

The Foresight Study of Virtual Reality as An Advertising Tool

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Abstract: Virtual Reality (VR) is a technology that provides users with a whole new experience by immersing them into a virtual world. Based on previous study made by researchers, they have found that VR has many advantages compared to disadvantages. However, little study has been found regarding virtual reality as an advertising tool since the technology is still in its early stages. The purpose of this study is to identify issues and drivers thus determining the future with this technology. This study uses future wheel implication and uses both qualitative and quantitative method. STEEPV analysis will be used to identify key drivers of the technology and analyze the data using SPSS. Return rate of the questionnaire was 15.63% which was 60 out of 384 questionnaires distributed. The data was collected through online questionnaires. The highest key drivers of the technology are growth of VR users, increased brand recognition and brings emotional value. The least discussed drivers would be regarding the environment. The future predictions will be made using Future Wheel analysis to determine future implication of Virtual Reality as an Advertising Tool. The top two drivers from impact-uncertainty analysis were “Advertising in VR will increase brand recognition due to the creative advertisement.” and “Virtual Reality enables users to explore places and contents without having to physically being there.” Based on the two top drivers, the predictions made using future wheel analysis were market leaders in advertising, increase brand recognition, promotes innovation and greater immersion. These predictions gave out positive implication towards the technology in the future. Suggestions made to improve this study were to increase duration of data collection. This enables more accurate response from consumers. VR provides promising impact towards advertising in the future that will improve current advertising.

Keywords: Virtual Reality, Advertisement, Innovation

1. Introduction

The current industrial production is driven by the global competition and the need for fast adaptation of production to the mutable market requests. These requirements can be met by

comprehensive advances in current manufacturing technology. Industrial Revolution 4.0 and Internet of Things (IOT) have become subjects of much interest in recent years and are expected to gain momentum locally and internationally when they become part of the core initiative of various governments (Idris, 2019). Large international corporations that use quality assurance principles and have high standards for research and development will follow the idea of Industry 4.0 and make it even more competitive in the market (Marcos et al., 2017). Internet of Things (IOT) refers on the utilization of smart connected devices and systems to support data gathered by fixed sensors in machines and other physical objects. Many forms of practices have been implementing IoT in their field such as marketing. Marketing in short means delivering information that will potentially influence society to use or purchase a specific product. In today's generation digital marketing is the way to go simply because almost all the younger generations use the web to either for academic purposes or leisure purposes. Social media is used by billions of people around the world and has fast to becoming one of the defining technologies of our time. Facebook, for example, reported having 2.38 billion monthly active users and 1.56 billion daily active users as of March 31, 2019. That is massive and what is even better is that the total number of social media users is estimated to grow to 3.29 billion users in 2022, which will be 42.3% of the world's population. That is massive and potentially a great platform to penetrate. A proper dated tool is required to advertise and spread information regarding new coming products in the market. Currently in Malaysia, there has been several implementations of using VR in the field of tourism, sports, theme park, health research, and others. Examples such as VR/AR theme park in Midvalley Megamall (World of Buzz, 2017), VR roller coaster (The Star, 2017), badminton (Zahari, Wong, Muhammad Amirul, Yap, & Wee, 2018) and games for disabled-friendly people (Singh, et al., 2017), and preserving heritage values to promote cultural tourism (Swinburne University, 2018). VR for marketing in Malaysia has not been fully develop due to the high cost of ownership compared to AR. Sadly, little research has been made in Malaysia regarding VR marketing in Malaysia. The application of VR has its own advantages and disadvantages. This creates confusion about the global future of VR marketing. In the future, the ads, marketing and applications we have now will become too dull and bland in terms of experience (Ng & Ramasamy, 2018). Thus, creating a new platform that will enhance customers experience will definitely create a new competitive advantage over the competitors.

1.1 Research Background

Traditional marketing has been around since the early Egyptians time when they created sales messages and wall posters on papyrus (Marketing-schools.org, 2020). In today's time it is more referred to as advertisement in the newspaper, magazines, pamphlets and other types of printed materials. There are four types of traditional marketing which are print, broadcasting, direct mail and telemarketing (Bhayani, 2018). According to Katz (2008), there is a more visually pleasing, nostalgic and more trustworthy element of conventional marketing. Digital marketing has brought many new opportunities and services, including social media, email marketing, blogging, and video marketing, to the forefront of event marketing. Chaffey and Smith (2014) clarified that how much marketers can do with digital approaches now is overwhelming, and the pace is growing, both financially and quantifiably. Online targeting customers has become a major benefit for advertisers because they can now see not only what a consumer is watching, but for how long, where and why (Ghauri & Cateora, 2014). VR in marketing is a whole new platform of marketing. It combines both virtual reality technology with digital marketing. That is a whole new audience that businesses are going to have to reach. This technology gives marketers the ability to use new advertising platforms, increase ecommerce sales, and share content in a variety of ways (Godfrey, 2018). Virtual reality provides a valuable new platform for market research, enabling low-cost solutions to examining consumer decision-making in a realistic but controllable, and flexible environment, such as that of Tesco. Compared to social media, not only can VR interact with consumers but also the interaction through virtual reality is more humanized and much closer to human life (Mason, 2015). This is particularly important since consumers make 70% of brand decisions in-store (Rutgers Online 2014). Little research has been made in this field primarily because it is still in its early stages. VR marketing in Malaysia on the other hand has little to none research been conducted. Though this technology is

getting popular day by day, potential customers aren't willing to fork out a fortune because most of the contents are for gaming. If companies started investing more in VR content, users and potential customers are looking forward in using this technology.

1.2 Problem Statements

Alongside the many positive aspects of VR, there are also a number of problems that are currently presented. One of these problems is that of motion sickness which can be experienced by some consumers after viewing content, suggesting that they will be much less forgiving of poor VR content than they are of low-quality content on other medium. In addition, there are noticeable graphic pixilation this is probably due to the optimization need in graphics as to minimize visuals rendering in real-time without delay (Loizides, F. et al, 2014). This shows that VR technology is still at its early stages with lots of room for improvement. Virtual reality is built to be a storytelling and experience medium, that's what's really exciting about it (Tadena, 2015). In contrast, one of the most important disadvantages of e-retailing for consumers is that, up to now, e-retail sites have not been able to reproduce the enjoyable and emotionally important shopping experiences that they enjoy in physical stores (Alcañiz, Bigné & Guixeres, 2019) Consumers say that, with e-retail, they do not have as rich an experience as they do in physical stores, which includes multisensory interactions with the product, the store, and salespersons (Bonetti et al., 2018). Investments in trade promotion have also been relatively unproductive. Of the estimated \$280 billion that manufacturers spend on in-store promotions, 70% (or \$196 billion) lost money for the manufacturer, with an average return on investment (ROI) of 30 cents on a dollar (Desforges and Anthony 2013). This shows that traditional marketing is not efficient in attracting customers. VR is the platform to be more interactive, creative, and engaging content and adds. VR provides a more immersive storytelling thus why many retailers are using it.

Another big challenge in the VR technology is navigation. In meeting high level of immersion during user's experience, VR navigation system objective is to intimately meet natural and freedom of movement similar to the real-world during visit in built VE places (Chong, Lim & Tan, 2018). Moreover, the system needs the basic of constructed 3D VE, controller device for users to input, tracking and visualization device before users are able to perform navigation within (Olbrich, Keil & Makiela, 2015). One of the issues that made a huge impact is space availability. Authors (Chong et al., 2018) noted on the constrain in safety and limited space available to perform movement. Only one user is able to make full use of the technology due to space and safety regulations. The authors also did emphasize on the discomfort of cabled head mounted display used in the earlier version, this suggests consideration on proper installation or advancement of head mounted display to achieve mobility. Limited space and mobility of the technology causes a setback for consumers to purchase. To conclude, without a proper navigation system imbedded to the technology, users may feel annoyed and leads to lose of interest in continuing the exploration activity. To conclude, this technology is still in its early stages and need huge improvements to enhance user's experience. This is important for developers to understand the frustration of the issues that users experience. By understanding its flaws, developers are able to improve the technology and make it more suitable in other fields such as marketing and medical.

1.3 Research Questions

- (i) What are the issues and drivers in employing virtual reality in marketing sector?
- (ii) What will be the future implications of virtual reality in marketing sector in Malaysia?

1.4 Research Objectives

- (i) To identify the issues and drivers of employing virtual reality in marketing in Malaysia.
- (ii) To study the future trend of virtual reality marketing in Malaysia.

1.5 Significance of the Study

This research was carried out and aimed to identify the issues and drives of implementing virtual reality in marketing sector and to study the future trend of virtual reality advertising platform in Malaysia. This foresight research on virtual reality ads in Malaysia helps expand the experience and experiences of developers on negative and positive virtual reality problems while raising consumer awareness of the marketing network for virtual reality. This study can be a learning paradigm for companies to improve their business skills to enhance customer's experience. In addition, this study helps Malaysians to be more acquainted with virtual reality marketing. Furthermore, this study would be beneficial to future researchers as this study provides evidence on the impact of uncertainties in accordance with virtual reality marketing that could possibly affect the performance outcomes practices by organizations. This study will also help researches and developers to improve the current handling of VR technology thus making it more user friendly in the future. This paper aimed to enhance and improve the usage of VR technology in daily lives.

1.6 Scope of the Study

The IR4.0 consists of endless technology improvements but in the paper, it will only cover one significant which is Virtual Reality. VR is used in many applications such as medical, games, modelling, marketing and many more. In this paper it will focus more on marketing in advertising. Another new technology in the IR4.0 is augmented reality similar to VR will not be discussed in this paper. This paper focuses on the foresight study of Virtual Reality as an advertising tool. This paper will be using STEEPV analysis and will be using future wheel method. The benefits of using this method is that it is easy to use and understand, provides clear visual map of complex interactions and flexible. However, the disadvantages of using this method is that results may vary inconsistency, information overload and speculative nature of data. This foresight analysis was done by taking into account the potential time period of 5 years. In other words, from the year of 2020 to the year 2025. The current research focuses on each resource or information related to the trend of virtual reality as an advertising tool. All the related information and data collected from various sources such as journals, government-related articles, the internet, the newspaper articles, non-governmental organizations and also from all kind of research materials corresponding to virtual reality as an advertising tool. The respondents of this study would be the supporter which consist of developers and users of virtual reality. The target respondents were selected and covered mainly users of VR marketing in Malaysia. Questionnaires had been distributed to the advocates for the data collection analysis.

2. Literature Review

2.1 Marketing Industry in Malaysia

In the digital era the traditional marketing means are being replace with digital content offered by the internet and world wide web. In both developed and developing countries, connectivity has increased rapidly, one of the biggest rising regions is Asia. A couple of years ago the Internet Advertising became a real industry of marketing. It is obvious that digitalization of economy and development of virtual space have become integral features of the economies of the leading countries, affecting all spheres of life (Orazymbetova et al., 2020). There are web sites, which earn much of its revenue from advertising (Duguleana & Duguleana, 2008). In these cases, the page views are important because of their contribution to ad listing. (Hewitt et al, 2016) described how social media sites have created reflective 'echo-reactions' to communicate with brands, creating complex loops of feedback between corporate communications, media and user generated social networks. This shows that digitalization has taken over the marketing industry.

2.2 Virtual Reality as an Advertising Tool in Marketing Industry

The immersion and interaction level given from VR technology itself is outstanding compared to conventional marketing. Although the most common use case of VR is currently for gaming, the technology however has the potential to be a successful advertising tool. It is estimated that there will be 171 million VR users this year, compared to just the 200,000 users in 2014 (Godfrey, 2018). The growth of this technology proves that there's a possibility of widespread use in marketing industry. Retailers started to use VR and AR applications at the end of the 1990s. The first use of head-mounted display (HMD) interfaces was in 1995, to undertake supermarket redesigns with reduced costs (Alcañiz et al., 2019). So, VR in retailer is not a strange thing but uncommon to see. In conventional marketing, consumers learn about products through both direct and indirect experiences. E-commerce has expanded worldwide due to greater internet access, search engines, and different social media formats, such as aggregators (Dellarocas et al., 2013). The use of XR (Extended Reality) as a new computer-mediated indirect experience has led to the concept of virtual commerce, or v-commerce (Pantano et al., 2016). This proves that VR is entering the marketing industry and growing rapidly.

2.3 Advantages of Virtual Reality

Virtual Reality has its own unique advantages compared to traditional marketing. One of them are the use of VR technology provides a structured virtual world where stimuli can be accurately monitored. In addition, with the start of mass production of low-cost products, the usability and affordability of VR technologies is simpler such that recovery can be continued anywhere, anywhere to inspire and entertain virtual worlds. Not only does VR expand the way content can be viewed or heard, it provides a whole new environment in which to interact with it (Godfrey, 2018). 92% of customers around the world say they trust the media, such as friends and family suggestions, above all other forms of advertising. This means that word of mouth marketing is highly effective among friends and families thus VR provides unforgettable experience for consumers to interact with.

2.4 Disadvantages of Virtual Reality

One of the biggest downsides of implementing virtual reality is cost (Bigfin, 2016). Small companies may not be able to implement the technology due to the high cost of adaptation. Many services run between \$100 and \$600 and the cost of buying experiences or games has not yet been addressed (Brown, 2020) not to mention additional sensors to provide full immersion into the content. Besides, extended use of virtual reality may lead towards additional health effects such as loss of spatial awareness, dizziness, disorientation and nausea (Dudkin, 2019). Aside from having to be high in cost and potential health effects, VR technology has its own graphical limits compared to all current consoles, most VR graphics are comparably weaker and look at least a decade old (Jayraj, 2020). VR proves to be incompetent due to the drawback listed above but this does not mean it will stay this way. Future developers such as Google, Facebook and Xiomi are working hard to overcome these obstacles.

2.5 STEEPV Analysis

(a) Social

The reason behind this study is to find out if VR technology is capable of entering marketing industry. Social factors related to lifestyle approaches and population structures in relation to virtual reality in the marketing industry. The increase in smartphone trends give a positive feedback on the VR technology since phones nowadays are capable of VR with HMD. 75% of the biggest brands in world have integrated VR into their marketing strategy. This significantly proves that VR is entering the marketing industry by a storm. The increase in overall user acceptance gives the developers hope to increase VR contents for customers to enjoy.

(b) Technological

The technology improvements from time to time gives positive feedback towards consumers and the expansion of VR technology makes for a whole new experience. Technological aspect in the drivers or issues are related to technical advancement and related issues regarding virtual reality in the marketing industry. One of the top technological advancements made by the technology is that it creates an experience that allowed customers to select designs and products to help them visualize what they might look like in their own homes. This technology is capable of giving out physical feeling without having to be there. This whole new experience brings joy into consumers experience.

(c) Environment

The environment issues and drivers are related to environmental protection in the sense of sustainability for the environment when implementing virtual reality in the marketing industry. According to Nelson et al. (2020), Anecdotal evidence from philanthropic fundraisers shows that virtual reality (VR) technology increases empathy and can influence people toward pro-environmental behaviour. This shows that VR technology has a positive impact towards users' behaviour to be more empathic towards global environment situation. However, the general lack of environmental behaviour change by individuals or society at large despite increases in communication about environmental problems and heightened public awareness of such issues. This proves that without self-motivation or lack of self-respect, ignorance is still at wide with this issue.

(d) Economic

The economic drivers or challenges are linked to the allocation towards the implementation of economic development, markets and financial issues of implementing virtual reality in marketing industry. The growth in the industry is expected to reach up to \$29.5 billion dollars. This shows that on the economic side that the technology brings up revenue for the tech industry. According to Statista, global digital ad spending is estimated to grow to \$335 billion by 2020. With more ads being invested on, this shows that digital add sector is booming attracting VR media contents into consumers. Digital ad spending on gaming platforms like Xbox and Nintendo have grown from \$1.4 billion in 2009 to \$3.6 billion in 2017, with projected spending climbing to \$5 billion by 2020 according to Statista. This gives VR developers a sight to not miss because the industry is increasing in ads revenue.

(e) Political

Political issues and drivers are related towards the government policies and laws of implementing virtual reality in the marketing industry. The evolution of this technology stands out in the courtroom. Another researcher quoted "Now, imagine taking a juror to that decisive moment through immersive virtual reality, and suddenly, ground breaking changes in the law are about to unfold." This shows that the technology can do more than just advertise or for gaming. It could help out in the courtroom providing facts for the jury to decide.

(f) Value

Value issues and drivers are related to societies acceptance towards virtual reality in marketing industry. The values factor will explain on issues and benefits of virtual reality in society. One of the values is that it brings more immersion into the media and advertisement. It gives more interaction of the media towards consumers. B2B industries as manufacturing can leverage VR to immersivity demonstrate their sophisticated technologies and capabilities. This gives industry giants to showcase their latest tech towards the crowd without having them to physically be there. It gives out unforgettable moments for consumers. They all do one thing well, they immerse the audience in an unparalleled and unforgettable experience. This shows that there are values provided by the VR technology is priceless since the price tag is declining and more common.

Horizon scanning process has been completed to determine the current rising issues, difficulties, and threats regarding VR as an advertising tool (see Appendix A). Through the merging process, the most prominent drivers had been developed. The merged 10 issues and drivers will be explored by allocating questionnaires to the users of VR in marketing industry.

Table 2: Merged issues and drivers

No.	Merged Issues and Drivers
1	Creates emotional value
2	Creates memorable experience
3	Growth of VR users
4	Having to see without physically being there
5	Increase brand recognition
6	VR in marketing, medical and gaming
7	Immersion into a whole new world
8	Positive implications towards a product
9	Replicate specific events or environment
10	Growth of VR content

3. Research Methodology

3.1 Research Design

A mixed based method which includes qualitative and quantitative methods was chosen to clarify the data. In this research, the trend, uncertainties, and challenges of VR in advertising will be analyzed using mixed based method through the foresight process. The foresight process focuses on evidence-based future thinking of VR advertising. The unit of analysis is the customer and potential customers who experience in using VR for retail. This study has been focused on the factors promoting VR in advertising. The population number of Johor Bahru metro region is estimated around 1,024,000 people. The survey will be conducted around Johor Bahru region because of the easy location access and second largest number of populations in Malaysia. The ideal sample size is 384 people for the population of 1,024,000 people according to Krejcie and Morgan (1970). Foresight methodology is a university human capacity which allows people to think ahead and consider, model, create and respond to, future eventualities (Foresight International, 2006). Foresight is a process of future thinking over for 5 years. It is used in engaging futuristic research and technological improvements. The Foresight activity is about perceiving the context through a holistic scanning exercise; capturing the points of intervention, which constitute the content of the change program, and anticipating, and developing future-oriented policies and strategies on this content through a designed process (Saritas, Ozcan, 2013). The social, technological, economic, environmental, political, and value (STEEP) systems form the external sense in which the foresight operation is embedded and thus affected by the factors in it. In this research study, the drivers of future factors that influence and change the trend of virtual reality in advertising was analysed using future wheel analysis. Researchers have referenced and read as much as possible the papers, documents, online and offline data bases and foreign studies and a quick statement with the keywords was made. Table 3 exhibits STEEP drivers descriptions.

Table 3: STEEP drivers

Driver	Description
Social	Related to lifestyle approaches and population structures in relation to virtual reality in the marketing industry
Technological	Related to technical advancement and related issues regarding virtual reality in the marketing industry

Economics	Linked to the allocation towards the implementation of economic development, markets and financial issues of implementing virtual reality in marketing industry
Environmental	Related to environmental protection in the sense of sustainability for the environment when implementing virtual reality in the marketing industry
Political	Related towards the government policies and laws of implementing virtual reality in the marketing industry
Values	Related to societies acceptance towards virtual reality in marketing industry

The survey questionnaire consists of four sections which are Section A, B, C, and D. For Section A, it asks about respondent’s demographic such as age, race, gender, occupation, and knowledge of VR. This section determines the personality of the respondent and it is easily grouped for further analysis. This section is important because demographic data allows the researcher to have a clear view of the distribution of respondents based on various biographies and to consider the potential association between respondent history and predicting the trend in the future when implementing VR in marketing. Scale used in this section is nominal scale as a level of measurement. For Section B, it asks regarding the importance of the technology being used in other fields such as marketing. The ranking of key issues and drivers will help researchers classify the most significant variables or drivers of implementing VR in advertising. Starts from Section B to Section D, 5-point Likert scale were used to rank the drivers. For Section C it will measure the level of impact VR brings towards consumer experience. It is important as it reflects upon the degree of consequences and how this technology will shape future trends of implementing VR in advertising. Section D will measure the degree of uncertainty VR technology being implemented in advertising. Uncertainty according to Toma et. Al (2012) is the situation in which the decision-maker is unable to identify all or none of the possible events that are likely to happen and much less is able to predict the probability of their occurrence.

3.2 Data Collection

The method of data collection is through distribution of online questionnaires’ in Johor Bahru region. Offline method is unavailable due to the global pandemic of Covid-19, researches must practice social distancing. For online method, questionnaires are distributed in social media such as Facebook, Twitter, Instagram, email, and Reddit using Google Form. The use of social media in distribution of questionnaire is a safe and reliable method as consumers are likely to get attention in conducting this survey. The respondents will be asked for their permission to conduct this survey. Google Form is a free to use tool developed by Google. It has its own database and the respondent’s answers are in statistical analysis. Both methods ensure wide range of respondent’s and consistent answers as it is not a forced survey. The ideal response rate is 384 people for the population of 1,024,000 people. A total of 60 responses were collected out of the ideal sample size that brings to 15.63% response rate. The summary of the respondents’ profiles is presented in Table 4. Majority of the respondents are female, aged between 21 to 30 years old, Malay, and hold a bachelor’s degree. Based on the same table, it shows that 85% of the respondents have heard about VR. When they were asked whether they have experienced using VR, 22 out of the respondents responded “Yes” with a percentage of 36%, 32% of the respondents voted “No”, while the remaining 32% responded with “I may not realize it”. Majority (76.7%) of the respondents believe that VR is the future for advertising. However, majority of the respondents may or may not purchase this technology for their own. Most of the respondents are undecided on this technology due to their awareness of the high price of the technology itself.

3.3 Data Analysis

Foresight study consisted of four types of data analysis which are descriptive analysis, reliability analysis, impact-uncertainty analysis and futures wheel analysis. Statistical Package for Social Science (SPSS) was used to analyze the data gathered from the questionnaires. SPSS displayed the collected data in the form of percentage, mean frequency and standard deviation. Cronbach's Alpha is used to measure the internal consistency of the variables to assess how closely a set of items is related to a group (Taber, 2018). In most research cases, a reliability coefficient of 0.7 or higher is regarded to be reasonable and accurate compared to a situation where the Cronbach alpha coefficient is less than 0.7, the result of the questionnaires is irrational and unreliable. Impact-uncertainty analysis is an emerging discipline that provides a framework for extending traditional risk analysis in an effort to assign a level of confidence in the comparison of risks in systems, projects, models or policies (Benke et al., 2007). The classification of drivers was pre-selected correspondingly to the importance, impact and uncertainty to construct impact-uncertainty analysis. A few drivers with highest level of importance's mean score were guiding the level of impact and level of uncertainty chosen to create the future wheel analysis. The mean scores of impact and uncertainty will represent a coordinate of (x, y) to obtain the most top two drivers that will be used to construct the futures wheel. The futures wheel analysis is a way of arranging a kind of organized brainstorming, visualizing, and asking about the future. At the end of each speech, primary impacts or implications are written. Then a second ring of the wheel is created by the secondary impacts of each primary impact. This ripple effect persists until a useful image of the event or trend's consequences is apparent. Within alternative scenarios, the futures wheel can also be used as a tool to construct forecasts.

Table 4: Demographic profiles of respondents

Item	Category	Frequency (N=60)	Percentage (%)
1. Gender	Male	16	26.7
	Female	44	73.3
2. Age	20 years and below	2	3.3
	21 - 30 years	48	80.0
	31 - 40 years	4	6.7
	41 - 50 years	-	-
	51 years and above	6	10.0
3. Race	Malay	48	80.0
	Chinese	5	8.3
	Indian	-	-
	Others	7	11.7
4. Education Level	UPSR/ PMR/ SPM	1	1.7
	STPM/ Foundation/ Matriculation/ Diploma	14	23.3
	Bachelor's Degree	42	70.0
	Master's	2	3.3
	PhD	1	1.7
5. Have you ever heard about VR before?	Yes	51	85.0
	No	9	15.0
6. Do you have any experience using VR?	Yes	22	36.7
	No	19	31.7
	I may not realize it	19	31.7
7. Do you think VR is the future for advertising?	Yes	46	76.7
	No	1	1.7
	Maybe	13	21.7
8. Would you consider purchasing this technology?	Yes	19	31.7
	No	6	10.0
	Maybe	35	58.3

4. Data Analysis and Results

The Cronbach’s Alpha value for Importance is 0.921, for Impact is 0.906, while for Uncertainty is 0.950. These α values are surpassing 0.7 which means the items are reliable and representing the variable. Table 5 exhibits the mean scores of importance variables. All the items were re-coded with a new code according to the highest mean scores of importance. The mean values obtained from SPSS is based on respondents votes in the manner of consent by agreeing on the importance drivers that could illustrate the future for the industry. The top six leading drivers were selected to be based line in the next analysis which is the descriptive for impact and uncertainty variables. The most importance items are A1-Advertising in VR will increase brand recognition due to the creative advertisement; A2- VR provides immersion into a whole new world escaping from reality thus providing a great platform for advertising; A3- VR enables users to explore places and contents without having to physically being there; A4-VR enable developers to replicate specific events or environment thus promoting the product itself in it suited environment; A5- VR has also been used not only in marketing but also in medical, gaming and tourism thus strengthening the reason to advertise in VR; and V6- The growth of VR users encourages advertising in VR. These six most important drivers were arranged in descending order as shown in Table 6.

Table 5: Mean of Importance

No.	Issues and Drivers	Mean	New Code
1	VR advertising creates a more emotional value for consumers compared towards traditional marketing.	3.8167	A10
2	VR advertising generates a more memorable experience rather than traditional marketing.	3.9667	A7
3	The growth of VR users encourages advertising in VR	4.0500	A6
4	VR enables users to explore places and contents without having to physically being there.	4.1167	A3
5	Advertising in VR will increase brand recognition due to the creative advertisement.	4.1500	A1
6	VR has also been used not only in marketing but also in medical, gaming and tourism thus strengthening the reason to advertise in VR	4.0833	A5
7	VR provides immersion into a whole new world escaping from reality thus providing a great platform for advertising.	4.1333	A2
8	VR has known to give a more positive impact towards a product due to being able to see it virtually before purchasing it	3.9333	A8
9	VR enable developers to replicate specific events or environment thus promoting the product itself in it suited environment.	4.1167	A4
10	With the growth of VR content, it is only necessary to advertise new products in VR as well	3.9167	A9

Table 6 was constructed to illustrate the mean values for both impact and uncertainty before constructing the impact-uncertainty analysis. The data in Table 6 were used to formulate impact-uncertainty analysis to find the top 2 drivers with the highest importance outcome on impact and uncertainty in the future possibility. The result of the analysis was presented in Figure 1.

Table 6: Mean of impact and uncertainty according to 6 most importance

No	Issues and Drivers	Mean	
		Impact	Uncertainty
A1	Advertising in VR will increase brand recognition due to the creative advertisement.	4.1667	3.8167
A2	VR provides immersion into a whole new world escaping from reality thus providing a great platform	3.8500	3.6833

	for advertising.		
A3	Virtual Reality enables users to explore places and contents without having to physically being there.	4.1333	3.8500
A4	VR enable developers to replicate specific events or environment thus promoting the product itself in it suited environment.	4.0333	3.7333
A5	VR has also been used not only in marketing but also in medical, gaming and tourism thus strengthening the reason to advertise in VR	4.1500	3.7500
A6	The growth of Virtual Reality users encourages advertising in VR	3.9833	3.6833

The top two drivers with highest impact and uncertainty were chosen based on the scattered plot. Coordinates of A1 (3.8167, 4.1667) and A3 (3.8500, 4.1333) were selected as the top two drivers with the highest level of impact-uncertainty mean values. A1 has the highest level of impact while A3 has the highest level of uncertainty. A1 represents “Advertising in VR will increase brand recognition due to the creative advertisement” while A3 represents “Virtual Reality enables users to explore places and contents without having to physically being there”. By doing the analysis, A1 and A3 were selected as the top two drivers hence would be used to develop futures wheel analysis.

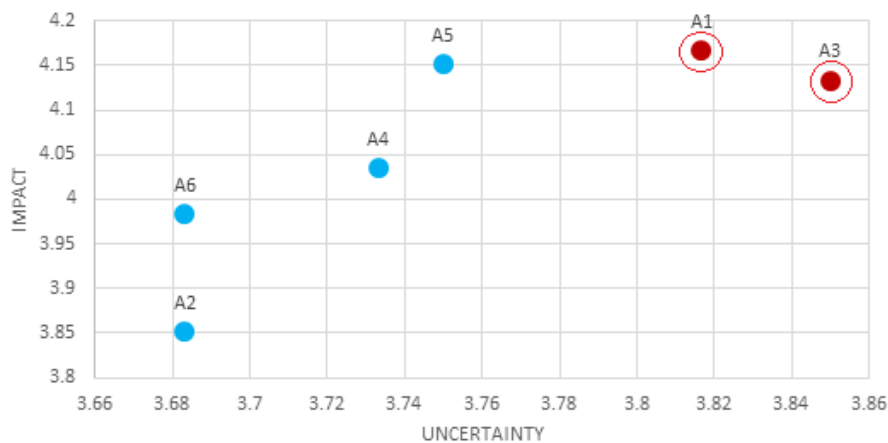


Figure 1: Impact-Uncertainty Analysis

5. Discussion and Conclusion

Figure 2 shows the first futures wheel which was generated from every possible outcome of the first driver which is advertising in VR will increase brand recognition due to creative advertisement. The core of the future wheel represents the first driver in blue while green is the outcome of the first order, orange is the outcome of the second order while maroon is the outcome of the third order. The first scenario occurs when the company became market leaders in advertising. The company does not necessarily have to create VR hardware, they could simply host web services for VR content. This will make the particular company stand out and being recognized as a creative company. This will not only boost the company’s image but also produce high skilled workers. Boosting the company’s image will certainly tip the scale of customers (Kate N, 2015). Simply put, customers will favor brands they recognized instead of an unknown brand. Plus, by having high skilled workers, the company is able to provide specialized services to other company increasing revenue. Theoretical and realistic knowledge of professional employees is advanced, making it easier for them to solve challenges and highlight contradictions within their market practices (Bauer et al, 2004). Furthermore, the company is able to employ large economics of scale. (Economist, 2008) stated any factors that induce a decrease in the average cost of manufacturing anything as the production volume rises. By increasing one’s brand image, the company is able to sell more products thus increasing

revenue of company. The second scenarios illustrate the possibility of new experiences with VR. VR provides emotional feelings-based marketing campaign and provides customers with an unforgettable experience. With this experience, customers are more likely to recognize it from the marketplace and create a sense of security (Kate N, 2015). With this sense of security, customer is more comfortable in purchasing the product hence increase customer loyalty. Other than that, VR provides new experiences to consumers with the addition of virtual shopping. Virtual shopping allows customers to sit back and browse through the internet for products at their fingertips. The convenience provided by shopping at anywhere, makes it easy to purchase items online. Although it is not the same experience as brick-and-mortar stores, it does mimic physical products such as size and details. This provides customers a reason to look into the physical shop (Michael Abehsera, 2018) Ultimately this boosts the comfort level of a customer knowing the product fits in their desired location without having second thoughts. The third scenario exhibits the possibility of having a competitive edge in the market. By having an edge in the market, customers are more likely to purchase products from them as they have more to offer compared to other companies. This increases the sales of the products and companies that monopolies the market share have a higher profit due to large economics of scale. By having a majority of the market share, companies are much easier to penetrate the market with new products as their cost of entry is lower due to having a prestigious brand. The fourth scenario exhibits the possibility of having market growth. Market growth increases the demand for VR content as VR devices are widely adapted by consumers. The industry growth is reflected in small businesses since by 2021, worldwide revenues for AR and VR forecasted to hit \$215 billion (Kate Rodgers, 2017). Both sectors are rising rapidly, ensuring jobs will be in demand for years to come thus increasing job opportunities. Market growth not only increases job opportunities, it enables companies to reach new customers globally. Through expansion of business, the possibilities of reaching a broader audience are also increased by introducing marketing strategies that help increase the visibility of the company among prospective and current customers (Sampson Quain, 2018) thus increasing market share. Companies grew market share by expansion of market and strengthening their customer relationship resulting in satisfied customer. Satisfied consumers chat to acquaintances and families who then become new customers about their good encounters. Without concomitant rises in marketing expenditures, gaining market share through word of mouth increases the profits of a business (Leslie Kramer, 2019). This chain reaction exists though out social media thus VR provides that reaction with creative advertisement.



Figure 2: Future wheels of “increase brand recognition”

Figure 3 exhibits the future wheel analysis for the second driver which is VR enables users to explore contents without having to physically being there. The first scenario exhibits greater content immersion. According to (Aofeng & Han, 2016), interaction is more humanized and much closer to individual life by virtual reality. This increases the quality of the content hence provide better social media attraction towards the company. By having strong media attraction, it enables strong fan base in the company. Based on (Oliur, 2012), fifty percent of small business claimed to have new customers from social media. Besides having quality content, it also increases emotional connection between content and consumer. By doing so it captures the consumer making them more loyal towards the company. The second scenario illustrates the potential of VR in marketing as it promotes innovation. It does so by increasing the productivity of the company with new VR innovation to make the technology more appealing towards the mass audience. Jacob Cass (2018) stated that an organization can be founded as a serious professional enterprise through creative marketing combined with phenomenal innovation and great customer service. This will not only make the product better but also able to compete with competitors hence increasing competitiveness. Innovation not only improves the quality of the product but also the value of the product. This makes the product widely adapted hence increasing market share. For any given market share, higher quality goods generate a higher return on investment (ROI) for the company (Sammi Caramela, 2020). This shows the potential benefits of product innovation in VR since almost all other competitors offers the same value. The third scenario exhibits the potential benefits of VR in advertising which is increased brand

recognition. The comfort of using VR in the living room provides consumers with a sign of relief knowing the product they purchase fits the desired location. This can be seen with IKEA AR. Although it is an AR, it shares similar experience with VR. Ikea is able to capture new market segments hence increasing the sales of company. Lotame (2019) stated that capturing new market segments support companies to concentrate their energies, helping them to create a brand name and specialize in a certain category of product. This leads towards an increase in customer recognition. Linda A. Fanarsa (2020) stated that an increase towards customer recognition reduces the cost of introducing new products to the market. This result in an increase in revenue of the company due to cost efficiency provided by strong brand recognition. The fourth scenario exhibits the potential usage of VR which is in tourism. The benefits of VR enabling users to explore places without physically being there may be used in virtual tourism. Virtual tourism provides new experiences to all visitors as it enables them to learn more by exploring the connections between species and can zoom in on different creatures (Bloop, 2020). This example given can be used for other museums to attract more visitors. Tourism company should provide this service as it may increase customers loyalty due to indulging them in new experience. Besides virtual tourism, virtual classroom using VR provides the under privilege with opportunities to learn new things and explore opportunities. Izwan Ismail (2016) stated It allows children to explore fascinating locations without ever leaving their village. The program is called Malaysian Virtual Field Trips. These types of education increase satisfaction both the user and organizer. These four different but relatable scenarios prove a strong positive implication towards the society.

As a conclusion, the first wheel exhibits the future trend of the first driver which is “Advertising in VR will increase brand recognition due to the creative advertisement”. The four-future trend predicted were market leaders in advertising, new experience, competitive edge in the market and market growth. All of these scenario lead towards an increase in the GDP of Malaysia due to the outstanding implication of VR in Malaysia. This results in an increase in country’s growth in the future possibly becoming world leaders in virtual reality. The second wheel exhibits the possible future trend for the second driver which is “Virtual Reality enables users to explore places and contents without having to physically being there”. The four predicted trends would be increase brand recognition, promotes virtual tourism, greater immersion and promotes innovation. All of these predicted trends gave a positive outcome with benefits favoring towards developers. The implication of VR in advertising not only will benefit consumers, but also under privilege students as well. This can be justified by VR capabilities in exhibiting life-like experience towards students making their education much superior. These benefits will create an edge in Malaysian education system compared to other countries. To conclude this study, both of the research objective has been accomplished and results exhibits great positive implication towards Virtual Reality as an advertising tool in Malaysia.



Figure 3: Future wheels of “explore contents without physically being there”

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Appendix A

Social	Technological	Economic	Environment	Political	Value
<ol style="list-style-type: none"> 1. Increase of smartphone user 2. Increase in VR gaming customers 3. Gaining attentions from early adopters 4. Massive implementation of VR in marketing 5. Increase public awareness of VR technology 6. Increase mobility for injured people 7. Increase customer support 8. Increase product management awareness towards customers 9. Increase community support 10. Increase gaming community 11. Increase in VR users 12. Increase gamers approval 13. Used to treat diseases 14. Variety of use cases 15. Positive implications for limited funding's organizations 	<ol style="list-style-type: none"> 1. Expansion of technology 2. Immersion of gaming 3. Having to feel without physically being there 4. New experience waiting to be unleashed 5. In depth view of product 6. Increase creativity of decorating homes 7. User friendly technology 8. Easy to build and cheap to use 9. Immersion into a whole new level 10. Increase technology development of VR 11. Low-cost technology 12. Having to see without physically being there 13. More lifelike feel of interaction 14. Creates a virtual situation that can't be experienced in real life 15. Creates virtual simulations of retail store 16. Customers rely only on visual representation of the product 17. Provides new opportunities for marketer 18. A new platform in advertising products 	<ol style="list-style-type: none"> 1. Free advertising from word of mouth 2. Leader in the industry 3. Increase in revenue 4. Increase in brand awareness 5. Free advertising from word of mouth 6. Increase brand loyalty 7. Increase in brand awareness 8. Increase customer relationship 9. Increase tourism economy 10. Increase brand recognition 11. Growth in VR technology 12. Growth in VR industry 13. Increase brand recognition 14. Increase product attractiveness 15. Increase brand recognition 16. Increase sales 17. Increase in global ads growth rate 18. Increase growth rate of wearable devices 19. Increase ads development 20. Reduce cost of production 21. Growth of VR users 22. Increase VR development 	<ol style="list-style-type: none"> 1. Increase towards environmental awareness 2. Lack of environmental behaviour change 	<ol style="list-style-type: none"> 1. Increase law enforcement in judging crime 2. Tool used for political and cultural empathy 3. First virtual reality political campaign 4. Virtual Reality in election campaign 5. Increase government citizen relationship 	<ol style="list-style-type: none"> 1. Brings more immersion into media 2. More interaction with technology 3. Adds more immersion of the experience 4. Adds more choice for customers 5. Increase emotional value for the product 6. Give unforgettable experience 7. Offers immersion to consumers about latest technology 8. Understand what it feels like behind bars 9. Give unforgettable experience 10. Creates beautiful memories 11. Understand the devastating effects of war 12. Increase customer relationship 13. Increase user experience 14. New online shopping experience 15. Creates positive memories 16. Richer experience with products 17. Have users control their experience 18. Develop a dynamic relationship 19. Have an emotional effect towards products 20. Increase positive perception of products 21. Increase positive perception of products 22. VR makes advertising fun