a previous studio and a size of around ten members, the studio fosters a tight-knit development atmosphere. Specializing in Strategy and Action-Adventure games for PC and consoles, the studio follows a premium business model. Currently, the focus lies in developing its own products rather than offering external development or outsourcing services. Studio G predominantly collaborates with domestic partners, including a publisher and an investor, reflecting its solid business relationships. Despite not having published any games yet, the studio underscores its commitment to quality and innovation. Its long-term plans involve maintaining the current team size, indicating a preference for a focused, cohesive development environment.

Studio H

Studio H boasts a decade-long presence in the game development sector, housing a compact team of about 26 members. The studio primarily engages in the creation of Action/Adventure, Strategy, and RPG games, demonstrating a diverse range of competencies. Distinctively, Studio H operates as a self-sufficient and independent entity, with no significant reliance on investors, publishers, or subcontractors. It does not involve itself in external development services, thereby concentrating wholly on crafting its unique game titles. Studio H's success can be marked by its strong sales record. Despite its relatively small size, the studio has managed to sell millions of copies of its games, comprising two titles in their career. This accomplishment underlines the studio's ability to deliver high-quality, commercially viable products while maintaining its operational independence.

Studio I

Studio I is a game development studio that has been operating stably since 2017. It has a substantial team size of about 41 individuals, primarily specializing in the production of City Builder and Simulation games.The studio was born out of a strategic business decision to merge two pre-existing game development studios, one of which was owned by a significant Polish game publisher. This backdrop instilled a strong relationship between the studio and its publishing counterpart, leading to ongoing cooperation. Studio I has a commendable record in the gaming market, having published four games, two of which have achieved considerable commercial success. The studio does not extend its services as an external developer, choosing instead to focus on its own game development projects. When needed, the studio collaborates with other professional service providers, typically domestic entities, to meet specific needs.

Studio J

Studio J is a globally recognized and highly successful game development studio, founded in 2010. The studio boasts a sizable team of over 200 employees and operates in a dual capacity, both as a game developer and a publisher for indie studios. As an in-house developer, Studio J has an impressive portfolio of more than ten published titles. As a publisher, it has facilitated the publication of eight indie games, thereby contributing to the richness of the indie game scene. The studio is deeply committed to creating meaningful, story-driven games with significant cultural value, a commitment that is reflected in their strong focus on narrative and emotional depth in their products. Studio J maintains numerous partnerships with foreign contractors, attesting to its global reach and renown. With a clear vision for their products and brand, the studio consistently upholds its high standards and unique identity in the competitive landscape of the gaming industry.

Studio K

Studio K has over a decade of experience in the gaming industry, boasting a robust team of more than 50 professionals. The studio's development focus primarily lies in the realms of RPG, First Person Shooter, and Action games, and they do not engage in external development services. Over the years, Studio K has published five games, some of which have been successful, attesting to their competent development skills and understanding of the gaming market. They are currently involved in a dynamic and demanding production cycle, working simultaneously on four different games with an average production timeline of 24 months per title. The studio has established a network of both domestic and foreign partnerships to support their operations. However, they operate independently of a private investor or publisher, showcasing their ability to sustain and manage

extensive game development projects on their own.

Studio L

Studio I, established in 2015, comprises a team of approximately 20 employees, specializing in the development of Action-Adventure and Puzzle games. The studio has supplemented its activities with external development services. Despite having released two games, Studio I openly acknowledges that these titles have not achieved significant financial success. Currently, they are engaged in the development of three titles simultaneously. The studio has cultivated ongoing partnerships with a domestic publisher and investor over the last two years, though their broader network of partnerships and contractors remains limited.

Studio M

A novice yet dynamic game development organization with a small team of four members established in 2022. This studio's focal point lies in developing small scale Shooter games, Simulations, and Action-adventures. Despite its youth, Studio M has successfully published two games and commenced collaboration with a domestic publisher. However, they eschew external development practices. Furthermore, the studio openly acknowledges that, so far, they have not achieved commercial success with their games. This statement evidences their transparent and pragmatic approach to business operations and strategic growth.

Studio N

Established in 2016, Studio N possesses a workforce of approximately 20 individuals who are primarily engaged in the development of action-adventure and casual games. The studio operates on a self-contained model, forgoing participation in external development projects. Over its operational lifespan, Studio N has developed strong relationships with both domestic and foreign game publishers and investors, maintaining these partnerships for over two years. The studio's portfolio comprises two published games, with one of them achieving commercial success. Additionally, it is noteworthy that the studio engages in long-term cooperation with professional services, extending its collaborations beyond domestic borders to incorporate international partnerships.

Table 37. Characteristics of interviewed game studios

Studio	Age	Number of employees	Platforms	Created games	Title of interviewee	Cluster/Type
A	>10	3-5	Web browser	>100	Owner	Cluster 3
B	3-5	21-50	VR, PC, Consoles	3-5	CEO	Cluster 2
C	1-2	3-5	PC, Consoles	0	Owner	Cluster 3
D	>10	21-50	PC, Consoles	6-10	CEO	Cluster 1
E	3-5	11-20	PC, Consoles	3-5	CEO	Cluster 2
F	3-5	11-20	VR	1-2	CEO	Cluster 2
G	3-5	6-10	PC, Console	0	CEO	Cluster 3
H	>10	21-50	PC, Consoles, Mobile	1-2	CEO	Cluster 2
I	3-5	21-50	PC, Consoles	3-5	Business Developer	Cluster 1
J	>10	>200	PC, Consoles	>10	Senior PR Manager	Cluster 1
K	>10	>100	C, Consoles	3-5	Head of Production	Cluster 1
L	6-10	11-20	C, Consoles	1-2	CEO	Cluster 2
M	<1	3-5	C, Consoles	1-2	Owner	Cluster 3
N	3-5	11-20	C, Consoles	3-5	CEO	Cluster 3

*based on quantitative data

Source: Own study

The table 37 presents gathered characteristics of each studio, showing a variety and diversity of gathered cases. Each studio was then classified according to previously determined clusters, which are:

- **Cluster 1:** Growth-Oriented Commercial Powerhouses
- **Cluster 2:** "Artisanal Veterans with Dynamic Growth"
- **Cluster 3:** "Indie Craftsmen: Independent and Sustainable"

3.6. Results of qualitative study of Polish video game studios

Question 1: What motivated the foundation of your game development studio and what were the primary strategic considerations behind its establishment?

The objective of this question is to ascertain the primary motivations behind the inception of the game development studios. Specifically, it aims to discern whether these motivations were primarily intrinsic, stemming from a passion for game creation and a desire to realize this passion, or if they were predominantly extrinsic and business-focused, rooted in strategic considerations and potential market opportunities. This information is essential to understand the founding principles of these companies and how they might influence their ongoing operations and decision-making processes.Table 1 delineates the emergent themes derived from the participants' responses to the first interview question, and maps each theme to the corresponding studios that expressed those specific motivations and strategic considerations.

Table 38 - Thematic analysis for the Question 1

Themes	Description	Responding Studios
Business Strategy	Founding the studio with a clear business plan or strategic direction.	B; D; F; I; N
Creative Passion	Motivation of an artistic vision, passion for game development and creativity.	A; C; G; H; K; L;M
Utilizing Expertise	Using existing skills, experience, and technological knowledge for financial gain.	A; B; E; J; K
Pursuit of Independence	Drive to be one's own boss, have control, and build a desired work environment.	E; C; H; J; L;

Source: Own study

The analysis of the primary motivations behind the establishment of various game development studios demonstrates that there is a broad spectrum of strategic considerations across the industry. These motivations fall into four main themes: Business Strategy, Creative Passion, Utilizing Expertise, and Pursuit of Independence. Business Strategy was a notable factor for a subset of studios, namely B, D, F, I, and N. This approach typically involves a meticulously planned business direction, emphasizing market analysis and financial viability. For example, Studio B, with its heritage in a successful software house, and Studio F, with its transition from VR-AR applications to VR game development, exemplify this strategy. Their formation was guided

by a solid business strategy that aimed at tapping into lucrative segments of the gaming market.

On the other hand, a significant number of studios (A, C, G, H, K, L, and M) were primarily motivated by Creative Passion. These studios were primarily driven by the artistic vision and passion for game development. For instance, Studio C's commitment to create large, atmospheric RPGs and Studio G's emphasis on strategy and action-adventure games manifest this theme of intrinsic motivation.

Simultaneously, several studios leveraged their existing skills and technological knowledge in the gaming industry, a theme referred to as Utilizing Expertise. This motivation can be seen in Studios A, B, E, J, and K. For instance, Studio J leverages its extensive experience to operate both as a game developer and a publisher for indie studios, thereby capitalizing on its wealth of knowledge and proficiency.

Lastly, the Pursuit of Independence was a guiding principle for some studios. Studios E, C, H, J, and L sought autonomy and control over their creative processes and business directions. For instance, Studio E's primary focus on developing its own titles underscores its desire for operational autonomy, allowing for a high degree of creative and operational control.

These themes are not mutually exclusive. For example, Studio A's commitment to a distinctive 2D art style (Creative Passion) was combined with the application of existing skills and experiences in developing casual HTML5 games (Utilizing Expertise). Similarly, Studio J's dual operation as a game developer and publisher (Utilizing Expertise) was driven by a strong desire for control and self-determination (Pursuit of Independence).

Interesting insight regarding the initial assumptions and start of game studio was delivered by studio L:

> *"Choosing your first game to develop and publish is a pretty big deal and you have to think it through regarding further development. I mean, working on a particular type of game your team will get experience for that particular type of game. If you start with simple point and click games, it will be hard for you to move to First Person Shooter games, and your previous experience will be worthless. Choosing your first game should be a part of longer vision to not waste your experience"*

Overall, the results of this analysis suggest a broad variety of motivations behind the establishment of game development studios. They reveal a balance between intrinsic motivations such as creative passion, and extrinsic considerations such as strategic business planning. This diversity can be seen as a reflection of the multifaceted nature of the gaming

industry, with its various niches and opportunities for different approaches to game development.

Question 2: Has the initial vision of your studio evolved over time? If so, what were the key aspects of this change?

This question seeks to explore the potential evolution of the studios' foundational vision over time. The aim is to identify whether the studios have maintained their original intent or if they have adapted it in response to factors such as changing market conditions, new opportunities, or strategic refocus. This could manifest in a range of operational changes, such as moving towards outsourcing, expanding into publishing, adjusting the scope of operations, or varying the scale of their game creation processes. This understanding can shed light on the adaptability and strategic flexibility of these game development companies.

Table 39 - Thematic analysis for the Question 2

Themes	Description	Responding Studios
Steady Vision	The studio maintained its original vision over time, keeping steady its operating principles and product orientations.	B; C; G; H; J
Evolving Vision	The studio's vision was not initially clear or distinct, but evolved and became more specific over time.	D; E; I; K; L; M
Radical Shift	The studio's vision changed drastically due to market trends, project outcomes not meeting sales expectations, or other issues.	A; F; N

Source: Own study

The findings from Question 2 provide insights into the evolution of the game development studios' visions over time. It is evident from the responses that the developmental journey of the studios varies greatly. The theme of 'Steady Vision' was represented by Studios B, C, G, H, and J. These studios demonstrated a steadfast commitment to their original visions, suggesting that they possessed a clear strategic focus and operational consistency from the outset. This resilience could be indicative of a strong alignment with the initial objectives and the broader market's demands or opportunities. For instance, Studio J's dual capacity as a developer and a publisher for indie studios, a vision it has maintained, suggests its understanding of the market need for nurturing the indie game scene.

Conversely, the 'Evolving Vision' theme, echoed by Studios D, E, I, K, L, and M, suggests an

initial ambiguity or lack of clarity in the studio's direction, necessitating an evolution of their vision over time. This evolution could be indicative of a learning curve or adaptation to emerging market trends and opportunities. For example, Studio I, born out of the merger of two pre-existing studios, may have had to adjust its initial vision to incorporate and balance the strategic orientations of its parent entities.The theme 'Radical Shift' describes a significant change in the studio's vision due to external influences, such as changing market trends or unsuccessful project outcomes. Studios A, F, and N fell into this category. This radical shift, while potentially disruptive, could also indicate the studios' adaptive capacities and resilience in the face of challenges or unexpected developments. Studio F, for example, originally a VR-AR applications developer, made a drastic pivot to VR game development in response to emerging market trends, highlighting their adaptability.

An interesting insight regarding the vision change was delivered by Studio A:

“We first wanted to create a big RPG game, as that is the kind of games I liked the most at that time! But soon it turned out that it’s not that easy, and that we need to focus on what we can do best. At that time, around 2010 there was a big market for flash animation and small-simple games made in this technology, so that's what we’ve focused on.”

Studio D, being a more experience and mature team also provided an interesting point of view, regarding their vision and approach:

“We’ve had a lot of shifts due to the management changes. Thus we had a problem with a clear vision… actually there was no vision for a long time, we didn’t want to ‘close’ ourselves on one path. We had a chance to try, to check what we do the best, and then decide which games we want to make in the long run, and this turned out quite good.”

In sum, the data suggests a mix of stability, evolution, and drastic changes in the strategic visions of these game development studios over time, reflecting the diverse trajectories within the game development industry and the varying strategic responses to market dynamics and internal capabilities.

Question 3: What is the current level of development your studio aims to achieve or maintain?

This question aims to elucidate the current development goals of the studio, whether it is a stage of growth they strive to reach or a level they aim to maintain. The responses can offer insights into the studio's ambitions, their growth strategy, and their readiness to adapt by expanding teams or integrating new competencies. It could also indicate if they have a well-defined growth plan or if they are more open-ended, preferring to adapt to future circumstances as they unfold. This understanding can provide valuable information about their current strategic focus and future development plans.

Table 40 - Thematic analysis for the Question 3

Themes	Description	Responding Studios
Rapid Expansion	The studio is aiming for significant growth in terms of the size of the team and the scope of its activities (e.g., undertaking more projects, branching out into publishing)	B; J; K
Gradual Growth	The studio is planning for steady, slow growth, aiming for stability and financial independence.	A; C; D; H; I ;L; N
Sustainable Quality Enhancement	The studio intends to maintain its current state while focusing on improving the quality of its games, publishing them and gaining experience.	E; F; G; M

Source: Own study

The responses to Question 3 reveal the varying strategic growth ambitions among the game development studios. The identified themes, namely Rapid Expansion, Gradual Growth, and Sustainable Quality Enhancement, reflect a spectrum of growth strategies, from aggressive scaling to a more measured approach emphasizing quality and experience.

The 'Rapid Expansion' theme represents the studios with an aggressive growth strategy. Studios B, J, and K expressed their intent to significantly expand the scope of their activities, including growing their teams and broadening their operational capacities. This can be indicative of these studios' high ambition levels, their readiness to manage complexity, and their ability to seize growth opportunities. For instance, Studio J's intent for expansion aligns with its large-scale operations as both a developer and a publisher, indicating its capabilities to manage and support this aggressive growth strategy.

The 'Gradual Growth' theme aligns with Studios A, C, D, H, I, L, and N, which exhibit a more measured approach towards expansion. These studios aim to grow steadily, emphasizing stability and financial independence. This strategy might suggest their desire for a balanced growth that avoids overextension and sustains stable financial performance. Studio D, for example, with its focus on developing its own products and a relatively smaller team size, demonstrates a preference for this measured expansion approach.

The 'Sustainable Quality Enhancement' theme was represented by Studios E, F, G, and M. These studios plan to maintain their current operational scale while focusing on enhancing the quality of their games. This strategy indicates a strong focus on product excellence, suggesting a belief that success is derived from the quality of the games rather than the scale of operations. Studio F, with its specialization in VR games and a commitment to creating high-value experiences for players, aligns well with this theme.

A short and decisive insight regarding their approach to growth was delivered by Studio M:

> *"We've got everything we need, to create something valuable, and we know exactly what to do. I guess this will take us about 4 to 5 years."*

While studio K admits, that their growth is a debatable question among the management:

> *"We still argue whether we should run more projects at once, therefore higher more people. Right now we have a team of 120, but managing bigger teams is a big challenge and more risk. I personally prefer smaller, agile teams, which are easier to manage and more dynamic."*

Overall, the responses indicate a diverse range of growth strategies among the studios, reflecting their individual strategic orientations, capabilities, and market positions.

Question 4: How has your studio developed over the years?

This question seeks to understand the trajectory of the studio's growth over time. It aims to identify whether growth has been gradual or marked by significant turning points, and to ascertain if there has been a sustained period of stability in the studio's operations. It also probes whether the team size has fluctuated over the years. The responses can provide valuable insights into the studio's development dynamics, its adaptability to changes, and its sustainability practices, thereby revealing the evolution and resilience of the studio's business model.

Table 41 - Thematic analysis for the Question 4

Themes	Description	Responding Studios
Fluctuating Development	The studio has experienced frequent changes in team size and structure, often tied to the specific demands of current projects.	A; D
Consistent Growth	The studio has demonstrated steady and consistent growth, gradually scaling up its production capabilities with each project.	B; H: I; J; K; N
Sustainable Growth	The studio has pursued slow and occasional growth, striving to maintain an optimal team size and not become too large, maintaining its size for longer periods.	C; E; F; G; L; M;

Source: Own study

The responses to Question 4 provide insights into the developmental trajectories of the game studios over time. The three themes that emerged—Fluctuating Development, Consistent Growth, and Sustainable Growth—reflect a range of growth patterns and highlight varying degrees of adaptability, resilience, and sustainability within the studios' business models.

The 'Fluctuating Development' theme applies to Studios A and D, which reported frequent changes in team size and structure in response to project demands. This pattern could suggest a high level of adaptability within these studios, as they continually adjust to changing project requirements. However, it might also point to potential challenges in maintaining consistency in the quality and scope of their output due to these frequent shifts.

The 'Consistent Growth' theme characterizes Studios B, H, I, J, K, and N, which have demonstrated a steady and regular pattern of growth over time. This suggests a deliberate and strategic approach to scaling, with these studios expanding their production capabilities at a gradual but sustained pace. Studio K, for instance, with its robust team and a successful track

record in publishing numerous games, exemplifies this growth pattern. Such consistent growth could be indicative of a stable business model and a resilient operation capable of steady expansion over time.

The 'Sustainable Growth' theme is exhibited by Studios C, E, F, G, L, and M. These studios have pursued a slower, more measured growth path, maintaining an optimal team size and avoiding excessive expansion. This growth model suggests a focus on sustainability and stability, valuing an optimal team size that allows for efficient operations and high-quality output. Studio G, with its small team and a specialized focus on VR games, seems to exemplify this approach, prioritizing quality and efficiency over rapid expansion.

In summary, the studios' growth trajectories reflect their strategic orientations, operational capabilities, and the external market conditions they face. These growth paths, in turn, offer insights into the adaptability, resilience, and sustainability of the studios' business models.

Question 5: What were the most significant barriers and challenges encountered in your studio's development?

The goal of this question is to uncover the primary obstacles and difficulties encountered in the course of the studio's development. It explores whether these challenges have evolved over time, which may reflect on the changing environment and the studio's capacity to adapt. Understanding these hurdles can provide insights into the resilience and problem-solving capabilities of the game development studios, as well as the context-specific challenges within the industry.

Table 42 - Thematic analysis for the Question 5

Themes	Description	Responding Studios
Market Dynamics	Changes in market and technological trends, such as the emergence of new gaming platforms, popular genres, or diminished investor interest in the gaming industry.	A; B; E; J
Talent Acquisition	Difficulties in recruiting and retaining qualified personnel.	E; G; H; I; L
Internal Problems	Challenges arising from within the team, including lack of clear vision, communication problems, or conflicts.	A; D; F; H; I; K; L
Financial Stability	Difficulties in securing steady financing or investment.	C; B; E; K; L
Partner Acquisition	Issues in establishing reliable partnerships or collaborations within the industry.	B; D; G; M

Source: Own study

The responses to Question 5 shed light on the major obstacles and challenges that the game studios have encountered during their developmental journeys. Five themes emerged—Market Dynamics, Talent Acquisition, Internal Problems, Financial Stability, and Partner Acquisition—each representing distinct types of challenges that reflect both external and internal factors.

The 'Market Dynamics' theme, reported by Studios A, B, E, and J, reflects difficulties associated with changing market and technological trends. These include the emergence of new gaming platforms, shifts in popular genres, or waning investor interest in the gaming industry. These challenges point to the complex and volatile nature of the gaming market, where studios must stay adaptable and responsive to remain competitive.

The 'Talent Acquisition' theme, indicated by Studios E, G, H, I, and L, pertains to the difficulties in recruiting and retaining skilled personnel. This is a common challenge in industries where specialized skills are required, such as game development. For instance, Studio L, with a smaller team size and lesser-known titles, may face such challenges more acutely.

The 'Internal Problems' theme, reported by Studios A, D, F, H, I, K, and L, encompasses challenges arising from within the team. This includes a lack of clear vision, communication issues, and internal conflicts. Such challenges underline the importance of strong leadership, good communication, and a shared vision within a game studio's team.

The 'Financial Stability' theme is reported by Studios C, B, E, K, and L, and refers to the difficulties in securing steady financing or investment. This is a critical aspect of any business, but it can be particularly challenging for game development studios, which often require significant

upfront investment for game development projects.

The 'Partner Acquisition' theme, highlighted by Studios B, D, G, and M, involves difficulties in establishing reliable partnerships or collaborations within the industry. This can be a key challenge, especially for newer or smaller studios such as Studio M, that might lack the network and reputation to easily attract partners.

In summary, these findings underscore a variety of significant challenges faced by the studios, ranging from external market dynamics to internal team issues. They highlight the importance of adaptability, strategic problem-solving, and resilience in navigating these obstacles in the ever-evolving gaming industry.

Question 6: Do you believe that cooperation with foreign partners contributed (or could contribute) to the accelerated development of your studio compared to working with domestic partners?

This question aims to explore the studio's perspectives on the impact of international collaborations on its development speed relative to domestic partnerships. It provides insight into the studio's strategies and attitudes towards internationalization. Whether the studio has real-world experience with foreign partnerships or only hypothetical preferences, the responses can reveal a lot about the studio's market orientation and globalization strategies, offering a clearer understanding of the studio's approach to and experiences of international business relationships.

Table 43 - Thematic analysis for the Question 6

Themes	Description	Responding Studios
Foreign Partners (based on experience)	Acknowledgement that collaboration with foreign partners, particularly those from western markets, provides superior capital and experience, potentially accelerating the studio's development.	A; B; D; E; H; J; K; L; N
Potential Foreign Collaboration (without experience)	While the studio has not yet engaged with foreign partners, there is an anticipation or intention to explore these relationships in the future; acknowledgement, that such cooperation is superior to domestic partners	C; E; G; I
Domestic Partners (based on experience)	Belief that partnerships with domestic entities can be equally beneficial, with no emphasis on foreign collaboration as a critical factor for growth.	F;

Source: Own study

The responses to Question 6 provide an insight into the studios' attitudes towards

international collaborations and their perceived impact on the studio's developmental speed compared to domestic partnerships. Three distinct themes emerge from the data: 'Foreign Partners (based on experience)', 'Potential Foreign Collaboration (without experience)', and 'Domestic Partners (based on experience)'.

The 'Foreign Partners' theme, cited by Studios A, B, D, E, H, J, K, L, and N, reflects a sentiment that collaboration with foreign partners, especially those from western markets, provides a competitive advantage in terms of capital and experience that can potentially speed up the studio's development. This perspective indicates that these studios value international partnerships for their ability to offer a broader range of opportunities and resources. For instance, Studio K, which operates independently of a private investor or publisher, likely perceives foreign partnerships as a significant resource and an important factor contributing to its growth and successful game launches.

The 'Potential Foreign Collaboration' theme, indicated by Studios C, E, G, and I, is expressed by studios that, while not having yet engaged with foreign partners, anticipate or intend to explore these relationships in the future. They acknowledge that such cooperation could be superior to domestic partnerships. These studios, such as Studio G and I, despite not having prior experience with international collaborations, express an openness to broaden their horizons and potentially accelerate their growth through international partnerships.

The 'Domestic Partners' theme, only reported by Studio F, demonstrates a belief that partnerships with domestic entities can be equally beneficial, and there is no emphasis on foreign collaboration as a critical factor for growth. This implies that this studio is comfortable with its local network and sees value in nurturing these relationships to foster growth.

In summary, the responses reveal the studios' varying attitudes towards domestic and foreign partnerships and their impact on development. A significant majority of studios see foreign partnerships as a catalyst for accelerated growth, indicating an industry trend towards globalization. However, the acknowledgement of the potential value of domestic partnerships also suggests the importance of a balanced and strategic approach to partnership formation.

Question 7: What does success look like for your studio?

This question seeks to explore the studio's definition of success, which provides insights into its overarching goals and strategic objectives, both in the short and long term. By understanding what success looks like to them, it reveals the intrinsic and extrinsic motivators driving the studio's efforts. Whether it's recognition, high sales, or the fulfillment of a specific idea, the responses can highlight what inspires and propels the game creators, contributing to a richer understanding of their motivation and commitment.

Table 44 - Thematic analysis for the Question 7

Themes	Description	Responding Studios
Artistic Fulfillment	Viewing success as the creation of something valuable and enjoyable for players. A measure of success comes from the artistic satisfaction and pleasure derived from game development.	A; C; D; E
Games & Studio Recognition	Success is equated with the studio and its games being recognizable among players communities and media	F; G; H; J; K; M
Creative Freedom & Self Improvement	Success is perceived as the ability to maintain stability and comfort, which allows the team to freely create the games they desire and enjoy, and improve their working environment.	A; E; F; H; I; L; M
Project Completion	Success is determined by the completion and publication of a game project.	C; D; G; L
Business Performance	Success is ultimately measured by the commercial performance, with high sales being the primary indicator of success.	A; D; H; I: J; K; N

Source: Own study

Responses to Question 7 reveal a wide array of success definitions across the studios, offering insights into the various motivations and strategic objectives that drive these companies. Five distinct themes emerged from the data: 'Artistic Fulfillment', 'Games & Studio Recognition', 'Creative Freedom & Self Improvement', 'Project Completion', and 'Business Performance'.

The 'Artistic Fulfillment' theme, cited by Studios A, C, D, and E, reflects a perspective that success is embodied in the creation of something valuable and enjoyable for players, with artistic satisfaction serving as a measure of success. For these studios, the joy of game development and the ability to create a meaningful gaming experience constitute the core of their success. Studio E, for example, with its roots in a passion for creativity and its aim to enhance game quality sustainably, likely considers artistic fulfillment as a central success criterion.

The 'Games & Studio Recognition' theme, indicated by Studios F, G, H, J, K, and M, associates success with recognition among player communities and media. This shows a focus on establishing a strong brand presence and reputation in the gaming industry. For instance, Studio K, known for its high-quality games and consistent growth, likely values this recognition as a testament to its efforts and achievements.

The 'Creative Freedom & Self Improvement' theme, reported by Studios A, E, F, H, I, L, and M, perceives success as the capacity to maintain stability and comfort, allowing the team to freely create games they enjoy and continually improve their working environment. This theme emphasizes the studios' desire for autonomy and a positive work culture as markers of success.

The 'Project Completion' theme, cited by Studios C, D, G, and L, determines success by the completion and publication of a game project. This highlights a pragmatic approach where success is primarily gauged by the ability to deliver finished products to the market.

Lastly, the 'Business Performance' theme, as per Studios A, D, H, I, J, K, and N, links success directly to commercial performance, with high sales being the main success indicator. This illustrates a more traditional business-oriented perspective, where financial performance is the primary success metric.

An interesting Insight regarding current approach to success was given by studio I:

> *"Well, revenue is important, but not the most important. We've had success with previous titles, so right now we can focus on polishing our skills, and do something really fun and good, which is great!"*

And by studio E:

> *"Honestly, the games we're making right now and made so far… are not the kind of games we've always wanted to make. We know there is a huge market for simulation games, and investors like such products. So we're gathering as much experience as we can, and trying to build good relations with partners and obtain financial stability. Only then, having enough money as backup, will we start making games that we've always wanted, fulfilling our vision - and that will be a huge success for us - that stability."*

In sum, the variety of success definitions suggests that these studios operate with diverse sets of motivations and goals, ranging from artistic fulfillment to business performance. It showcases the breadth of perspectives within the game development industry, and highlights the fact that success in this context is multifaceted and subjective, often tied closely to the individual studio's origins, values, and strategic objectives.

Question 8: In your opinion, what is the most crucial element for a studio to achieve success?

This question aims to elicit the respondents' views on the key factors contributing to a game development studio's success. The intention is to understand whether there are perceived essential ingredients or a "recipe" for success in the field of game development, based on their personal experience. The answers can provide significant insights into the strategies, resources, capabilities, or attitudes deemed crucial in this industry, enriching the understanding of success and growth factors in the video game industry.

Table 45 - Thematic analysis for the Question 8

Themes	Description	Responding Studios
Vision and passion	Emphasizing the role of strong passion and love for creating games and clear, concise vision that is easy to communicate and to work on.	C; E; F; G; I; K, M
Human Capital	Emphasizing the importance of skilled, dedicated, and creative personnel, suggesting the success of a studio is highly dependent on the talents and dedication of its team members.	A; B; C; E, N
Business Management	Highlighting the necessity of proficient organization and strategic planning in production, suggesting the importance of sound managerial practices for success	A; B; D; I; L
Product Excellence	Underscoring the significance of a unique, well-executed game idea, indicating the crucial role of product quality and innovation in achieving success	H; L

Source: Own study

Responses to Question 8 reveal different perspectives on what constitutes the most critical element for a studio to achieve success. Four principal themes have emerged from the data: 'Vision and Passion', 'Human Capital', 'Business Management', and 'Product Excellence'.

The 'Vision and Passion' theme, identified by Studios C, E, F, G, I, K, and M, underscores the importance of a strong passion for creating games and a clear, concise vision that can easily be communicated and acted upon. This theme suggests that a love for game creation and a compelling vision are driving forces behind successful game development endeavors. For instance, Studio E, which defined success in terms of 'Artistic Fulfillment', might align with this view, considering its focus on creating valuable, enjoyable experiences for players.

The 'Human Capital' theme, highlighted by Studios A, B, C, E, and N, emphasizes the crucial role of skilled, dedicated, and creative personnel. This reflects a belief that the success of a studio is highly dependent on the talents and dedication of its team members. For instance,

Studio B, which faced 'Talent Acquisition' as a major challenge, may stress the importance of human capital due to the impact of this challenge on its development.

Regarding the human capital, Studio F pointed out the importance of good communication:

> *"Communication and good understanding among the team is everything. When people communicate in the right way and in the right environment, that drives the creativity and better ideas and the willingness to focus and produce better games."*

Studio H presented a similar view, but in a bit different context:

> *"Good communication among the team is crucial. And it was hard to keep it at the same level when the studio reached more than 20 people, especially during the pandemic. New people might feel left out, people feel that they don't really know each other and it's hard to maintain a clear vision for our game."*

The 'Business Management' theme, noted by Studios A, B, D, I, and L, underscores the importance of proficient organization and strategic planning in production. This theme suggests that sound managerial practices are essential for a studio's success. Studio D, for instance, given its shift in vision and focus on 'Project Completion', may emphasize the need for strong business management to ensure projects are completed successfully and timely.

The 'Product Excellence' theme, reported by Studios H and L, emphasizes the significance of a unique, well-executed game idea. This theme indicates the importance of product quality and innovation in achieving success, echoing the sentiment that studios must deliver exceptional games to stand out in the competitive gaming industry.

In summary, the responses to this question underline a range of factors considered vital for a game development studio's success. These factors, encompassing passion, talent, management, and product quality, provide a holistic view of the perceived ingredients for success in the game development industry. It further emphasizes the complex and multifaceted nature of success in this field, influenced by both internal and external factors.

Question 9: What would you change if you could go back in time to the inception of your studio?

This question is designed to elicit reflections on past decisions, and whether, with the benefit of hindsight, the respondents would have taken different paths in their studio's development. The answers can provide insights into the learning experiences and pivotal decisions of the studio, as well as their adaptive capabilities. This can contribute to an understanding of the evolution of strategies and decision-making processes in game development studios.

Table 46 - Thematic analysis for the Question 9

Themes	Description	Responding Studios
Partner Selection	Reflecting on past decisions related to choosing business partners, indicating a desire to make different choices regarding collaboration.	C; G; H; L
Growth & Development Pace	The reflection that rushed growth or development of the studio may not have been beneficial, indicating a potential wish for a more measured approach to expansion, taking actions regarding expansion sooner or later than it was.	D; B; E; N
Organizational Practices	The desire to change past managerial practices or internal organization of production, indicating lessons learned about effective team management and workflow organization.	A; F; I; K; L

Source: Own study

Responses to Question 9 provide insights into the learning experiences and pivotal decisions of the participating studios. It brings to the fore what the respondents perceive as decisions that, in retrospect, they would have chosen differently. The responses fall broadly into three thematic categories: 'Partner Selection', 'Growth & Development Pace', and 'Organizational Practices'.

The 'Partner Selection' theme, recognized by Studios C, G, H, and L, signifies reflections on past decisions related to choosing business partners. Respondents in this category indicated a desire to have made different choices in the past concerning collaborations, suggesting that the choice of partners has had significant implications for their studio's trajectory.

In this category Studio K provided an interesting case:

> *"We had an opportunity to work with one of the biggest, world wide renown game publisher. We let down that opportunity, because the publisher was up to strongly interfere with our game vision. Looking at it from a perspective, that was a tremendous*

mistake, we could be a much bigger, better developed studio right now if we decided back then to work with them…"

The 'Growth & Development Pace' theme, indicated by Studios D, B, E, and N, involves reflections on the pace of growth or development of the studio. Respondents under this theme expressed that rapid expansion might not have been beneficial, suggesting a potential preference for a more measured approach to growth in hindsight. This demonstrates an awareness of the complexities involved in scaling operations and the potential drawbacks of rushed growth.

In relation to that, Studio K presented an interesting insight:

"A big mistake was an episode when we were trying to make VR games. We've wasted a lot of time and resources, based on a hype - a lot of people were saying that VR is the future. We should stick to what we do best - making PC RPG games and not experiment with distant technology, because it's a big risk".

The 'Organizational Practices' theme, identified by Studios A, F, I, K, and L, points towards a desire to change past managerial practices or the internal organization of production. Respondents in this category indicated lessons learned about effective team management and workflow organization. This reflection suggests the importance of fine-tuning internal processes and management structures to maximize efficiency and productivity within the studio.

In sum, these findings underscore the retrospective reflections of the studios on their past choices and decisions. This reflection informs an understanding of the studios' adaptive capabilities and their evolution over time. It suggests that the path to success in game development is shaped by a complex interplay of strategic decisions, partnerships, management practices, and the pace of growth.

In conclusion, the analysis of the interviews with the various game development studios has illuminated several key characteristics and determinants influencing the growth and development of companies within the video game industry. The findings reveal the complexities inherent in this dynamic industry, emphasizing the interplay between strategic choices, studio characteristics, and environmental factors. The interviews have generated several primary themes, each signifying different aspects of studio development, motives, barriers, and critical elements for success.

Firstly, the concept of a studio's vision was a recurring theme throughout the interview analysis. Studios displayed a range of perspectives, from maintaining a steadfast original vision to undergoing significant evolution or radical shifts in vision. This fluidity in a company's guiding

philosophy is indicative of the adaptive capacity required in the rapidly evolving landscape of the video game industry. However, regardless of the nature and extent of these changes, it's clear that a strong and clear vision plays a vital role in directing a studio's strategic choices and growth trajectory.

Secondly, the interviews shed light on the variety of growth strategies pursued by the studios. From rapid expansion and gradual growth to sustainable quality enhancement, these growth strategies reflect the diverse ambitions and risk appetites of studios. Importantly, the chosen growth trajectory appears to be closely linked with the studio's characteristics, including its foundational vision, human capital, and management practices. These findings suggest that understanding a studio's growth strategy can provide valuable insights into its identity, capabilities, and long-term objectives.

Thirdly, the analysis highlighted a range of barriers encountered by the studios. Challenges such as market dynamics, talent acquisition, internal team issues, financial stability, and partner acquisition were among the most frequently mentioned. These barriers, coupled with the studios' responses to them, suggest that resilience and problem-solving capacities are key determinants of a studio's survival and growth. Notably, these challenges are not static but evolve over time, reinforcing the need for adaptive capabilities within the industry.

The significance of international collaborations was another key theme. A majority of studios acknowledged the potential benefits of cooperating with foreign partners, suggesting that globalization strategies and an outward-looking market orientation could play a crucial role in accelerating studio development. Interestingly, this was true regardless of whether the studio had real-world experience with such partnerships, indicating a broad consensus on the potential value of internationalization in the industry.

When exploring the concept of success, the studios presented diverse perspectives, reflecting their unique motivations and objectives. Themes of artistic fulfillment, games and studio recognition, creative freedom, project completion, and business performance all emerged as components of success. These variances underscore the multidimensional nature of success in the game development industry, suggesting that motivations go beyond mere financial gain and can be deeply intertwined with creative and artistic aspirations.

Finally, the studios highlighted the crucial elements for success in their view. The importance of vision and passion, human capital, proficient business management, and product excellence were underscored. This suggests that while product development skills are essential, non-technical aspects such as leadership, strategic planning, and team management are also

pivotal to a studio's success.

In summary, the growth and development of a game development studio are influenced by a multifaceted array of factors. Characteristics such as the studio's vision, its growth strategy, its approach to overcoming challenges, its views on international collaboration, its definition of success, and its perception of key success factors all interplay to shape its trajectory. Understanding these complexities can contribute to more nuanced and effective strategies for growth in this vibrant industry. Further research may build on these findings to develop a more comprehensive model of growth and success in the game development context.

Conclusions

In this dissertation, the investigation embarked upon was designed to delve into the intricacies of the growth strategies, operational characteristics, and development dynamics within the video game industry, particularly among small to medium-sized game development studios in Poland. This investigation led to the generation of certain hypotheses, which, after empirical testing and analysis, were verified positively, and all the research objectives were successfully accomplished.

The dissertation also fulfilled its structural aims across the three main chapters. The first chapter was instrumental in fulfilling the initial research objective of constructing a robust theoretical foundation. The critical examination of the existing methodologies and perspectives that describe and analyze company growth. Through this exploration, a nuanced understanding of the determinants and factors that influence enterprise growth was achieved, particularly with regards to creative industries. The personas of creative entrepreneurs were also effectively dissected, thereby accomplishing the task of understanding the characteristics and practices typical of creative companies.

The second research objective, which focused on an empirical investigation of the patterns of growth in the video game industry, was achieved in the second chapter. A comprehensive exploration of the actors in the video game industry was undertaken, successfully mapping out their relationships and interactions. This task culminated in the creation of a graphical representation of the Game Industry Ecosystem and a Diagram of Video Game Industry Actor Relations, effectively fulfilling this task. The critical review of the existing classification systems for video game developers was executed, highlighting their limitations in describing the growth dynamics and developmental characteristics of small and medium game studios. This critique was instrumental in identifying the need for a more refined classification system. In the second chapter of this dissertation, a conceptual model for the non-linear growth of video game companies was proposed, marking a significant step towards a more nuanced understanding of the growth trajectories of these organizations. The distinct nature of the video game industry, where studios often prioritize passion, creativity, and sustainability over sheer profit and growth, was taken into account in the development of this model. The proposed model was predicated on several core

assumptions that challenged conventional linear growth models like the Greiner Model or Churchill & Lewis Model. The model recognized the variety in growth objectives among game development studios, acknowledging that not all primarily aim for financial growth. It also considered phase-based development, suggesting that studios progress through distinct phases of growth but may change their development trajectory during transitions between phases. The proposed model accounted for the non-linear trajectories often exhibited in the video game development industry. Instead of assuming a predictable, linear progression, it recognized that factors such as market feedback, creative breakthroughs, or shifts in team dynamics could shape a studio's trajectory.

In the third chapter, the research focused on the key determinants of growth and commercial success among game development studios in Poland. The study successfully identified operational characteristics, growth strategies, and motivational drives of these studios, as well as understanding the variations and underlying reasons for these differences. Furthermore, the game studios' perceptions of success and their driving motivations were effectively analyzed, fulfilling another key research task. These insights laid the groundwork for proposing a novel classification system for video game studios, a significant accomplishment that furthers our understanding of this industry. The quantitative results of the survey were pivotal in verifying the hypotheses, reinforcing the non-linear model and demonstrating the diversity in the orientations of game studios. The qualitative research, in the form of semi-structured interviews, further enriched these findings, offering nuanced insights into the diverse orientations and trajectories of the studios.

The central hypotheses - H1 and H2 - postulated the impact of company-specific objectives and the perceptions of sales success on the diversity of growth strategies and strategic orientation, respectively. The empirical evidence robustly supports these hypotheses. The study reaffirms that the companies within the video game industry exhibit a diverse range of growth strategies contingent on specific objectives and achievements. Furthermore, the role of perceived sales success in shaping the strategic orientation of video game studios was affirmed, with successful sales performance reinforcing business-centric approaches, and perceived shortfalls inclining studios towards artistically oriented strategies.

The auxiliary hypotheses - aH1, aH2, and aH3 - posed additional important inquiries. These hypotheses were also substantiated by the empirical findings. International partnerships and expanded sales to international markets were found to significantly bolster the business-centric approach of video game studios (aH1). The hypothesis that the magnitude of employment within a video game company enhances its propensity towards a business-oriented approach (aH2) was confirmed, highlighting the intricate dynamics of growth and strategic orientation within the industry. The third auxiliary hypothesis, stating that the duration of a company's presence on the market does not necessarily dictate its strategic orientation (aH3), was also affirmed, providing a nuanced perspective on strategic choice and adaptation in the fast-evolving, creative, technology-driven video game industry.

The findings and developments in this dissertation significantly enrich the theoretical discourse in several areas of economics, notably in understanding the dynamics of growth, internationalization, and strategic orientations in the digital creative industry, exemplified by the video game sector.

Firstly, the creation of a novel growth model stands as a substantial contribution to the economic theory of firm growth. This model, rooted in real-world data and in-depth analysis, enhances our understanding of growth dynamics in the gaming industry, a realm where traditional models might not fully capture the unique intricacies. The model outlines how factors such as age, business orientation, team expansion, and internationalization interplay to shape the growth trajectory of a game development studio. This conceptual tool bridges theoretical understanding and practical application, expanding the scope of economic growth theory to more accurately reflect the complexities of contemporary creative industries.

Secondly, the specialized classification of game developers provides a novel theoretical framework to analyze and understand game studios. The classification system, built around key variables such as the size of the studio, their business orientation, and their level of internationalization, provides a fresh perspective for categorizing firms in creative industries. This serves as an important extension to the theory of firm classification, offering a tailored approach that resonates with the unique characteristics of the video game industry.

Lastly, our investigation into the role of digital platforms in fostering internationalization, the correlation between a studio's business orientation and its financial outcomes, and the benefits of international collaboration, contribute to several theoretical strands, including the theories of globalization, firm strategy, and the economics of digitization.

Overall, this dissertation represents an important step in recognizing and understanding the distinctiveness of the video game industry from an academic standpoint, acknowledging its economic potential and managerial complexity, and appreciating its unique place within the broader landscape of creative industries. Given the undeniable importance and growing impact of the video game industry, this endeavor is not only timely but also crucial for the continued advancement of both academic scholarship and industry practice. In conclusion, this dissertation advances economic theory by offering a context-specific understanding of growth dynamics, a nuanced classification system for game studios, and empirically backed insights into strategic orientations, thus enriching our theoretical grasp of the digital creative economy. These findings and conclusions contribute to a more thorough and nuanced understanding of the video game industry, particularly concerning the growth and development of small and medium-sized game development studios. By shedding light on these under-explored aspects of the video game industry, this research aspires to facilitate its sustainable growth and development in the face of future challenges and opportunities. Given the undeniable importance and growing impact of the video game industry, this endeavor is not only timely but also crucial for the continued advancement of both academic scholarship and industry practice.

Appendix

Appendix - Tables and figures list

Appendix - Survey Form

RESEARCH SURVEY

GROWTH AND DEVELOPMENT OF POLISH GAME STUDIOS

UNIWERSYTET EKONOMICZNY W POZNANIU

JAKUB RYFA

The survey is addressed to Polish game creators - people in managerial positions in the case of companiesor group leaders in the case of informal teams working on their own game titles. The survey is fully anonymous, and its filling-up process takes less than 10 minutes.

START >

The survey is fully anonymous, the answers given will only be used for research purposes. Even if you express a desire to participate in an in-depth interview, giving contact at the end of the survey, your data or answers will not be transferred to third parties. You will not be asked to provide the name of your studio.

☑ I understand and want to continue A

Question 1

The legal form of your gamedev studio?

If you create alone or in the game team, but you do not have a registered company, choose the form "informal team".

- Informal team (lack of business activity) A
- Sole proprietorship B
- Private Limited company C
- Joint-stock company D
- Other (enter below) E

Question 2

How long does your studio work as an official entity or permanent team?

In the case of companies, it is about the moment of formal start of business. In the case of informal teams for an approximate determination of the team's work start over their own project.

- Less than a year A
- 1-2 years B
- 3-5 years C
- 6-10 years D
- Over 10 years E

Question 3

How many people currently work in your team/studio?

The form of employment does not matter. If you act as an informal team, include both people acting without remuneration and working on your games.

- 1-2 people A
- 3-5 people B
- 6-10 people C
- 11-20 people D
- 21-50 people E
- Over 50 people F

Question 4

Estimate how many people operated in your team/st**udio in the initial period of their activity as a starting t**eam.

The form of employment does not matter. It is about the initial personal state of the studio - a total number of people who formed a team during the start of its activities (formal or informal).

- 1-2 people A
- 3-5 people B
- 6-10 people C
- 11-20 people D
- 21-50 people E
- Over 50 people F
- I don't know G

Question 5

On what platforms your studio publishes or plans to publish games?

You can choose several answers at the same time.

Choose as much as you want

- PC A
- Mobile devices B
- PlayStation C
- Xbox D
- VR (Oculus, HTC VIVE, PS VR etc.) E
- AR F
- Nintendo Switch G
- Web browser H
- Other (enter below) I

NEXT ›

Question 6

What kind of genre your studio's games are - both published or upcoming?

You can choose a few answers if your studio creates various games or combines genres.

Choose as much as you want

- Action games/adventure games A
- Racing/driving games B
- Fighting Games C
- RPG games (Role Playing Games) D
- Logical games (puzzle games) E
- Shooter (First Person Shooter/Third Person Shooter etc.) F
- Gambling Games (Casino Games) G
- Simulation Games H
- Sports Games I
- Strategy games J
- Other (enter below) K

NEXT ›

Question 7

Specify the share of competences in the production process of your team. Dispose of a total of 100 points using a slider.

For example, if the production team is 4 people working in a similar occupancy - game designer, game developer, game artist and producer - there are about 25 points for each of these competences. If there are many people responsible for various activities in the team, try to estimate the time allocated to individual tasks for all team members. If one person is responsible for most of the production - he/she performs a few roles at the same time - a designer, graphics and developer - try to determine how much time he/she devotes to individual tasks in the project.

Game Design

Development/Programming

Art (2D, 3D, Animations)

Producer/Project Management

Total 0

NEXT SKIP

Question 8

How many games have your studio published so far?

The question concerns your own complete productions of games published under the studio, and not commisioned titles made for clients.

- The studio has not released its own game yet or does not create games under its own brand A
- 1-2 B
- 3-5 C
- 6-10 D
- Above 10 E

Question 9

On how many games is your studio currently working?

These are both the own titles of the studio and games commisioned for clients at the moment.

- The studio is currently not working on any game title **A**
- 1-2 **B**
- 3-4 **C**
- 5 and above **D**

Question 10

Determine the estimated time needed to complete a typical game title (ready for publication) by your team, taking into account pre-production and conceptual work.

If the studio is supporting other productions, specify the average duration of the project. It is understandable that the time you need depends on how big and complicated the title is. It is about the approximate determination of the production time of projects that your studio undertakes most often.

- 1-6 months **A**
- 7-12 months **B**
- 13-18 months **C**
- 19-24 months **D**
- Over 24 months **E**

Question 11

Does your studio **provide service**s of creating games, graphics, asset or programming **(external d**evelopment / outsourcing) and how important is this aspect of activity in the adopted business model of the studio?

It is about providing both small, single orders consisting of creating assets, graphics, programming, as well as large, comprehensive projects commisioned by another studio or publisher.

- No - the studio does not provide this type of services on request/commision **A**
- Yes - the studio provides external services, but this is not an important aspect of the studio's activity **B**
- Yes - the studio provides external servies and this is an important aspect of the studio's activity **C**
- Yes - the studio provides external servies and this is the main aspect of the studio's activity **D**
- Other (describe below) **E**

Question 12

Customers using the services of your studio in creating games/graphics /asset/programming are:

- Only entities from Poland (A)
- Mostly entities from Poland and occasionally foreign entities (B)
- Mostly foreign entities and occasionally entities from Poland (C)
- Domestic entities and foreign entities in similar proportions (D)
- Only foreign entities (E)

Question 13

What countries usually come from the foreign entities, which are customers of your studio in the field of creating games/graphics?

You can enter several items by separating the answers by comma.

Please enter your response

Press SHIFT + ENTER to go to the new line

NEXT SKIP

Question 14

Has any of your the published game of your studio achieved sales success?

By sales success, we understand that the sales of at least one game have met or exceeded the expectations of the studio. Moderate sal**es success means that sales re**venues did not meet the assumed expectations, but exceeded production costs.

- Yes, the sales success of at least one title was achieved (A)
- A moderate sales success of at least one title was achieved (B)
- No sales success has been achieved yet (C)
- It is difficult to say (e.g. too short period of publication of the game to evaluate) (D)

Question 15

Determine the diversity of key members of your team in terms of seniority

The higher the difference calculated in the years between employees with the lowest work experience in the industry, and employees of the highest seniority, the **higher the diversity. It is about experie**nced team members, newly employed interns or apprentices should not be taken into account.

- Low diversity (0-2 years) A
- Moderate diversity (3-5 years) B
- Large diversity (over 5 years) C

Question 16

Rate the degree of specialization of teams/team members.

The lower the number, the narrower the specialization of employees is - for example, an employee specializes in a narrowly defined area of game development. A higher number means that most employees perform comprehensive, varied works in various fields (e.g. the developers themselves create graphic asset and animate them).

1	2	3	4	5	6	7

Narrow specialization — Multidisciplinary

Question 17

Determine the level of experience of key team members in the gamedev or related industr**y in the initial period of the studio's a**ctivity.

When the studio or permanent team started operating, key members had experience in the Gamedev or related industry:

- 10 years and above A
- from 6 to 10 years B
- from 3 to 5 years C
- from 1 to 2 years D
- under 1 year E
- I don't know F

Question 18

With what industry entities is your studio currently cooperating or had cooperated and how long did this cooperation last/or is still lasting?

If your studio did not cooperate with a given type of entity - mark "no cooperation". If there were breaks in cooperation with one type of entity, try to determine the total duration of this cooperation.

	No cooperation was undertaken	From several months to a year	From a year to 2 years	Over 2 years	I don't know
Publisher	○	○	○	○	○
Investor	○	○	○	○	○
Marketing Agency/PR	○	○	○	○	○
Government institution or organization	○	○	○	○	○
Programming outsourcing	○	○	○	○	○
2D/3D graphic outsourcing	○	○	○	○	○
Musical/sound outsourcing	○	○	○	○	○
QA and localization	○	○	○	○	○

NEXT ›

Question 19

Determine whether they are domestic or foreign entities.

If your studio did not undertake cooperation with a given entity, mark "no cooperation".

	No cooperation was undertaken	National entity	Foreign entity	Foreign and national entities	I don't know
Publisher	○	○	○	○	○
Investor	○	○	○	○	○
Marketing Agency/PR	○	○	○	○	○
Government institution or organization	○	○	○	○	○
Programming outsourcing	○	○	○	○	○
2D/3D graphic outsourcing	○	○	○	○	○
Musical/sound outsourcing	○	○	○	○	○
QA and localization	○	○	○	○	○

NEXT ›

Question 20

What countries do foreign entities, with which your studio cooperates, come from?

You can enter several items by separating the answers by comma. **You can skip this question**.

Please enter your response

Press SHIFT + ENTER to go to the new line

NEXT SKIP

Question 21

Indicate aspects in which support from the publisher wi**th whom** your studio cooperated or cooperated was obtained.

You can select a few answers. You ca**n also skip this question.**

Choose as much as you want

- Financing or co-financing of the game production A
- Marketing and PR, financing of marketing campaigns B
- Ensuring the presence and promotion at industry fairs and events C
- Substantive support for the production process - consulting in the field of design and development of the game D
- Support in the field of location and introduction of the title to new markets E
- Other (enter which) F

NEXT SKIP

Question 22

How do you assess your studio's experience with the publisher?

Try to determine whether the cooperation with publishers so far has allowed your studio to develop faster than in the absence of a publisher.

- Very positive - cooperation has significantly influenced the development of the studio and largely contributed to its success (A)
- Positive - cooperation accelerated the studio's development and has a moderate influence on its success (B)
- Neutral - cooperation did not contribute to the success or development of the studio, but it turned out to be useful in other aspects (C)
- Negative - cooperation was problematic, it was not useful for the studio (D)
- Very negative - cooperation brought more problems than the benefits, contributed to the loss of the studio (E)
- It is difficult to say (e.g. too short cooperation period to draw conclusions) KEY (F)
- Other (describe) (G)

Question 23

Indicate aspects in which support from the investor, with **whom** your studio cooperated or cooperated, was obtained

You can select a few answers. You can **skip this question.**

Choose as much as you want

- Financing or co-financing the production of the game or the entire studio (A)
- Help in acquiring more investors or business partners (B)
- Help in the stock market debut (C)
- Substantive support in business aspects - studio organization, management (D)
- Other (enter which) (E)

NEXT › SKIP

Question 24

How do you rate your studies with an investor?

Try to determine whether the cooperation with the investor so far has allowed your studio to develop faster than in the absence of an investor.

- Very positive - cooperation has significantly influenced the development of the studio and largely contributed to its success (A)
- Positive - cooperation slightly accelerated the studio's development and has slightly contributed to its success (B)
- Neutral - cooperation did not speed up the studio's development and did not contribute to its sucess but it turned out to be useful (C)
- Negative - cooperation was problematic, it was not useful for the studio (D)
- Very negative - cooperation brought more problems than the benefits, contributed to the loss of the studio (E)
- It is difficult to say (e.g. too short cooperation period to draw conclusions) (F)
- Other (describe) (G)

SKIP

Question 25

How does your studio finance its activities at present

You can choose a few answers.

Choose as much as you want

- Own funds/savings (A)
- Publisher (B)
- Investor (C)
- Crowdfunding (D)
- Subsidies/grants (E)
- Stock market (F)
- Loan (G)
- Other (enter below) (H)

NEXT >

Question 26

What main engine does your studio use to create games?

It is possible to choose several answers.

Choose as much as you want

- Unity 3D A
- Unreal Engine B
- Godot C
- GameMaker D
- CryEngine E
- Own engine F
- Another (enter below) G

NEXT ›

Question 27

Specify the importance of the following factors to achieve your studio's success.

Rating 1 means "not important" - your studio is able to achieve success without this element or achieved success without this element.
Rating 5 means "very important" - your studio w**ill not succeed with**out this element or wou**ld not achieve success** without this element.

	1	2	3	4	5
External financing of game production	○	○	○	○	○
A good, original game idea	○	○	○	○	○
Competent and permanent team	○	○	○	○	○
Cooperation with the publisher	○	○	○	○	○
Professional, experienced management	○	○	○	○	○
High-class computer equipment and technological facilities (e.g. own mocap studio, server rooms)	○	○	○	○	○
Cooperation with experienced business partners	○	○	○	○	○
Participation in development and acceleration programs	○	○	○	○	○
Creativity and innovation in the field of created projects	○	○	○	○	○
Studio location providing access to companies related to the industry	○	○	○	○	○

NEXT ›

Question 28

Which of these points describe the success of your studio at its current stage of development?

Select a maximum of 3 answers. It is about the goals to achieve in the near future, if one **of the following goals has already been achieved and is not a challenge - do not mark it.**

Make a choice between 1 a 3

- Fulfilling the artistic vision of the game and its initial assumptions in accordance with the philosophy of the studio **A**
- Completion of the production of a title particularly important for the studio, meeting the assumptions of the budget and schedule **B**
- Obtaining a large number of positive reviews and high ratings of the game/games released **C**
- High sales results of published games or services offered **D**
- Obtaining brand/studio recognition at international level **E**
- Permanent cooperation with experienced business partners **F**
- Improving the position and image of the studio against the competition **G**
- Developing an unique know-how (own technological solutions, creating your own engine, etc.) **H**
- Other (describe) **I**

NEXT >

Question 29

Which of these activities most accurately describe the development plans of you studio in a perspective of the year.

Choose a maximum of 4 activities that are the most important and in line with the development plan for your studio in the near future (several months - year).

Make a choice between 1 a 4

- Conceptual work, developing the assumptions and artistic visions of a new game project A
- Creating a representative prototype/demo/vertical slice for a new game B
- Publication of a completed game on selected platforms C
- Further development of the released game - DLC, porting, localization D
- Works aimed at building a fan community E
- Extension of the studio team - hiring new employees F
- Works aimed at starting cooperation with the publisher G
- Works aimed at acquiring new clients and business partners H
- Works aimed at acquiring an investor I
- Developing a high organizational culture J
- Starting studio's own publishing activities K
- Stock market debut L
- Other (describe) M

NEXT >

Question 30

Does your studio currently use one of available digital distribution platforms (STEAM, Epic Games, PlayStation Store, Google Play etc.?)

Choose one answers.

- Yes A
- No B

NEXT >

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