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Specialization in
Business Intelligence

Shaping the Modern Gamer:

How the Gaming industry's evolution and monetization techniques have created new player archetypes

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Shaping the Modern Gamer:

How the Gaming industry's evolution and monetization techniques have created new player archetypes

by

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Master Thesis presented as partial requirement for obtaining the Master's degree in Information Management, with a specialization in Business Intelligence

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STATEMENT OF INTEGRITY

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism, any form of undue use of information or falsification of results along the process leading to its elaboration. I further declare that I have fully acknowledged the Rules of Conduct and Code of Honor from the NOVA Information Management School.

[Lisbon, 6th November 2025]

Diogo Filipe Abelho Gonçalves

DEDICATION

This work is dedicated to my two greatest inspirations in life.

To my grandmother, Maria Odete, who has always been my rock, the one who undoubtedly believes in me and cherishes every single one of my achievements.

To my grandfather, José Abelho, who has always been my mentor and closest friend, the one who has accompanied me through my studies and shown me that success comes to those who persist.

They have instilled in me the values that shape who I am today. I can proudly say that they inspire me to pursue greatness and, above all, teach me that giving up is never an option.

My success is, and will forever be, because of you. Thank you.

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To my family, as my grandfather says, "Family is the most important thing in the world." If I didn't already know it, these past months have certainly made it clear.

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ABSTRACT

The video game industry has become a dominant force in the global economy and a central pillar of contemporary culture. This evolution includes a shift from traditional one-time purchases and subscription models to Free-to-Play (F2P) games, microtransactions, and the professionalization of gaming through eSports. While research exists on the industry's history and the impact of monetization on players' experiences, such as spending behaviors, revenue concentration among a small subset of players, and perceptions of fairness, less is known about how these industry transformations have shaped modern player profiles and their spending patterns. This thesis investigates the question: How have shifts in the video game industry influenced the emergence of modern gamer archetypes and their associated spending behaviors? A mixed-methods approach was used, combining a narrative literature review of industry evolution and monetization strategies, an expert interview with an eSports player, and quantitative data from an online survey. The survey measured gamer motivations and purchasing habits, and the responses were analyzed using the K-means clustering algorithm to identify distinct player segments. The analysis revealed three gamer archetypes influenced by industry trends: (1) Casual Mobile Players, characterized by low engagement and minimal spending, often playing F2P games on mobile devices, highlighting how the early adoption of the F2P model by mobile games contributed to increasing the accessibility for mass audiences across different contexts; (2) Competitive PC Players, highly engaged individuals motivated by competition and eSports culture, showing a willingness to spend for in-game advantages, even in pay-to-win systems; and (3) Dedicated Multi-Platform Gamers, active across PC and console platforms, primarily playing premium titles while also spending on microtransactions to enhance gameplay and personalize experiences, reflecting the importance of conventional monetization models on today's gaming population. These findings provide empirical evidence that modern player profiles are shaped by technological and economic developments in the industry. This study provides videogame developers, marketers, and publishers with evidence that the gaming industry's economic models have contributed to the creation of these distinct gamer profiles. In this regard, sustainable growth relies not on a "one-size-fits-all" approach, but on aligning game design and monetization techniques to the specific characteristics and motivations of the "Casual Mobile", "Competitive PC", and "Dedicated Multi-Platform" gamer profiles to foster long-term engagement.

KEYWORDS

Cluster Analysis; eSports; Free-to-Play (F2P); Gamer Behavior; Gaming Industry; Microtransactions; Monetization Models; Pay-to-Win (P2W); Player Archetypes; Spending Habits; Videogames

Sustainable Development Goals (SDG):



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LIST OF ABBREVIATIONS AND ACRONYMS

B2P	Buy-to-Play
CPU	Central Processing Unit
EA	Electronic Arts
eSports	Electronic Sports
F2P	Free-to-Play
GPU	Graphics Processing Unit
IGD	Internet Gaming Disorder
MaaS	Music-as-a-Service
MMOG	Massively Multiplayer Online Games
MMORPG	Massively Multiplayer Online Role-Playing Game
NASCAR	National Association for Stock Car Auto Racing
NES	Nintendo Entertainment System
P2P	Pay-to-Play
P2W	Pay-to-Win
PCA	Principal Component Analysis
PLS	Partial Least Squares
VCS	Video Computer System



1. INTRODUCTION

The release of Nolan Bushnell and Ted Dabney's *Computer Space* in 1971, recognized as the first commercially available video game (Wolf, 2012), marked the birth of the gaming industry as we know it today. From these early beginnings, the industry has grown into a major cultural and economic force. As Wolf (2012) noted, video games quickly emerged as a serious competitor to film and television, and 23 years later, the gaming industry established itself as a dominant player in the global entertainment market by surpassing both the music and film industries in terms of revenue generation and employment creation (Bezio, 2018). This exponential growth has continued in recent years, with the global gaming market's revenue reaching approximately \$455 billion in 2024 (Clement, n.d.).

A rising demand for video games accompanies the revenue growth, as more people engage with this form of entertainment. The number of users has been steadily growing since 2022 and is projected to reach 3.02 billion by 2029 (Clement, n.d.). The industry's evolution is partly due to a shift from traditional one-time purchases to Free-to-Play (F2P) and service-based models, which have lowered the barrier to entry and attracted a broader, more diverse audience. For instance, in 2024, women made up almost half of the gaming population in the United States (46%), and the number of players over 50 increased by about 30% between 2018 and 2024 (Skwarczek, 2024).

However, despite its apparent advantages, the F2P model can also foster a perceived environment of unfairness among its user bases. Non-paying players may encounter gameplay restrictions that hinder their ability to compete with those who make in-game purchases, a dynamic often referred to as "pay-to-win" (Lin & Sun, 2011; Costes and Bonnaire, 2022). Conversely, for paying users, the option to bypass challenges with real-world money can diminish the sense of achievement derived from merit-based progression.

These tensions, particularly when amplified by controversial mechanics, such as loot boxes, have led to significant consumer dissatisfaction and legal scrutiny, with many critics finding an empirical relationship between this form of microtransaction and gambling (Zendle & Cairns, 2018). Additionally, this type of predatory mechanic is not linked to a single type of in-game purchase; there are multiple ways besides loot boxes where gambling mechanics are reflected, and gambling-like behaviors are expected from the consumer (Zendle, 2020).

This complex dynamic between monetization and player experience is further intensified by the rise of professional eSports. This has introduced a highly competitive environment where player performance and success not only drive engagement but, in many cases, influence spending patterns.



Together, these trends highlight the evolving role of video games in contemporary society, not only as a source of entertainment but also as a medium for social interaction and practical utility (Hamari & Keronen, 2017). As a result, player feedback, behavior, and spending have become integral components of business strategies rather than mere consequences of a game's success.

While previous research has focused on the evolution of the gaming industry (Banfi, 2024; Ernkvist, 2008; Wolf, 2012), consumer spending behavior in F2P titles (Alha, 2019; Park & Lee, 2011), and the psychological effects of Internet Gaming Disorder (IGD) and spending on in-game items (Hamari et al., 2020; King & Delfabbro, 2014; Lin & Sun, 2011), a significant gap remains in understanding how these historical and economic shifts have contributed to the emergence of distinct player archetypes, each with their own unique gaming behaviors that shape their spending patterns.

This research gap is not merely academic; it lies at the heart of some of the most pressing commercial and ethical challenges facing the modern video game industry. From a business perspective, customer profiling represents a powerful analytical tool that enables decision-makers to segment their markets and gain a deeper understanding of the characteristics and latent needs that define different player types, rather than relying solely on surface-level statistics (Dutra, 2022). However, this practice carries significant ethical implications, as using computational models to optimize gameplay and maximize monetization directly shapes how players spend their time and money (Mikkelsen et al., 2017). Research into game patents and video game design suggests that certain in-game purchasing systems are intentionally designed to be unfair or exploitative, leveraging tactics, such as behavioral tracking and dynamic pricing systems, that capitalize on information manipulation to encourage continuous spending and target player vulnerabilities (King et al., 2019). Consequently, the industry stands at a critical crossroads, where achieving financial goals must be balanced with prioritizing player satisfaction (Korajoki, 2024). Understanding how the industry's own historical and economic shifts have shaped these very archetypes is, therefore, essential for developing sustainable business models that are both economically viable and ethical.

This research aims to answer the question “How have the historical and economic shifts in the video game industry, particularly the rise of new monetization models, shaped contemporary player archetypes and their spending behaviors?”.

To bridge the gap between the industry's historical evolution and contemporary player profiles, this study employs a mixed-methods design. The analysis starts with a comprehensive narrative literature review that examines the industry's trajectory following its different eras, including the rise of professional gaming, the development of monetization practices, and the introduction of microtransactions, with particular attention to their impact on consumer behavior. This is followed by an expert interview with a professional eSports player, providing an insider perspective on competitive gaming and its relationship with monetization. Finally, survey data is collected and



analyzed through cluster analysis, using the K-means clustering algorithm, to identify and define player archetypes. Taken together, these steps aim to provide a multifaceted understanding of the modern gaming industry and its central stakeholder: the gamer.

To guide this investigation, the research is structured around the following objectives:

1. Trace the historical evolution of the video game industry's business models, identifying key shifts that have influenced monetization strategies.
2. Analyze how the rise of Free-to-Play (F2P) and microtransactions models, as well as the growth of professional gaming, has impacted different player segments
3. Develop and profile distinct gamer archetypes based on their motivations, behaviors, and spending habits, revealing how they are a product of the industry's economic and technological trajectory.

This thesis aims to contribute to the existing knowledge by providing empirical evidence of how the gaming industry's historical evolution and shifting business models have directly led to the emergence of specific consumer profiles. The findings are expected to offer valuable insights for game developers and marketers, emphasizing the importance of tailoring strategies to different player segments to ensure sustainable growth and positive player experiences.

This study is structured as follows: Section 2 starts by outlining the mixed-methods approach, detailing the procedures for the literature review, expert interview, and quantitative survey, including the cluster analysis. Section 3 reviews the relevant literature, covering the historical evolution of the industry, monetization strategies, the rise of professional gaming, and existing approaches to understanding the impact of monetization on player experiences. Section 4 presents the empirical findings, including insights from the professional gamer interview and the survey data cluster analysis that identified distinct gamer archetypes. Section 5 interprets these findings by integrating them with the literature review to explore how the industry's developments shape the different player segments. Finally, Section 6 concludes with a summary of the key contributions and provides suggestions for future work.



2. METHODOLOGY

This chapter provides an overview of the research design, data sources, and analytical techniques utilized in the study. A mixed-methods approach was adopted, integrating both qualitative and quantitative methods, enabling a multifaceted understanding of the modern video game industry and its influence on players' experiences and behaviors. The research design is structured around three main components: (1) a qualitative historical analysis that contextualizes the developments of the industry; (2) an expert interview offering professional insights into the industry's current trends and dynamics; and (3) a quantitative survey, supported by cluster analysis, aimed at identifying and profiling distinct gamer archetypes. Each phase of the methodology, from data collection to analysis, is presented in detail in the subsequent sections.

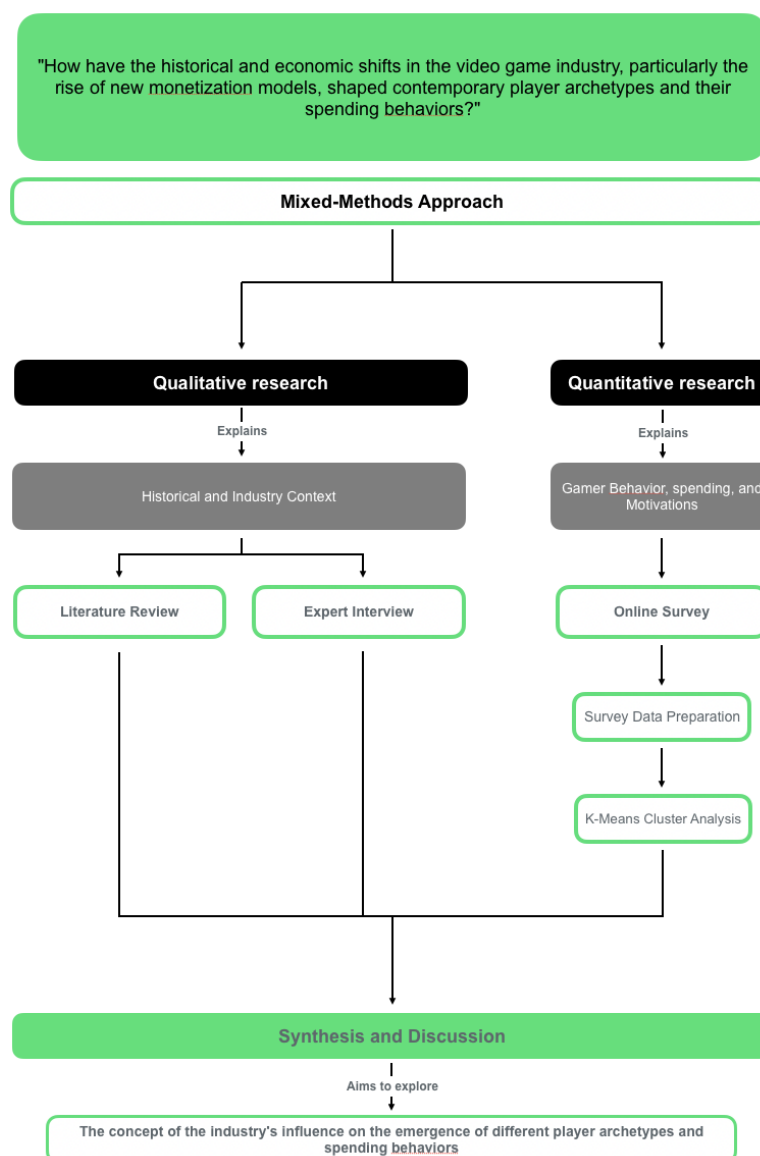


Figure 2-1 - Methodology Overview



2.1 QUALITATIVE HISTORICAL ANALYSIS: NARRATIVE LITERATURE REVIEW

This narrative literature review explores the historical developments of the video game industry through the lens of Banfi's (2024) "Gaming I, II, and III" framework. This framework divides the industry's history into three main periods: Gaming I (pre-crash era), Gaming II (post-crash recovery), and Gaming III (modern digital and subscription-based age). While not universally adopted in academic literature, these phases provide a coherent structure that aligns with key technological and economic transformations, which makes the historical narrative more organized than one that follows a strictly chronological approach.

The review process followed specific criteria. The primary databases and sources used were Google Scholar and the AI-powered research tool Consensus, which were prioritized over field-specific databases such as Scopus or IEEE to capture a broader, multidisciplinary perspective encompassing economics, sociology, and technology that better reflects the nature of the gaming industry and its more recent history. These academic sources were complemented by materials from reputable business magazines, gaming websites, and museum archives, which provided valuable insights into industry sentiment and historical developments.

The search process was guided by key concepts, the main search terms included "1983 video game crash," "Atari shock," "subscription-based models in gaming," "monetization strategies," "Free-to-Play (F2P)," "Freemium," and "eSports," as well as pivotal event-related terms such as "Atari 2600," "Magnavox Odyssey," and "arcade to console transition."

Date was kept flexible depending on the search intent, as the review adopts a historical perspective encompassing foundational events from the 1970s (e.g., the Magnavox Odyssey), while also including materials published up to 2024–2025 to ensure the inclusion of contemporary developments such as Gaming III and eSports.

The review incorporated peer-reviewed articles, statistical reports, and reputable industry publications relevant to the economic, technological, or cultural evolution of the gaming industry. Conversely, sources deemed unreliable, such as personal blogs, opinion-only articles lacking empirical support, or studies focused solely on the psychological effects of gaming without contextualizing industry models, were excluded from the synthesis.

2.2 PROFESSIONAL GAMER INTERVIEW

To gain an expert perspective on how new monetization models have influenced the professional gaming landscape, a semi-structured, long-form interview was conducted. The interviewee was a 21-year-old professional EA SPORTS FC player and the 2024 eMLS Cup winner, selected for his extensive experience, strong relationship with the gaming community, and direct relevance to the research topic.



The participant was approached through personal networking and agreed to participate online via Google Meet. The interview lasted approximately 40 minutes and consisted of 12 open-ended questions designed to explore four different thematic areas:

- The interviewee's personal background and experience in the professional gaming world
- The evolution of the gaming industry and its impact on the gaming community
- The rise of the Free-to-Play monetization model
- The future of the industry

All ethical protocols were followed. The interviewee participated voluntarily without compensation and was informed of the main objectives of the study, including the research questions and its overall structure. A general overview of the interview topics was also shared in advance, without disclosing specific questions, to help ensure unbiased responses during the interview. The participant was assured that his involvement was strictly for academic purposes, with the right to withdraw at any time, remain anonymous, and retract any provided data.

This interview was conducted as a means to enhance the survey and complement the analysis of the research question. Although its findings were not used to design the core metrics of the survey, particularly the questions related to spending patterns and in-game behavior, which were based on existing literature, it also helped to contextualize the current state of the gaming population and adapt the questions to better reflect its characteristics. Furthermore, the interview findings were later synthesized with the survey results in the final discussion to provide a comprehensive, multi-perspective discussion of the research question.

2.3 GAMER BEHAVIOR AND SPENDING PROFILE SURVEY

The core empirical component of this study involved a quantitative survey designed to explore the relationship between sociodemographics, gaming habits, player motivations, and spending behavior, especially related to microtransactions. This section details the data, from its collection to its preparation for the final cluster analysis.

2.3.1 QUESTIONNAIRE STRUCTURE AND DATA COLLECTION

An online questionnaire was designed and distributed via social media in English and Portuguese, resulting in 202 valid responses for analysis. The instrument was developed based on a review of relevant literature to ensure the validity of the questions and was structured into four main sections:

1. Sociodemographics
2. Gaming Behavior



3. Gaming Experiences and Motivations
4. Spending Profile

This structure was designed to capture the participants' personal, academic, and professional backgrounds and relate them to their engagement with video games, the drivers of their motivations to play, and their interaction with in-game purchases.

The questionnaire comprised various types of questions, including multiple choice, open-ended, and 5-point Likert Scales, where (1) corresponds to "Strongly Disagree" and (5) to "Strongly Agree".

Within the Sociodemographics section, questions regarding age, level of education, professional occupation, and gross monthly income were presented as single-select multiple-choice items. To allow for greater geographic granularity, the country of residence was assessed through an open-ended question. The gender question was designed as a multiple-choice item, following the recommendations of Vriesendorp and Wilson (2024) to ensure inclusive and accurate representation.

All the measurement items within the Gaming Behavior, Gaming Experiences and Motivations, and Spending Profile sections were either retrieved or adapted from existing literature.

For the Gaming Experiences and Motivations section, the measurement was originally developed by Demetrovics et al. (2011) and later adapted for this study (Table 2). Participants were asked to express their level of agreement with a series of statements grouped into seven categories: social interaction, escapism, competitive drive, emotional coping, skills development, role playing, and recreation. These aim to identify the reasons why participants engage with video games.

For the Spending Profile section, questions related to time spent gaming were retrieved from Shinkawa et al. (2021), while core measurement items for in-game purchase motivations were adapted from three studies: King et al. (2020), Park and Lee (2011), and Hamari and Keronen. (2017). This approach enriched the question set and aligned its structure with that of Demetrovics et al. (2011) to ensure coherence with the previous section. Participants were asked to indicate their agreement with statements grouped into six categories: unobstructed play, social interaction, competition, economic rationale, visual authority, and enjoyment value, each designed to identify the reasons for in-game spending.



Table 2-1 - Measurement Framework for Gaming Behavior and Spending Profile Sections

Section	Construct	Item	References
Gaming Behavior	Social Interaction (SI)	SI1. I can meet new people SI2. It is a good social experience SI3. They keep me company	(Demetrovics et al., 2011)
	Escapism (ES)	ES1. Gaming helps me forget daily hassles ES2. It helps me escape reality	
	Competitive Drive (CD)	CD1. I enjoy competing with others CD2. I like to win CD3. It is good to feel that I am better than others	
	Emotional Coping (EC)	EC1. Gaming helps me get into a better mood EC2. Gaming helps me get rid of stress EC3. It helps me channel my anger	
	Skills Development (SD)	SD1. It improves my skills SD2. It improves my concentration	
	Role-Playing (RP)	RP1. I can do things I cannot (or I am not allowed to) in real life RP2. It allows me to be somebody else for a while RP3. I can be in another world	
	Recreation (RE)	RE1. It is entertaining RE2. I enjoy gaming	
	Unobstructed Play (UP)	UP1. I can avoid repeating some tasks UP2. I can complete certain parts of the game more quickly UP3. I can keep my gaming session going for longer	
Spending Profile	Social Interaction (SI)	SI1. I can play with my friends SI2. I can gift items to others I play with SI3. I can participate in special events	(King et al., 2020) (Park & Lee, 2011) (Hamari & Keronen., 2017)
	Competiton (CO)	CO1. I can increase my chances of winning and becoming the best CO2. I can show off to my friends and others I play with	
	Economic Rationale (ER)	ER1. I consider that the game items are reasonably priced ER2. I enjoy being able to take advantage of sales, special offers, and/or discounts ER3. I like to be able to support the game's community	
	Visual Authority (VA)	VA1. I can make my character(s) more fashionable VA2. A more stylish character can make a better impression on others VA3. I enjoy making my character(s) my own	
	Enjoyment Value (EV)	EV1. I enjoy playing the game more EV2. I like expanding my games with new experiences by purchasing additional content	



The questionnaire's design and implementation followed established best practices for online surveys to ensure data quality and a positive user experience (Andrews et al., 2003). Key measures included: a comprehensive introduction with a clear consent statement, a user-friendly interface with features like a progress bar, and randomized answer choices to mitigate response bias. Furthermore, a screening question was used to filter participants based on whether they had previously made in-game purchases, directing them to the relevant sections of the survey.

Before the main launch, a pilot study was conducted with 32 volunteers to assess the instrument's clarity and feasibility. Feedback from this pilot proved instrumental in refining the final questionnaire. Based on participant suggestions, several key improvements were implemented to enhance data quality, including: (1) shortening repetitive scale-based questions to reduce fatigue, (2) restructuring response intervals to prevent ambiguity, and (3) translating the survey into Portuguese to maximize accessibility and, therefore, participation.

2.3.2 DATASET CLEANING

The raw data, which comprised 211 survey responses, was prepared for analysis using a dedicated Jupyter Notebook with Python. This process involved several stages, including initial data cleaning, handling of various response formats, and the engineering of new features specifically for the cluster analysis.

2.3.2.1 DATASET CLEANING AND VALIDATION

The first step in data preparation involved a thorough inspection of missing data to assess which responses could be retained for analysis. It was determined that the missing values were missing not at random, as they were the result of the survey's internal logic. Two main strategies were applied to the questionnaire's missing values to guarantee the validity of the data:

- **Listwise deletion:** using Google's reCAPTCHA v2 system and following Qualtrics' fraud detection guidelines, a threshold score of 0.5 was applied, with scores below this value indicating a high likelihood of bot activity (Qualtrics, n.d.), resulting in their removal. One exception was made for a response with a score below 0.5 that included a detailed open-ended answer, a behavior unlikely to be performed by a bot.
- **Variable exclusion:** to handle data corresponding to the 51 respondents who indicated they had never purchased microtransactions. The spending motivation variables that these participants were not asked about (e.g., Unobstructed Play, Economic Rationale) were intentionally withheld from the clustering model; instead, they were reserved for the post-hoc analysis,



ensuring that the clustering was performed only on variables answered by all 202 participants.

To further ensure the integrity of the dataset, several columns were removed. This included: (1) redundant or unreadable metadata from the Qualtrics platform (e.g., “Response Type,” “Response ID”), (2) duplicated data fields (e.g., “Recorded Date,” which was identical to “End Date”), and (3) empty variables, such as the unused “Other” gender option, which received no entries.

This process yielded a final dataset of 202 observations ($N = 202$) and 29 input variables ($V = 29$) for clustering analysis. Based on common guidelines for clustering, a minimum of 5 to 10 observations per variable is recommended. For this dataset:

- 5x Rule: 5×29 variables = 145 observations required
- 10x Rule: 10×29 variables = 290 observations required

With 202 observations, the dataset comfortably exceeds the 5x minimum ($202 > 145$), providing an adequate data-to-variable ratio of approximately 7:1 for the clustering algorithm. While it falls short of the stricter 10x guideline, the sample size remains sufficient to support meaningful clustering results without compromising the model’s reliability.

2.3.2.2 FEATURE STANDARDIZATION AND TRANSFORMATION

To improve consistency and prepare the variables for analysis, several transformations were applied:

- **Renaming and value simplification:** column titles were shortened to make the variable names more concise (e.g., “What is your highest level of education?” became `Education_level`), and verbose values were simplified (e.g., “Full-Time Employed (employed for 35+ hours per week)” became “Full-Time Employed”).
- **Handling text responses:** Open-ended answers for “Country of Residence” were standardized to address inconsistencies in formatting, including abbreviations (e.g., “PT”), capitalization variations (e.g., “usa” vs. “USA”), and cases where city names were provided instead of countries (e.g., “Lisboa” instead of “Portugal”). Similarly, responses to questions with an “Other” text-entry field, such as those related to education, occupation, and microtransaction types, were manually reviewed and either reclassified into existing categories or grouped into new ones where appropriate (e.g., “Associate Degree” was grouped into a newly created “Pre-Bachelor” category).

Additionally, variables allowing multiple selections were standardized to resolve inconsistencies caused by the random order in which options were recorded. For example, in the Occupation variable, identical combinations appeared in different orders (e.g., “Student, Part-time employed” vs. “Part-time employed, Student”).



- **Numerical and binary encoding:** Categorical variables were converted to a numerical format. For example, time ranges were mapped to their numerical midpoints (e.g., '1h - 2h' became 1.5). Similarly, binary text responses like 'Yes'/'No' were encoded as integers (1/0).

2.3.2.3 FEATURE ENGINEERING FOR CLUSTER ANALYSIS

To prepare the dataset for the K-Means clustering algorithm and capture the underlying behaviors and motivations of respondents, several feature engineering steps were undertaken:

- **One-hot encoding of multi-select variables:** To assess the significance of individual choices independently, multi-select survey questions were transformed into binary indicator variables representing each possible choice. For example, the “Platforms” question was decomposed into separate columns, such as Platform_PlayStation, where a value of 1 indicated the participant selected that platform.
- **Categorical binning and aggregation:** To reduce dimensionality and capture broader behavioral patterns, related one-hot encoded variables were aggregated into higher-level categorical features. For instance, individual genre variables were combined into a single category (e.g., Genre_Shooter and Genre_Fighting were grouped into GENRE_Action). A Similar methodology was followed for gaming platforms and preferred playtimes, producing more robust and interpretable features. Additionally, continuous variables such as monthly income were binned into broader categories (e.g., ‘Low,’ ‘Lower-Middle,’ and ‘High’) to form variables such as Income_group and Spend_group.
- **Gender variable consolidation:** To represent gender-diverse participants more inclusively and simplify analysis, any response that included “Non-binary / third gender” was consolidated under that single category. For example, a response such as “Female, Non-binary / third gender” was standardized to “Non-binary / third gender”.
- **Composite factor scoring:** The most critical step involved constructing composite scores for motivational and psychological factors. Survey items using a five-point Likert scale were numerically coded from 1 (“Strongly Disagree”) to 5 (“Strongly Agree”). These items were then grouped into broader constructs based on the study’s conceptual framework (see Table 2-1). For each participant, a factor score was calculated by averaging the responses within each construct, resulting in variables such as Social_Interaction and Emotional_Coping. These aggregated scores formed the core input features for the K-Means clustering model.



2.3.2.4 DATA PREPROCESSING IMPACT ON SAMPLE COMPOSITION

The comparison indicated that the data cleaning process did not substantially affect the sample's core demographic composition in terms of age and education. The distributions of these two variables remained highly consistent before and after cleaning. For instance, the 18–24 age group accounted for 69.2% of the sample before cleaning (146 respondents) and 69.3% afterward (140 respondents). Similarly, participants holding a bachelor's degree represented 45% of the sample before cleaning (95 respondents) and 45.5% after (92 respondents).

In contrast, a systematic difference was identified in the monthly income variable. All nine excluded responses belonged to participants within the lower to middle income brackets, specifically, four from "Under €1,000," three from "€1,000–€1,499," one from "€1,500–€1,999," and one from "€2,500–€2,999." However, the percentage difference was minimal and did not indicate a meaningful change in the composition of the income demographic groups.

As previously noted, Occupation and Country were either multi-select variables or contained unstandardized entries; therefore, their inclusion in this direct comparison was not appropriate. Additionally, the Gender and Occupation data available for the "Before" state (totaling 214 responses) was inconsistent with the corresponding sample size (N = 211), before preprocessing the data, as it was a multi-select question, and was therefore omitted from this analysis.

Table 2-2 - "Age", "Education", and "Income" distributions before and after data cleaning

Variable	Category	Before (N=211)	After (N=202)	Change
Age	18-24	146 (69%)	140 (69%)	-6
	25-34	44 (21%)	42 (21%)	-2
	35-44	15 (7%)	14 (7%)	-1
	45-54	5 (3%)	5 (3%)	0
	55-64	1 (0%)	1 (0%)	0
Education	Primary education (or elementary school)	2 (1%)	1 (0%)	-1
	Secondary education (or high school)	70 (33%)	68 (34%)	-2
	Bachelor's degree (or equivalent)	95 (45%)	92 (46%)	-3
	Postgraduate degree (Master's, Doctorate, or equivalent)	38 (18%)	37 (18%)	-1
	Other	6 (3%)	4 (2%)	-2



Income	Under €1,000	92 (44%)	88 (44%)	-4
	€1,000 - €1,499	28 (13%)	25 (12%)	-3
	€1,500 - €1,999	22 (10%)	21 (10%)	-1
	€2,000 - €2,499	11 (5%)	11 (5%)	0
	€2,500 - €2,999	4 (2%)	3 (1%)	-1
	€3,000 - €3,499	3 (1%)	3 (1%)	0
	€3,500 - €3,999	5 (2%)	5 (2%)	0
	Over €4,000	13 (6%)	13 (6%)	0
	Prefer not to say	33 (16%)	33 (16%)	0

2.3.3 CLUSTER ANALYSIS METHODOLOGY

To segment respondents into distinct gamer archetypes, the K-Means clustering algorithm was selected. As a foundational partitioning method, K-Means is highly effective for grouping a dataset into a pre-determined number of distinct, non-overlapping clusters based on feature similarity (McQueen, 1967). Its efficiency and widespread application in market research for identifying customer profiles and behavioral segments make it an appropriate choice for this study's objective of creating data-driven gamer personas (Anitha & Patil, 2022; Sinaga & Yang, 2020).

2.3.3.5 FEATURE SELECTION FOR CLUSTERING

The clustering model was built exclusively using the motivational and behavioral factor scores derived from the survey questions answered by all 202 participants. This approach ensures that the clusters are formed purely based on the intrinsic behavioral traits of the survey population, rather than being defined by demographic or spending variables.

Sociodemographic variables and the detailed spending profile data were intentionally withheld from the clustering algorithm itself. These variables were then used in a subsequent post-hoc analysis to build rich, descriptive profiles for each gamer archetype, providing a deeper understanding of the segments after their formation (Wedel & Kamakura, 2000).



2.3.3.6 MODEL IMPLEMENTATION AND PARAMETER SELECTION

The K-Means algorithm was implemented in Python using the scikit-learn library. As K-Means is a distance-based algorithm, the final feature set was first standardized using StandardScaler. While statistical techniques such as the Elbow Method and Silhouette Scores were used as a guide, they provided conflicting indications for the optimal number of clusters. The Elbow method suggested 3 clusters as the optimum point where the inertia decreases begin to level off, whereas the Silhouette Score was highest for 2 clusters, as illustrated in Figure 2-2 below.

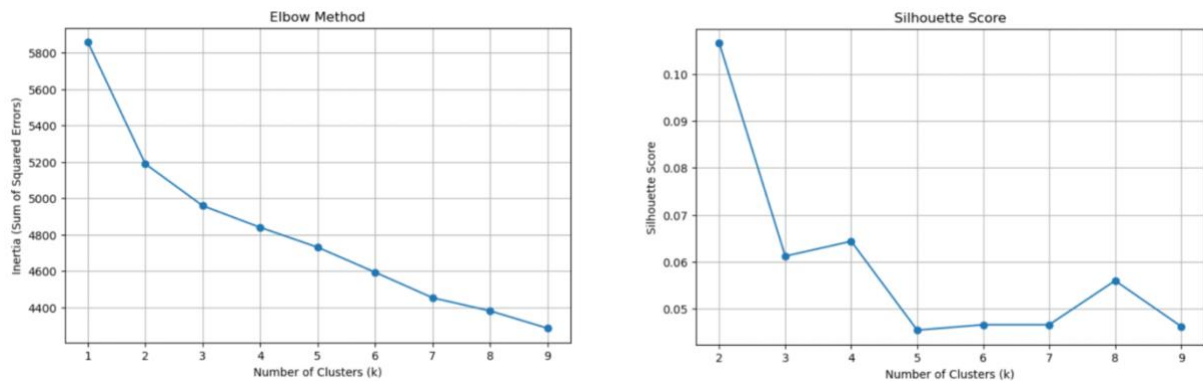


Figure 2-2 - Elbow Method and Silhouette Score Plots for selection of the optimal number of clusters (k) for K-Means Clustering

However, as noted by Linoff and Berry (2011), the final choice for the number of clusters in a segmentation analysis should also be based on the interpretability and utility of the results.

Based on this principle, a three-cluster solution was selected. This was deemed superior to a two-cluster solution as it allowed for a more effective segregation of the population into segments that reflect distinct, real-world player behaviors. This choice prioritizes the creation of meaningful gamer archetypes over a purely statistical optimum.

Finally, to facilitate visualization of these clusters, Principal Component Analysis (PCA) was used to reduce the data's dimensionality.

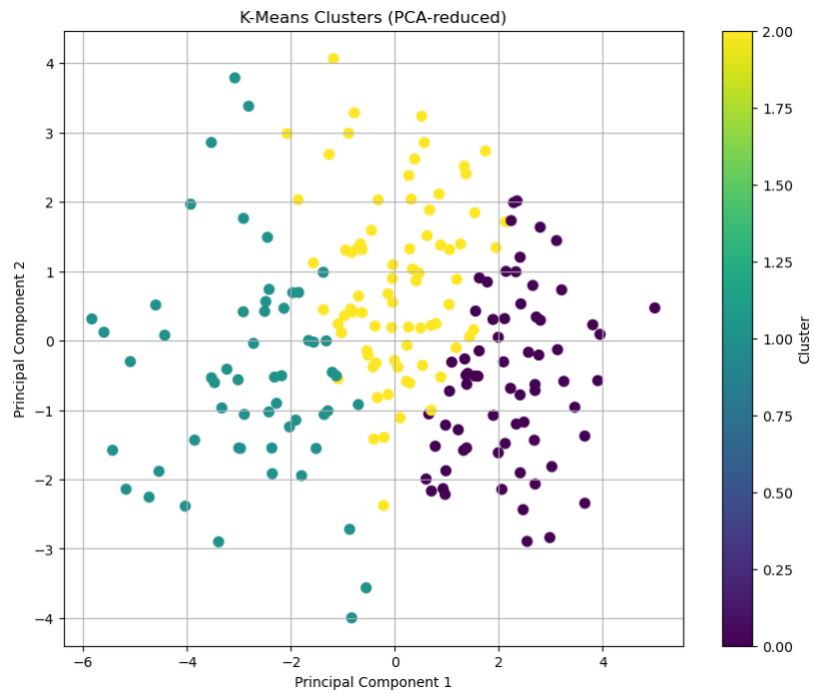


Figure 2-3 - K-Means Clusters PCA visualization of the identified cluster archetypes



3. QUALITATIVE HISTORICAL ANALYSIS

3.1 HISTORICAL EVOLUTION OF THE GAMING INDUSTRY'S BUSINESS MODELS

To understand the complex relationship between modern monetization strategies and player behavior, it is crucial to first trace the historical evolution of the industry's business models. The industry's transformation from a product-based to a service-based economy directly shaped the player archetypes and market pressures that are the focus of this study. This evolution, which can be delineated into three distinct phases, provides the necessary context for analyzing the contemporary gaming landscape.

3.1.1 GAMING I

Gaming I spans the period from 1971 to 1983. Although 1971 does not mark the release of the first video game (*Spacewar!*, developed by Steve Russell, dates back to 1962), it defines the beginning of the American arcade industry and the emergence of the home console market (Banfi, 2024). *Spacewar!* is important not only for being the first complete video game and the first one where the player's skills and reflexes mattered (Lendino, 2022), but also for inspiring the first two commercially available titles. In September 1971, *Galaxy Game* (Bill Pitts & Hugh Tuck, 1971), installed at Stanford's Tresidder Union, became the first video game with a coin slot. Two months later, Nolan Bushnell's *Computer Space*, the first mass-produced game with a coin slot, tested the waters among electromechanical arcade games, though its controls were considered too complicated for the time (Wolf, 2012).

In 1972, *Magnavox Odyssey* became the first home video game console, selling approximately 350,000 units. It was based on Baer's earlier prototype, the "Brown Box." Although pioneering, the console was not considered a commercial success, largely due to poor advertising. Many potential consumers mistakenly believed the *Odyssey* was only compatible with *Magnavox* televisions, a misconception often further reinforced by *Magnavox* salespeople (Smithsonian Institution, National Museum of American History, n.d.). Despite its lackluster commercial success, a demonstration of the *Magnavox Odyssey's* table tennis gameplay in early 1972 served as the inspiration for Atari's *Pong* (Robarge, 2022).

Pong began as the first project of a new company called Atari, founded by three former *AMPEX* employees: Nolan Bushnell, Ted Dabney, and Al Alcorn. The prototype, developed by Alcorn, was installed at Andy Capp's Tavern in Sunnyvale. Just a few days after installation, the machine stopped working, not due to a technical malfunction, but because it was so full of quarters it couldn't accept any more (Spicer, 2022). The arcade table tennis game became an instant sensation (Wallach, 2020) and, according to Wolf (2012), was the first true hit in the arcade game market. Recognizing its potential, Bushnell concluded that greater profits could be made by



selling the game to millions of households rather than to a limited number of arcades. While Atari continued to release improved arcade versions of *Pong*, the company's main ambition became to bring the game into households. In 1975, the *Sears PONG* console, later rebranded to *Tel-Games*, became a must-have Christmas gift (Spicer, 2022).

By the end of 1976, dozens of dedicated TV game consoles had flooded the market as Atari, *Magnavox*, and others fiercely competed for dominance. Despite their success, these consoles were limited to built-in games, and once players grew tired of them, there was no way to add new titles. On September 11, 1977, Atari introduced its solution: the *Video Computer System* (VCS). While it wasn't the first console or the first to use game cartridges, the *Atari 2600* (as it later became known) offered something no other system could. Connected to a television set, it brought authentic Atari arcade games right into people's homes (PCMag, 2021). This innovation helped make it one of the first commercially successful video game systems, becoming the first to sell more than a million units (Banfi, 2024 & Wallach, 2020).

After a period of market saturation with numerous *Pong* clones, the arcade industry faced a slowdown. This shifted in 1978 with the release of Nishikado Tomohiro's *Space Invaders* by Japanese game manufacturer Taito Corp, which became so popular in Japan that it caused a shortage of 100-yen coins and later drove Americans to spend millions of quarters on the game, revitalizing the market (Wallach, 2020; Britannica Editors, 2025; The Strong National Museum of Play, n.d.). Arcade machines soon appeared everywhere, and a new wave of arcade games featuring alternative characters and mechanics gained popularity. *Pac-Man* (1980) led this trend, followed by hits such as *Ms. Pac-Man* (1982), *Donkey Kong* (1981), and *Qbert** (1982). By 1982, arcades were generating more revenue than both the pop music industry and the box office combined (Wallach, 2020).

3.1.2 THE 1983 CRASH

The 1983 crash marked a dramatic downturn for the U.S. video game industry, driving many companies out of business and shifting the center of global gaming industry leadership from the United States to Japan. While commonly referred to as "the 1983 video game crash", or simply "the video game crash", in Western contexts, the event is known in Japan as "the Atari shock", a term that highlights not only the unexpectedness of the collapse but also the downfall of Atari as a dominant player in the market (Ernkvist, 2008). The effects were severe: between 1983 and 1985, home gaming revenue in the U.S. dropped significantly from \$3.2 billion to just \$100 million. Atari alone reported losses of \$536 million and slashed its workforce from 10,000 employees to only 400 (Ma, 2025).

Despite the event's significance in reshaping the gaming industry, there is no single explanation for the crash. Instead, multiple, often contradictory, factors have been



proposed. Although Ernkqvist (2008) outlines seven main explanations, some can be grouped. The five synthesized points below capture the key causes:

1. According to Friedrich (1983), the popularity of arcades was merely an adolescent trend, destined to fade like other short-lived phenomena before it, such as the Rubik's Cube and the Hula Hoop, despite its remarkable cultural impact at the time.
2. Atari played a central role in the 1983 video game crash, primarily due to its release of poorly executed ports for the *Atari 2600* system, which struggled with hardware limitations. One notable example is *Pac-Man* (Namco, 1980), ported to the console in 1982 and widely criticized for being nearly unrecognizable compared to its original arcade version. Another was *E.T. the Extra-Terrestrial*, which rushed into development after Atari secured licensing rights for \$20 to \$25 million, aiming for release in time for the 1982 holiday season (Nicoll, 2017; Oxford, 2012). Bushnell admitted that the crash:

“I’ve always said it wasn’t homicide; it was suicide... It was all about not understanding that they had saturated the market. Atari went into Christmas 1982 thinking they could put another 15 million VCS consoles into the market, but they couldn’t... When the cartridges didn’t sell, a huge rush to discounting went on. People were liquidating inventory at almost any cost” (as cited in Banfi, 2024).

3. During the 1970s and 1980s, mainstream media often associated video games with illegal drug use. These associations typically took one of two forms: either portraying video games as something people could abuse like a narcotic or linking young players to drug-dealing or drug-taking behavior. This framing contributed to growing concern at the time, with video game addiction already seen as a serious issue by 1983 (Rogers, 2013).
4. Between 1981 and 1983, the number of game consoles on the market was astounding, but there weren’t enough compelling games to sustain them. This shortage of quality software was largely because third-party development became legally acceptable in 1982, allowing manufacturers to treat the *Atari 2600* as a platform for distributing low-quality, often amateur-produced interactive advertisements. Additionally, the early 1980s recession meant consumers had less disposable income to spend on entertainment, which led retailers to heavily discount consoles and games just to clear excess inventory (Oxford, 2012). At the same time, the collapse of the home computer industry eliminated the \$100–\$200 price premium that home computers held over video game consoles. As a result, instead of upgrading to a system like the *Atari 5200*, many consumers opted to purchase home computers instead (Gallagher & Park, 2002).
5. As home consoles declined in popularity and home computers like the Commodore Vic-20, Commodore 64, and Apple[[became more affordable,



computer manufacturers capitalized on the opportunity to promote their systems not only as tools for work and education but also as capable gaming platforms (Oxford, 2012).

3.1.3 GAMING II

Gaming II refers to the period spanning from 1983 to approximately 2019, beginning in the aftermath of the crash and ending with the rise of modern gaming subscription services. Following the collapse, the U.S. video game market had fallen into a state of near-total disarray, with some industry commentators even declaring video games a fad (Ma, 2025).

Amid this uncertainty, Nintendo (headquartered in Kyoto, Japan) sought to reshape how video games were marketed to consumers. While the company had already achieved success in Japan with its Family Computer (*Famicom*), it recognized that succeeding in the North American market required distancing itself from the recent industry collapse. To achieve this, Nintendo designed the *Nintendo Entertainment System (NES)* to resemble anything but a traditional game console. The company avoided terms like “video game console,” instead referring to the device as an “entertainment system.” Game cartridges became “Game Paks,” and the console itself was marketed as a “control deck.” The system was colored in grey tones and styled to resemble sophisticated consumer electronics, aligning more with the appearance of a VCR or home computer than a toy (Oxford, 2012; D’Angelo, 2020).

However, Nintendo’s influence extended beyond transforming console marketing strategies; more importantly, it fundamentally reshaped the way games were sold and distributed. To address the challenges associated with third-party game development, Nintendo introduced the 10NES chip. This technology prevented unauthorized developers from creating games for the *NES*, thereby granting Nintendo tighter control over the software available on its platform and limiting the number of third-party titles (Wolf, 2012, as cited in Banfi, 2024). Furthermore, Nintendo imposed strict regulations on the game development process to ensure consistency and quality. Additionally, every *NES* game included the “Nintendo Official Seal,” a certification designed to reassure consumers about the quality of the games for the system (D’Angelo, 2020).

These measures contributed to the *NES*’s widespread success. As Wallach (2020) notes, popular titles like *Duck Hunt*, *Excitebike*, and the debut of Mario in *Super Mario Bros* played a key role in reviving the console market and reestablishing consumer confidence.

In the mid-1980s, home console companies began to overtake the arcade industry. Despite some late-1980s success for arcades, the “beat-‘em-up” genre, alongside run-and-gun and cockpit-style titles, helped sustain the arcade market with a combined \$6.4 billion in revenue in 1988 (Lendino, 2020, p. 335, as cited in Banfi, 2024). However, by the mid-1990s, home consoles and computers were driving market growth, exemplified by the release of Sony’s *PlayStation* in 1994 (Wallach, 2020). This



shift reduced the appeal of arcades, as consumers no longer needed to leave home and pay per play (Lendino, 2020, p. 379, as cited in Banfi, 2024). By the late 1990s, arcades began to cater to a niche American market, with many venues transitioning into “barcades” (establishments where adults could enjoy both new and retro games while consuming alcoholic beverages).

The shift from arcades to home consoles can be attributed to two key factors. First, unlike arcade machines that were designed for a single game, home consoles offered players access to multiple games on one device, providing a greater variety of experiences and more convenience to the consumer (Banfi, 2024). Second, home consoles saw remarkable improvements in graphics and sound quality. While early arcade games were limited by simple pixelated visuals, restricted color palettes, and basic sound effects, each new generation of consoles brought more powerful processors that enabled higher polygon counts and increasingly sophisticated gameplay experiences (Bennett, 2023; Banfi, 2024).

This period became unofficially known as the “bit wars.” Between the mid-1980s and mid-1990s, major video game companies competed for dominance in the rapidly expanding console market. While Nintendo had already secured a strong position, challengers like Sega and smaller companies such as Atari sought to gain traction. Although factors such as game libraries and brand image played a role, one of the most prominent marketing strategies became the emphasis on “bits” (Beatteay, 2020).

“Bits,” short for binary digits, represent the most basic unit of data in computing, either a 0 or a 1. In gaming consoles, bits determine the amount of data the CPU and GPU can process in a single clock cycle. Thus, references to 8-bit or 16-bit consoles indicated the processing power of the hardware, with higher bit counts enabling better graphics and more complex gameplay (Beatteay, 2020).

The “bit wars” came to an end as players’ views towards bit count started to change. For example, the *Atari Jaguar* was the first 64-bit console, but it didn’t offer better games than consoles with fewer bits. Similarly, the *PlayStation* had only 32 bits compared to the *Nintendo 64*’s 64 bits, but sold three times more units, about 102.49 million consoles (Thuy, n.d.). This showed that more bits didn’t always mean better games or dictate the success of a console. However, the “bit wars” were important for the gaming industry because they led to big technical improvements. Over a decade, the industry was revived, moving from simple 2D graphics to more complex 3D graphics (Beatteay, 2020).

However, it was the rise of the internet and mobile that grew the industry from tens of billions to hundreds of billions in revenue (Wallach, 2020). In 2001, Microsoft launched *Xbox Live*, an online multiplayer gaming service, which showed that servers could finally support intricate online gaming features, like multiplayer matchmaking and voice chat, for a monthly subscription fee. It quickly became a must-have for consumers. By 2004, it had 1 million members. While other sixth-generation consoles, like the



PlayStation 2 and the *GameCube*, had online capabilities, they were not as robust as the *Xbox* and its online service (Wallach, 2020; Banfi, 2024).

Meanwhile, in the PC gaming market, Blizzard Entertainment launched the subscription-based MMORPG (Massively Multiplayer Online Role-Playing Game) *World of Warcraft* in 2004. It revolutionized always-online, large-scale community gaming and appealed to a wide audience, reaching a peak of 14 million monthly paying subscribers. The game became a cultural phenomenon and set new standards for how people engage with online games and monetization strategies. (Wallach, 2020; Koch, 2024).

Alongside these developments, companies began to see potential in the mobile gaming market, even though they initially struggled to break into the space. Nintendo continued developing its handheld consoles, such as updated versions of the *Game Boy*, while companies like Nokia and BlackBerry experimented with integrating apps into their phones. Although the first widely recognized mobile game was *Snake*, pre-installed on the Nokia 6110 in 1998, it was not until the release of the first-generation iPhone (2007–2008) that gaming truly began its transition to mobile platforms. Mobile gaming quickly came to be associated with "casual gaming", games that were accessible to a wide and diverse audience thanks to the introduction of the App Store (Apple, 2008) and the Google Play Store (Google, 2012). These platforms enabled developers to create free, paid, and pay-per-feature games designed for the mass market. Casual games typically rely on simple mechanics and intuitive touchscreen controls, making them easy to pick up and widely playable. Combined with the fact that users already owned mobile devices, this accessibility allowed mobile games to reach massive audiences (Wallach, 2020; Banfi, 2024). For instance, by 2015, *Angry Birds* (Rovio Entertainment, 2009) had been downloaded 3 billion times (Robertson, 2015), whereas *Grand Theft Auto V* (Rockstar Games, 2013), currently the third best-selling game of all time, had sold more than 200 million copies across multiple platforms (Sirani, 2025).

3.1.4 GAMING III

The transformation of video game distribution has profoundly changed the industry and how players engage with video games. This shift marks the transition from Gaming II to Gaming III, a period that began in 2019 and encompasses the eighth and ninth generation consoles. Gaming III is characterized by the growing importance of subscription-based services, especially in the ninth-generation platforms such as Sony's *PlayStation 5* and Microsoft's *Xbox Series X|S* (Banfi, 2024). As of March 2023, *PlayStation Plus* had 47.4 million users across its various tiers (Statista Research Department, n.d.), while Microsoft's *Xbox Game Pass* had 34 million subscribers as of February 2024 (Statista Research Department, n.d.). In contrast, the *Sega Channel*, Sega's subscription model launched in 1994 and part of the Gaming II period, peaked at just 250,000 subscribers (Buchanan, 2008).



Subscription-based models offer several key advantages. For one, gaming companies can tailor recommendations based on what games players have played and how long they've spent on them (Banfi, 2024). Additionally, services like *Xbox Game Pass* feature "Cloud Gaming," which lets players stream games on multiple devices using lightweight software, while the heavy processing is done in data centers, providing gamers with high-quality experiences anytime and anywhere (Cai et al., 2016). With the rising cost of new games reaching around \$70 (USD), subscription models have become an important way to make gaming more affordable (D. Dunst, personal communication, 2023). As Dunst points out, game passes increase both accessibility and affordability. Mack agrees, calling the subscription model the "winning model," though he adds that its value depends on how many games players actually complete. Since some may spend months on a single game, the monthly fee might not always be the best deal, but overall, this approach has proven financially successful (Mack, 2023, interview by Banfi).

3.2 MONETIZATION IN GAMING AND MICROTRANSACTIONS

Despite being younger than its other entertainment counterparts, the video game industry has undergone several important transformations, especially in its monetization strategies. In the 1990s and early 2000s, the industry was centered around Pay-to-Play (P2P) or Buy-to-Play (B2P) business models, which relied on monthly subscriptions or, more commonly, on sales of copies of games in different formats, such as cartridges, discs, or even digital downloads, to generate revenue that, in return for the player's money, gave them the right to the ownership of the complete product or, in more recent years, to the license to play the game for a potentially unlimited time (Zendle et al., 2020; Hadan et al., 2024).

Following this model, Lizardi (2012) highlighted that a game's success is closely tied to the success of its publisher and developer. The launch of a 'hit' game not only enabled the creation of other titles, many of which struggled to turn a profit (Kerr, 2006), but also served as a stepping stone for brand recognition. In response to rising production costs, this model began shifting in the early 2000s. Publishers started offering additional in-game content, known as microtransactions, allowing games to remain profitable for months or even years after their release (Zendle et al., 2020; Kovšca et al., 2023).

Within this framework, microtransactions serve as an umbrella term encompassing various types of in-game purchases (McCaffrey, 2019). Schwiddessen and Karius (2018) describe microtransactions as a business model in which users pay small amounts for premium content, such as additional playtime, levels, maps, virtual currency, weapons, armor, characters, or cosmetic items to customize their experience. These micropayments can be made with real-world money or in-game currency, which is earned through gameplay or purchased with real-world money as well.



Costes and Bonnaire (2022) categorize microtransactions into three types: cosmetic, which involves purely aesthetic changes like new costumes that offer no in-game advantages (Zendle et al., 2020); loot boxes, which provide randomized rewards of uncertain value, adding an element of chance to in-game purchases; and pay-to-win microtransactions, which offer players in-game advantages that enhance their chances of success by providing advantageous items.

Regardless of the type of microtransaction, the new business models focus on two main goals: simplifying the purchase process—which allows players to buy content without interrupting gameplay—and detaching in-game purchases from real-world money, making players less likely to focus on the true cost of the item (Tomić, 2018). These practices have led to growing consumer dissatisfaction, as many perceive them as akin to gambling, particularly with loot boxes and other items that involve random rewards. This has sparked numerous lawsuits against games that implement such mechanisms, as well as those that encourage the use of real-world money to bypass in-game challenges (Kovšca et al. 2023).

3.2.1 THE FREE-TO-PLAY MONETIZATION MODEL

The growing popularity of microtransactions among video game companies is largely driven by the revenue potential they offer. Electronic Arts (EA), a major American video game company, generated a net revenue of 4.4 billion U.S. dollars in its 2024 fiscal year from extra content sales, accounting for nearly 60% of its total net revenue for the same period (Statista Research Department, n.d.). This shift in monetization strategies has been key to the rise of the Free-to-Play (F2P) business model. Over the past decade, many companies have opted for a pricing model where the entry and core usage of the product have no associated monetary cost, which, on the one hand, has lowered player entry barriers by allowing users to choose how they engage with a game and how much they are willing to spend. On the other hand, it has ensured greater profitability for both developers and publishers (Hadan et al., 2024; Paavilainen et al., 2013).

Free-to-play games first emerged in South Korea and China as a strategy to combat online piracy by requiring players to create an account and play directly in an online browser. This monetization strategy quickly proved successful, especially in the Asia-Pacific region, thanks to its flexible pricing model (Davidovici-Nora, 2013). As social network games rose in popularity, the model spread to Western markets, with social media networks like Facebook playing a key role (Stenros et.al, 2011). Early success stories paved the way for major publishers like Zynga, an American video game developer and publisher, which, by 2009, released some widely recognized titles like *Mafia Wars* and *FarmVille*.

Despite their popularity, F2P games became a topic of controversy. Companies like Zynga faced criticism for their aggressive monetization strategies, with some arguing



that their games exploited a small fraction of high-spending players to generate the bulk of the revenue (Alha, 2019). Additionally, many early F2P games were seen as predatory, relying on simple yet addictive mechanics that often copied existing titles while encouraging problematic gaming and spending habits (Alha, 2019).

The next major milestone in the F2P market came from the decline of social network games and the rise of mobile gaming, as platforms like Apple's App Store and Google Play Store provided a new distribution channel for the industry, fueling the rapid growth of mobile F2P titles and leading to a landscape where nearly all top-grossing mobile apps adopted the F2P model (Alha, 2019).

F2P has since expanded across multiple platforms and genres, even influencing premium games (Davidovici-Nora, 2013).

3.2.2 THE FREEMIUM MONETIZATION MODEL

The Freemium concept is not exclusive to the gaming industry; it dates to the 1980s when software companies like Adobe began releasing "light" versions of their programs. These shareware or crippleware versions were free to use but lacked full functionality. To unlock all features, users had to purchase a registration key. Over the years, this monetization model has broadened its reach. In the early 2000s, email services like Yahoo began offering a freemail service funded by ads. In 2007, Spotify, a music-as-a-service (MaaS) provider based in Sweden, launched as a freemium service, allowing users to listen to almost every song for free but with interruptions from ads and worse sound quality. Users could pay a monthly subscription fee for an ad-free experience with improved sound and offline access on mobile devices. The communication market also started providing this type of service; Skype users could use the program's basic features and pay a premium for phone calls, conference calls, or SMSs. Later, the gaming industry adopted F2P models (Wagner et al., 2014).

Even though the freemium model has existed for decades, Wilson (2006) was the first to use the term "freemium" as a combination of the words free and premium. Wagner et al. (2014) identify two distinct perspectives on the interpretation of the freemium model: one t

hat views it as a potential revenue model and another that focuses on the user's acceptance of freemium as a means to access their preferred services.

The first perspective views freemium as one of several competing revenue models, with companies needing to assess the best strategy to adopt in different situations. According to Kato and Dumrongsiri (2022), it is important to evaluate the target audience and market conditions when choosing a strategy. When opting for a freemium model, firms may choose a comprehensive market coverage approach (C strategy) with a high free-usage limit to attract a large number of users or focus on premium users with high usage (I strategy) by offering a lower free-usage limit. The C



strategy focuses on user acquisition by offering a high free-usage limit, which may lead to a larger user base, but it can struggle with the conversion of free users to premium. In contrast, the I strategy targets high-usage users with a lower free-usage limit, resulting in higher conversion rates but limiting initial user growth. The success of these strategies heavily depends on user behavior; businesses should consider the user's future utility in their strategic planning to maintain high conversion rates.

The second perspective is tied to the consumer's view of freemium services. Hamari et al. (2020) examined how perceived value—enjoyment, quality, and economic and social value—affects user engagement with freemium services and their willingness to purchase premium content. Based on an online survey of players' perceptions of free-to-play games, they tested the “demand through inconvenience” hypothesis, which suggests that while greater enjoyment of a freemium service leads to higher user engagement, it simultaneously reduces the likelihood of purchasing premium content. Their findings support this hypothesis: the more players enjoy the service, the more they engage with it, but the less likely they are to spend on premium content. Additionally, quality was not found to influence purchase intentions, while social value positively correlated with premium purchases. Economic value was associated with continued use of the service but had only an indirect effect on spending. These findings highlight the importance of the user's perceived value on revenue generated through premium content sales.

3.3 THE RISE OF PROFESSIONAL GAMING: ESPORTS

Despite the emergence of some conceptual and qualitative literature on electronic sports (eSports), only a few definitions have been proposed. Wagner (2006) extended the definition of traditional sports by Tiedemann (2004), which emphasized the development and training of mental and physical abilities, by incorporating communication and information technologies. However, this definition has been critiqued for its broadness, as it might leave too much room for interpretation and, therefore, cannot solve the pressing issue of which sporting activities can be defined as electronic sports or traditional sports (Hamari & Sjöblom, 2017). Another critique is tied to the fact that this definition risks including a wide range of computer-mediated activities (even those not typically viewed as sports, such as office-based software training) and may not adequately capture the hybrid nature of eSports (Witkowski, 2012, 2015).

Another approach is that eSports refers to competitive professional gaming and is often synonymous with terms like cyber athleticism and professional gaming, or pro-gaming for short (Brenda, 2015). These competitions are structured as organized tournaments or leagues, typically sponsored by game companies, businesses, or advertisers, that award championship titles and offer prize money (Establés et al., 2019). With the industry valued in the billions and its global audience expected to reach 640 million by 2025, eSports has become a popular career choice among teens and young adults



(Newzoo, 2022). Professional gamers, or pro gamers, are individuals who compete at the highest levels in these events (Bihari & Pattanaik, 2024).

A more nuanced perspective focuses on the ‘e’ in eSports and raises a crucial question: which aspects of sports must be electronic and/or computer-mediated for an activity to be classified as an eSport? This conceptual distinction forms the foundation for defining eSports as a type of sport in which fundamental aspects are facilitated by electronic systems, with player and team inputs—as well as the system’s outputs—being mediated through human-computer interfaces (Hamari & Sjöblom, 2017).

Physicality is often seen as essential to sport, yet its role remains a subject of debate. For instance, chess, recognized by the Olympics, is framed as a nonphysical, intellectual event. Sports involving machines or animals, such as NASCAR (National Association for Stock Car Auto Racing) and equestrian events, continue to be contentious. Many traditional sports fans argue that eSports cannot be considered sports because players’ competence is not measured by physical prowess (Hamari & Sjöblom, 2017). However, Cailliois (2001) suggests that it matters little whether a game is intellectual or athletic; the essential aim remains the same: to outplay an opponent under equal conditions. Moreover, research suggests that physical activity remains a critical component of eSports performance. The physical engagement required to interact with digital interfaces can be taxing. For instance, genres such as dancing video games demonstrate significant physical capabilities. The degree of physical demand in eSports depends largely on the human-computer interaction required by the game’s software or system (Hamari & Sjöblom, 2017).

3.4 AN OVERVIEW OF MONETIZATION AND PLAYER EXPERIENCES

The F2P model has been widely discussed in academic literature, attracting the interest of specialists from various disciplines. Alha (2019), in her systematic review of F2P research, highlights the diverse range of subject areas interested in its study, spanning from medicine, arts and humanities, computer science, mathematics, social sciences, and engineering.

A large portion of research focuses on player retention, examining the best ways to measure, predict, and prevent churn, as many new players disengage with the product in the first days, making early intervention crucial (Milošević et al., 2017). Castro and Tsuzuki (2015) propose a frequency analysis approach using login records for a churn prediction model. Among the evaluated methods, time-frequency plane domain analysis showed satisfactory results, theoretically increasing retention campaign profits by over 20% compared to the RFM approach. Lebres et al. (2018) surveyed English-speaking communities of Massively Multiplayer Online Games (MMOGs) to examine dropout factors that product managers can control, with a particular focus on game fairness. Their findings indicate that 53.9% of the variation in dropout behavior is explained by key predictors, including latency/performance issues, in-game features,



community, service/support team, and game fairness, with the latter two being the most influential factors.

Another major research stream explores in-app purchases and the consumer's purchase behavior. Park and Lee (2011) conducted one of the first studies on F2P online games, as previous research primarily focused on subscription-based MMORPGs (Massive Multiplayer Online Role-Playing Games). They surveyed students—from middle school to college—in major South Korean cities. Using Partial Least Squares (PLS), they found that players who perceive greater value in game items are more likely to purchase them and that when users identify with game characters, they place greater value on these items. They also suggest that future research should explore the motivations of potential game item buyers and address the limited, predominantly young male sample.

To examine online gaming consumer behavior in developing countries, Chou and Kimsuwan (2013) collected data from 335 respondents in Thailand. The results indicate that the perceived enjoyment value, the monetary value, and promotional programs significantly increase the consumer's purchase intention.

Voigt and Hinz (2016) predicted customer lifetime value using initial purchase data from three European digital businesses that sell virtual currency in a non-contractual freemium model. They found that customers who make a purchase early on and use credit cards have higher lifetime values. Notably, just 1% of users generated nearly 85% of total revenue, emphasizing the need to identify high-potential customers as early as possible.

Hanner and Zarnekow. (2015) formulated three hypotheses on purchase behavior, all of which were confirmed by analyzing data from three different free-to-play mobile games, released by different publishers: (1) the probability of player conversion decreases the longer a user waits to start playing after a game's launch, (2) retention likelihood is increased with each purchase, and (3) the amount that users are willing to spend grows with every purchase.

Sifa et al. (2015) developed two prediction models: one to determine whether a player would become a paying user and another to predict their number of purchases. The models identified key factors, such as the used device, playtime, and World Number, that encourage spending, as well as circumstances like high Move Count, where purchase incentives may be most effective. Furthermore, geographic and economic indicators, particularly the country, also proved to be important predictors of purchasing behavior in F2P games.

The experiences and attitudes of players toward the model are also studied. Lin and Sun (2011) analyzed two game discussion forums in Taiwan to examine how the free-to-play model can influence players. Some players viewed the model as inherently unfair, as it divides users into paying and non-paying groups. Non-paying players often faced restricted and less engaging gameplay, with little chance of competing against



paying users. As for paying users, paying for in-game advantages could diminish the sense of achievement and overall enjoyment.

The reviewed studies highlight several critical aspects shaping the F2P gaming market. One of the foremost challenges is early player retention, as many users disengage within the first days of playing a video game. Key factors influencing churn include the perceived game fairness and the quality of customer support, both of which dictate a player's decision to continue or quit.

In terms of monetization, in-app purchase behavior is driven by a mix of psychological and contextual factors. These include the perceived value of in-game items, players' level of identification with their characters, promotional offers, and especially the timing of the first purchase. Research shows that once a player makes an initial purchase, they are more likely to continue spending, often at increasing amounts over time. Notably, spending tends to be highly concentrated, with a small fraction of users generating the vast majority of revenue.

Player attitudes toward the F2P model are complex. While the model increases accessibility, it often introduces perceived levels of unfairness, fostering a "pay-to-win" environment, which divides the player base and potentially diminishes the overall gaming experience for paying and non-paying users.

These findings underscore the intricate relationship between F2P monetization strategies, player psychology, and engagement patterns.



Author, Year	Instruments	Methods	Data	Variables
Milošević et al., 2017	Machine Learning algorithms	Quantitative (Logistic Regression, Decision Tree, Random Forest, Naïve Bayes and Gradient Boosting)	Random Sample of 2,000,000 randomly selected players of the mobile free-to-play online social football manager, Top Eleven	Session Count, Playtime, Click Count, Monetization features (Morale Boosters, Treatments Used, Rests Used, In-Game Money Spent, Tokens Bought), Gameplay Style Features (Auction Usage, Training Usage, Transfers Usage, Live Match Usage)
Castro & Tsuzuki, 2015	Feature Representation Methods	Quantitative (RFM-Based, Time Domain, Frequency Domain and Time-Frequency Plain Domain)	Login Records of three online games published in the Brazilian market: • ~300,000 records from RF Online • ~2,500,00 records from APB:Reloaded • ~100,000 records from HMM: Heavy Metal Machine	-
Lebres et al., 2018	Online Survey	Quantitative (Principal Component Analysis, Cronbach's Alpha, Spearman Correlation, Multiple Regression Analysis, Chi-square)	96 English-speaking F2P MMOG players	Demographic questions (age, gender and country of origin), general questions regarding F2P MMOGs (which game(s) the respondents play/played, money spent on average per month and reasons why they quit the games) and questions related to the conceptual model constructs (latency/performance issues, in-game features, community, service/support team and game fairness)
Park & Lee, 2011	Online Survey, Questionnaire	Quantitative (Structural Equation Modelling using Partial Least Squares)	327 students from middle school to college from major South Korean cities (Online Survey), 20 Korean university students (Questionnaire)	Enjoyment value, character competency value, visual authority value, monetary value, character identification, satisfaction about game, purchase intention
Chou & Kimsuwan, 2013	Questionnaire	Quantitative (Partial Least Squares, Cronbach's Alpha)	335 respondents from five popular online game communities	Enjoyment value, character competency value, visual authority value, monetary value, price, promotion, purchase intention



Voigt & Hinz, 2016	Regression Model	Quantitative (Negative Binomial Regression Model, Standard OLS Regression, and Logistic Regression)	Customer and purchase data from three European digital businesses that sell a virtual currency in a non-contractual freemium model	-
Hanner & Zarnekow., 2015	Customer Segmentation Analysis	Quantitative (BG/NBD model, Mean Absolute Error)	Data disclosed by a marketing firm in the videogame industry from two different F2P mobile games	-
Sifa et al., 2015	Classification and Regression model	Quantitative (Decision Trees, Random Forests, Poisson Regression Tree)	Over 100,000 players from a mobile F2P puzzle game developed and published by Wooga	Country, device, move count, active opponents, logins & game rounds, skill-1,2,3, reached goals, world number, number of interactions, number of purchases, amount spent, playtime, last inter-session time, last inter-login time distribution, inter-session time distribution, correlation on time, mean and deviation on time, country segments
Lin & Sun, 2011	Content Analysis	Qualitative	597 comments on 2 of Taiwan's most popular game bulletin boards: Gamebase and Bahamut	-



4. EMPIRICAL STUDY

4.1 INTERVIEW

The full transcript of the semi-structured interview conducted with a professional eSports player can be reviewed in Appendix B.

The selection of a single participant for this qualitative component of the research was guided by two main objectives: first, the participant's credentials and qualifications, which make him particularly relevant to the study's focus; and second, the use of his case as an illustrative example within the broader research context.

Firstly, the selected professional gamer, aged 21 at the time of writing, represents the younger generation that constitutes the majority of the survey's participants, making his insights particularly relevant to the study's quantitative findings. Moreover, he competes professionally in *EA Sports FC*, a game that has frequently been criticized for employing predatory monetization strategies designed to exploit players' desire to remain competitive, positioning him as a prime example of the pay-to-win ecosystem (Lemmens, 2022; Askeland, 2023). He is also the winner of the 2024 eMLS Cup, a prestigious tournament featuring some of the world's top *EA SPORTS FC* players, which establishes him as one of the most skilled *FIFA* competitors globally.

Secondly, focusing on a single significant case provides a depth of knowledge that might be overlooked in a broader, more superficial survey. This approach helps explain the "what" of the quantitative findings through a richer understanding of the "how." As Maxwell (2021) points out, qualitative research offers valuable insights that, while drawn from specific contexts, can still be meaningfully transferred to similar situations. In this way, the depth and context provided by a single case can complement and enrich the broader patterns identified in the quantitative data.

In that matter, the interview provided valuable insights into the contemporary gaming landscape from an expert perspective. Several key themes emerged.

4.1.1 DIGITAL DISTRIBUTION AND CROSS-PLATFORM PLAY

The interviewee identified two major developments he has witnessed over the years. First, the rise of digital distribution marks the transition from a market dominated by retail stores and physical game copies to one predominantly composed of online stores, which has made acquiring games faster and more accessible than ever before. Second, the widespread adoption of cross-platform play, which allows players across different gaming devices to seamlessly play together popular titles such as *EAFc*, *Fortnite*, and *Rocket League*, was highlighted as a shift that significantly transformed how players interact, access games, and build communities, fostering an environment where games are a more inclusive and social activity.



4.1.2 DRIVERS AND CONSEQUENCES OF THE FREE-TO-PLAY (F2P) MODEL

In discussing the shift toward F2P models, the interviewee emphasized two primary drivers. First, the accessibility of F2P games, which allows players to participate regardless of their ability or willingness to pay an upfront cost, reduces the entry cost and significantly expands the potential audience. Second, the growing dominance of the mobile gaming market in the past decade, together with its strong reliance on the F2P model, has played a significant role in pushing the broader industry to follow suit.

From a monetization standpoint, the interviewee noted that F2P models, particularly through microtransactions, often generate greater long-term revenue than traditional one-time purchases. Drawing on his own experience as both a professional and a consumer, he shared that he spends money on microtransactions and views this model as offering greater flexibility and control over one's spending. Players are free to decide whether they want to pay, and how much they wish to, which can feel more empowering than having an upfront price.

4.1.3 THE IMPACT OF MONETIZATION: CASUAL VS. PROFESSIONAL PLAYERS

The interviewee drew a clear distinction between the impact of monetization on casual players and professional gamers. He observed that casual players often make purchases driven by external factors, such as social media content, excitement around new releases, or a lack of financial awareness when it comes to in-game spending. While he personally does not feel pressured to spend, he acknowledged that peer influence within the gaming community can make this pressure very real for others.

By contrast, professional players face a different type of pressure to spend, particularly in games that follow a pay-to-win structure. Using *EAFC* as a case study, he explained that the need to build a top-tier squad as early as possible in each new game cycle creates a financial race to the top. Each annual release resets all progress, compelling players to start over and re-invest. In this context, players often feel pushed to spend large sums early on to remain competitive.

He explained that this usually involves buying *FC Points* (formerly *FIFA Points*), an in-game currency used to open packs containing random players. The randomness of this system, coupled with the need to unlock top-tier players, can lead to a significant financial investment. In some cases, the difference between spending \$1,000 and \$5,000 can directly impact the player's success, creating an uneven playing field.



4.1.4 THE FUTURE LANDSCAPE

Looking ahead, the interviewee believes the importance of F2P games in the gaming market will continue to grow. However, he emphasized that premium single-player titles and subscription-based models will coexist alongside F2P offerings, as they will still have their place among gamers. He also raised the possibility of a player backlash against exploitative monetization practices, suggesting that some players may become fatigued or frustrated with the limitations imposed by the F2P model monetization techniques.

In terms of technological developments, he anticipates the expansion of cross-platform play and significant progress in AI-driven game development, which could lead to more immersive and personalized gaming experiences.

4.2 CLUSTERING

This chapter presents the results of the K-Means cluster analysis conducted on the survey data, using $k = 3$. The primary objective of this analysis was to segment respondents into distinct groups based on their gaming behaviors and motivations for playing video games.

Following the creation of the clusters, a post-hoc analysis was conducted to develop more detailed profiles for each group. These profiles were constructed by cross-tabulating individual responses with their corresponding cluster assignments and subsequently using two distinct sets of variables:

- Sociodemographic characteristics, which were analyzed across the entire survey sample ($N = 202$), were used to provide demographic context for each cluster.
- Spending behavior characteristics were examined exclusively for the subset of respondents who reported having previously purchased microtransactions ($N = 152$). These individuals answered a dedicated set of questions designed specifically for video game players who engage in microtransaction spending, allowing for a more targeted analysis of their spending profiles.

This chapter is structured as follows: first, a sociodemographic overview of the entire sample is presented to establish a baseline understanding of the population surveyed. Next, each of the three clusters is examined in detail, integrating insights from the a posteriori analysis of both sociodemographic and spending behavior variables. The primary objective is to provide a characterization of each gamer profile, which will serve as the foundation for interpreting and discussing the findings in the following chapter.



4.2.1 SOCIODEMOGRAPHIC PROFILE OF THE SURVEY POPULATION

Before presenting the cluster-specific results, it is pertinent to describe the overall sociodemographic composition of the survey's respondents.

The sociodemographics of the final dataset sample were more diverse when compared to those observed in the pilot survey. This increase in diversity is mainly due to the distribution channels of the questionnaire. Social media platforms such as Reddit, Instagram, and WhatsApp were used to reach a broader and more varied audience, which better reflects the behaviors of the video game player population. Additionally, the larger sample size of the population also contributed to the greater representation of certain groups and to the increase in diversity of the dataset.

Consistent with the trends observed in the pilot survey, the sample is predominantly young, with the 18-24 age group making up the majority at 69.3% (140 individuals), followed by the 25-34 age group at 20.8%. However, there was also notable participation from individuals in the 45-64 age range, highlighting that gaming is increasingly enjoyed across all age groups. Nonetheless, it is essential to note that the population remains predominantly young (Figure 4-1).

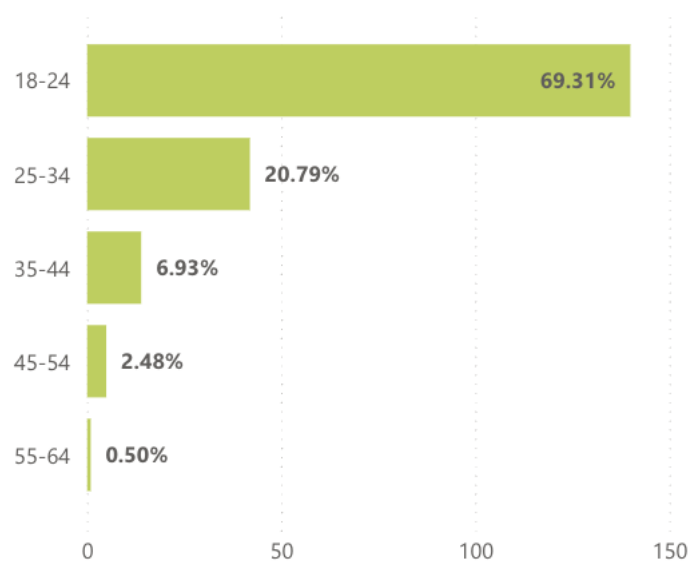


Figure 4-1 - Distribution of the video game players survey population by age group

In terms of gender distribution, the sample majority is male (60.9%), with a significant representation of female participants (35.1%), and a small proportion of respondents who identified as non-binary/third gender (Figure 4-2).

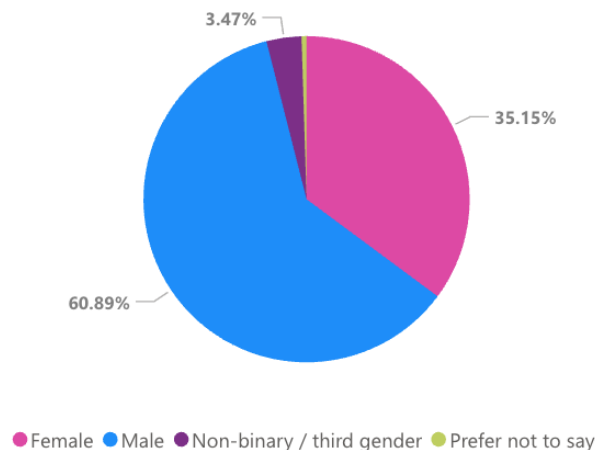


Figure 4-2 - Distribution of the video game players survey population by gender

Geographically, the respondents are also diverse, residing in 32 countries across four continents. However, the highest concentrations of participants are living in Portugal (38.6%), followed by the United States (13.4%), the United Kingdom (12.9%), and Brazil (6.4%).

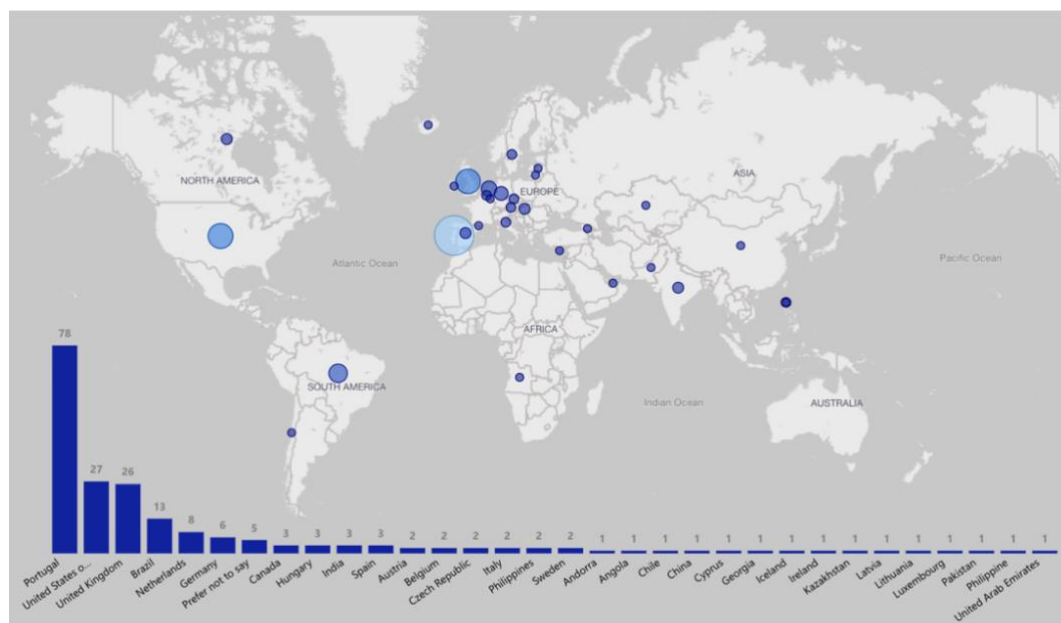


Figure 4-3 - Distribution of the video game players survey population by country of residence

In terms of education, the sample is highly qualified, with most respondents holding a bachelor's degree (45.5%). This is followed by those with Secondary education (33.7%) and Postgraduate degrees (18.3%).

In response to the question "What is your current occupation?", participants were allowed to select multiple options, resulting in various combinations of answers. Nevertheless, as illustrated in Figure 4-4, it is evident that most respondents are students in some capacity, either solely students or working students. The most



frequently selected individual option was “Student,” followed by “Full-time employed.” Together, these two categories account for approximately 71% of all responses.

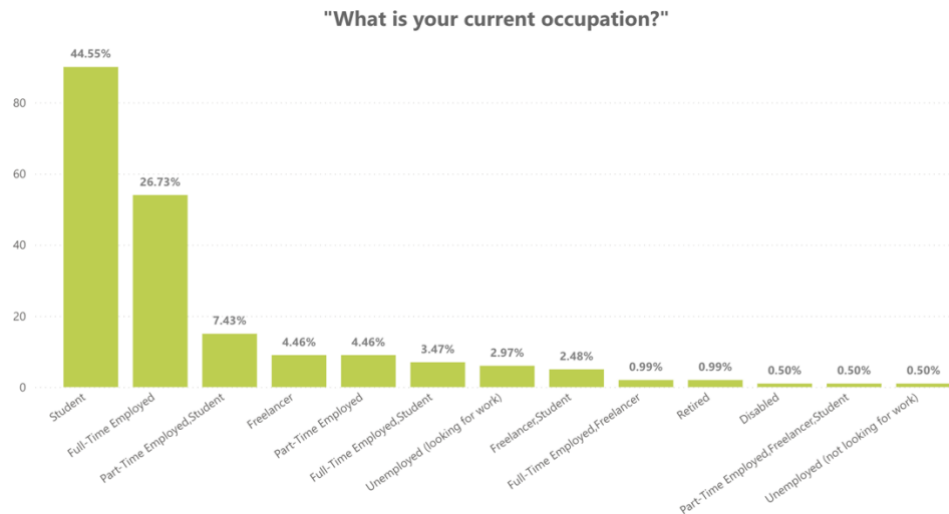


Figure 4-4 - Descriptive statistics to the question "What is your current occupation?"

To gain a clearer understanding of the underlying dynamics of this question, the frequency of each value was counted and grouped (Figure 4-5), allowing for a more accurate assessment of the relative representation of each profession within the dataset context. This analysis further highlights that students constitute the majority of respondents, with 50.64% selecting “Student”, either alone or together with other options. As expected, “Full-time employed” emerges as the second most frequently selected category. Notably, some options were selected by only a small number of respondents, particularly “Retired” and “Disabled”, which were each chosen by just three individuals, aged between 35 and 64, as illustrated in Figure 8.

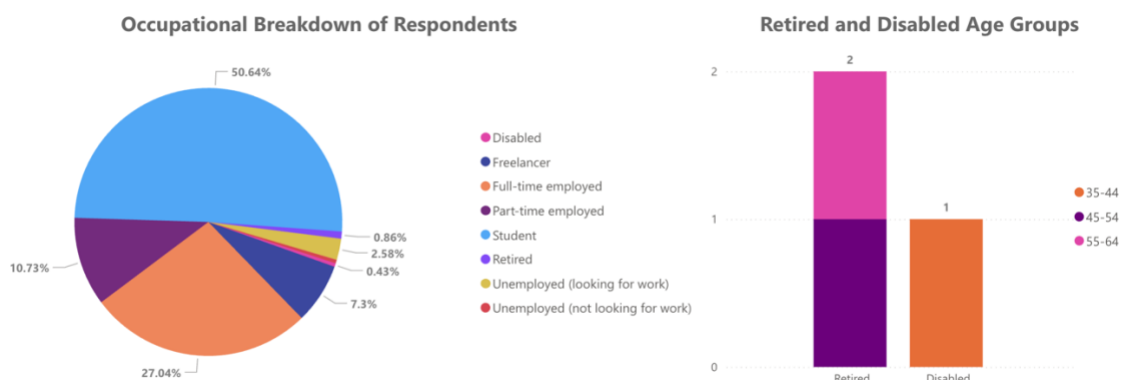


Figure 4-5 - Overview of respondents' occupations and age distribution of retired and disabled groups

Finally, the most common income category is ‘Low,’ with 43.6% of respondents reporting a gross monthly salary of less than €1,000. In contrast, higher income brackets, ranging from €2,500 to over €4,000, collectively account for less than 10% of the total sample. Interestingly, the highest income category (over €4,000) was the



fourth most frequently selected option, surpassing all intermediate income brackets between €2,000 and €3,999.

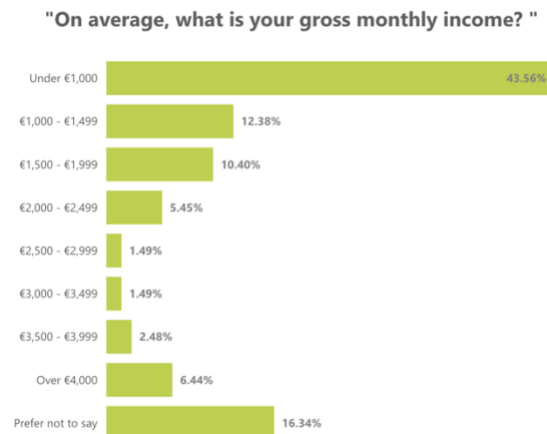


Figure 4-6 - Descriptive statistics of the question "On average, what is your gross monthly income?"

This general profile reveals a sample that is predominantly young, highly educated, and male, with a strong representation from Europe and North America. The group is mainly composed of students and full-time employees, while financially, it is characterized by a predominantly low-income level, despite its high education levels. This broader context provides a crucial baseline for understanding the specific nuances and variations within each of the identified clusters.

4.2.2 CLUSTER PROFILES

Based on the analysis, the three clusters have been labeled to reflect their dominant characteristics:

- Cluster 0: The Dedicated Multi-Platform Gamer
- Cluster 1: The Casual Mobile Player
- Cluster 2: The Competitive PC and Console Player

Cluster 0: The Dedicated Multi-Platform Gamer

This cluster represents the most engaged segment of the gaming population. It is predominantly composed of young male players, with 70% falling within the 18 to 24 age group. The majority are currently pursuing Bachelor's or secondary-level education, although a smaller portion includes postgraduate students and individuals in full-time employment. Their reported gross monthly income typically falls within the low and lower-middle income bracket, with wages ranging from under €1,000 to €1,499.

Gaming occupies a significant role in the daily lives of these individuals. Among all clusters, they report the highest average gaming times: approximately two to three



hours per day on weekdays and three to four hours on weekends. Their playtime is concentrated during the evening, particularly between 20:00 and 23:59, suggesting a preference for nighttime gaming sessions when other responsibilities are likely reduced.

They engage across multiple platforms, with notable usage of both computers (laptops and desktops) and gaming consoles. Among console users, *Nintendo* and *PlayStation* devices are particularly popular.

In terms of game preferences, this cluster primarily engages with B2P and F2P titles, with a strong inclination toward adventure and open-world games, as well as role-playing games. These choices align closely with their primary motivations for gaming: recreation, because they enjoy gaming and feel entertained by it, and escapism, as they consider gaming a means to escape reality. Finally, roleplaying also has some importance, as it allows players to feel as if they are in another world where they can do and achieve things that they wouldn't be able to in real life.

This cluster's engagement also extends to their spending behavior, though they tend to make more modest in-game purchases. Despite having the highest likelihood of purchasing microtransactions (86%) and reporting the greatest enjoyment from these transactions (81%), the amounts spent are typically on the lower end. 42.6% of the players in this cluster generally spend under €5 per purchase, while 26.5% make medium-level purchases, mostly between €5 and €14.99. Their spending is motivated by two key factors: enjoyment value and visual authority. The first allows them to access additional in-game content, enhancing their overall gaming experience. The second gives them a means of personal expression through character customization, allowing them to make their avatars more fashionable and unique. While their purchases may be smaller in scale, the value they place on enhancing their gameplay and personalizing their experience is significant. In summary, this cluster represents highly engaged, young male gamers who dedicate substantial time to gaming. They are multi-platform users with a strong preference for immersive, adventure-based experiences and role-playing games. Their motivations are primarily recreational and escapist, and they are also the most active in purchasing microtransactions for both functional and aesthetic purposes. Overall, they embody the profile of a dedicated, passionate gamer with a strong emotional connection to gaming.

Cluster 1: The Casual Mobile Player

Cluster 1 represents the most casual and demographically distinct player group. It is the only segment with a female majority, with 66.1% identifying as female. The cluster is primarily composed of young players, mostly aged between 18 and 24, although it exhibits slightly more age diversity compared to the other clusters. In terms of education, most individuals are pursuing secondary or bachelor's degrees. A significant portion (51.8%) are full-time students, while smaller segments include those who are employed full-time (16.1%) or students with part-time jobs (7.1%). This demographic and occupational profile is reflected in their income levels, which fall



mainly within the low to lower-middle brackets, typically between under €1,000 and €1,499, with some earning up to €1,999.

Gaming behavior in this cluster is marked by low engagement. These players spend less than one hour gaming on weekdays and between one and two hours on weekends. Similar to Cluster 0, their preferred gaming times are at night, with peak activity between 20:00 and 23:59 on both weekdays and weekends, and an additional play period between 16:00 and 19:59, primarily on weekends.

Platform preference is clearly skewed toward mobile devices, with 68% of the cluster identifying mobile as their main platform. Their game choices are heavily concentrated in the Free-to-Play (F2P) category (91%), favoring casual genres such as puzzle, quiz/trivia, simulation, and strategy games. These preferences align closely with their core motivations for gaming, which are primarily recreational, as a means of entertainment, and escapist, offering a temporary break from daily routines and hassles.

Consistent with their more casual engagement, Cluster 1 is the least likely to make in-game purchases. Only 39% report having ever purchased microtransactions, and this cluster has the highest reported dislike for this monetization model (34%). Among those who do make purchases, most tend to spend on cheaper content: 21.4% typically spend under €5, while 12.5% make medium-level purchases, mostly between €5 and €14.99.

Their motivations for spending are primarily enjoyment; these microtransactions enhance the overall gaming experience and visual customization, as they provide players with the opportunity to personalize their characters.

In summary, this cluster comprises mostly young female players who engage casually with games, primarily on mobile platforms. They prefer F2P titles in light and accessible genres, play in short sessions during the evening and sometimes in the afternoon, and are less likely to spend money in-game. Their motivations are centered around relaxation, entertainment, and escapism, reflecting a casual and convenience-driven approach to gaming.

Cluster 2: The Competitive PC Player

This cluster represents a highly competitive and focused group of gamers, characterized by a predominantly young, 70.5% of individuals are between the ages of 18 and 24, male (76.9%) demographic. The majority of this group is pursuing a bachelor's degree (51.3%), with most balancing their gaming with full-time employment (39.7%) or full-time studies (38.5%). A smaller but notable percentage also works as freelancers (5.1%). Despite the cluster's higher education levels, the younger age group means most members still fall within the low to lower-middle income brackets, earning between under €1,000 and €1,499 per month, though some do reach upwards to €1,999.



Gaming plays a distinct, though slightly more moderate, role in the daily lives of these players. On weekdays, their playtime typically ranges between one and two hours, while on weekends, they spend between two and three hours gaming. The majority of their gameplay takes place at night, especially between 20:00 and 23:59, a pattern suggesting that nighttime gaming sessions are preferred, likely due to fewer responsibilities.

In terms of platforms, this group has a clear preference for PC gaming (78%), predominantly using desktops and laptops. Though less dominant, consoles still play a role in their gaming habits, with 44% engaging in console gaming, where PlayStation is the clear console of choice (82.4%). When it comes to game preferences, this cluster leans heavily toward B2P (77%) and F2P (65%) titles, with a notable fondness for Action games, especially shooters, as well as RPGs, MMORPGs, and Open-World adventure games. These choices align closely with their core motivations to play: recreation, simply because they enjoy the experience, and escapism, as a way to disconnect from daily stresses. What sets this group apart, however, is their strong competitive drive, their passion for winning, and the thrill of competing with others.

This competitive spirit also manifests in their purchasing behavior. This segment is the second highest among all clusters in terms of likelihood to purchase microtransactions, with 86% reporting purchases and 81% expressing their enjoyment for these transactions. Among those who make purchases, 34.6% tend to spend low amounts, typically under €5, while 33.3% make medium-range purchases, between €15 and €29.99. The primary motivations for these purchases include the desire for visual authority (customizing their character to make them more fashionable), economic rationale (taking advantage of sales and supporting the game's community), and unobstructed gameplay (acquiring items that help them achieve in-game objectives more rapidly).

In summary, this cluster represents a group of dedicated, competitive gamers who enjoy immersive experiences mostly on PC platforms. Their motivations are driven by a blend of recreation, escapism, and competition, with a pronounced interest in customizing their in-game presence and enhancing their overall gameplay experience through microtransactions.



Table 4-1 - Comparative summary of the identified clusters

Characteristics	Cluster 0 Dedicated Multi-Platform Gamer	Cluster 1 Casual Mobile Player	Cluster 2 Competitive PC Player
Gender	Male (66.2%)	Female (66.1%)	Male (76.9%)
Weekday Playtime	2h-3h	Less than 1h	1h-2h
Weekend Playtime	3h-4h	1h-2h	2h-3h
Platforms	PC (81%) Console (68%)	Mobile (68%)	PC (78%)
Game Types	B2P (91%)	F2P (91%)	B2P (77%) and F2P (65%)
Game Genres	Adventure RPG	Puzzle/Arcade Strategy	Action Adventure RPG
Gaming Motivations	Recreation (4.86) Escapism (4.55) Role Playing (4.13)	Recreation (4.02) Escapism (3.24) Competitive Drive (3.16)	Recreation (4.47) Escapism (3.67) Competitive Drive (3.62)
Purchase Likelihood	93%	39%	86%
Microtransactions Enjoyment ratio	82%	66%	81%
Spending Motivations	Enjoyment Value (3.90) Visual Authority (3.48)	Enjoyment Value (3.59) Visual Authority (3.38)	Enjoyment Value (3.70) Visual Authority (3.48)



5. DISCUSSION

The findings of this study, drawn from a mixed-methods approach, converge to tell a clear story: the historical evolution of the video game industry's business models has not only changed how games are sold but has fundamentally reshaped the players themselves. This chapter synthesizes the historical context from the literature review, the expert insights from the professional gamer interview, and the empirical data from the cluster analysis to explore the distinct gamer archetypes that now populate the modern gaming ecosystem. By weaving these sources together, we can analyze how each player segment is a direct and predictable outcome of the industry's economic and technological trajectory.

5.1 THE F2P REVOLUTION AND THE BIRTH OF THE CASUAL MOBILE PLAYER

Since the release of the *Magnavox Odyssey* in 1972 and the subsequent rise of home consoles as dominant platforms in the gaming industry, coinciding with the decline of arcades, the predominant monetization model has been B2P. However, as highlighted in the literature review, one of the most significant transformations in modern gaming has been the shift from this traditional, premium-based model to an entry-barrier-free approach: the Free-to-Play genre.

This shift was catalyzed by the decline of browser-based social network games, such as Zynga's *Farmville*, and the rise of mobile gaming. Platforms like Apple's App Store and Google Play Store helped to increase the accessibility of mobile gaming to a wider audience by providing frictionless, global distribution channels. As a result, the F2P model quickly became dominant, with nearly all top-grossing mobile apps adopting it (Alha 2019). This economic shift was not merely a new revenue strategy but a fundamental change in market philosophy. As noted by Paavilainen et al. (2013), F2P eliminated player entry barriers, creating a new, massive, and diverse audience.

This was corroborated by the professional eSports player, who emphasized accessibility as the primary driver of the F2P model's success. He stated that F2P games "reach more people because you don't restrict those who can't or don't want to pay", adding that the growth of the smartphone market "has influenced the industry" (see Appendix B), an argument supported by Davidovici-Nora (2013), who identified mobile platforms as central to the global spread of F2P games.

This historical and qualitative context is empirically validated by the emergence of the "Casual Mobile Player" (Cluster 1) as a distinct archetype in the cluster analysis. This group, which is the only segment with a female majority (66.1%), is defined by its low engagement (less than one hour of play on weekdays and the shortest playtime on weekends amongst the clusters), and its overwhelming preference for mobile platforms (68%) and F2P titles, particularly within the Puzzle, Arcade, and Strategy genres. Their core motivations for playing are recreation, as they find video games entertaining, and



escapism, as video games allow them to have a break from their daily routines and hassles, which align closely with the simple yet accessible nature of casual mobile games.

Furthermore, their behavior validates the underlying logic of the F2P monetization model. This cluster is the least likely to spend money on in-game items and reports the highest dislike for this type of microtransaction, which embodies the large, non-paying user base that defines the Freemium model described by Wagner et al. (2014). This dynamic is further explored by Lin and Sun (2011), who, through an analysis of online gaming forums in Taiwan, found that many players perceived the F2P model as inherently unfair, as it divides the player base into paying and non-paying groups. Non-paying players often faced restricted and less engaging gameplay, which reduced their chances of competing against paying users. Paying users, on the other hand, could have a weaker sense of accomplishment and overall enjoyment of the game, due to the perceived lack of merit-based progression. This also confirms the challenges noted by Alha (2019), where F2P companies often rely on a small fraction of high-spending players to generate the bulk of their revenue. The 'Casual Mobile Player' is the empirical evidence of the F2P revolution's success in capturing a mainstream audience that prioritizes convenience and cost-free entertainment over a deep, long-term investment.

5.2 eSPORTS, THE “PAY-TO-WIN” ECOSYSTEM AND THE COMPETITIVE PC PLAYER

While F2P models have successfully attracted a broader, more casual gaming audience, such as the group previously analyzed, for whom recreation and escapism were the primary motivations, the simultaneous rise of professional gaming has driven the creation of a distinct player profile. These players are driven not by leisure, but by economic incentives and career ambitions. As highlighted in the literature, the eSports industry has grown into a multi-billion-dollar sector, drawing increasing numbers of teenagers and young adults who aspire to pursue gaming as a profession (Newzoo, 2022). This shift has fostered a highly competitive environment in which player success is paramount.

The ongoing professionalization of the gaming industry was emphasized by the professional gamer, who remarked that “gaming nowadays is a hobby for a lot of people and in some cases, a profession”. He further highlighted the increasing pressure to spend money to gain a competitive edge in certain games, explaining that “pro players often feel pressure to spend for competitive reasons” and that “casual gamers can feel influenced by social media”. He described this behavior as the reasoning behind a “Pay-to-Win” (P2W) ecosystem, where people must spend money to stay competitive. This aligns with the definition provided by Costes and Bonnaire (2022), who describe “pay-to-win microtransactions” as those that offer players in-



game advantages in exchange for real-world currency, thereby increasing their chances of success by granting them access to more advantageous items.

" In my case, playing EAFC, which players from the competitive scene call a pay-to-win game (P2W), you need to build the best squad possible at the beginning of the game, so you can start grinding it. What pros do is buy FC Points (previously called FIFA Points) and then open a lot of packs. In some cases, it's really hard to compete if you spent \$1.000 in the game against a pro that spent \$5.000, for example." (see Appendix B).

This perspective is supported by academic research, which has shown that players often view these models as inherently unfair, as they divide users into paying and non-paying groups, with the latter having less engaging gameplay and little chance of competing against those who spend money (Lin & Sun, 2011).

The "Competitive PC Player" archetype (Cluster 2) reflects both the behavioral patterns identified in the literature and the insights provided by the interviewee. This cluster consists predominantly of young males (76.9%) who engage primarily with B2P and F2P titles, especially within competitive and time-intensive genres such as shooters, RPGs, and MMORPGs. While these gamers also play for their entertainment and escapism, what distinguishes them is a strong competitive drive. Their enjoyment is closely tied to winning and outperforming others, making competition a defining feature of their motivations to play.

Their spending behavior illustrates the influence of pay-to-win (P2W) dynamics. Players in this group are highly likely to purchase and even enjoy microtransactions. These purchases serve multiple purposes: customizing characters, taking advantage of promotional offers, and supporting the game's community. However, the most direct link to P2W pressures lies in the use of microtransactions to accelerate their in-game progression by purchasing items that provide a solid advantage in achieving objectives more rapidly.

However, the cluster data introduces an important nuance that complicates direct comparisons with professional players. While the motivations of these players align, particularly in their aspiration to be among the top performers, their means of achieving success differ significantly. The "Competitive PC Player" cluster is primarily composed of students and full-time employees aged 18–24, with reported incomes falling within the low to lower-middle brackets. Unlike professional gamers, who often benefit from team support or sponsorships, these players are self-funded, thus limited by their own incomes, and represent aspiring competitors rather than established professionals.

Although they actively engage with P2W mechanics to gain a competitive edge in games where such systems are present, their purchasing power remains limited. This makes them a key target demographic for P2W monetization models: highly motivated to succeed, yet economically constrained. As Kovšca et al. (2023) argue, this creates



a potentially predatory dynamic, where game design encourages spending to bypass in-game challenges, particularly among players who are driven to compete but lack the financial support of those at the professional level.

Yet, this dynamic is evolving. The interviewee observed that when games implement well-designed monetization strategies, such as in-game stores or battle passes that allow players to “choose whether and how much money they want to spend”, they can surpass the revenue of traditional one-time purchase games. This perspective reflects a broader shift in consumer sentiment, as dissatisfaction with P2W mechanics continues to grow. Many players perceive these practices as akin to gambling, which has resulted in multiple lawsuits against games that incorporate such features or encourage real-money spending to bypass in-game challenges (Kovšca et al., 2023).

In response to these concerns, the emergence of alternative monetization models, such as subscription-based services, prevalent in the Gaming III era, may reduce the industry's reliance on P2W systems. In this evolving ecosystem, individual skill may once again become the primary determinant of success. As Caillois (2001) argues, the fundamental objective of any game is to outplay an opponent under equal conditions, a principle that stands in clear contrast to the P2W model. While this ideal has often been undermined by monetization practices, some contemporary games are beginning to realign with this definition, offering competitive environments where success is determined more by skill than by spending. This marks a departure from titles like *EAFC*, as mentioned by the interviewee, which continue to reinforce pay-to-win dynamics.

5.3 THE TRADITIONAL AND MODERN GAMING MODELS AND THE DEDICATED MULTI-PLATFORM GAMER

Positioned between the “Casual Mobile Player” and the “Competitive PC Player” lies a third crucial archetype: the “Dedicated Multi-Platform Gamer” (Cluster 0). This group represents a hybrid player profile, one that does not center their gaming activity around a single platform but rather engages on multiple systems, especially PC and Console. Notably, this cluster denotes the highest average time spent gaming among all groups, indicating their deep engagement.

Their preferences are also reflected in their inclination toward B2P titles, particularly with the action, adventure, and RPG genres, which strongly reflect the legacy from the “Gaming II” era, where complete, single-purchase video games were the industry standard. This period was characterized by the transition from arcade machines to home consoles, marked by the intense competition between console manufacturers during the so-called “Bit Wars”.

Despite the many years that have passed since then, single-player and premium games continue to hold a significant place in the market. As the professional gamer



noted, these experiences are likely to endure, particularly as an alternative to F2P titles, which are increasingly subject to backlash as people become tired of them.

However, these players should not be viewed as gaming traditionalists. Despite their preference for premium, single-purchase experiences, the data reveals they are highly engaged with modern monetization techniques, being the archetype with the highest likelihood of purchasing microtransactions (86%). This aligns with broader historical trends, as publishers began introducing additional paid content for conventional titles at the start of the 2000s, allowing games to remain profitable long after their initial releases (Zendle et al., 2020; Kovšca et al., 2023).

In this context, the “Dedicated Multi-Platform Gamer” engages with microtransactions that allow them to expand their games through new content and to customize their in-game characters. These types of purchase align with the typology of microtransactions described by Schwiddessen and Karius (2018), who identify micropayments corresponding to additional levels, maps, and cosmetics as common forms of paid content. This behavior is further supported by the finding of Park and Lee (2011), who studied students playing MMORPGs, a sub-genre of RPGs distinguished by its online, large-scale, multiplayer environment. Their research found that the more players identified with their in-game characters, the more likely they were to spend money on customizations to make them more their own.

This player archetype is a powerful testament to the complexity of the modern gaming ecosystem. They represent the successful integration of traditional and contemporary business models. By being willing to pay a premium price for a complete game while also engaging with microtransactions to enrich their experiences, this group embodies the convergence of the “Gaming II” and “Gaming III” eras. Their behavior demonstrates that monetization techniques are not a one-size-fits-all solution, but rather a personalized means of reflecting a player’s motivations. Ultimately, this highlights how the success of modern gaming relies on its ability to satisfy a diverse range of player needs and playstyles.

5.4 THE EVOLUTION OF THE INDUSTRY AND GAMING ARCHETYPES

The findings of this study demonstrate that the historical evolution of the video game industry’s business models has profoundly impacted not only how games are played, but also who plays them. This diversification in player motivations and playstyles, together with the industry’s economic and technological trajectory, is reflected in the emergence of three distinct gamer archetypes: the “Casual Mobile Player”, the “Competitive PC Player”, and the “Dedicated Multi-Platform Gamer”.

The F2P revolution, fueled by the rise of mobile platforms, gave birth to the mass market of casual mobile players. This group exemplifies the large, non-paying user



base of the freemium model, and as per their primary motivations (recreation and escapism), reflects a desire for low-commitment and cost-free entertainment.

In contrast, the professionalization of gaming contributed to the emergence of the competitive PC player. Defined by their strong competitive spirit, this group engages heavily with monetization strategies that offer in-game advantages, which is clearly an embodiment of the P2W ecosystem. Their behavior reveals a potential predatory dynamic, as their aspirations, together with the limited financial resources at their disposal, can make them ideal but vulnerable targets to the P2W mechanics.

Finally, the dedicated multi-platform gamer represents a hybrid consumer archetype that bridges the gap between traditional and more modern gaming models. They are rooted in the legacy of the Gaming II era, and they continue to invest in premium B2P titles while engaging with cosmetic and expansion-based microtransactions. Unlike the Competitive PC Player, their spending is not driven by a need to win, but rather by their desire for a richer, more immersive experience. Together, these factors reflect a more nuanced and voluntary form of engagement with monetization techniques.

Taken together, these findings illustrate that the modern gaming ecosystem is not defined by a singular business model or player profile. Instead, it is a complex, dynamic environment that reflects the evolution of the industry and the consequent dynamism of its consumers. The industry's continued success depends on its ability to balance accessibility, fairness, and engagement, catering to a broad spectrum of player motivations, playstyles, and ambitions.



6. CONCLUSIONS AND FUTURE RESEARCH

This study set out to explore how the video game industry's economic and technological evolution, particularly the rise of new monetization models, has shaped contemporary player archetypes and their spending behaviors. By integrating a narrative literature review, insights from an eSports professional, and a cluster analysis of player motivations and habits, the research aimed to identify the consumer profiles that now define the modern gaming landscape.

The findings reveal a strong correlation between the industry's developments and the emergence of specific gamer profiles. Furthermore, the transition from premium, single-purchase titles to Free-to-Play and microtransaction-driven models represents more than a shift in the revenue strategies; it signifies a profound transformation of the gaming population. This evolving landscape now encompasses a broader and more diverse player base, characterized by their wide range of motivations, engagement levels, and spending habits.

The cluster analysis validated the existence of three core archetypes, each shaped by a distinct industry trend. The Casual Mobile Player emerged as a direct outcome of the F2P revolution and mobile gaming's accessibility, representing a mass-market audience characterized by low commitment and minimal spending. The Competitive PC Player was shaped by the rise of eSports and competitive ecosystems, displaying high engagement levels and a greater propensity to spend within monetized environments, often influenced by mechanics resembling gambling, such as loot boxes and pay-to-win systems. Finally, the Dedicated Multi-Platform Gamer bridges traditional and modern models, willingly investing in both full-priced games and ongoing microtransactions to enhance their experiences and create a better sense of self-expression.

These archetypes illustrate that player behavior is not simply a response to industry developments but a direct outcome of them. Monetization strategies have evolved not only to meet existing preferences but to actively shape new ones. For example, the widespread adoption of the F2P model has significantly lowered entry barriers, expanded the player demographic, and altered expectations around game access and value (Paavilainen et al., 2013). At the same time, competitive ecosystems have introduced monetization techniques, such as pay-to-win mechanics and randomized rewards, that can exploit gamers whose aspirations might lure them into blurring the line between gameplay and gambling (Costes & Bonnaire, 2022). These developments show how economic models are embedded in the player experience, influencing not just how games are consumed but how players define success, shape their identity, and engage with gaming.

Collectively, these findings challenge the viability of a "one-size-fits-all" approach to game design and monetization. The diversity of player archetypes demands business models that are not only profitable but also ethical and tailored to the expectations of



different player segments. As industry practices increasingly blur the lines between entertainment and exploitation, particularly in systems resembling gambling, the pressure on developers to balance commercial goals with consumer trust has never been greater.

This thesis contributes a framework for understanding how business strategies in the gaming industry create, rather than merely serve, consumer behavior. It offers critical insights for industry stakeholders seeking to align product design, monetization, and long-term player engagement. The success of a modern video game is no longer determined solely by gameplay quality, but by how well its monetization model aligns with the motivations and expectations of its target player archetype. Only that way can games remain profitable for months or even years after their release (Zendle et al., 2020; Kovšca et al., 2023).

Ultimately, the study concludes that the gaming industry's evolving business models are not passive economic tools; they are powerful forces that shape player identities, communities, and values. As the industry continues to grow and diversify, understanding these dynamics will be essential for creating sustainable, inclusive, and ethical gaming experiences.

The dynamic nature of the video game industry ensures that the landscape of player archetypes will continue to evolve. While this study provides a robust snapshot of the current ecosystem, future work can build upon these findings to create an even more comprehensive understanding.

Future quantitative studies should aim to replicate this research with a larger and more sociodemographically diverse sample. While this thesis identified clear archetypes, its survey population was predominantly young, male, educated, but with generally lower income levels. Expanding the sample to include a wider range of ages, genders, income brackets, and education levels would enhance the generalizability of the findings. This would help to validate the existing archetypes across different life stages and economic backgrounds and could potentially uncover new profiles unique to the other sociodemographic characteristics.

While this study identified three primary archetypes, future research could explore these profiles with greater granularity. The use of larger datasets could reveal the existence of distinct sub-archetypes. For instance, within the "Dedicated Multi-Platform Gamer," there might be separate profiles for a "Story-Driven Solo Player" versus a "Social Co-op Enthusiast," each with unique spending triggers and motivations. A more granular analysis would provide industry stakeholders with an even more nuanced tool for tailoring game design and monetization to specific player profiles.

This study benefited from the expert perspective of one eSports professional. Future qualitative work could be expanded to create a 360-degree view of the industry by conducting interviews with a wider range of stakeholders. This should include not only more eSports players from different video games, but also industry specialists such as



game developers, publishers, and marketing executives. Contrasting the player experience with the strategic intentions of game creators and directors would provide invaluable insights into the design and impact of monetization models from both a consumer and a corporate perspective.

This analysis focused heavily on the impact of F2P models and microtransactions. As the industry pivots towards the "Gaming III" era, a critical next step is to investigate the impact of subscription-based models like Xbox Game Pass. Future research should explore whether these "all-you-can-play" services alter spending habits, change player motivations, or lead to the formation of entirely new consumer archetypes distinct from those identified in the F2P ecosystem.

As predicted by the interviewee, AI is set to become a transformative force. Future studies should investigate its dual impact: first, on the game creation process, focusing on its effects on game quality, originality, and development costs; and second, on the gaming community's perception of AI-driven content. Understanding player trust and engagement with AI-generated experiences will be crucial for the successful integration into the industry.



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APPENDIX A

08/06/2025, 18:43

Qualtrics Survey Software

English ▼

Introduction

Welcome!

Thank you for considering participating in this survey, which is a vital component of my Master's Dissertation at Nova IMS. This research examines the impact of microtransactions on player experiences and investigates the factors that influence the decision to purchase these in-game items.

For context, microtransactions refer to purchases within a game that provide players with virtual goods—from cosmetic items and character upgrades to in-game currency and additional content. These transactions can be minor, optional purchases, or more significant investments that may affect gameplay progression and competitiveness.

Your participation is entirely voluntary, and you may withdraw at any time without consequence. All responses will remain confidential, and the survey is expected to take approximately 6 minutes to complete.

For any questions you might have please get in touch with me at 20230389@novaims.unl.pt

By clicking the "Next Page" button below, you confirm that you have read the above information, consent to participate voluntarily, and are at least 18 years old.

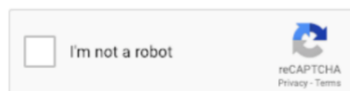
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If you wish to participate, please click "Agree."

- ☐ Agree
☐ Disagree

Please verify you are human



Sociodemographics

How old are you?

- ☐ 18-24
☐ 25-34
☐ 35-44
☐ 45-54
☐ 55-64
☐ 65 or older

Gender Identity (please select all that apply):



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Qualtrics Survey Software

- ☐ Male
- ☐ Female
- ☐ Non-binary / third gender
- ☐ Prefer not to say
- ☐ Other, please specify:

What is your country of residence?

What is your highest level of education?

- ☐ No formal education
- ☐ Primary education (or elementary school)
- ☐ Secondary education (or high school)
- ☐ Bachelor's degree (or equivalent)
- ☐ Postgraduate degree (Master's, Doctorate, or equivalent)
- ☐ Other, please specify:

What is your current occupation?

- ☐ Full-Time Employed (employed for 35+ hours per week)
- ☐ Part-Time Employed (employed for fewer than 35 hours per week)
- ☐ Self-Employed / Freelancer
- ☐ Unemployed (looking for work)
- ☐ Unemployed (not looking for work)
- ☐ Student
- ☐ Retired
- ☐ Homemaker / Caregiver
- ☐ Other, please specify

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On average, what is your gross monthly income?

- ☐ Under €1,000
- ☐ €1,000 - €1,499
- ☐ €1,500 - €1,999
- ☐ €2,000 - €2,499
- ☐ €2,500 - €2,999
- ☐ €3,000 - €3,499
- ☐ €3,500 - €3,999
- ☐ Over €4,000
- ☐ Prefer not to say

Gaming Behavior

Time spent on online gaming, per weekday.

- ☐ Less than 1h
- ☐ 1h - 2h
- ☐ 2h - 3h
- ☐ 3h - 4h
- ☐ 4h - 5h
- ☐ 5h - 6h
- ☐ More than 6h

Time spent on online gaming, per weekend

- ☐ Less than 1h
- ☐ 1h - 2h
- ☐ 2h - 3h



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- ☐ 3h - 4h
- ☐ 4h - 5h
- ☐ 5h - 6h
- ☐ More than 6h

What is/are your preferred gaming time(s) on weekdays?

- ☐ 4:00 - 7:59
- ☐ 8:00 - 11:59
- ☐ 12:00 - 15:59
- ☐ 16:00 - 19:59
- ☐ 20:00 - 23:59
- ☐ 0:00 - 3:59

What is/are your preferred gaming time(s) on weekends?

- ☐ 4:00 - 7:59
- ☐ 8:00 - 11:59
- ☐ 12:00 - 15:59
- ☐ 16:00 - 19:59
- ☐ 20:00 - 23:59
- ☐ 0:00 - 3:59

In which platform(s) do you mostly play on?

- ☐ Xbox
- ☐ PC (Laptop and/or Desktop)
- ☐ Mobile (Smartphone and/or Tablet)
- ☐ Nintendo
- ☐ Retro Gaming Devices / Emulators
- ☐ Handheld Gaming Computer (like Steam Deck, Asus Rog Ally, and others)
- ☐ PlayStation

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What type of game do you mostly play?

- ☐ B2P (Buy-to-Play): A game that requires a one-time purchase to access but does not have mandatory subscriptions. It may offer optional paid content, such as expansions or cosmetics.
- ☐ P2P (Pay-to-Play): A game that requires an upfront payment or a recurring subscription fee to access and play, without relying on in-game purchases for core content.
- ☐ F2P (Free-to-Play): A game that is free to download and play but may include optional in-game purchases, such as cosmetics, expansions, or gameplay advantages.

What is/are your favourite game genres?

- | | |
|---|--|
| ☐ Sandbox | ☐ Shooter |
| ☐ Quiz/Trivia | ☐ Music |
| ☐ Indie | ☐ Pinball |
| ☐ Simulator | ☐ Adventure |
| ☐ Sport | ☐ Racing |
| ☐ Puzzle | ☐ RPG (Role Playing Game) |
| ☐ Arcade | ☐ Open World |
| ☐ MMO/MMORPG (Massively Multiplayer Online, RPG) | ☐ Fighting |
| ☐ Platform | ☐ Strategy |

Gaming Experiences and Motivations



Rate your agreement with the following statements: I play games because...

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I can meet new people	☐	☐	☐	☐	☐
Gaming helps me forget daily hassles	☐	☐	☐	☐	☐
I enjoy competing with others	☐	☐	☐	☐	☐
Gaming helps me get into a better mood	☐	☐	☐	☐	☐
I can do things I cannot (or I am not allowed to) in real life	☐	☐	☐	☐	☐
I like to win	☐	☐	☐	☐	☐
Gaming helps me get rid of stress	☐	☐	☐	☐	☐
It improves my skills	☐	☐	☐	☐	☐
It is entertaining	☐	☐	☐	☐	☐
It is a good social experience	☐	☐	☐	☐	☐
It helps me escape reality	☐	☐	☐	☐	☐
It is good to feel that I am better than others	☐	☐	☐	☐	☐
It helps me channel my anger	☐	☐	☐	☐	☐
It improves my concentration	☐	☐	☐	☐	☐
It allows me to be somebody else for a while	☐	☐	☐	☐	☐
I enjoy gaming	☐	☐	☐	☐	☐
They keep me company	☐	☐	☐	☐	☐
I can be in another world	☐	☐	☐	☐	☐

Spending Profile



Microtransactions refer to purchases within a game that provide players with virtual goods—from cosmetic items and character upgrades to in-game currency and additional content. These transactions can be minor, optional purchases, or more significant investments that may affect gameplay progression and competitiveness.

Do you think Microtransactions impact your enjoyment of a game?

- ☐ Yes
- ☐ No

Have you ever purchased any type of Microtransaction in a game?

- ☐ Yes
- ☐ No

How often do you buy in-game items?

- ☐ Never
- ☐ Rarely (once every few months)
- ☐ Occasionally (about once a month)
- ☐ Frequently (a few times per month)
- ☐ Almost Always (every week or more)



Which types of microtransactions have you bought?

- ☐ Other, please specify:
- ☐ Battle Passes / Season Passes
- ☐ Expansions / Additional Content / DLC's
- ☐ Boosters
- ☐ Bundles
- ☐ Loot Boxes
- ☐ In-game Currency
- ☐ Cosmetics

How much money do you spend on these items per month?

- ☐ I don't spend money on in-game items
- ☐ Under €5
- ☐ €5 - €14.99
- ☐ €15 - €29.99
- ☐ €30 - €59.99
- ☐ €60 - €100
- ☐ Over €100

Rate your agreement with the following statements: I purchase microtransactions because...

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I can avoid repeating some tasks	☐	☐	☐	☐	☐
I can complete certain parts of the game more quickly	☐	☐	☐	☐	☐
I can keep my gaming session going for longer	☐	☐	☐	☐	☐
I can play with my friends	☐	☐	☐	☐	☐
I can gift items to others I play with	☐	☐	☐	☐	☐



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	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I can participate in special events	☐	☐	☐	☐	☐
I can increase my chances of winning and becoming the best	☐	☐	☐	☐	☐
I can show off to my friends and others I play with	☐	☐	☐	☐	☐
I consider that the game items are reasonably priced	☐	☐	☐	☐	☐
I like to be able to support the game's community	☐	☐	☐	☐	☐
I enjoy being able to take advantage of sales, special offers, and/or discounts	☐	☐	☐	☐	☐
I can make my character(s) more fashionable	☐	☐	☐	☐	☐
A more stylish character can make a better impression on others	☐	☐	☐	☐	☐
I enjoy making my character(s) my own	☐	☐	☐	☐	☐
I enjoy playing the game more	☐	☐	☐	☐	☐
I like expanding my games with new experiences by purchasing additional content	☐	☐	☐	☐	☐

Have you ever spent more than what you intended to on microtransactions?

- ☐ Yes
☐ No

Have you ever regretted an in-game purchase?

- ☐ Yes
☐ No

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Figure A. 1 - Online Questionnaire



APPENDIX B

Interview Questions

1. Can you tell me a bit about yourself and your journey in the gaming world?

"My name is João. I am a professional esports player, and I started my journey in gaming under the influence of my cousin when I was 4 years old. I started playing with him at my uncle's house, and a few years later, I received my first console (*PlayStation 3*)."

2. Since you started playing, there have been numerous changes in the video game industry. What major shifts have you witnessed over the years?

"I think gaming has grown immensely because it is directly related to technology. A big and obvious shift that I, as a gamer for a lot of years, have felt is related to the rise of digital distribution. I remember in the past you only had physical copies, and nowadays it's almost the opposite, with a lot of online stores and platforms (for example, Steam, PlayStation Store, Xbox Game Pass). Another big difference that you can feel is Cross-Platform. In the past, playing with friends meant having the same console. Today, cross-play exists in a lot of multiplayer online games (for example, in EAFC™, Fortnite, and Rocket League)."

3. How do you think these changes have shaped the gaming community?

"These two shifts have significantly transformed how players interact, access games, and build communities. Today, you have more accessibility with the evolution of Digital Distribution, making gaming a more inclusive and social activity."

4. What's your opinion on the current state of the industry?

"I think gaming nowadays is a hobby for a lot of people, and in some cases, it has a professional side. It's entertainment, and with the constant evolution of technology and social media, people will consume it more than ever. The industry is getting bigger with a lot of investment, challenges, and market dynamics."



5. Do these industry shifts have any impact on you personally, whether professionally or as a player?

"Yes! I remember when I was a kid asking my parents to go shopping just to buy a video game. Now I don't remember the last time I bought a physical copy of a game. I also remember playing with my friends at my house, and now we can just play with each other in our own houses because of cross-play."

6. In your view, what factors have contributed to the shift towards Free-to-Play (F2P) models in gaming?

"F2P games reach more people because you don't restrict those who can't or don't want to pay for the game. I also think that the fact that mobile gaming has increased so much in the last decade, with smartphones, has influenced the industry."

7. How do you feel about the monetization strategies used in F2P games, especially microtransactions?

"I think that's a strategy that, in the long term, can exceed the earnings from traditional one-time purchases. I spent some money on F2P games (like Fortnite). People are consumers, and if you have a good strategy, with a store or a battle pass, players can choose whether and how much money they want to spend, unlike a fixed-price game."

8. Can these monetization strategies affect the life of a pro-player? Do you think they impact casual gamers in the same way?

"I think it affects people who can struggle to deal with hype or can't control their expenses. In general, pro players often feel pressure to spend for competitive reasons. Casual gamers can feel influenced by social media, which can push them toward purchases."

9. In your opinion, can in-game purchases create an environment where skill alone is not enough to be successful in a game?

"Yes! In my case, playing EAFC™, which players from the competitive scene call a pay-to-win game (P2W), you need to build the best squad possible at the beginning of the game, so you can start grinding it. What pros do is buy FC Points (previously called FIFA Points) and then open a lot of packs. In some cases, it's really hard to compete if you spent \$1.000 in the game against a pro that spent \$5.000, for example."



10. Do you feel there's pressure to spend money, either from the game's design or from peers in the community?

"In my opinion, no, but I understand that some people can feel that, mostly because of their peers in the community."

11. Do you think Free-to-Play games are the future of the industry?

"F2P games are already a dominant force in the gaming industry, but I think premium single-player and subscription-based models will still exist. Maybe F2P games can reach a certain level of backlash because people will get tired of this model."

12. How do you see the gaming industry moving forward in the coming years?

"I think in the next years you will see a lot of AI Game Development and AI Experiences, and Cross-Platform will grow even more. Gaming will become more connected, thanks to AI-driven content. Nonetheless, single-player and premium games will still have their place."

Figure B. 1 - Interview



ANNEX A

RE: NOVA IMS | Ethics Committee - NEED REVIEW

EC
To: Diogo Filipe Abelho Gonçalves; Roberto Henriques; Cc: Ethics Committee

Tuesday, 8 April 2025 at 23:35

Dear Diogo Gonçalves,
Dear Professor Roberto Henriques,

Thank you for filling in the Research Ethics Checklist. After reviewing your request, you can proceed with the study as we do not foresee any major ethical concerns with the project.

Project No.: **DSCI2025-3-179287**

Project Title: **The evolution of the Gaming Industry: Monetization strategies and Players Experiences**

Principal Researcher: **Diogo Filipe Abelho Gonçalves**

according to the regulations of the Ethics Committee of NOVA IMS and MagIC Research Center this project was considered to meet the requirements of the NOVA IMS Internal Review Board, being considered **APPROVED** on 08/04/2025.

It is the Principal Researcher's responsibility to ensure that all researchers and stakeholders associated with this project are aware of the conditions of approval and which documents have been approved.

The Principal Researcher is required to notify the Ethics Committee, via amendment or progress report, of

- Any significant change to the project and the reason for that change;
- Any unforeseen events or unexpected developments that merit notification;
- The inability of the Principal Researcher to continue in that role or any other change in research personnel involved in the project.

Lisbon, 08/04/2025
NOVA IMS Ethics Committee
ethicscommittee@novaims.unl.pt

Cristina Oliveira
Gestora executiva do centro de investigação MagIC | Executive manager of the Information Management Research Center (MagIC)

Find out more about our research at <https://magic.novaims.unl.pt/en/>

Team member of RIM Roadmap - Co-creating the future of Research Management (<https://rimroadmap.eu/>)

<https://novadot.pt/0000-0002-0987-7961>

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ANNEX B

RE: NOVA IMS | Ethics Committee - NEED REVIEW

EC
To: Roberto Henriques; Diogo Filipe Abelho Gonçalves; Cc: Ethics Committee

Friday, 14 March 2025 at 15:15

Dear Diogo Gonçalves,
Dear Professor Roberto Henriques,

Thank you for filling in the Research Ethics Checklist. After reviewing your request, you can proceed with the study as we do not foresee any major ethical concerns with the project.

Project No.: **DSC12025-3-105154**

Project Title: **The evolution of the Gaming Industry: Monetization strategies and Players Experiences**

Principal Researcher: **Diogo Filipe Abelho Gonçalves**

according to the regulations of the Ethics Committee of NOVA IMS and MagIC Research Center this project was considered to meet the requirements of the NOVA IMS Internal Review Board, being considered **APPROVED** on 14/03/2025.

It is the Principal Researcher's responsibility to ensure that all researchers and stakeholders associated with this project are aware of the conditions of approval and which documents have been approved.

The Principal Researcher is required to notify the Ethics Committee, via amendment or progress report, of

- Any significant change to the project and the reason for that change;
- Any unforeseen events or unexpected developments that merit notification;
- The inability of the Principal Researcher to continue in that role or any other change in research personnel involved in the project.

Lisbon, 14/03/2025
NOVA IMS Ethics Committee
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Data with Purpose.

