The Roles of Product Innovation, Product Attributes, Digital Platform Capabilities, and Customer Engagement, Towards Customer Loyalty in The Video Game Industry

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Abstract. The development of the video game industry has captured the largest market share in the entertainment sector. A phenomenon occurring in the video game industry is the failure of new game launches to replicate the success of their predecessors. This study seeks to explore the roles of product innovation, product attributes, digital platform capabilities, and customer engagement on customer loyalty in the video game industry to understand the reasons behind this phenomenon. A total of 350 questionnaires were distributed, and 254 respondents participated, resulting in a response rate of 72.5%. All respondents were video game players located in Indonesia. The research findings indicate that higher engagement of video game players with a particular game makes them reluctant or resistant to switching to other games, even if those games are released by the same company.

Keywords: *video game industry, product innovation, product attributes, digital platform capabilities, customer engagement, customer loyalty.*

1 Background

The history of video games is categorized into six distinct periods: the early era, the emergence of home consoles, the video game industry collapse, the initial console conflict, the advent of 3D gaming, and the contemporary era of gaming [1]. The early days refer to the period in 1952 when the first game, called OXO or tic-tac-toe, was established. The game was developed by British academic A.S. Douglas as a component of his doctoral thesis at the University of Cambridge [1]. Tennis for Two was developed by William Higinbotham in 1958 using a sophisticated analog computer [1]. Spacewar! was conceived by Steven Russell at the Massachusetts Institute of Technology in 1962 [1]. Spacewar! holds significant importance and exerts a profound influence on the nascent era of gaming. The inception of the Home Console era signifies the emergence of home video gaming consoles. The inaugural household gaming system, dubbed "The Brown Box," was created in 1967[1]. The "Brown Box" was a versatile video gaming console that could be connected to a television and used to play multiple programs. The development of this system was undertaken by Sanders Associates, Inc. The Atari 2600, a home system featuring a joystick and interchangeable cartridges, was launched by Atari in 1977. This allowed users to access a diverse range of video games [1]. During this period, notable games like Space Invaders, Donkey Kong, and Microsoft Flight Simulator came into prominence [1].

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The Video Game Crash refers to a period in which numerous computer and video game companies experienced severe financial decline [1]. The North American video game industry had a substantial decline in 1983. The causes that contributed to this phenomenon were the saturation of the market with gaming consoles, the rivalry posed by computer video games, and the abundance of low-quality games available [1]. An infamous instance was the publication of the game "E.T." by Atari, which was based on the film of the same name. It gained notoriety for being one of the most poorly constructed games in history [1]. In 1989, Nintendo, a Japanese corporation specializing in video games, launched Super Mario Bros, The Legend of Zelda, and Metroid. Nintendo's games persist and flourish in the present era [1].

The First Console War was characterized by the proliferation of gaming consoles released by video game companies. Sega introduced the 16-bit Genesis platform in 1989, and it gained a competitive edge in the market with the debut of Sonic the Hedgehog in 1991, surpassing its rivals [1]. In that same year, Nintendo also unveiled its latest gaming console, the 16-bit Super NES, which ignited fierce competition among gaming consoles in the video game industry. The advent of 3D Gaming signifies the commencement of consoles' capability to support and render three-dimensional visuals in video games, therefore giving rise to the proliferation of several video game enterprises [1].

Sony emerged as the firm that introduced the highest-selling gaming console in history. This was due to Sony's implementation of backward compatibility in its published video game systems, enabling them to run titles from prior console generations. Sony introduced the PlayStation 2, which was the pioneering gaming console to incorporate DVDs.

The Modern Age of Gaming is defined by the progressive advancement of the video game industry. The PlayStation 3 was the pioneering system to include Blu-ray technology, which resulted in enhanced graphics and the introduction of online gameplay. In this period, the emergence of social media resulted in the development of a multitude of games that could be played on platforms like Facebook.

Mobile games have also become prominent in the video game industry, with titles such as Angry Birds having a revenue of $200 million in 2012 [1]. The history of video games demonstrates a strong correlation between the progress of video game development and the introduction of innovative ideas by firms or developers. These advances are not only implemented in the gaming consoles but also in the video games themselves. An instance of this is "The Legend of Zelda," which was originally launched in 1989, and its most recent installment was released in May 2023. In June 2023, the latest installment in the Zelda series, titled "The Legend of Zelda: Tears of Kingdom," achieved sales of 18.51 million units [2]. The sales success of "The Legend of Zelda: Tears of Kingdom" also played a role in the rise of Nintendo Switch system sales, which reached a total of 125.62 million units [3]. The example of "The Legend of Zelda: Tears of Kingdom" demonstrates that product innovation in video games can have a significant influence on the digital platforms utilized for playing such games.

The extensive chronicle of the video game business has had a significant role in its swift advancement. The worldwide video game business is forecast to experience a steady increase in annual revenue from $108.9 billion in 2017 to $128.5 billion in 2020 [4]. By contrast, the film

industry is expected to grow from $41.2 billion to $49.3 billion, while the music industry is forecast to climb from $49.5 billion to $55 billion. The video game industry is established as the prevailing cultural influence in the realm of media entertainment [5]. Platforms such as the Apple App Store and Google Play are expected to contribute 34% to 42% of the annual revenue of the video game business, namely in the mobile gaming market on smartphones. This amounts to over $64.9 billion USD [4].

The rise of video games as a form of entertainment is credited to the progress made in the digital realm, particularly with platforms such as Twitch and YouTube live streaming, which have played a substantial role [6]. These live-streaming sites provide a venue for casual players to showcase the video games they are playing and for esports events. This advancement has resulted in a phenomenon where a significant portion of sports enthusiasts also engage in the viewing of esports [6].

The substantial market size of the video game business can be due to various factors, including the emergence of streaming and the participation of technology companies, advancements in technology, merchandising efforts, the expansion of market demographics, and the popularity of vintage video games [7]. The emergence of live streaming and the active participation of technology businesses signify the transformation within video game corporations as they develop digital platforms for real-time broadcasting and game acquisitions. The digital platform Steam was launched in 2003 [8]. Steam transformed into a digital platform for distributing video games, resulting in a decline in the reliance on physical discs for game distribution. According to teknologi.bisnis.com in 2022, Steam garnered a substantial user base of 47 million active users and established itself as a prominent digital platform for avid video game enthusiasts.

The progressions in digital platforms have facilitated the process for producers to make their released video games accessible to players. Developers and players both derive benefits. Players derive advantages from maintaining a continual awareness of the most recent games and changes pertaining to the video games they engage with.

Technical innovation in the video game industry pertains to the development of novel advancements in gameplay, predominantly propelled by the arrival of virtual reality (VR) hardware. Virtual reality allows players to physically interact with the video game by using their body motions. Oculus VR is a prominent virtual reality gaming device, which was purchased by Meta in 2014 for a sum of $2 billion [8].

Merchandising is a tactic utilized by Video game firms that want to create supplementary income. An example of this is the widely known video game Assassin's Creed, created by Ubisoft, which was made into a movie in 2016 starring well-known actors [8]. Moreover, the highly accomplished cinematic rendition of Sega's renowned game Sonic the Hedgehog in 2020, with acclaimed performers, achieved a remarkable feat by establishing a new benchmark for the highest opening weekend revenue among films based on video games [8]. On the other hand, there are situations where the opposite happens. Square Enix released a video game inspired by the Marvel Avengers movie, leading to financial setbacks for the company. Square Enix incurred a loss of $64 million during the release of the Marvel Avengers game in 2020 [9].

Another emerging trend in the video game industry involves expanding the market by targeting

specific demographic groups [8]. Gaming attracts individuals from diverse age groups and genders, resulting in a rather balanced demographic composition. China's dominance in the video game business, with a market capitalization of $84.8 billion in 2022, can be attributed to the significant impact of demography [10]. Meanwhile, Indonesia's market share is increasing, but it is not as significant as China's. The expansion of the gaming industry in Indonesia is significantly influenced by demographics. In 2022, China had the highest market capitalization in the video game business, amounting to $84.8 billion. Meanwhile, the gaming market in Indonesia has emerged as the 16th largest internationally and the largest in Southeast Asia. By the end of 2021, sales in Indonesia had reached $1.92 billion [11]. Indonesian game producers only hold a meager 0.4% share of the video game market [11].

The expanding demographic in the video game market has resulted in a growing player base, hence elevating the demand for video games. Game companies have recreated vintage video games from the early days of the business, appealing to both nostalgic fans and new generations as an attraction. In response to this trend, Nintendo introduced its latest gaming console, the Nintendo Switch, which has the capability to play the company's previously released classic video games [8]. Upon examining the historical progression of the video game industry and the subsequent transformations within video games, it is evident that innovation, video game characteristics, and digital platforms are pivotal factors in the advancement of the industry. Additionally, it is worth noting that not all video games created by creators yield revenues for the companies. Elena Ponza's qualitative study reveals that innovation from video game console providers can confer a competitive edge in the video game business [12].

2 Theoretical framework and hypotheses

2.1 Product Innovation, Product Attributes, Digital Platform Capabilities, and Customer Engagement

Innovation yields several results, specifically: (1) Product Innovation, (2) Process Innovation, (3) Marketing Innovation, (4) Business Model Innovation, (5) Supply Chain Innovation, and (6) Organizational Innovation [13]. Product innovation is categorized into various forms, including: (1) Cost Reductions: implementing strategies to decrease the expenses associated with producing a product and subsequently reducing market prices in order to maintain competitiveness. (2) Product Enhancement: the act of adding or enhancing features of a product to replace its original iteration. (3) Line Extensions: Additional features and options are included in existing offerings, bringing distinctive advantages and functionality in comparison to the original product or current product lineup. (4) Market Expansion: exposing the current product to previously untapped markets. (5) Novel Applications: offering a fresh role or a novel functionality to a product, (6) Introduction of Novel Product: Presenting a new item to the company, however it does not belong to a new category for customers. Furthermore (7) Novel product: A groundbreaking creation that introduces something completely original and previously non-existent in the market [13].

Product innovation leads to the development of specific characteristics or qualities for a product. Within the realm of video games, this phenomenon is evident in the form of inventive gaming mechanics, advanced functionality, compelling narratives, high-quality graphics, and other related aspects. The relationship between product innovation and product qualities is positively correlated. The ongoing rise of digital platforms is further enhanced by innovation on these platforms. This phenomenon is clearly observed in the chronicles of video games, wherein

gaming systems undergo continuous advancements to augment their functionalities, hence enabling them to accommodate ingeniously crafted video games. Furthermore, digital platforms are implementing innovations to streamline the distribution of video games, thereby enabling game producers to efficiently and economically reach consumers. Customer engagement is influenced by two factors: satisfaction and emotion. Player engagement with the video game can be improved via innovation, product qualities, and digital platform features that boost player satisfaction.

2.2 Product Attributes, Digital Platform Capabilities, Customer Engagement, and Customer Loyalty.

The average lifespan of a game platform is around 5 years, and customers must purchase a new generation or upgrade their current game platform in order to run the latest video games [14]. From this, every development made by video game developers requires game platform companies to enhance or release the latest generation in order to run those video games. The genre and the features of a video game have a significant impact on the engagement of players towards the game. The genre of a video game also influences its potential success among buyers [15].

2.3 Digital Platform Capabilities, Customer Engagement, and Customer Loyalty.

The development of digital platforms enables video game developers to easily provide information to video game players and enhances engagement between players and game development companies. Video game developers also utilize digital platforms to disseminate information and updates about the launch of new video games, encouraging repeat purchases from players.

2.4 Customer Engagement and Customer Loyalty

Bowden postulated customer engagement as a psychological process that leads to the formation of customer loyalty and returns[16]. Patterson et al. (2006) defined customer engagement as a psychological state that is characterized by a degree of vigor, dedication, absorption, and interaction. The psychological processes that occur while playing video games can lead players to become loyal to the game development company they are playing.

3 Data and Methods

3.1 Sample and data collection

The data for this study is collected from video game players in Indonesia. Data collection was done from October to November 2023 using online questionnaires which were distributed to the targeted respondents. The total respondents used in this research are 254 video game players. After further data screening with SPSS, six respondents were flagged as outliers through a multivariate outlier screening with Mahalanobis Distance Analysis. Because of this, the dataset was cleansed of these extreme cases. After all the screenings were complete, 248 participants remained in the trial. In the subsection that follows, we will go into greater depth on the steps involved in data screening.

3.2 Measures

The measurements for each construct were taken from the previous studies' validated measurements. It was measured using a 5-point Likert scale, ranging from 1 (strongly disagree)

to 5 (strongly agree) for Product Innovation, Product Attributes, Digital Platform Capabilities, Customer Engagement, and Customer Loyalty. The questionnaire was translated into Indonesian using Brislin back-translation with a total of 25 respondents in the pilot test to ensure the survey's face validity. Focus Group Discussion (FGD) was conducted to discuss the questions with outliers that had the possibility of misinterpretation and refined the wording to make it easier to understand by respondents. The targeted respondents received the final questionnaires.

3.3 Independent Variables

Product Innovation measure with 5 items. The PI measurement adapts from Rondeau et al., (2000); Koufteros et al., (2005) [17]. Sample items for PI include: "The developer of the video game that I play responds well to customer need for "new" product features". The Product Attributes measure with 13 items and adapt from Earth Chandrruangphen, Nuttapol Assarut & Sukree Sinthupinyo [18]. Sample items for Product Attributes include: "The developer of the video game that I play has a wide variety of video game products to choose from". Digital platform Capabilities were measured with seven items and adapted from Javier Cenamora, Vinit Paridab, and Joakim Wincentd [19]. Sample items for Digital Platform Capabilities include: "Digital platform of the developer of the video game that I play, can easily be accessed by customer". Customer Engagement was measured with 21 items and adapted from Cheung et al. [20]. Sample items for Customer Engagement include: "I can continue playing this video game for very long periods at a time".

3.4 Dependent variables

Customer Loyalty – CL measures 10 items and is adapted from Claudia Bob and Oana Ciobanua (2012)[21]. Sample items for Customer Loyalty include: "I bought this video game because I really like it".

3.5 Control Variables

This study is using control variables, such as the respondents' gender, age, education, work, game platform, time, and spending.

3.6 Data analysis

Descriptive statistics analysis was conducted using SPSS ver. 20, followed by Structure Equation Model analysis using Lisrel 8.8 for hypotheses testing. The measurement model analysis evaluates the data reliability using Composite Reliability (CR) and the data validity using Average Variance Extracted (AVE) of each construct.

4 Result

4.1 Descriptive statistics and correlations

The descriptive statistic results show the correlation coefficients less than 0.75. Therefore, there is no multicollinearity exists among the constructs used in this study. The variance inflation factor (VIF) results on the independent variables reveal that all VIF scores are ≤ 3.00 and Tolerance ≥ 0.30, which also suggests that multicollinearity does not exist. Table 1 shows the descriptive statistics and correlations among the constructs used in the study.

Table 1 Descriptive Statistics & Correlations

Descriptive Statistics & Correlations										
No	Variable	Mean	SD	Min	Max	1	2	3	4	5

1	Product Innovation	3,96	0,75	1	5	1000				
2	Product Attributes	3,9	0,74	1,83	5	.599**	1000			
3	Digital Platform Capabilities	4,04	0,71	2	5	.527**	.654**	1000		
4	Customer Engagement	4,04	0,72	1,9	5	.576**	.514**	.460**	1000	
5	Customer Loyalty	3,94	0,80	1	5	.503**	.601**	.550**	.627**	1000

Note: ** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed); N=246

Source: Authors own study

4.2 Measurement model analysis

The measurement model analysis shows that the standardized loading for all constructs was above 0.30, with DTR as the exception, and the AVEs for SFM were below he recommended threshold of 0.50. All CRs and Cronbach's Alphas were above the threshold of 0.70 [22] indicating good reliability measurement. The model fit indices represented by $\chi 2/df$ below the recommended threshold of 3.0, RMSEA below the threshold of 0.06, SRMR below the threshold of ≤ 0.08, GFI, NNFI, CFI, and IFIs were all above the threshold of 0.90 [23]. In sum, the results of model fit indices suggest- ed a good fit of the measurement employed in this study. Table 2 below provides the results of the measurement model analysis.

Table 2 Measurement Model Analysis

	Single Factor Model (SFM)			Higher Order Model (HOM)			
Construct/ Variable	andardized Loadings	CR	AVE	andardized Loadings	CR	AVE	Cronbach's Alpha
PI	0.65 - 0.75 Ave: 0.70	0.82	0.49	- -	-	-	0.89
PA	0.60 - 0.79 Ave: 0.70	0.91	0.5	0.94 - 1 Ave: 0.95	0.96	0.90	0.92
DPC	0.61 - 0.81 Ave: 0.70	0.87	0.49	0.99 - 1 Ave: 0.99	0.99	0.98	0.93
CE	0.50 - 0.71 Ave: 0.62	0.93	0.39	0.93 - 1 Ave: 0.95	0.97	0.91	0.92
CL	0.6 - 0.78 Ave: 0.72	0.91	0.52	0.73 - 0.95 Ave: 0.87	0.90	0.77	0.88

Model Fit Indices										
Construct/ Variable	Single Factor Model (SFM)					Higher Order Model (HOM)				
	PI	PA	DPC	CE	CL	PI	PA	DPC	CE	CL
$\chi 2/df$	1.84	1.87	1.14	1.32	1.67	-	Perfect Fit	Perfect Fit	Perfect Fit	Perfect Fit
p-value	0.10	0.01	0.324	0.005	0.01	-	1	1	1	1
RMSEA	0.05	0.04	0.024	0.03	0.05	-	Perfect Fit	Perfect Fit	Perfect Fit	Perfect Fit
SRMR	0.02	0.03	0.024	0.04	0.02	-	Perfect Fit	Perfect Fit	Perfect Fit	Perfect Fit
GFI	0.99	0.95	0.99	0.93	0.96	-	Perfect Fit	Perfect Fit	Perfect Fit	Perfect Fit

NNFI/TLI	0.99	0.99	1	0.99	0.99	-	Perfect Fit	Perfect Fit	Perfect Fit	Perfect Fit
CFI	0.99	0.99	1	0.99	0.99	-	Perfect Fit	Perfect Fit	Perfect Fit	Perfect Fit
IFI	0.99	0.99	1	0.99	0.99	-	Perfect Fit	Perfect Fit	Perfect Fit	Perfect Fit

4.3 Structural Model Analysis

The following is an outline of the nine hypotheses that will form the basis of this study:

1. The relationship between product features and the process of developing new products.
2. How consumer involvement is related to new product development.
3. How the possibilities of digital platforms relate to product innovation.
4. The relationship between a product's features and a digital platform's capabilities.
5. The relationship between a product's features and the amount of participation and engagement from buyers.
6. How does the capacity of digital platforms relate to the degree of engagement with customers?
7. The relationship between engaged customers and loyal ones.
8. The relationship between a product's attributes and the devotion shown by buyers.
9. How the features of digital platforms relate to customer loyalty.

Five hypotheses were found to be supported by the data, two were found to be unsupported and statistically insignificant, and two were found to be statistically significant but in a negative way. Table 3 summarizes the results of the hypothesis testing in this study.

Table 3 Hypotheses Testing Result

No	Hypothesis	Structural Coefficient	T Value	Hypothesis Result
H1	Product Innovation has a positive relationship with Product Attributes	0,85	15,74	Supported
H2	Product Innovation has a positive relationship with Customer Engagement	0,58	4,81	Supported
H3	Product Innovation has a positive relationship with Digital Platform Capabilities	0,47	4,79	Supported
H4	Product Attributes have a positive relationship with Digital Platform Capabilities	0,41	4,39	Supported
H5	Product Attributes has a positive relationship with Customer Engagement	0,27	2,25	Supported
H6	Digital Platform Capabilities has a positive relationship with Customer Engagement	0,21	0,84	Not Support and Not Significant
H7	Customer Engagement has a positive relationship with Customer Loyalty	-0,57	-8,1	Not Support and Negatively Significant
H8	Product Attributes have a positive relationship with Customer Loyalty	-0,23	-3,18	Not Support and Negatively Significant
H9	Digital Platform Capabilities has a positive relationship with Customer Loyalty	-0,08	-1,29	Not Support and Not Significant

4.4 Discussion

Product Innovation, Product Attributes, Digital Platform Capabilities, and Customer Engagement [H1: Supported, H2: Supported, H3: Supported, H4: Supported, H5: Supported].

The first hypothesis, "Product Innovation has a positive relationship with Product Attributes," is supported. The structural coefficient of 0.85 and *t* values of 15.74 indicate a positive relationship between the two constructs. Product Innovation involves the process of creating new products. In the video game industry, for example, developers engage in innovation to introduce novel elements in their games. Innovation in video games can manifest in various aspects, such as storyline, image quality, features, and more. This positive relationship suggests that as product innovation increases, the attributes of the product also show improvement. It underscores the

importance of innovation in enhancing the characteristics and features of products, which is particularly relevant in dynamic industries like video game development.

The second hypothesis, "Product Innovation has a positive relationship with Customer Engagement," is supported. The structural coefficient of 0.58 and *t* values of 4.81 indicate a positive relationship between the two constructs. The innovation carried out by game developers can indeed lead to increased satisfaction among video game players, fostering engagement between players and the video game. This suggests that when game developers introduce innovative elements, features, or improvements to their games, players are more likely to be engaged and satisfied with the gaming experience. It underscores the role of product innovation in enhancing customer engagement, particularly in the context of the video game industry.

The third hypothesis, "Product Innovation has a positive relationship with Digital Platform Capabilities," is supported. The structural coefficient of 0.47 and *t* values of 4.79 indicate a positive relationship between the two constructs. The innovation happening on digital platforms aligns well with the trend in the video game industry where many developers no longer sell physical copies of their games but instead distribute and sell them through digital platforms. This shift reflects how product innovation, particularly in terms of digital distribution methods, contributes to the enhancement of digital platform capabilities. It suggests that as product innovation increases, digital platforms become more capable and efficient in facilitating the sale and distribution of products in the context of the video game industry.

The fourth hypothesis, "Product Attributes have a positive relationship with Digital Platform Capabilities," is supported. The structural coefficient of 0.41 and *t* values of 4.39 indicate a positive relationship between the two constructs. This suggests that the attributes of a video game indeed influence digital platform capabilities. In the context of the video game industry, the features, qualities, and characteristics of a game can impact how it is presented and delivered through digital platforms. This relationship emphasizes the interconnectedness between the attributes of a product and the capabilities of the digital platforms used to showcase and distribute it.

The fifth hypothesis, "Product Attributes have a positive relationship with Customer Engagement," is supported. The structural coefficient of 0.27 and *t* values of 2.25 indicate a positive relationship between the two constructs. This implies that the attributes of a video game can indeed contribute to the engagement of players with the game. In the video game industry, various attributes such as gameplay features, graphics quality, storyline, and other characteristics can influence how players interact with and become engaged in a game. This finding underscores the significance of product attributes in shaping customer engagement within the context of video games.

Digital Platform Capabilities, Customer Engagement, Customer Loyalty [H6: Not Support and Not Significant and H9: Not Support and Not Significant].

The sixth hypothesis, "Digital Platform Capabilities have a positive relationship with Customer Engagement," is not supported and is not statistically significant. The structural coefficient of 0.21 and *t* value of 0.84 indicate that there is not a significant positive relationship between digital

platform capabilities and customer engagement in this context. This finding suggests that, in the context of the studied variables, improvements or innovations in digital platform capabilities may not directly lead to increased engagement of players with video games. It's essential to consider other factors or variables that might influence customer engagement in this specific domain. Further analysis and exploration may be needed to understand the dynamics between digital platform capabilities and customer engagement in the video game industry.

The ninth hypothesis, "Digital Platform Capabilities have a positive relationship with Customer Loyalty," is not supported and is not statistically significant. The structural coefficient of -0.08 and *t* value of -1.29 indicate that there is not a significant positive relationship between digital platform capabilities and customer loyalty in this context. This implies that according to the analyzed data, improvements or innovations in digital platform capabilities may not directly lead to increased customer loyalty in the video game industry. It's crucial to explore other factors that may play a more substantial role in influencing customer loyalty in this specific domain. Further investigation and analysis may be necessary to uncover the complexities of the relationship between digital platform capabilities and customer loyalty in the video game industry.

Product Attributes, Customer Engagement, and Customer Loyalty [H7: Not Support and Negative Significant and H8: Not Support and Negative Significant].
The seventh hypothesis, "Customer Engagement has a positive relationship with Customer Loyalty," is not supported and is negatively significant. The structural coefficient of -0.57 and *t* value of -8.1 indicate a significant negative relationship between customer engagement and customer loyalty in this context. This suggests that contrary to the expected positive relationship, higher levels of customer engagement with a video game might make it difficult for players to switch to other games, even those released by the same developer. It's an interesting finding that challenges the conventional expectation of a positive correlation between engagement and loyalty. Further exploration and analysis may be needed to understand the specific dynamics at play in the video game industry and the factors influencing player loyalty in the context of high engagement. It could involve investigating aspects such as game features, community dynamics, or other elements that contribute to the unique relationship between engagement and loyalty in this particular domain.

The eighth hypothesis, "Digital Platform Capabilities has a positive relationship with Customer Loyalty," is not supported and is negatively significant. The structural coefficient of -0.23 and *t* value of -3.18 indicate a significant negative relationship between digital platform capabilities and customer loyalty in this context. This suggests that according to the analyzed data, improvements or innovations in digital platform capabilities may not directly lead to increased customer loyalty in the video game industry. The negative sign implies that higher digital platform capabilities may be associated with decreased customer loyalty, which is counterintuitive to the expected positive relationship. Further investigation and analysis may be necessary to understand the specific dynamics at play and identify other factors that could be influencing customer loyalty in the context of digital platform capabilities within the video game industry.

5 Conclusions

Innovation is a strategy employed to conquer the market. In the history of the video game

industry, it can be observed that the continuous innovation by companies in the video game industry has enabled them to endure over time (examples include Sony and Nintendo). In this study, we examine the video game industry from the perspective of gamers that they appreciate when video game development companies innovate in both newly released games and those already in existence. Gamers enjoy the addition and engagement of new features, gameplay enhancements, and fresh storylines, preventing them from becoming bored with the games they play.

The research findings also indicate that innovations in digital platforms make it easier for video game development companies to provide information about upcoming releases and updates. However, for gamers, the digital platform used by a video game developer does not significantly impact their decision to play and engage in a particular game. This is evidenced in the practice of exclusive games for a specific digital platform eventually being launched on other platforms to target a broader market. The example of the video game Tekken is that initially, the game was released exclusively on the PlayStation platform. However, a decision was made to release Tekken 7 on the PC platform, citing the broad market potential for this move (jagatplay.com, 2016). Video game players pay significant attention to attributes such as features, storyline, gameplay, and others in games launched by video game development companies. These attributes also serve as reasons for player engagement with a particular video game.

An interesting aspect of this research is that the higher the engagement of video game players with a specific game, the more challenging it becomes for them to switch to other games, even if those are released by the same video game development company. This can potentially impact the revenue of the video game development company. The inability to generate revenue here is due to the strong engagement of players to the previous video game, and the lack of success of the newly released game. The video game that was previously released has already reached a decline in its product life cycle, making it less likely for other gamers to pay attention to the video game.

The research findings suggest that video game development companies can utilize innovation to enhance player engagement. While innovation in video games can be costly, companies can collaborate in research and development efforts to reduce costs associated with innovation. To address the challenge of players being reluctant to switch to new games, video game development companies can release new paid content for their existing games. This strategy helps maintain revenue streams and keeps player engagement intact by introducing fresh content to the current video games.

5.1 Research Limitations

This study is descriptive cross-sectional research that analyzes video game players in Indonesia with games they play. The research can only highlight conditions at that specific time, and the results may not specifically address causality among constructions. The research was conducted among Indonesian gamers; therefore the results could be influenced by the cultural aspects of Indonesian gamers. The results of the study may have different outcomes if the research is conducted in different countries with different cultures.

5.2 Recommendations for Future Research

For future research, a longitudinal time study could be employed to observe the causality effects among the constructs over time. For future research, conducting studies in different countries with diverse video game player cultures could be valuable.

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