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**Do PlayStation5 product attributes drive Console upgrading?**

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The dissertation is written under the supervision of Prof. Paulo Romeiro.

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## **ABSTRACT**

**Title:** Do PS 5 Product attributes drive console upgrading?

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The number of times players must wait for a game to update its data before playing can detract from their console gaming experience. This article focuses on the decision-making processes that can be inferred from the product qualities that people seek before upgrading their gaming consoles. Apart from that, the benefits of upgrading.

As a result, a detailed interview was conducted before the focus groups. To put the theories to the test, an online cross-sectional survey was used.

The results revealed that physical product attributes such as image quality, processing speed, and product compatibility had a significant impact on the game's update to the PS5.

When purchasing new game consoles, gamers place a high value on a variety of product characteristics such as user interface and gameplay experience. Furthermore, gamers prefer a combination of tangible and intangible attributes in their gaming console because it is difficult to determine which attribute is the most desired

**Keywords:** Product Attributes, Compatibility, Perceived Value, Neglect Comparison, Status Quo, Perceived Usefulness, Upgrade, Speed\Processor, Image Quality.

## SUMÁRIO

O tempo de espera para carregar o jogo guardado, da própria consola, pode diminuir o valor da experiência enquanto jogador. Com a presente análise, pretendemos focarmo-nos no processo de decisão associado as características do produto que a maior parte dos jogadores procura ao carregar os seus jogos guardados. Para além disso, indicámos quais os benefícios de guardar o jogo na memória da consola.

Antes de conduzirmos esta abordagem em grupos de foco, agendámos uma entrevista. E, de modo a colocar em prática as teorias estudadas, realizámos um questionário “cross-sectional”. Os resultados indicaram que as qualidades físicas do produto, tais como a qualidade da imagem, a velocidade de processamento, e a compatibilidade da consola têm um impacto significativo na gravação de jogos na PS5.

Ao comprar um novo jogo, os jogadores têm expectativas altas quanto à variedade das características do produto, tais como a interface do usuário ou a experiência de jogar. Ademais, há uma preferência pela mistura de atributos tangíveis e intangíveis, pois têm dificuldade em determinar qual o atributo mais significativo, quando forçados a escolher apenas um único atributo tangível.

Palavras-chave: Atributos do Produto, Compatibilidade, Valor Apercebido, Comparação Negligenciada, Status Quo, Utilidade Apercebida, Upgrade, Velocidade\Processador, Qualidade de Imagem.

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## **GLOSSARY**

PS- PLAYSTATION

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## **CHAPTER 1: INTRODUCTION**

### **1.1 Background and problem statement**

Companies usually want to make positive steps in their software development structures. When the company's resources cannot enable it to attain this goal, third parties usually, play a vital role. Such development partnerships are critical in some industries wherein consumers are attracted by values like the usefulness of the product in addition to the market value of the product. People want to know how they can get the most beneficial elements of the products as soon as they buy them. This element is especially important in determining the breakthroughs of the gaming consoles in the market space

For businesses to make strides in the market, they should understand the elements most vital to their customers. Businesses seek to make the components they introduce to the market assist them in standing out from their competitors. One of the key elements that influence consumer choice in the gaming market is game compatibility. Game compatibility is one of the vital components that help gamers get and secure a relationship with a game and console, even before they start playing the game. The compatibility aspects will influence how customers feel and their desired outcomes as well (Gilmore et al., 2007). The relationships that consumers build as far as compatibility is involved can help extract their perception of a given product in the market. The elements that are vital for playing a vital role in compatibility are functionality and imaging (Gleich et al., 2017). This concept is crucial for companies especially when they want to design products that sell well and lines that would make more profits for them.

Product lines are made with a sense of the features that will enhance the gaming experience of the consumer (Klein, 2003). Some of the features that would make this possible are the gaming speed. Game compatibility plays a crucial role in what products the customers associate with a given brand. For a manufacturer to determine what factors are crucial when a consumer wants to buy a gaming console, they should establish the success rate for their product lines and how better they perform in comparison to the performance of their competitors (Umble et al., 2003). Of the essential considerations in the gaming business, manufacturers should be able to know how their products align well with aspects such as availability, performance speed, color rendition, and even physical features like the size and shape of their consoles. The features that consumers look for should make the gaming console compatible with their tastes in aspects of both hardware and software considerations. The

software of the gaming console should be able to accommodate future upgrades and be able to play many games. Users will always lean towards gaming consoles that have features to accommodate the games they frequently play (backward compatibility). Based on the relationships that the consumers have built, they should be able to get interested in the experiences they have with their gaming consoles. User compatibility is a crucial aspect when it comes to the accessibility of the games and the features that are necessary for a gaming experience that consumers can appreciate. The consumer experience with gaming consoles can be hindered by the amount of time they would wait when a game is patching data before it plays. This paper focuses on the decisions that are extrapolated from compatibility issues for gaming systems.

## **1.2 Problem Statement**

To sum up, the problem statement was defined as follows:

What are the product attributes that PS users value the most when they upgrade their game console?

To investigate this problem some research questions were framed to solve the problem statement:

### **Research Questions**

The following research questions have been formulated to answer the problem statement.

- RQ1: What are some of the attributes of PS5 that influence consumers to upgrade to it for their games?
- RQ2: How do perceived usefulness and perceived value affect the Intention to Upgrade to PS5

### **Hypothesis**

- H1: Product attributes positively affect the Intention to Upgrade to PS5
- H2: Product attributes positively affect the Perceived usefulness of PS5

- H3: Product attributes positively affect the Perceived value of PS
- H4: Perceived usefulness positively affects the Intention to Upgrade to PS5
- H5: Perceived usefulness positively affects the Value Perception
- H6: Value Perception positively affects the Intention to Upgrade to PS5

### **1.3 Relevance**

The gaming experience of various consumers has a direct relationship with their gaming compatibility. For gaming lovers, compatibility is influenced by factors that cover the hardware and software parts of the games. User experience is one of the crucial elements that companies explore when designing a gaming console. Developers, make various elements spike the interest of their consumers through the interfaces that they create for them. Simple elements like the visibility of the titles and sound compatibility play a role in how consumers interact with these games. For modern gaming consoles, internet connectivity improves the gaming experience because it enables consumers to download and upgrade games of their liking. With system updates for consoles, game developers learn to build a solid relationship with their consumers because they make the games interesting by improving their compatibility.

The gaming experience is likely to be enhanced by how compatible a game is with the gaming consoles. Additionally, people are likely to go for games that take the shortest time to load and give the best user experience as well. Hardware components like the drivers can make a business make profits or losses. For businesses to succeed, they should match the gaming experience to the latest technology the market can offer. Even though these elements can create a higher price, consumers will most likely make ways to match up for the increased cost. People are currently purchasing gaming consoles that have a solid-state drive for this reason. The solid-state drive comes with features that make the consoles smaller and more compact, in addition to reading data faster than standard hard drives. Gaming compatibility, therefore, plays a crucial role if a business wants to make profits. Businesses should partner or associate themselves with third-party developers/components if they would like to set themselves above the competition that the market offers when sourcing out the best features for their consoles.

## **1.4 Research methods**

To investigate further the problem statement, some information must be collected. In this research, both primary and secondary data were used. Secondary Data is data that has already been collected for other research purposes. It is helpful to understand the research topic better and to define the research problem (Saunders et al., 2008)

The availability of secondary data allows for understandings more about the topic of this research. This data, predominantly based on data collected from different websites and academic journals and mostly set out in the next chapter, enabled the definition of a logical and consistent path toward the development of theoretical relationships between the variables.

Regarding the primary data, two different methods have been applied to reach a full overview of the research. First in-depth interviews to understand which product retributes gamers value the most. Secondly, a Focus group was used to make gamers choose the stimulus that represents those different attributes.

## **1.5 Dissertation outline**

The dissertation is divided into six chapters. The next chapter presents the literature review and the development of the hypotheses underlying this investigation. The literature will explain the importance of the independent variables and their impact on upgrading decisions. The second part is the methodologies that aim to explain and provide a detailed description of the investigations to answer the hypothesis. The third part contains the constructs that constitute the questionnaire and the procedure, for how each statistical test will be applied to the data obtained, which will be detailed in this chapter. The Fourth part explains the pre-survey results from both Focus groups and in-depth interviews. The fifth and last part contains the conclusion and the main findings of the research managerial and academic implications of this research, limitations, and proposals for further research.

## **CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK**

This chapter presents the theoretical framework of the dissertation topic. Here, the existing knowledge and data collected about this topic are drawn from other research's empirical evidence based on their previous studies of different variables.

The first variables are the tangible product attributes of Image quality, compatibility, and processor speed.

Secondly, the literature presents two mediators -- perceived usefulness and perceived value.

Lastly, the review explores the dependent variables of upgrading and the relationship between the independent variables.

### **2.1 Product Attributes**

Consumers have different influences while buying products, for some, their choices are either emotional or behavioral choices. Based on research, buying attitude is affected by several factors such as experience, prices, loyalty, etc.

However, those attributes are classified into tangible and intangible. Tangible attributes mean that an attribute is accessible through the senses. During the buying process, consumers are presented with different stimuli, those stimuli present both tangible and intangible attributes. A tangible attribute arises directly from the product and may be detected by the individual through one or more of the five senses. Hence, product attributes that may be seen, touched, heard, tasted, or smelled are tangible attributes. (Elizabeth C. Hirschman (1980)

Having said that, intangible product attributes include quality, reliability, and aesthetics, among others, those attributes have a great impact on consumer buying behavior, and they easily can change the mind of the consumer in favor of a competing brand.

Therefore, you must manage tangible and intangible product attributes properly. Simply, they are the criteria a customer uses to arrive at his or her buying decision.

### **2.1.1 Processor\ Speed**

The massive progress in artificial intelligence industries has a noticeable impact on the lifestyle of all society. AI technology is widely used in most information hardware, software, and networking, underlying all consumer technology such as game consoles. (Hoi-Jun Yoo Sept 2020)

Gamers who own different game consoles are seeking newer devices with different features such as improved processor speed. Even though they might be satisfied with their current console, they still want more and more processing power to cope with the seemingly daily increase in innovation in the gaming industry.

Moreover, the device processor enhances the game's experience for users all over time. Experiencing such a feature is an irreplicable attribute when talking about buying or upgrading to a new game console.

### **2.1.2 Image Quality**

Gameplay is a balanced composition of interaction, navigation, communication, and presentation that allows players to accomplish the goal of the game. Good gameplay allows the player to interact appropriately within the game world and sets certain limits without hindering or restricting the desired actions.

What makes a good game? Or: What is the most important feature of a game? The answer to these questions is relative, as it can vary from person to person. Some video gamers value the speed of games and others the sound, but undoubtedly the image quality of a game is critical for all gamers. Today's gamers are more sophisticated. They can tell the difference between a good game and a bad one based on their experience with games on different consoles such as PC, XBOX, or PS.

When playing a game, players look for challenges, mastery, and rewards, all wrapped up in engaging and motivating activities. Hence the importance of gameplay as a critical cornerstone of game design and game mechanics as a tool with which the player must interact to perform gameplay activities (Fabricatore 2007). Marketing wisdom states that success or failure depends mainly on how well it meets customer preferences, needs, and expectations. Therefore, knowing the player and their preferences is crucial to developing successful digital games. This leads to the important question: What do players expect from a good game?

### **2.1.3 Compatibility**

Businesses must determine whether to make their components interoperable with those of their competitors in industries where consumers can assemble their systems. Specifically, we investigate a two-stage game in which two fully integrated businesses make their compatibility decisions before engaging in price competition, expanding the number of systems accessible such that some consumers benefit from compatibility. In contrast, others suffer because of incompatibility.

A larger range of concepts is covered by the phrase "compatibility" than the more precise term "donor-cause connection." When it comes to the construction or emergence of connections, the term "compatibility" does not imply the presence of a dimension. Although the term congruence is often used to refer to a functional link, however, this is not necessarily the case. Researchers believe that consumers' impressions of the relationship are more essential than objective data to achieve favorable outcomes (Kanchanatane et al., 2014). As a result, the degree to which the public accepts a product or service can be used to determine compatibility between them. According to the research, two types of congruence can determine compatibility: functional congruence and image congruence (Davis, 1989). Another aspect that can influence compatibility is an individual's personality features and connection to the cause they are advocating or supporting.

In many cases, companies that offer numerous products sell systems, which are product lines in which each product cannot be used individually or is not generally used but may still be purchased separately from the others, for example, Sony. It is possible in some industries to employ any component of a system manufactured by one business with any component manufactured by another firm in the same system (Matutes & Regibeau, 1988). The same game can be played by two people simultaneously on both platforms, but their experiences can be very different because of different loading speeds or even faster processing on one platform over the other.

Sometimes, systems created by different businesses are completely incompatible with one another. The home video market, for example, is a good illustration of this. Suppose there is any evidence that product compatibility, or the lack thereof, results from purposeful choices made by manufacturers. In that case, it is imperative that the incentives



that corporations must make compatible products be examined and whether such incentives are socially desirable.

The aspects that determine the success of a console must first be understood to completely comprehend what motivates consumers to purchase a video game system. Marco (Zamarian et al., 2003). One answer is obvious - having fun while playing games - but it is critical. Whether or not a system will succeed in the long run is determined by how well its games perform (or, more modestly, how well its games match client expectations). Performance, affordability, availability, reliability, and even the shape, size, and color of a game are significant considerations. Still, when all these considerations are combined and taken to extremes, they cannot make up for the absence of games that are enjoyable to play.

The link between software and hardware sales, on the other hand, is significantly more complicated. The 'network effect' has a significant impact on the video game industry: the greater the number of high-quality games accessible, the greater the size of the installed base (Zamarian et al., 2003). The result is that users will select a gaming system based on the types of games that they enjoy playing the most. In contrast, a software developer will choose which console to build based on the current installed base of the platform in question.

If the installed base is not large enough, third parties will frequently wait until they reach a break-even point before producing new games or porting games that have proven popular on other gaming platforms to newer platforms such as the Nintendo Switch. Consumers, on the other hand, will not find the gaming experience on a particular console interesting if the library of games available for that console does not include some so-called 'killer apps' and will either stick with their current gaming device (if they have one) or switch to another platform (Matutes & Regibeau, 1988). Any new entrant to the console business must keep this in mind. They must ensure that many high-quality titles are accessible at launch and that these are expanded upon over the next twenty-four months to swiftly create a big installed base (Baird, 2021). The result will be a rise in the number of titles on the system, which will entice third-party developers.

Modern consoles increasingly rely on the Internet to download digital games and console-specific system upgrades and game patches. Local nonvolatile storage has seen significant growth in usage as more and more content is distributed and consumed digitally. Consoles like the Sony PlayStation 4 feature up to 1 terabyte of nonvolatile storage. Loading times have gotten longer and longer as more data is needed for newer games. Player experience is significantly affected when they are forced to wait lengthier periods before they

can resume playing (Baird, 2021). Consoles in the past included hard disk drives (HDDs) as standard equipment due to their low cost.

On the other hand, they were much slower than solid-state storage devices (SSDs) (Baird, 2021). New consoles like Sony's PlayStation 5 will ship with solid-state storage compatible with NVMe Express. Consoles can take advantage of SSDs being more widely available because they have gotten cheaper in recent years (NVMe). A read speed of 5.5 GB per second is achieved when reading data from internal storage on the PlayStation 5.

If a company has strong recreational software development capabilities, the goal of building a strong set of titles, while not cheap, is relatively easy to achieve. However, if a company does not have these skills, it must find a way to attract third-party developers to its cause.

In an earlier generation of game consoles, between the decline of Atari and the rise of Sony (circa 1983-1994), the industry leaders, namely Sega and Nintendo, always opted for the first solution, i.e., they invested heavily in internal development teams. This original resource of the company, used as game hardware, was specifically considered as the medium for the added value of the game software. Unlike IBM-compatible PCs, video game consoles are not open systems. Meaning companies are prohibited from developing or publishing.

Many excellent games are available on the PlayStation 5, but only a few that are truly exclusive to the system take full advantage of its potential. Millions of gamers have been persuaded to upgrade their systems in anticipation of the next generation of blockbuster titles, thanks to Sony's PlayStation 5.

The total number of truly unique games that have been released for the PlayStation 5 in the time since its release, which was around a year ago, is around 4000 games. In the beginning, Sony was staunchly opposed to cross-generation gaming, arguing that it was critical to keep the two generations apart and inform buyers that Sony's PlayStation 5 would be the next big thing (Baird, 2021). Contrast this with Microsoft's strategy, which was centered on cross-generational compatibility to ensure that Xbox One owners were not left behind.

According to the investigation findings, the PC version of the game has already been leaked. All games will probably be launched only for the PC shortly. It will be the first time PlayStation-exclusive games will be made available on the PC (Baird, 2021). As a result, it is difficult to predict how many PS5-exclusive games will be launched before the console is

officially retired. Given the game's intimate ties to the PlayStation 5, Astro's Playroom may be the last man standing, as moving it to the PC would be detrimental.



Source: [https://www.youtube.com/watch?v=G9IRiB7\\_fcM&ab\\_channel=gameranx](https://www.youtube.com/watch?v=G9IRiB7_fcM&ab_channel=gameranx)

The PlayStation 5 is an intriguing next-generation gaming platform in both power and design. Because of its outstanding DualShock 5 controller, spatial 3D audio technology, and super-fast SSD, many gamers will be eager to get their hands on Sony's new PlayStation machine. However, a couple of small defects prevent it from being rated as a five-star product, and it may not be suitable for all setups as a result (Baird, 2021). However, it is a significant improvement over the PS4 and a stepping-stone to next-generation gaming.

#### **2.1.4 Backward compatibility**

The PS5 is backward compatible with almost all PS4 games. Some of them even benefit from the Game Boost. This feature provides higher frame rates, reduced loading times, and better graphics. In addition to backward compatibility, several PS4 games offer a free upgrade to PS5. This means that your compatible PS4 games will allow you to play the PS5 version for free once you have purchased the console. As convenient and beneficial as it is, this cross-gen feature was often responsible for confusing gamers. Indeed, the latter could not easily tell the difference between the backward-compatible PS4 version and the PS5 version when they wanted to start a game. This problem has just been fixed with a new update. Sony has made the process virtually seamless, but it still thinks it could be better. So, when you insert a Blu-ray for upgradable play, its icon will appear in your main menu. You can copy this game and play it through backward compatibility, or you can claim and download the free update from the PS Store. The problem is that at times the system does not work properly. In a test case with No Man's Sky, the console ended up downloading the PS5 version and then installing the PS4 copy anyway. It's not the end of the world, but it is less streamlined than Sony hoped. It's manageable, and most limitations seemed to be quirks in the system. Clearer visual identification might assist in fixing some quirks. Most notably, larger PS5 and PS4 logos on each game version would assist the player in knowing which version was installed. Presumably, future firmware updates will help.

## **2.2 Perceived usefulness**

Perceived usefulness is how a person believes that using a particular system would improve their performance. This is derived from the definition of the word useful: capable of being used beneficially. In turn, a system with high perceived usefulness is one in which the user believes in a positive relationship between use and performance.

Several different lines of research demonstrate the importance of usefulness as a determinant of consumer behavior.

The Diffusion of Innovation Theory can be used better to understand the features of technology use and consumption when breakthroughs occur. This internal communication helps individuals decide whether they accept or reject new developments. The five inventive attributes to seek in a product or service are relationship advantage, compatibility, sophistication, technology readiness, and observability (Kanchanatane et al., 2014).

Using this theory, it is possible to understand how inventions spread through certain channels over specific periods. Perceived usefulness, compatibility, and complexity are the only three aspects of innovation that have been consistently evaluated. Perceived compatibility is a term used to describe how potential adopters believe innovation is compatible with their existing beliefs, requirements, and past experiences (Kanchanatane et al., 2014). There are direct and indirect intentions created by a person's impression of compatibility.

## **2.3 Perceived value**

As a marketing concept, "customer perceived value" has a significant impact on how products are advertised and priced. Various factors, such as ease, cost, and reputation, might influence a customer's perception of the product's worth. The phrase "customer perceived value" relates to how a customer sees a product's worth to them (Sánchez-Fernández, & Iniesta-Bonillo, 2007). The success of a product or service is determined by the perceived value that customers place on it. When customers are evaluating their products to see if they fit their desires or requirements, customer perceived value suggests that they are comparing

that appraisal to the price they are paying. Additionally, the perceived value may be affected by price as well.

Consumers' opinions on the perceived value of a product may be predicted using this concept. A firm or company may raise the price or sell more units if the item's perceived worth rises, both of which result in larger profits (Sánchez-Fernández, & Iniesta-Bonillo, 2007). Marketers attempt to use their knowledge of their consumers' preferences to raise the perceived worth of products and services. Market research, including data collecting, experiments, and surveys, is used to accomplish this.

The design or look of a product or service is referred to as its form. Customers who place a high value on aesthetics may be more likely to pay more for a product if its aesthetics are to their taste. An application or software with a basic user interface and a clean design may be more enticing to certain customers than one that is more functional but has an uglier look.

A customer's capacity to pick any goods fast and readily is referred to as its availability value. When a product or service has an emotional value, it means that the consumer connects with it in a personal way. For this, marketing efforts may link items to major holidays or events, as well as incorporate them into family rituals (Sánchez-Fernández, & Iniesta-Bonillo, 2007). In addition, marketing professionals may try to build a personal connection with their customers by donating a portion of their income to charity or organizing fundraising events.

Customers' perceptions of the value of a product or service may be influenced by pricing. The price of a product may indicate its quality to the buyer, regardless of whether it is a luxury or a budget item (Sánchez-Fernández, & Iniesta-Bonillo, 2007). The client may be less inclined to a console that doesn't match in terms of cost if the customer is searching for a gaming box to go with his premium, for example. Low quality may be communicated to the client if the price has been reduced or does not match the components in terms of pricing.

On the other hand, buyers may be more inclined to buy a product if the price implies that they are receiving better value for their money. When it comes to budget pricing, discounts and promotions are excellent strategies. The identical handbag may be on sale to certain buyers, and they may think they're getting a wonderful bargain.

Customers' perceptions of a brand's worth are influenced by its public image as well as its track record in the marketplace. Other perceived values may have an impact on a company's image, as well as its policies, operations, and treatment of personnel. The

cleanliness and organization of a business may determine its reputation, but an online vendor's image may be improved by providing secure checkout and faster connection rates.



### 2.4 Upgrade decision

Many upgrades would not have purchased the product upgrade if they had listened to reviewers' recommendations. To purchase a new product, a decision must be made at each stage. Customers must first ask themselves several questions before comparing the updated version of the product to the version they already own to determine the worth and advantages of the new product.

It is a question of common sense and economic logic to compare the predicted benefits of the new choice to those of the status quo option (i.e., the status quo option) before deciding whether to make the upgrade. On the other hand, PlayStation was able to upend the status quo in the gaming industry by adding new features to the newer version to make the comparison easier and gamers chose to upgrade. Compared to the failures of similar organizations such as NEC and Matsu—which attempted to enter the video game console market during the decade, PlayStation's success is even more surprising.

We define upgrade decisions as replacing a functional option in each category (i.e., the status quo option) with a newer and presumably better option in the same category. (Aner Sela and Robyn A. Leboeuf 2017).

### **2.4.1 Status Quo**

At the very least, the status quo option considered gives some positive advantage (although we also analyze scenarios in which this is not the case.) Typically, the upgrade option includes some features or benefits that are duplicated in the status quo option and other unique features and benefits that the status quo option does not provide.

As a result, whether consumers evaluate the upgrade option on its own or in comparison to the status quo choice should be considered while evaluating the upgrade option. In most cases, when the status quo choice is functioning, people will think that certain benefits of the upgrade option are already offered by the status quo option, which will reduce the perceived extra benefits of the upgrade option in the typical situation. (ANER SELA and ROBYN A. LEBOEUF 2017)

### **2.4.2 Neglect of comparison**

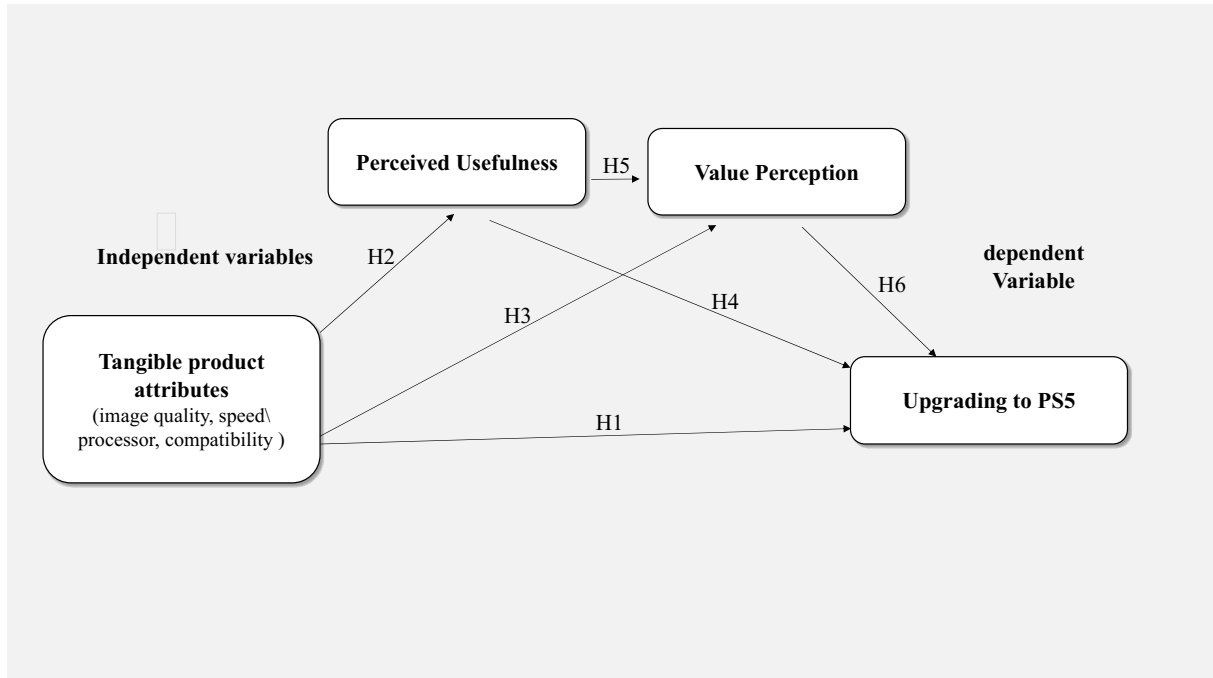
In comparison to the current status quo, clients who receive an upgrade for an item they already own are more likely to view it negatively, according to this theory. In the first place, even if an upgrade decision is indistinguishable from a choice between two options that differ only in their features and prices from an economic perspective, the consumer's perception of a transaction as a product upgrade may alter the decision process by making one of the options (i.e., the upgrade option) appear focused and thus in need of evaluation. The other option (i.e., the status quo) appears non-focused or a given. There are two other things to keep in mind regarding transactions. (ANER SELA and ROBYN A. LEBOEUF 2017)

First, consumers can disregard the comparison since they do not perceive that upgrading necessitates giving up their current goods. Second, in general, when people compare new products with their current options, we expect that they are more likely to upgrade to the new product than they were before.



## 2.5 Conceptual Framework

The following illustration summarizes the structural relationships between variables and the hypotheses under research:



## **CHAPTER 3: METHODOLOGY**

In this section of the thesis, the process of how the relevant data has been collected to answer all structured hypotheses and research questions stated in previous sections is explained.

The process begins with data collection methods and a research approach, followed by secondary data and finally the primary data. Moreover, the insights that have been gathered from conducting the research methods, lastly using SPSS to analyze the data collected through the survey.

### **3.1 Research Approach**

At this point, the focus of this research project is the factors in upgrading from Ps4 to Ps5. Included in this analysis is the demarcation of the relationship between different tangible product attributes such as image quality and compatibility and perceived value and usefulness influence PS users to upgrade their game consoles.

To clearly define the research problem and find relationships between the underlying variables, the preliminary step was to critically review the existing literature to date, in the form of secondary data. The starting point for developing hypotheses and building the conceptual framework.

Both exploratory and explanatory research methods were employed through primary data collection.

First, to understand what attributes gamers value the most and what will make them upgrade their consoles in-depth interviews were conducted.

Second, a visual stimulus focus group was run to get insights into which stimulus gamers think is most relevant for two different variables.

Lastly, explanatory research was conducted to confirm all the hypotheses and answer the research questions. The questionnaire survey is a methodological observation tool that includes a set of questions linked together in a structured and logical manner. This type of survey aims to obtain quantifiable and comparable statistical data on a specific population. For this, the questionnaire is administered to a representative sample of the target population, i.e., to a group whose size is sufficient, in terms of the number of individuals, for the answers given to be representative of the general opinion of this population.

## **Secondary Data**

Secondary data did not explicitly contribute to the dissertation's objectives (Saunders et al., 2008), despite its importance for understanding the field's existing knowledge. This data, which has been based largely on academic journals and was presented in the earlier section, facilitated the creation of a logical and consistent path toward the development of the theory of the relationship among variables. This, in turn, resulted in the creation of a conceptual framework, which was required for the formulation of an appropriate research design. Specifically, secondary data is used to intelligently interpret the primary data results (Malhotra, Birks, & Wills, 2012).

### **3.3 Primary Data**

In-depth interview. The main goal of these in-depth interviews is to understand what makes people upgrade from one system to another. Additional insight can be obtained from the interviews. What are the variables interviewees consider and value the most before upgrading? Do they value only one product attribute, or do they value more than one attribute before taking any action?

#### **3.2.1 Data Collection**

To gather data that can be useful for the findings, two methods were utilized. Those two methods employed to get data from the interviewees included in-depth interviews (Appendix 1), focus groups (Appendix 2), and surveys (Appendix 3). In-depth interviews are more suitable for a small group of people. A broad range of topics is structured that are suitable for discussion with the subject that we will select for the interviews. The range of questions employed includes unstructured questions. This type of question enables the researcher to probe and expand more on the topic and gain additional insights into the data collected. The unstructured questions were used because they consider the different views that the subjects might have on the subject matter. This type of data collection will also depend on the previous responses that the study group gave. This method is advantageous because it does not give the

subjects a fixed mindset when they are giving their responses. Various methods of conducting interviews like phone calls and video conferencing were explored. This was particularly helpful when a subject was not comfortable with face-to-face interviews because of Covid-19 or general reluctance to participate face-to-face.

Once the interviews were completed, the results were incorporated into the surveys. Structured questions were designed to sharpen the respondents' answers. Conducting surveys, just like in-depth interviews, are flexible in terms of time and the platform on which they can be conducted.

**3.2.2 Measurement / Indicators**

To investigate the effect of perceived value and usefulness on upgrading, which are measured using a Likert scale ranging from 1=Strongly disagree to 7=Strongly agree. And the Cronbach  $\alpha$  measure how closely related a set of items is as a group.

Measure	Items	Scale	Cronbach $\alpha$
Value perception	5	7-Point Likert Scale	0.70
Perceived Usefulness	9	7-Point Likert Scale	0.97
Upgrading to PS5	7	7-Point Likert Scale	0.94

*TABLE 1: OPERATIONAL MODEL*

**3.2.3 Data Analysis**

The data was collected through the creation of a Qualtrics online survey and processed through SPSS software.

Initially, an outlier analysis using Tukey's method was employed to recognize outliers visible on the boxplots

Secondly, the data preparation process was described, After the data was processed, the sample was demographically characterized mainly through frequency statistics. The reliability of the constructs was assessed through Cronbach's alpha and their quality was ranked based on the guidelines proposed by George and Mallery (2003).

Thirdly, to test hypotheses, regression analysis was conducted to measure and define the relationships between variables. Moreover, regression analysis has been done to measure the effect of a single product attribute on the dependent variable and the mediator to check which variable has a higher effect than the other.

In the end, to test the whole model Andrew Hayes the process analysis model number 6 has been done to test the whole model have been conducted to check that all the results are lined up together.

## CHAPTER 4: RESULTS AND DISCUSSION

### 4.1 Interviews (Qualitative)

In-depth interview. The main goal of these in-depth interviews is to understand what makes people upgrade from one system to another. In the meantime, what are the variables they consider and value the most before upgrading? The main goal of these in-depth interviews is to understand what makes people upgrade from one system to another. In the meantime, what are the variables they consider and value the most before upgrading? The main insights from the interview are presented as follows:

- Thirteen participants of different genders and nationalities were interviewed over the phone.
- The average age was 25 years old (the youngest being 21 and the oldest being 46).
- These demographic variables led me to acknowledge that the upgrading decision is not exclusive to age, ethics, or gender.

In the beginning, I wanted to know if people use any kind of gaming system console, so people were asked which device they have and use for playing different games. There was a large group of respondents who use PlayStation in general at the same time there were those people who were using XBOX and others who were using computers designed for gaming purposes. When asking them did they upgrade the device that they have now, they all emphasized that they always like to change to a newer version once they are released. Having said that, some of them still have the previous models. Nevertheless, they all make comparisons when they decide to upgrade. They compare CPUs, graphic quality, speed, and game exclusiveness and compatibility. Next, they were asked if they had ever upgraded for any specific game. Most PS users answered that they upgraded mainly because of FIFA – even though they could still play previous versions on their older machines. A smaller group of PS users mentioned PS-only games like Astro's Playroom and Demon's Souls. Regarding the value they got from upgrading, they cited the overall experience, Engagement, trendiness, usability, usefulness, and the value of the performance because of the upgraded system. All upgrades found the newer model to be useful when compared to the previous model. Specifically, they cited enhancements such as ease of use (better user interface/features) as well as overall improvements in graphics and speed.

After careful analysis of the interviews from the qualitative research, there are several outcomes/findings. Verifying these findings during the next stage of the research will assist in

designing how to conduct the quantitative research. Specifically, the quantitative research will test the following themes derived from the interviews:

- People usually upgrade their devices after they make comparisons (status Quo) between the old and new versions of the same game consoles.
- Game system users usually upgrade to a newer version as a citation of experience, Engagement, trendiness, usability, usefulness, and exclusiveness.
- Some users upgrade specifically for games, regardless of the performance changes in the device.

When they do upgrade, they receive value and usefulness

The following chapter is devoted to the main study results. A description of quantitative data analysis is provided aiming at characterizing the sample, testing the hypotheses, and the full model. Appendix

## **4.2 Data Preparation Process (Quantitative)**

This section represents the procedures that have been taken to clean the data and identify the valid and invalid answers to the questionnaire. A total of 315 questionnaires were initiated. After they were checked for completeness, only 166 were accepted. Wherefore, it is implied a response rate of 53% which suggests that the survey was efficiently designed as the sample size was considered enough to conduct the data. When editing and cleaning the data, 148 participants were dropped from the analysis as they never used the PS console or found some problem completing the survey representing 47% of all participants.

## **4.3 Outlier Analysis**

To find out the outliers, the method can be thought of as a rule of thumb, not a statistical rule set in stone. The values were not clear when the researcher visually scrolled through the specific variable.

Product attributes with the highest value of 44 for case 166 were identified as an outlier. Only a partial list of cases with a value of 7.00 is shown in the table of upper extremes. The Mean is 5.417 and the Std. 0.126. (Appendix 4).

Intention to upgrade, the highest value of 46 for case 166 was identified as an outlier. Only a partial list of cases with a value of 7.00 is shown in the table of upper extremes. Only a partial list of cases with a value of 1.00 is shown in the table of the lower extremity. the Mean 5.37 and the Std 0.131. (Appendix 5).

Perceived Value, the highest value of 33 for case 166 was identified as an outlier. Only a partial list of cases with a value of 7.00 areas is shown in the table of upper extremes. The Mean is 5.334 and the Std is 0.128 (Appendix 6).



#### **4.4 Key Variable analysis**

The product attribute as a dependent variable has the highest mean of 5.006. The intention to upgrade has a 4.99 mean, perceived usefulness has a 4.4588 mean and perceived value has a 5.4679 mean.

By starting the analysis, from 315 answers only 167 answers were considered valid answers and 148 as missing or wrong data

Respondents have been asked about the progress of the upgradation to PS5. 44% of respondents have upgraded to 8.00. 2.5% of respondents have upgraded to 58.00. 53% of respondents have upgraded to 100.00. (Appendix 7).

#### **4.5 Sample Characterization**

The objective of this survey by questionnaire is to observe, analyze and understand a trend, an overall behavior, or a phenomenon for which the data has been collected. These surveys are submitted collectively to be representative and to obtain usable figures. This tool is therefore part of the quantitative research methods. These so-called quantitative methods use mathematical and statistical tools to describe, explain and understand phenomena based on the data. Below mentioned descriptive statistics show the sample-related data.

##### **Demographic analysis.**

Descriptive statistics have been done to show the sample-related data. Overall, there were 315 responses: 166 responses representing valid data, and 149 representing missing or incomplete answers. In total 74.7% of answers were from males, females 24.7%. And .6% preferred not to say. (Appendix 8).

The majority of respondents were students 48.2%, 35.5% of them were employed, unemployed only 6%, and self-employed were 6.6%, retired 1.2%, and 2.4 others. (Appendix 9).

Most of the people's income was less than 1000 which represents 25.9% whereas only 20.5% of them were earning less than 2000, 7.2 % of them were earning 2001-3000, and 9% of them

were earning 3001-4000. 9% earn more than 4000 and the rest 28.3 preferred not to say. (Appendix 10). The age average of the respondents was 18 to 34 years 88%. (Appendix 11).

To understand which game console they used, Respondents were given a choice to choose from the options which game console they used. 6 % of respondents used the Xbox series. 4.3% of respondents use Nintendo Switch. 9.4% of respondents use other consoles. 50.4% of respondents use PlayStation 4. 9.4% of respondents use play station3. 6.8% of respondents use play station 2 and 4.3% of respondents use play station 1. Only 1.7% of respondents use Polymega. 0.9% of respondents use Atari Series. 5.1% of respondents use Wii. 1.7% of respondents use Evercade Vs. (Appendix 12).

Afterward, Respondents were asked about the importance of product attributes of a game console. For the attribute “Image Quality”, 6% are of the view that it is not at all important, and 39.2% say that it is extremely important. (Appendix 13).

For the attribute “Compatibility with existing games”, 6.6% are of the view that it is not at all important, and 34.9% say that it is extremely important. (Appendix 14).

For the attribute “Design Simplicity”, 9% are of the view that it is not at all important, 14.3% say that it is extremely important, and 25% say that it is extremely important. (Appendix 15).

For the attribute “User Interface”, 6.5% are of the view that it is not at all important, and 30% say that it is extremely important. (Appendix 16).

For the attribute “Wide Selection of Games”, 4.8% are of the view that it is not at all important, and 32.5% say that it is extremely important (Appendix 17).

For the attribute “Processor Speed”, 4.8% are of the view that it is not at all important, and 52.4% say that it is extremely important. (Appendix 18).

For the attribute “Overall Enhanced Experience”, 5.4% are of the view that it is not at all important, and 39.8% say that it is extremely important (Appendix 19)

For the attribute “Device Colour”, 21.7% are of the view that it is not at all important, and 25.4% say that it is extremely important. (Appendix 20).

#### 4.6 Reliability

The reliability statistics have been conducted for the entire data set. The reliability analysis has been done through SPSS. Unlike the Value perception, the intention to upgrade and perceived value scales that have been validated previously in the literature it was necessary to assess their reliability. For the measurement of internal consistency, Cronbach’s alpha coefficient was employed. Its quality was ranked based on the guidelines proposed by George and Mallery (2003). (Appendix 21).

Value perception turned out to be good and acceptable with a Cronbach’s  $\alpha$  of 0.76, on the other hand, perceived usefulness was good at 0.89. in the meantime, the intention to upgrade turned out to be an excellent 0.95. Therefore, there was no need for the deletion of any item from the construct

Measure	Items	Cronbach’s alpha
Value perception	5	0.76
Perceived usefulness	6	0.89
Intention to upgrade	4	0.95

TABLE 2: Cronbach’s Alpha

#### 4.7 Results from the Hypotheses Testing

##### H1: Product attributes affect the Intention to Upgrade to PS5

<b>H1: Product Attributes Affect the Intention to Upgrade to PS5</b>		
R Square Value	.152	
ANOVA Sig	.001	Statistically Significant
Unstandardized Coefficient	.404	
<i>Intention to upgrade = 3.181. + .404 * (product attributes)</i>		

TABLE: 3 Product attributes and intention to upgrade

From the table above, we can conclude that the product attributes have a positive effect on the intention to upgrade. R-Square indicates that product attributes are explained by 15% in the variation of intention to upgrade. Generally, for every unit increase in product attributes a 0.404 unit increase in intention to upgrade. This proves the assumption of the first null hypothesis. (Appendix 22,23and 24).

In the table below we conclude that from all product attributes presented Processor Speed substantially has the highest effect on the intention to upgrade. Generally for every unit increase in image quality a 0.289 increase in intention to upgrade, for every unit increase in the processor a 0.336 increase in intention to upgrade, and for every unit increase in compatibility a 0.308 increase in intention to upgrade (Appendix 25,26,27).

<b>Regression Analysis of Product Attributes and Intention to Upgrade</b>			
<u>Product Attribute</u>	<u>Unstandardized Coefficient</u>	<u>p-Value</u>	<u>Significance</u>
Image Quality	.289	.001	Statistically Significant
Processor Speed	.336	.001	Statistically Significant
Compatibility	.308	.001	Statistically Significant

TABLE: 4 Product attributes and intention to upgrade

**H2: Product attributes affect the Perceived usefulness of PS**

<b>H1: Product Attributes Affect the Perceived usefulness</b>		
R Square Value	.067	
ANOVA Sig	.001	Statistically Significant
Unstandardized Coefficient	.259	
<i>Perceived usefulness = 3.712 + .259 * (product attributes)</i>		

TABLE:5 Product attributes and perceived usefulness

In the table above we conclude that the relationship between product attributes and perceived usefulness is very low. . R-Square indicates that product attributes are explained by 6% in the variation of perceived usefulness. Generally, for every unit increase in product attributes a 0.259 unit increase in perceived usefulness we can reject the null hypothesis. (Appendix 28,29,30).

In the table below we conclude that from all product attributes presented compatibility substantially has the highest effect on the intention to upgrade. Generally for every unit increase in image quality a 0.150 increase in perceived usefulness, for every unit increase in the processor a 0.208 increase in perceived usefulness, and for every unit increase in compatibility a 0.240 increase in perceived usefulness. (Appendix 31,32,33).

<b>Regression Analysis of Product Attributes and perceived usefulness</b>			
<u>Product Attribute</u>	<u>Unstandardized Coefficient</u>	<u>p-Value</u>	<u>Significance</u>
Image Quality	.150	.022	Statistically Significant
Processor Speed	.208	.005	Statistically Significant
Compatibility	.240	.001	Statistically Significant

TABLE:6 Product attributes and perceived usefulness 2

### H3: Perceived usefulness of PS5 affects the Intention to Upgrade to PS5

H3: Perceived usefulness affects intention to upgrade		
R Square Value	.456	
ANOVA Sig	.001	Statistically Significant
Unstandardized Coefficient	.699	
<b><i>Intention to upgrade = 1.79 + .699 * (Perceived usefulness)</i></b>		

TABLE: 7 Perceived usefulness and intention to upgrade

In the table above we conclude that the effect of perceived usefulness on the intention to upgrade is low. R-Square indicates that perceived usefulness is explained by 45% in the variation of intention to upgrade. Generally, for every unit increase in the perceived usefulness a 0.699. increase in intention to upgrade that's why we accept the null hypothesis. (Appendix 34,35,36).

**H4: Product attributes affect the Perceived value of PS5**

<b>H4: Product Attributes Affect perceived value</b>		
R Square Value	.178	
ANOVA Sig	.001	Statistically Significant
Unstandardized Coefficient	.428	
<i>Perceived Value = 3. 017 + .428 * (Product Attributes)</i>		

*TABLE:8 product attribute and perceived value*

From the table above, we can conclude that the product attributes have a low positive effect on perceived value. R-Square indicates that product attributes are explained by 17% in the variation of perceived value. Generally, for every unit increase in product attributes a 0,428 unit increase in perceived value. We can accept the null hypothesis. (Appendix 37,38,39).

In the table below we conclude that from all product attributes presented compatibility substantially has the highest effect on the intention to upgrade. Generally for every unit increase in image quality a 0.359 increase in perceived value, for every unit increase in the processor a 0.268 increase in perceived value, and for every unit increase in compatibility a 0.362 increase in perceived value. (Appendix 40,41,42).

<b>Regression Analysis of Product Attributes and Intention to Upgrade</b>			
<u>Product Attribute</u>	<u>Unstandardized Coefficient</u>	<u>p-Value</u>	<u>Significance</u>
Image Quality	.359	.001	Statistically Significant
Processor Speed	.268	.001	Statistically Significant
Compatibility	.362	.001	Statistically Significant

*TABLE:9 product attribute and perceived value.*

**H5: Perceived usefulness positively affects the Value Perception**

<b>H4: Perceived usefulness Affects perceived value</b>		
R Square Value	.343	
ANOVA Sig	.001	Statistically Significant
Unstandardized Coefficient	.593	
<b><i>Value Perception = 2.2 + 0.593* (Perceived usefulness)</i></b>		

TABLE: 10 perceived usefulness and value perception

From the table above, we can conclude that there is a moderate positive relationship between perceived usefulness and perceived value. R-Square indicates that perceived usefulness is explained by 34% in the variation of perceived value. Generally, for every unit increase in perceived usefulness a 0.593 increase in perceived value. We can accept the null hypothesis. (Appendix 43,44,45).

**H6: Value Perception positively affects the Intention to Upgrade to PS5**

<b>H4: perceived value affects intention to upgrade</b>		
R Square Value	.435	
ANOVA Sig	.001	Statistically Significant
Unstandardized Coefficient	.674	
<b><i>Intention to upgrade= 1.776+ .674* (Value Perception)</i></b>		

TABLE: 11 perceived value and intention to upgrade.

From the table above, we can conclude that there is a moderate positive relationship between value perception and intention to upgrade. R-Square indicates that perceived value is explained by 43% in the variation of intention to upgrade. Generally, for every unit increase in perceived value a 0.674 increase in intention to upgrade. We can accept the null hypothesis. (Appendix 46,47,38).



#### **4.8 Multicollinearity**

The study has calculated the VIF for each independent variable. The VIFs begin at 1 and have none of the upper limits. The value of 1 indicates that there is no correlation between this independent variable and all others. On the other hand, another variable conducted similarly in the SPSS software suggests that there is a moderate correlation, but it is not enough to warrant the corrective measures. (Appendix 49)

#### **4.9 Full Model Analysis**

##### **Total Attributes**

Aiming to evaluate the formulated model as a whole, the Hayes' PROCESS tool was used one last time (*appendix .....*). To analyze how the relationship of Product Attributes (X) on Upgrading (Y) are mediated by Perceived Value (M1) and Perceived usefulness (M2), and model 6 was chosen.

Four models were formulated as the result of the product attributes being studied.

The first model, intended to explain Product attributes as a function of X, M1, and M2, presents relevant information on the effect that X has on the dependent variable Y. According to the model, which is statistically significant ( $p\text{-value}=0,0231$ ) and explains 57,60% of the variation in Product attributes,

all the variables are statistically significant,

and the interaction, product attributes-> perceived value-> upgrade is statistically significant

product attributes-> perceived usefulness -> upgrade is not statistically significant

product attributes-> perceived value-> perceived usefulness -> upgrade is statistically significant.

According to the interpretation made above, the full model being studied is statistically significant. However, the mediation's perceived usefulness has no significant effect on the relationship between product attributes and the intention to upgrade. (Appendix 50)

### **The Second Model.**

To analyze how the relationship between Image quality (X) on Upgrading (Y) is mediated by Perceived Value (M1) and Perceived usefulness (M2), model 6 was chosen.

The second model, intended to explain image quality as a function of X, M1, and M2, presents relevant information on the effect that X has on the dependent variable Y. According to the model, which is not statistically significant (p-value=0,0710) and explains 57,10% of the variation in image quality,

all the variables are not statistically significant,

and the interaction, image quality-> perceived usefulness-> upgrade is not statistically significant

image quality-> perceived value -> upgrade is statistically significant

image quality-> perceived value-> perceived usefulness -> upgrade is not statistically significant.

According to the interpretation made above, the full model being studied is not statistically significant. However, the mediation's perceived value has a significant effect on the relationship between image quality and the intention to upgrade which is worth considering. (Appendix 51)

### **The Third Model.**

To analyze how the relationship of compatibility (X) on Upgrading (Y) is mediated by Perceived Value (M1) and Perceived usefulness (M2), model 6 was chosen.

The second model, intended to explain compatibility as a function of X, M1, and M2, presents relevant information on the effect that X has on the dependent variable Y. According to the

model, which is not statistically significant ( $p\text{-value}=0,0366$ ) and explains 57,39% of the variation in compatibility,

all the variables are t statistically significant,

and the interaction, compatibility  $\rightarrow$  perceived usefulness  $\rightarrow$  upgrade is statistically significant

compatibility  $\rightarrow$  perceived value  $\rightarrow$  upgrade is statistically significant

compatibility  $\rightarrow$  perceived value  $\rightarrow$  perceived usefulness  $\rightarrow$  upgrade is statistically significant.

According to the interpretation made above, the full model being studied is statistically significant. (Appendix 52)

### **The Forth Model.**

To analyze how the relationship of processor (X) on Upgrading (Y) is mediated by Perceived Value (M1) and Perceived usefulness (M2), model 6 was chosen.

The second model, intended to explain the processor as a function of X, M1, and M2, presents relevant information on the effect that X has on the dependent variable Y. According to the model, which is not statistically significant ( $p\text{-value}=0,05$ ) and explains 57,24% of the variation in the processor,

all the variables are not statistically significant,

and the interaction, the processor  $\rightarrow$  perceived usefulness  $\rightarrow$  upgrade is t statistically significant

the processor  $\rightarrow$  perceived value  $\rightarrow$  upgrade is statistically significant

the processor  $\rightarrow$  perceived value  $\rightarrow$  perceived usefulness  $\rightarrow$  upgrade is statistically significant.

According to the interpretation made above, the full model being studied is not statistically significant. (Appendix 53)

## CHAPTER 5: CONCLUSIONS AND LIMITATIONS

### 5.1 Conclusion & Main Findings

It has been observed that the physical characteristics of the product, such as image quality, processing speed, and product compatibility, all played a significant influence on the game's upgrade to the PS5. There are also perceived qualities, though, and the PS5 upgrade was significantly influenced by the product's perceived value. Due to several features of the console and processor, people believe it to be a beneficial feature and believe they can move from PS4 to PS5. In conclusion, product attributes positively influence the desire to upgrade; nevertheless, among the three product attributes, compatibility was significant when switching to the PS5. People still view all of their gaming consoles' Image Quality, Processor, and Compatibility as helpful without the need to upgrade. Gamers think about the value they will get from the new system in terms of both tangible features like compatibility and intangible attributes like cost before upgrading their gaming consoles.

Consider the perceived value while considering an upgrade. When considering buying a more recent PS device, customers prioritize their needs, and perceived value is the first item that comes to mind. How seamlessly the current version integrates with the older version is how PS users evaluate perceived value.

Many other features are valued by users, leading to the product upgrade. Battery life, controller ergonomics, cost, game control, multiplayer aspect, multiplayer mode, multiplayer with friends, online capabilities/interface, price, PS PLUS, stability, and usability are some of them (language, colorblind options, account profile customization). In PS5, the tool allows players to "virtually pass control" to friends, allowing them to control games remotely (over the internet). It is critical that the two users have good internet connections, or else the game will lag a lot.

## 5.2 Managerial & Academic Implications

The implications suggest that consumers with usefulness perceptions have beliefs about the product's quality. Customers' aesthetic, technical, and security quality and information perspectives, in particular, influence the usefulness perspective in the pre-adoption stage. However, quality perceptions have been primarily considered in studies that also estimate consumers' post-usage impressions. The study's findings have implications for system development. Given the expense incurred in developing the product value, people must use it eventually. Designing simple, dependable, and useful systems should be prioritized. . Customers' beliefs about the product's ease of use and usefulness.

The user interface of the PlayStation 5 is a "mystery." Sony, on the other hand, provided a small hint to show what it is capable of: making PS4 games take advantage of their respective novelties. According to the findings of this study, users prefer the ease of use and compatibility of any game. While using the PS4, they have the same preference for both console and processor. They took into account all of the newly available attributes and upgraded to PS5. Managers can help by adding more new features to the product to make it more appealing to users. They can also include users from Xbox and other games to entice users and make them perceive it as a valuable addition.

Academically, this study will add to existing knowledge by highlighting the key features of the PS5 and why users prefer it over other games. The UI and its experience are important console features. Sony has also added the ability to check the status of pending transfers, manage power controller battery life, and view in PS5. The PS5 Control Center can display progress on a level as well as "activity" cards that allow us to jump to specific points in a game. All of this evolution will also result in a series of "cards" that will allow users to quickly see the most recent "stories. It can also show how long it takes to complete certain tasks in minutes. This study will also highlight all of the perceived value in using PS5 because the actual features of PS5 can be overshadowed by perceived usefulness, and users can make decisions based on their perception.

### **5.3 Limitations and Further Research**

Budget, as in most other studies, was the most important aspect of this study, followed by timing. The researcher should be aware of its impending limitations and what can be done to overcome them.

Second, the inept interviews make it impossible to guarantee that other age groups would be interested in any game console. Furthermore, four of the ten interviews were conducted via the internet, which some researchers argue limits the ability to achieve the same levels of interactivity as face-to-face interviewing (Mann & Stewart, 2000).

Respondents for online surveys were randomly selected using the convenience sampling technique. As a result, samples should be regarded as non-representative, and statistically, results cannot be generalized.

Fourth, numerous product attributes in game consoles must be combined to create the best version of any game console. This study focused on only three main features to dig deeper into what more researchers and businesses should consider.

#### **5.3.1 User interface**

When questioned about whether this attribute is important, most consumers highlighted it as the most important feature, through contrasting visuals, clean design, and responsiveness, a well-executed user interface facilitates effective interaction between the user and the program, app, or machine.

#### **5.3.2 Game experience**

Some gamers or PS users have been playing the same games since they were children; it is somehow related to their past and future combined; gamers practice what they know as well as what they don't. It enables them to experiment through trial and error, solve problems, devise the best strategies, and gain new confidence and skills.

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## **APPENDICES**

### **Appendix 1: Interview script**

- Do you game system device?
- Which device do you have?
- Did you upgrade this version from the previous one?
- Did you make a comparison before upgrading? What did you compare?
- If you upgraded, what were the reasons that you upgraded?
- Which attribute are you looking for before upgrading?
- What did you expect from upgrading?
- Are you upgrading because of specific games? Which ones?
- What values (benefits) did get from upgrading?

### **Appendix 2: Focus Group Script**

#### **General rules**

To enable a steady flow of our conversation, I would like to outline some of a few general rules that we must adhere to in this focused group discussion.

- 1) One participant will be speaking at a time. This is so purposeful because our main objective is to note down each response on a transcript for every person during our conversation today. It will be hard for me to note down every participant's experience and perception on audio recording when there are numerous voices at once
  - 2) Please, I request all of you to avoid side or one-sided conversations.
  - 3) Each participant is not required to respond to every question asked, but I would like to hear from each one of you right now as our discussion progresses.
  - 4) This focused group discussion is so confidential because no name or any respondent's views, including controversies, will be reported to outsiders. Participants' Names will not even be included in the final transcript.
1. The final transcript report regarding this group discussion is that whatever is discussed in this room stays in this room except for this report that is being written.
  2. We emphasize confidentiality because we want an open group-based discussion. I would like to request every participant to feel free to make remarks or comment on

each other's ideas with no fear that it will be repetitive afterward and considered not of context.

3. Please note, there is no wrong answer, only different opinions. Speak whatever you feel it's true for you, even though you are the only person who feels that way. Do not let the group or their opinions sway you. However, if any participant changes their mind, please notify me.
4. We shall have a break time of 15 minutes, and please, feel free to grab a snack or a drink to refresh your minds. The bathrooms or restrooms are **[location]**.
5. In case of any questions or inquiries, please ask now.

### **Introduction of Participants**

Before we commence our group discussion, I would like each one of you to introduce him/her. Please tell me:

1. what is your name
2. What is your position with **[organization]**?
3. What is your age group?



### **Questions for focus group**

1. How did you get informed about our PS Company?

This question was focused on how participants knew our PS company and the in what ways they got to understand our company.

*"Through a friend who introduced me to video games forums, and we frequently talked about video game developers. I became interested in searching for the best video gaming companies that offered the best options [selecting the video games]"*.

## **2. When was the last time you paid for PS services in our Industry?**

In this question, participants who also expressed interest in video game company data significantly relived on the PS company brand name and recognition when paying for or subscribing to video games. *"I consider a company's brand name and recognition mostly before purchasing any PS services. Especially when it's from Sony, it will catch my sight more compared to when it was recommended by a friend or another person, and I last paid for a PS service a few weeks back after releasing the latest upgrade"*.

## **3. How frequently do you enjoy our facilities?**

The period that participants spend choosing and enjoying a wide range of video games that we provide. However, to keep up with the rapid competition in playing and to balance the most significant section of learning, some participants felt that video game players' identities should stay confidential in a Game-Based Learning (GBL) using competition (for example, through selecting a nickname) or when all players are grouped into a collaborative team.

*"I am the kind of person who enjoys playing the latest video game technology, every evening after hard work and long hustle..... I see playing a video game mainly [learning based] while sitting on my couch helps me relief off some stress of work "and even other free times"*

Whereas other participants demonstrated that they frequently enjoyed our facilities like video gaming on weekend days when they are in their leisure time.

## **4. How familiar are you with PS services?**

Even though some participants were not familiar with our specific services, most users at least preferred to understand if our gaming services were classic or non-classic, latest trends or old trends. Some other PS companies got inspired by fidelity in video gamers, which ultimately showed more interest or wanted an upcoming latest video game related to the familiar PS company.

*platforms like Twitch have given more freedom to gamers to stream live video gameplay, including multiple subscriptions across the world..... [female participant aged 27years]*

"Your services like video gaming live (streaming live) have indeed provided us with the latest updates on the new games available in the industry" [male participant aged 24].

Other participants indicated that they accessed video gaming services via YouTube subscriptions and live stream options.

**5. If you could change one thing concerning our facilities, what would you like it to be?**

*"There is only one thing that gaming companies forget authentic representation of diverse cultures, races, ethnicity, genders, and religions".*

*"If you can provide extra activities because playing a video game just is not fun or even work for some few people..... therefore, I think that it is important to acknowledge and always remember that people are different".*

Participants indicated that they would love to see more challenging stereotypes in a video game, unique character designs, and provide a more realistic observation of the way.

**6. Which picture would represent image quality and compatibility?**

When choosing a console, you must consider image quality and compatibility.

The images below show PS4 image Quality as compared to PS5 image quality. Look at them carefully and decide which one will suit you better.





Participants were chosen from 6 images presented to them to take time for compression. Even though some participants were not familiar with the images of the games, they were able to choose one image to present the compatibility of PS5 which is the first image at the same time, the second image was chosen to represent the image quality.

### **Closing Remarks**

Thank, you all for coming to this group discussion today and sacrificing your valuable time to talk and present your views. All answers and comments have indeed given numerous adequate ways of understanding this research problem.

### **Appendix 3: Questionnaire**

#### **Survey Flow**

**Block: Default Question Block (1 Question)**

**Standard: Block 1 (4 Questions)**

**Block Randomizer: 1 - Evenly Present Elements**

**Standard: Processor (1 Question)**

**Standard: Image quality (1 Question)**

**Standard: Compatibility (1 Question)**

**Standard: Demographics (4 Question)**

age Break \_\_\_\_\_

---

**Start of Block: Default Question Block**

Q1.1 Dear respondents, Thanks for showing interest in answering this survey. Your answers will be highly appreciated. My name is Ibrahim Mostafa and I'm currently a master's student in management with a specialization in strategic marketing at Catolica Lisbon School of Business and Management. This survey is part of my dissertation work and will take less than 5 minutes. Please read the questions carefully and answer them honestly. All data that will be collected will be treated anonymously and will only be used for the reasons of this dissertation. After you have completed the survey, I would appreciate it if you would share the link with your friends. If you have further questions, you can text me at Ibrahim.mostafa@magnok.com

**End of Block: Default Question Block**

---

**Start of Block: Block 1**

Q2.1 Which game console do you have?

- PlayStation 5 (1)
  - PlayStation 4 (7)
  - PlayStation 3 (8)
  - PlayStation 2 (9)
  - PlayStation 1 (10)
  - Xbox series (2)
  - Nintendo Switch (3)
  - Sega Genesis Mini-Genesis. (4)
  - handle Retro Classic Mini Game Console (5)
  - Polymedia (11)
  - Casio Loopy (12)
  - Atari Series (14)
  - Wii (15)
  - Evercare Vs (16)
  - Other (6) \_\_\_\_\_
-



Q2.2 Please indicate the importance of the following product attribute of a game console.  
Answering the questions on a scale from 1 to 7, where 1 represents Not all Important and 7  
represents Extremely Important

	Not at all Importa nt (1)	Slightly importa nt (2)	Moderate ly important (3)	Considera bly important (4)	Slightly importa nt (5)	Very importa nt (6)	Extreme ly Importa nt (7)
Image quality (1)	0	0	0	0	0	0	0
Compatibil ity with your existing games (2)	0	0	0	0	0	0	0
Design simplicity (3)	0	0	0	0	0	0	0
User interface (4)	0	0	0	0	0	0	0
Wide selection of games (5)	0	0	0	0	0	0	0
Processor\ Speed (6)	0	0	0	0	0	0	0
Overall enhanced experience (7)	0	0	0	0	0	0	0
Device color (8)	0	0	0	0	0	0	0

Other (9)

○ ○ ○ ○ ○ ○ ○

---

Q2.3 How Important are these following attributes when choosing a game console? please rank them

- \_\_\_\_\_ Image quality (1)
  - \_\_\_\_\_ Compatibility with your existing games (2)
  - \_\_\_\_\_ Design simplicity (3)
  - \_\_\_\_\_ User interface (4)
  - \_\_\_\_\_ Wide selection of games (5)
  - \_\_\_\_\_ Processor\ Speed (6)
  - \_\_\_\_\_ Overall enhanced experience (7)
  - \_\_\_\_\_ Device color (8)
-

Q2.4 If you have a PS console, please answer the questions on a scale from 1 to 7, where 1 is Strongly Disagree and 7 represents Strongly Agree

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I'm satisfied with my PS console (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I receive value for money when using PS consoles (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The user interface of the PS is important when using PS (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel emotionally connected to PS console (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Using PS console connects socially with family and friends (5)	0	0	0	0	0	0	0
Games one PS consoles have a higher performance other game console (6)	0	0	0	0	0	0	0
PS consoles are stylish other game consoles (7)	0	0	0	0	0	0	0
PS has fewer technical problems than other game consoles (8)	0	0	0	0	0	0	0
PS consoles offer trendy games (9)	0	0	0	0	0	0	0

In general,  
having a PS  
console  
improves  
the use and  
performance  
of the  
games (10)



**End of Block: Block 1**

---

**Start of Block: Processor**

Q3.1 Presented below represents the S5 processor VS PS4 Processor, please look at the picture and answer the questions on a scale from 1 to 7, where 1 represents strongly disagree and 7 represents strongly agree



	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither disagree nor agree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I think Processor\Speed makes the game console more enjoyable (1)	0	0	0	0	0	0	0
I think Processor\Speed in OS consoles always Exceeding my expectations (2)	0	0	0	0	0	0	0
Processor\Speed in PS consoles always offer what competitors can not offer (3)	0	0	0	0	0	0	0
Using PS Processor\Speed makes me enjoy my spare time (4)	0	0	0	0	0	0	0

Using PS Processor\Speed make me spend quality time (5)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------

Overall, I find PS Processor\Speed use-full in my life (6)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------

I would upgrade to PS 5 because I think its more useful than other game consoles (7)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------

I would upgrade to PS5 because it's more valuable than other game consoles (8)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------

**End of Block: Processor**

---

**Start of Block: Image quality**

Q4.1

Presented below image of the PS5 VS PS4 console, please look at the picture and answer the questions on a scale from 1 to 7, where 1 represents strongly disagree and 7 represents strongly agree

Click to write the question text

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
There is a noticeable difference between PS4 and PS5 games (1)	0	0	0	0	0	0	0
Games on PS5 have better image quality than PS4 Games (2)	0	0	0	0	0	0	0
I think High image Quality makes the game console more enjoyable (3)	0	0	0	0	0	0	0

Using PS  
High image  
Quality  
make me  
spading  
quality time  
(4)

0	0	0	0	0	0	0
---	---	---	---	---	---	---

Using PS  
High image  
Quality  
makes me  
enjoy my  
spare time  
(5)

0	0	0	0	0	0	0
---	---	---	---	---	---	---

High image  
Quality in  
PS consoles  
always offer  
what  
competitors  
cannot offer  
(6)

0	0	0	0	0	0	0
---	---	---	---	---	---	---

I think High  
image  
Quality  
always  
Exceeding  
my  
expectation's  
(7)

0	0	0	0	0	0	0
---	---	---	---	---	---	---

Overall, I find PS High image Quality useful in my life (8)

○ ○ ○ ○ ○ ○ ○ ○

I do not care about image quality i care about other features (9)

○ ○ ○ ○ ○ ○ ○ ○

I would upgrade to PS 5 because I think its more useful than other game consoles (10)

○ ○ ○ ○ ○ ○ ○ ○

I would upgrade to PS5 because its more valuable than other game consoles (11)

○ ○ ○ ○ ○ ○ ○ ○

**End of Block: Image quality**

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**Start of Block: Compatibility**

Q5.1 Presented below image of the PS5 BACKWARDS COMPATIBILITY MODE (you can play all PS4 games on PS5), Please look at the picture and answer the questions on a scale



from 1 to 7, where 1 strongly disagree and 7 represents strongly agree

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly Agree (7)
I think Compatibility makes the game console more enjoyable (1)	0	0	0	0	0	0	0
I think Compatibility always Exceeding my expectations (2)	0	0	0	0	0	0	0
Compatibility in PS consoles always offer what competitors cannot offer (3)	0	0	0	0	0	0	0

Using PS  
compatibility  
makes me  
enjoy my  
spare time  
(4)

0 0 0 0 0 0 0

Using PS  
compatibility  
make me  
spending  
quality time  
(5)

0 0 0 0 0 0 0

Overall, I  
find PS  
Compatibility  
use-full in  
my life (6)

0 0 0 0 0 0 0

I would  
upgrade to  
PS 5 because  
I think its  
more useful  
than other  
game  
consoles (7)

0 0 0 0 0 0 0

I would  
upgrade to  
PS5 because  
its more  
valuable than  
other game  
consoles (8)

**End of Block: Compatibility**

---

**Start of Block: Demographics**

Q6.1 What is your gender?

- Male (1)
- Female (2)
- Prefer not to say (3)

Q6.2 What is your age group?

18-24 (1)

25-34 (2)

35-44 (3)

45-54 (4)

55+ (5)

---

Q6.3 What is your Occupation?

Student (1)

Employed (2)

Self-Employed (3)

Unemployed (4)

Retired (5)

Other (6) \_\_\_\_\_

Q6.4 What is your monthly gross income (€)?

- Less than 1000 (1)
- 1001-2000 (2)
- 2001-3000 (3)
- 3001-4000 (4)
- More than 4000 (5)
- I'd rather not say (6)

**End of Block: Demographics**

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Appendix For Analysis

**(Appendix 4)**

### Descriptives

		Statistic	Std. Error	
attr	Mean	5.4177	.12638	
	95% Confidence Interval for Mean	Lower Bound	5.1681	
		Upper Bound	5.6672	
	5% Trimmed Mean	5.5620		
	Median	6.0000		
	Variance	2.651		
	Std. Deviation	1.62832		
	Minimum	1.00		
	Maximum	7.00		
	Range	6.00		
	Interquartile Range	2.67		
	Skewness	-1.058	.188	
	Kurtosis	.322	.375	

(Appendix 5)

### Descriptives

		Statistic	Std. Error	
upgrade	Mean	5.3705	.13106	
	95% Confidence Interval for Mean	Lower Bound	5.1117	
		Upper Bound	5.6293	
	5% Trimmed Mean	5.5207		
	Median	6.0000		
	Variance	2.851		
	Std. Deviation	1.68858		
	Minimum	1.00		
	Maximum	7.00		
	Range	6.00		
	Interquartile Range	3.00		
	Skewness	-1.095	.188	
	Kurtosis	.368	.375	

(Appendix 6)

## Descriptives

		Statistic	Std. Error	
pvalues	Mean	5.3343	.12830	
	95% Confidence Interval for Mean	Lower Bound	5.0810	
		Upper Bound	5.5877	
	5% Trimmed Mean	5.4762		
	Median	6.0000		
	Variance	2.732		
	Std. Deviation	1.65302		
	Minimum	1.00		
	Maximum	7.00		
	Range	6.00		
	Interquartile Range	2.25		
	Skewness	-1.147	.188	
	Kurtosis	.510	.375	

### Appendix: 7 Key variables

#### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Progress	166	100.00	100.00	100.0000	.00000
upgrade	166	1.00	7.00	5.3705	1.68858
pvalues	166	1.00	7.00	5.3343	1.65302
puse	166	1.00	7.00	5.1175	1.63199
attr	166	1.00	7.00	5.4177	1.62832
Valid N (listwise)	166				

### Sample characterization

### Appendix: 8 What is your gender



### What is your gender?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	124	74.7	74.7	74.7
	Female	41	24.7	24.7	99.4
	Prefer not to say	1	.6	.6	100.0
	Total	166	100.0	100.0	

### Appendix:9 What is your Occupation?

#### What is your Occupation? - Selected Choice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Student	80	48.2	48.2	48.2
	Employed	59	35.5	35.5	83.7
	Self Employed	11	6.6	6.6	90.4
	Unemployed	10	6.0	6.0	96.4
	Retired	2	1.2	1.2	97.6
	Other	4	2.4	2.4	100.0
	Total	166	100.0	100.0	

### Appendix:10 What is your monthly gross income (€)?

#### What is your monthly gross income (€)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1000	43	25.9	25.9	25.9
	1001-2000	34	20.5	20.5	46.4
	2001-3000	12	7.2	7.2	53.6
	3001-4000	15	9.0	9.0	62.7
	More than 4000	15	9.0	9.0	71.7
	I'd rather not say	47	28.3	28.3	100.0
	Total	166	100.0	100.0	

### Appendix:11 What is your age group?

### What is your age group?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	83	50.0	50.0	50.0
	25-34	62	37.3	37.3	87.3
	35-44	10	6.0	6.0	93.4
	45-54	10	6.0	6.0	99.4
	55+	1	.6	.6	100.0
	Total	166	100.0	100.0	

### Appendix:12 Which game console do you have?

#### Which game console do you have? – Selected Choice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Xbox series	7	4.2	6.0	6.0
	Nintendo Switch	5	3.0	4.3	10.3
	Other	11	6.6	9.4	19.7
	PlayStation 4	59	35.5	50.4	70.1
	PlayStation 3	11	6.6	9.4	79.5
	PlayStation 2	8	4.8	6.8	86.3
	PlayStation 1	5	3.0	4.3	90.6
	Polymega	2	1.2	1.7	92.3
	Atari Series	1	.6	.9	93.2
	Wii	6	3.6	5.1	98.3
	Evercade Vs	2	1.2	1.7	100.0
	Total	117	70.5	100.0	
	Missing	System	49	29.5	
Total		166	100.0		

### (Appendix 13) Image quality

**Please indicate the importance of the following product attribute of a game console . Answering the questions on a scale from 1 to 7, where 1 represents Not all Important and 7 represents Extremely Important. – Image quality**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all Important	10	6.0	6.0	6.0
	Slightly important	12	7.2	7.2	13.3
	Moderately important	14	8.4	8.4	21.7
	Considerably important	12	7.2	7.2	28.9
	Slightly important	16	9.6	9.6	38.6
	Very important	37	22.3	22.3	60.8
	Extremely Important	65	39.2	39.2	100.0
Total		166	100.0	100.0	

**(Appendix 14) Compatibility with your existing games**

**Please indicate the importance of the following product attribute of a game console . Answering the questions on a scale from 1 to 7, where 1 represents Not all Important and 7 represents Extremely Important. – Compatibility with your existing games**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all Important	11	6.6	6.6	6.6
	Slightly important	9	5.4	5.4	12.0
	Moderately important	20	12.0	12.0	24.1
	Considerably important	15	9.0	9.0	33.1
	Slightly important	18	10.8	10.8	44.0
	Very important	35	21.1	21.1	65.1
	Extremely Important	58	34.9	34.9	100.0
Total		166	100.0	100.0	

**(Appendix 15) Design simplicity**

**Please indicate the importance of the following product attribute of a game console . Answering the questions on a scale from 1 to 7, where 1 represents Not all Important and 7 represents Extremely Important. – Design simplicity**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all Important	15	9.0	9.0	9.0
	Slightly important	12	7.2	7.2	16.3
	Moderately important	22	13.3	13.3	29.5
	Considerably important	19	11.4	11.4	41.0
	Slightly important	25	15.1	15.1	56.0
	Very important	30	18.1	18.1	74.1
	Extremely Important	43	25.9	25.9	100.0
Total		166	100.0	100.0	

**(Appendix 16) user interface**

**Please indicate the importance of the following product attribute of a game console . Answering the questions on a scale from 1 to 7, where 1 represents Not all Important and 7 represents Extremely Important. – Wide selection of games**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all Important	8	4.8	4.8	4.8
	Slightly important	12	7.2	7.2	12.0
	Moderately important	9	5.4	5.4	17.5
	Considerably important	21	12.7	12.7	30.1
	Slightly important	19	11.4	11.4	41.6
	Very important	43	25.9	25.9	67.5
	Extremely Important	54	32.5	32.5	100.0
Total		166	100.0	100.0	

### Appendix:17 Wide selection of games

#### wide selection of games

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all Important	8	4.8	4.8	4.8
	Slightly important	12	7.2	7.2	12.0
	Moderately important	9	5.4	5.4	17.5
	Considerably important	21	12.7	12.7	30.1
	Slightly important	19	11.4	11.4	41.6
	Very important	43	25.9	25.9	67.5
	Extremely Important	54	32.5	32.5	100.0
Total		166	100.0	100.0	

### Appendix:18 Processor\ Speed

**Please indicate the importance of the following product attribute of a game console . Answering the questions on a scale from 1 to 7, where 1 represents Not all Important and 7 represents Extremely Important. – Processor\ Speed**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all Important	8	4.8	4.8	4.8
	Slightly important	4	2.4	2.4	7.2
	Moderately important	8	4.8	4.8	12.0
	Considerably important	13	7.8	7.8	19.9
	Slightly important	15	9.0	9.0	28.9
	Very important	31	18.7	18.7	47.6
	Extremely Important	87	52.4	52.4	100.0
Total		166	100.0	100.0	

### Appendix:19 Overall enhanced experience

**Please indicate the importance of the following product attribute of a game console . Answering the questions on a scale from 1 to 7, where 1 represents Not all Important and 7 represents Extremely Important. – Overall enhanced experience**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all Important	9	5.4	5.4	5.4
	Slightly important	7	4.2	4.2	9.6
	Moderately important	12	7.2	7.2	16.9
	Considerably important	19	11.4	11.4	28.3
	Slightly important	12	7.2	7.2	35.5
	Very important	41	24.7	24.7	60.2
	Extremely Important	66	39.8	39.8	100.0
	Total	166	100.0	100.0	

### Appendix:20 Device color

**Please indicate the importance of the following product attribute of a game console . Answering the questions on a scale from 1 to 7, where 1 represents Not all Important and 7 represents Extremely Important. – Device color**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all Important	36	21.7	21.7	21.7
	Slightly important	22	13.3	13.3	34.9
	Moderately important	17	10.2	10.2	45.2
	Considerably important	17	10.2	10.2	55.4
	Slightly important	11	6.6	6.6	62.0
	Very important	21	12.7	12.7	74.7
	Extremely Important	42	25.3	25.3	100.0
	Total	166	100.0	100.0	

## Appendix: 21 Reliability

Measure	Items	Scale	Cronbach's alpha
Value perception	5	5-7 point Likert scale	0.76
Perceived usefulness	6	9-7 point Likert scale	0.89
Product attribute	5	8-9 point Likert scale	0.86
Intention to upgrade	4	7-8 point Likert scale	0.95

### *H1: Product attributes affect the Intention to Upgrade to PS5*

## Appendix: 22

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.390 <sup>a</sup>	.152	.147	1.55979	.152	29.372	1	164	<.001

a. Predictors: (Constant), attr

## Appendix: 23

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	71.460	1	71.460	29.372	<.001 <sup>b</sup>
	Residual	399.005	164	2.433		
	Total	470.465	165			

a. Dependent Variable: upgrade  
b. Predictors: (Constant), attr

## Appendix 24

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.181	.422		7.542	<.001		
	attr	.404	.075	.390	5.420	<.001	1.000	1.000

a. Dependent Variable: upgrade

## Appendix: 25 image quality on the intention to upgrade

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.835	.363		10.560	<.001		
	imagequality	.289	.064	.331	4.498	<.001	1.000	1.000

a. Dependent Variable: upgrade

**Appendix: 26** the processor on the intention to upgrade**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.426	.438		7.825	<.001		
	processor	.336	.072	.340	4.630	<.001	1.000	1.000

a. Dependent Variable: upgrade

**Appendix: 27 compatibilities** on the intention to upgrade**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.782	.351		10.764	<.001		
	compatibility	.308	.064	.353	4.827	<.001	1.000	1.000

a. Dependent Variable: upgrade

**Appendix: 28,29,30 H2:** Product attributes affect the Perceived usefulness of PS5**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.259 <sup>a</sup>	.067	.061	1.58114	.067	11.783	1	164	<.001

a. Predictors: (Constant), attr

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.458	1	29.458	11.783	<.001 <sup>b</sup>
	Residual	410.002	164	2.500		
	Total	439.459	165			

a. Dependent Variable: puse

b. Predictors: (Constant), attr

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.712	.428		8.681	<.001		
	attr	.259	.076	.259	3.433	<.001	1.000	1.000

a. Dependent Variable: puse

### Appendix:31 image quality on perceived usefulness

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.322	.366		11.806	<.001		
	imagequality	.150	.065	.178	2.311	.022	1.000	1.000

a. Dependent Variable: puse

### Appendix:32 the processor on perceived usefulness

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.912	.439		8.908	<.001		
	processor	.208	.073	.218	2.862	.005	1.000	1.000

a. Dependent Variable: puse

### Appendix:33 compatibility on perceived usefulness

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.882	.348		11.157	<.001		
	compatibility	.240	.063	.284	3.790	<.001	1.000	1.000

a. Dependent Variable: puse



### H3: Perceived usefulness of PS5 affects the Intention to Upgrade to PS5

#### Appendix 34,35,36

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.675 <sup>a</sup>	.456	.453	1.24930	.456	137.435	1	164	<.001

a. Predictors: (Constant), puse

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	214.502	1	214.502	137.435	<.001 <sup>b</sup>
	Residual	255.964	164	1.561		
	Total	470.465	165			

a. Dependent Variable: upgrade

b. Predictors: (Constant), puse

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.795	.320		5.610	<.001		
	puse	.699	.060	.675	11.723	<.001	1.000	1.000

a. Dependent Variable: upgrade

### Appendix 37,38,39. H4: Product attributes affect the Perceived value of PS5

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.421 <sup>a</sup>	.178	.173	1.50370	.178	35.396	1	164	<.001

a. Predictors: (Constant), attr

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	80.035	1	80.035	35.396	<.001 <sup>b</sup>
	Residual	370.825	164	2.261		
	Total	450.860	165			

a. Dependent Variable: pvalues

b. Predictors: (Constant), attr

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.017	.407		7.420	<.001		
	attr	.428	.072	.421	5.949	<.001	1.000	1.000

a. Dependent Variable: pvalues

**Appendix 40 image quality on perceived value**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.431	.342		10.031	<.001		
	imagequality	.359	.061	.420	5.920	<.001	1.000	1.000

a. Dependent Variable: pvalues

**Appendix 41- the processor on perceived value**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.237	.423		7.661	<.001		
	processor	.362	.070	.375	5.174	<.001	1.000	1.000

a. Dependent Variable: pvalues

**Appendix 42 compatibility on perceived Value**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.952	.349		11.322	<.001		
	compatibility	.268	.063	.314	4.230	<.001	1.000	1.000

a. Dependent Variable: pvalues

**Appendix 43,44,45 H5: There is a relationship between perceived usefulness and perceived value**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.586 <sup>a</sup>	.343	.339	1.34405	.343	85.580	1	164	<.001

a. Predictors: (Constant), puse

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	154.598	1	154.598	85.580	<.001 <sup>b</sup>
	Residual	296.262	164	1.806		
	Total	450.860	165			

a. Dependent Variable: pvalues

b. Predictors: (Constant), puse

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.299	.344		6.678	<.001		
	puse	.593	.064	.586	9.251	<.001	1.000	1.000

a. Dependent Variable: pvalues

**Appendix 46,47,48 Value Perception positively affects the Intention to Upgrade to PS5**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.660 <sup>a</sup>	.435	.432	1.27284	.435	126.391	1	164	<.001

a. Predictors: (Constant), pvalues

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	204.767	1	204.767	126.391	<.001 <sup>b</sup>
	Residual	265.698	164	1.620		
	Total	470.465	165			

a. Dependent Variable: upgrade

b. Predictors: (Constant), pvalues

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.776	.335		5.305	<.001		
	pvalues	.674	.060	.660	11.242	<.001	1.000	1.000

a. Dependent Variable: upgrade

Appendix 49 Multicollinearity

**Coefficients<sup>a</sup>**

Model		Collinearity Statistics	
		Tolerance	VIF
1	Attributes	.257	3.887
	value	.266	3.761
	Usefulness	.879	1.138

a. Dependent Variable: Upgrade

Appendix 50

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Version 4.2 beta \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D. [www.afhayes.com](http://www.afhayes.com)

Documentation available in Hayes (2022). [www.guilford.com/p/hayes3](http://www.guilford.com/p/hayes3)

\*\*\*\*\*

Model: 6

Y: Upgrade

X: attr

M1 : values

M2 : use

Sample

Size: 166

\*\*\*\*\*

OUTCOME VARIABLE:

values

**Model Summary**

R	R-sq	MSE	F	df1	df2	p
.4213	.1775	2.2611	35.3963	1.0000	164.0000	.0000

**Model**

	coeff	se	t	p	LLCI	ULCI
constant	3.0171	.4066	7.4203	.0000	2.2143	3.8199
attr	.4277	.0719	5.9495	.0000	.2858	.5697

\*\*\*\*\*

**OUTCOME VARIABLE:**

pause

**Model Summary**

R	R-sq	MSE	F	df1	df2	p
.5857	.3431	1.7711	42.5632	2.0000	163.0000	.0000

**Model**

	coeff	se	t	p	LLCI	ULCI
constant	1.9860	.4159	4.7752	.0000	1.1648	2.8072
attr	.0148	.0702	.2117	.8326	-.1237	.1534
pvalues	.5720	.0691	8.2761	.0000	.4355	.7084

\*\*\*\*\*

**OUTCOME VARIABLE:**

upgrade

**Model Summary**

R	R-sq	MSE	F	df1	df2	p
.7590	.5760	1.2312	73.3707	3.0000	162.0000	.0000

**Model**

	coeff	se	t	p	LLCI	ULCI
--	-------	----	---	---	------	------

constant	.4255	.3702	1.1494	.2521	-.3055	1.1566
attr	.1342	.0585	2.2940	.0231	.0187	.2497
pvalues	.3567	.0687	5.1939	.0000	.2211	.4923
puse	.4524	.0653	6.9279	.0000	.3235	.5814

\*\*\*\*\* DIRECT AND INDIRECT EFFECTS OF X ON Y  
\*\*\*\*\*

The direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.1342	.0585	2.2940	.0231	.0187	.2497

Indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
TOTAL	.2700	.0740	.4169
Ind1	.1526	.0524	.2684
Ind2	.0067	.0323	-.0492
Ind3	.1107	.0345	.0501

Indirect effect key:

Ind1 attr -> pvalues -> upgrade

Ind2 attr -> use -> upgrade

Ind3 attr -> values -> use -> upgrade

\*\*\*\*\* ANALYSIS NOTES AND ERRORS  
\*\*\*\*\*

Level of confidence for all confidence intervals in the output:

95.0000

Several bootstrap samples for percentile bootstrap confidence intervals:

5000

----- END MATRIX -----

## Appendix 51

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Version 4.2 beta \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D. [www.afhayes.com](http://www.afhayes.com)

Documentation available in Hayes (2022). [www.guilford.com/p/hayes3](http://www.guilford.com/p/hayes3)

\*\*\*\*\*

### Model: 6

Y: Upgrade

X: Image

M1 : P\_Usef

M2 : P\_Value

Sample

Size: 166

\*\*\*\*\*

### OUTCOME VARIABLE:

P\_Usef

### Model Summary

R	R-sq	MSE	F	df1	df2	p
.1776	.0315	2.5951	5.3419	1.0000	164.0000	.0221

### Model

	coeff	se	t	p	LLCI	ULCI
constant	4.3222	.3661	11.8056	.0000	3.5993	5.0451
Image	.1499	.0648	2.3113	.0221	.0218	.2779

\*\*\*\*\*

**OUTCOME VARIABLE:**

**P\_Value**

**Model Summary**

R	R-sq	MSE	F	df1	df2	p
.6677	.4458	1.5330	65.5492	2.0000	163.0000	.0000

**Model**

	coeff	se	t	p	LLCI	ULCI
constant	1.1209	.3827	2.9288	.0039	.3652	1.8766
Image	.2785	.0506	5.5003	.0000	.1785	.3785
P_Usef	.5345	.0600	8.9056	.0000	.4160	.6530

\*\*\*\*\*

**OUTCOME VARIABLE:**

**upgrade**

**Model Summary**

R	R-sq	MSE	F	df1	df2	p
.7557	.5710	1.2458	71.8782	3.0000	162.0000	.0000

**Model**

	coeff	se	t	p	LLCI	ULCI
constant	.5851	.3540	1.6529	.1003	-.1139	1.2841
Image	.0903	.0497	1.8173	.0710	-.0078	.1885
P_Usef	.4660	.0660	7.0645	.0000	.3357	.5963
P_Value	.3602	.0706	5.1007	.0000	.2207	.4996

\*\*\*\*\* DIRECT AND INDIRECT EFFECTS OF X ON Y

\*\*\*\*\*

**The direct effect of X on Y**

Effect	se	t	p	LLCI	ULCI
--------	----	---	---	------	------



.0903 .0497 1.8173 .0710 -.0078 .1885

**Indirect effect(s) of X on Y:**

	Effect	BootSE	BootLLCI	BootULCI
<b>TOTAL</b>	<b>.1990</b>	<b>.0616</b>	<b>.0802</b>	<b>.3224</b>
<b>Ind1</b>	<b>.0698</b>	<b>.0380</b>	<b>-.0003</b>	<b>.1477</b>
<b>Ind2</b>	<b>.1003</b>	<b>.0339</b>	<b>.0470</b>	<b>.1791</b>
<b>Ind3</b>	<b>.0288</b>	<b>.0172</b>	<b>-.0001</b>	<b>.0682</b>

**Indirect effect key:**

**Ind1 Image -> P\_Usef -> upgrade**  
**Ind2 Image -> P\_Value -> upgrade**  
**Ind3 Image -> P\_Usef -> P\_Value -> upgrade**

\*\*\*\*\* ANALYSIS NOTES AND ERRORS

\*\*\*\*\*

**Level of confidence for all confidence intervals in the output:**

**95.0000**

**Several bootstrap samples for percentile bootstrap confidence intervals:**

**5000**

----- **END MATRIX** -----

**Appendix 52**

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Version 4.2 beta \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D. [www.afhayes.com](http://www.afhayes.com)

Documentation available in Hayes (2022). [www.guilford.com/p/hayes3](http://www.guilford.com/p/hayes3)

\*\*\*\*\*

Model: 6

Y: Upgrade

X: Compt

M1 : P\_Usef

M2 : P\_Value

Sample

Size: 166

\*\*\*\*\*

OUTCOME VARIABLE:

P\_Usef

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2838	.0805	2.4638	14.3650	1.0000	164.0000	.0002

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.8821	.3480	11.1565	.0000	3.1950	4.5692
Compt	.2398	.0633	3.7901	.0002	.1149	.3648

\*\*\*\*\*

OUTCOME VARIABLE:

P\_Value

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6054	.3665	1.7522	47.1579	2.0000	163.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.8279	.3892	4.6969	.0000	1.0594	2.5964
Compt	.1373	.0557	2.4664	.0147	.0274	.2472

P\_Usef .5470 .0659 8.3071 .0000 .4170 .6771

\*\*\*\*\*

OUTCOME VARIABLE:

upgrade

Model Summary

R	R-sq	MSE	F	df1	df2	p
.7576	.5739	1.2373	72.7446	3.0000	162.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.5664	.3485	1.6255	.1060	-.1217	1.2546
Compt	.1004	.0476	2.1072	.0366	.0063	.1944
P_Usef	.4368	.0660	6.6165	.0000	.3064	.5672
P_Value	.3846	.0658	5.8435	.0000	.2546	.5146

\*\*\*\*\* DIRECT AND INDIRECT EFFECTS OF X ON Y

\*\*\*\*\*

The direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.1004	.0476	2.1072	.0366	.0063	.1944

Indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
TOTAL	.2080	.0565	.1003 .3212
Ind1	.1048	.0368	.0384 .1818
Ind2	.0528	.0264	.0095 .1124
Ind3	.0505	.0231	.0153 .1039

Indirect effect key:

Ind1 Compt -> P\_Usef -> upgrade

Ind2 Compt -> P\_Value -> upgrade  
Ind3 Compt -> P\_Usef -> P\_Value -> upgrade

\*\*\*\*\* ANALYSIS NOTES AND ERRORS  
\*\*\*\*\*

Level of confidence for all confidence intervals in the output:  
95.0000

Several bootstrap samples for percentile bootstrap confidence intervals:  
5000

----- END MATRIX -----  
Appendix 53

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Version 4.2 beta \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D. [www.afhayes.com](http://www.afhayes.com)  
Documentation available in Hayes (2022). [www.guilford.com/p/hayes3](http://www.guilford.com/p/hayes3)

\*\*\*\*\*

Model: 6  
Y: Upgrade  
X: Proces  
M1 : P\_Usef  
M2 : P\_Value

Sample  
Size: 166

\*\*\*\*\*

OUTCOME VARIABLE:

P\_Usef

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2181	.0476	2.5521	8.1921	1.0000	164.0000	.0048

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.9118	.4391	8.9085	.0000	3.0448	4.7788
Proces	.2080	.0727	2.8622	.0048	.0645	.3516

\*\*\*\*\*

OUTCOME VARIABLE:

P\_Value

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6379	.4069	1.6406	55.9083	2.0000	163.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.1410	.4289	2.6604	.0086	.2941	1.9878
Proces	.2504	.0597	4.1932	.0000	.1325	.3683
P_Usef	.5359	.0626	8.5590	.0000	.4122	.6595

\*\*\*\*\*

OUTCOME VARIABLE:

upgrade

Model Summary

R	R-sq	MSE	F	df1	df2	p
.7566	.5724	1.2417	72.2943	3.0000	162.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.4502	.3811	1.1812	.2392	-.3024	1.2028
Proces	.1073	.0547	1.9618	.0515	-.0007	.2153
P_Usef	.4551	.0656	6.9406	.0000	.3256	.5846
P_Value	.3692	.0681	5.4182	.0000	.2346	.5038

\*\*\*\*\* DIRECT AND INDIRECT EFFECTS OF X ON Y  
\*\*\*\*\*

The direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.1073	.0547	1.9618	.0515	-.0007	.2153

Indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
TOTAL	.2283	.0794	.3842
Ind1	.0947	.0469	.1913
Ind2	.0925	.0329	.1674
Ind3	.0412	.0238	.0960

Indirect effect key:

Ind1 Proces -> P\_Usef -> upgrade  
 Ind2 Proces -> P\_Value -> upgrade  
 Ind3 Proces -> P\_Usef -> P\_Value -> upgrade

\*\*\*\*\* ANALYSIS NOTES AND ERRORS  
\*\*\*\*\*

Level of confidence for all confidence intervals in the output:

95.0000

The number of bootstrap samples for percentile bootstrap confidence intervals:

5000

----- END MATRIX -----