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INSTITUTO UNIVERSITÁRIO DE LISBOA

Research on VR Glasses Marketing Plan of X Technology Company

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Master in Applied Management

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Abstract

This study explores the marketing strategy of Pimax VR glasses, developed by X Technology Company, in the highly competitive virtual reality (VR) market. The project examines the industry context using PESTE analysis, highlighting the technological, economic, and social factors impacting the market. The core problem addressed is X Technology's limited brand visibility and challenges in penetrating the broader consumer market dominated by giants like Meta and Apple. The main objective is to propose strategies that enhance the company's market positioning and boost product acceptance among target segments. By methodological features, this study combines qualitative information from interviews with practitioners, such as product managers and marketing specialists, and secondary data analysis of industry reports. Such methods outlined the source of some important brand issues, including its pricing policy, user experience, and relatively narrow distribution channels. The key findings point to the fact that X Technology can improve its marketing by targeting more specifically tech enthusiasts, professional users of creative industries, and high-income gamers. These segments emphasize performance and, subsequently, are willing to pay more for value-added features such as high resolution, ergonomic design, and a wide field of view. The study proposes innovations in product design, strategic branding, and enhanced after-sales support to strengthen market presence for sustainable growth.

Keywords:

VR Glasses; Marketing Strategy; Consumer Analysis; Competitive Analysis; Brand Positioning

JEL Classification: M31,O33

Resumo

Este estudo explora a estratégia de marketing dos óculos Pimax VR, desenvolvidos pela X Technology Company, no mercado altamente competitivo da realidade virtual (RV). O projeto examina o contexto da indústria utilizando a análise PESTE, destacando os factores tecnológicos, económicos e sociais com impacto no mercado. O problema central abordado é a visibilidade limitada da marca X Technology e os desafios para penetrar no mercado de consumo mais alargado, dominado por gigantes como a Meta e a Apple. O principal objetivo é propor estratégias que melhorem o posicionamento da empresa no mercado e aumentem a aceitação do produto entre os segmentos-alvo. Em termos metodológicos, este estudo combina informações qualitativas de entrevistas com profissionais, tais como gestores de produtos e especialistas em marketing, e análise de dados secundários de relatórios do sector. Estes métodos permitiram identificar a origem de alguns problemas importantes da marca, incluindo a sua política de preços, a experiência do utilizador e canais de distribuição relativamente estreitos. As principais conclusões apontam para o facto de a X Technology poder melhorar o seu marketing, visando mais especificamente os entusiastas da tecnologia, os utilizadores profissionais das indústrias criativas e os jogadores com rendimentos elevados. Estes segmentos privilegiam o desempenho e, consequentemente, estão dispostos a pagar mais por caraterísticas de valor acrescentado, como a alta resolução, o design ergonómico e um amplo campo de visão. O estudo propõe inovações na conceção dos produtos, uma marca estratégica e um melhor apoio pós-venda para reforçar a presença no mercado com vista a um crescimento sustentável.

Palavras-Chave: Oculos VR; Estratégia de Marketing; Análise do Consumidor; Análise Competitiva; Posicionamento da Marca

JEL Classification: M31,O33

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Glossary

AR - Augmented Reality AT - Attitude towards Using BI - Behavioral Intention to Use CAGR - Compound Annual Growth Rate IDT - Innovation Diffusion Theory MR - Mixed Reality PEOU - Perceived Ease of Use PU - Perceived Ease of Use PVT - Perceived Usefulness PVT - Perceived Value Theory SWOT - Strengths, Weaknesses, Opportunities, and Threats TAM - Technology Acceptance Model UTAUT - Unified Theory of Acceptance and Use of Technology VR - Virtual Reality

1. Introduction

Pimax brand VR glasses (headsets) Pimax is a high-performance VR helmet developed by X Technology, known for its excellent screen clarity and immersive visual experience, suitable for both technology enthusiasts and professional users. Pimax adopts advanced optical design, ergonomic design and cutting-edge interactive technology, suitable for immersive applications such as games and education, with a wide field of view, reduced latency, and improved user comfort, making it the best choice in the highly competitive VR market.

Before discussing the Pimax brand, it is necessary to introduce the historical industry background of VR helmets (also known as virtual reality head-mounted display devices), including the origin of technology, market status, and future development trends. First of all, from the perspective of technological origin, the development of VR helmets can be traced back to the 1950s. Morton Heilig created the first immersive virtual reality device, Sensorama, which combined 3D stereo speakers, air seat vibrations, and wind effects to allow users to experience all senses, not just sound and vision. Later, he launched the Telesphere Mask in 1960, the first head-mounted display with stereoscopic 3D images and screen body sound effects. In 1961, Corme and Byen invented the VR helmet "Headsight", which can track head movements and project images to the screen for each eye, and some functions are similar to modern VR glasses. With the continuous advancement of technology, VR headsets have gradually expanded from the professional field to the consumer market. Modern VR headsets can be divided into many types, such as external headsets, integrated headsets, and mobile phone box headsets. They block the visual and auditory perception of the outside world through head-mounted display devices, guiding users to create a feeling in the virtual environment.

For the current market situation, according to a report by market research company IDC (Mass, 2023), the VR headset industry has experienced a period of fluctuating growth. Although the global shipments of augmented reality (AR) and virtual reality (VR) headsets will decline by 8.3% year-on-year in 2023, it is expected that the shipments of ARMR headsets will increase significantly in 2024, driven by products such as Meta's Guest 3 and Apple's Vision Pro headsets, with an increase of 46.4%. In addition, different VR headset brands have different market shares. For example, Facebook's Oculus series, Dapeng's DPVR series, ByteDance's Pico series, etc. all occupy a certain share in the market. In terms of application, VR headsets are not only widely used in the field of gaming and entertainment, but are also gradually expanding to education and training, medical health, tourism and

entertainment. VR headsets can provide an immersive experience and enhance user interest through virtual reality technology. Overall, the VR headset industry continues to grow and develop under the impetus of technology, and its market scale and application advantages continue to expand. Although the industry still faces challenges such as technical bottlenecks and market acceptance, with the continuous advancement of technology and the expansion of application scenarios, VR headsets are expected to achieve wider application and popularization in the future.

By studying the current status of the VR headset industry, it is not difficult to find that VR technology, as a cutting-edge technology product, has attracted much attention from the industry since its birth. As a carrier of VR technology, VR headsets are increasingly valued by technology companies and technology enthusiasts. Although affected by macroeconomic factors, global VR headset shipments will temporarily decline by 8.3% in 2023, the market is still in a rapid development stage, and it is expected to show significant growth in 2024 and beyond, and new equipment is expected to drive a new round of expansion.

First, from the perspective of market size, the VR headset equipment market shows a sustained growth trend. Market research data shows that driven by the increase in consumer demand for virtual reality technology, the global VR headset market has shown significant growth in recent years, and it is expected to maintain this momentum in the next few years. Secondly, from the perspective of market demand, various types of VR headsets continue to emerge to meet the needs of different consumer groups. Traditional VR headsets are mainly positioned in the field of game entertainment, but with the continuous development of VR technology, the application field of VR headsets is also expanding. In education, medical care, industry and other fields, VR headsets are being widely used, and market demand is becoming more diversified. In addition, from the perspective of market development trends, the VR headset market is moving towards a more intelligent and lightweight direction. With the advancement of technology and the reduction of costs, the hardware performance of VR headsets has been continuously improved, and the product size and weight have gradually decreased, making VR headsets more user-friendly and further improving user experience. In summary, the VR headset market is in a stage of rapid development, the market scale is constantly expanding, the market demand is diversified, and the market development trend is also moving towards a more intelligent and lightweight direction. All of these have laid a solid foundation for the future development of the VR headset market.

Pimax brand VR headsets are smart VR products launched by X Company. X Company is a VR hardware product R&D, production, and experience provider, focusing on high-

performance PC VR headsets. X Company currently has 16 world-leading patent technologies and 10 invention patent technologies under review. One of the major advantages of its VR headsets is its excellent screen performance, which can solve problems such as dot matrix and smearing, while improving user experience in terms of product weight and ergonomics. The company is committed to developing and producing a series of high-definition, large-field-ofview, and low-latency VR helmets. In 2017, it launched the world's first 8K resolution, 200degree field-of-view VR helmet, which raised more than \$4.23 million on the famous American Kickstarter platform, breaking Oculus' five-year crowdfunding world record (\$2.3 million). The company has core technologies such as optics, display, interaction, and optimization algorithms, and is a representative brand of high-end helmets around the world.

Although Pimax brand VR helmets have won the recognition of technology enthusiasts, Pimax has also encountered considerable challenges in large-scale popularization.

- *Brand awareness*: Currently, the company's brand influence is still not significant enough
- *Product awareness*: The current public acceptance of VR headsets is not high enough, and the public's awareness and understanding of VR technology also affect its acceptance. Although VR technology has gained more exposure and attention in recent years, many people still hold doubts or misunderstandings about it. Some users may be concerned about the security and privacy protection of VR technology, which may affect their purchasing decisions. The quality and diversity of VR content are also key factors affecting public acceptance. Although there are already some excellent VR applications and games, overall, the selection of VR content is still limited, and not all content can provide an engaging experience. This may cause users to lose interest after using it for a period of time
- *Price of the product*: Pimax Crystal is a high-end product line, and its price advantage is not obvious. Although VR technology is constantly improving, high-quality VR headsets are often expensive. This has deterred many consumers, especially potential users who hold a wait-and-see attitude towards VR technology.
- *Current user experience*: It's also a challenge to the user experience. While VR headsets give an immersive experience, using them for longer may create discomforts for the users, such as eye fatigue, dizziness, etc. Another issue is that some people find the operation of VR devices too complex and not easy to get started.

Even though the headgear VR industry is at a rapid development stage, various factors still act as barriers to wider market diffusion of the Pimax brand of VR headsets by X Technology Company. These include insufficient brand recognition, expensive pricing, and concern about user experience. Besides, virtual reality headsets are a very competitive field with quite a number of well-established brands operating in the market. With such evolution, the development of a focused marketing strategy will be necessary to enhance positioning and competitiveness for the Pimax VR headsets.

The aim of the following project is to develop an integrated marketing strategy for X Technology Company's headsets, Pimax VR headsets. In this regard, the project is intended to explore market trends and customer consuming behavior associated with VR headsets, highlighting the driving and inhibiting factors in customer purchasing behavior. Competitive analysis situates the key competitors, their strategies, and how Pimax can develop a differential positioning strategy. Finally, the target customer segments are identified, and the right channels for communication with targeted customers will be underlined. It will also propose some marketing tactics for overcoming the challenges being faced regarding brand awareness, improvement in customer experience, along with pricing strategies.

Pimax is a Chinese company that manufactures high-end VR headsets. In the years since it launched its first-generation models, Pimax has grown substantially. In 2017, the company gained substantial attention after crowdfunding its 8K VR headset on Kickstarter and beating the previous record levels set by other VR companies like Oculus, gathering over \$4.23 million. This was indicative of very strong initial demand by technology enthusiasts or early adopters and constituted a good stage for the entry of such a product into the market.

- **Product Line Performance:** Pimax had its mainstay products in the Pimax 5K Plus, Pimax 8K, and more recent ones such as the Pimax Vision 8K X, which have contributed significantly to the company's revenues. The headsets provide high resolution and wide fields of view with innovative features that impress a niche segment of VR enthusiasts looking for premium experiences. However, performance requirements, including the need for high-end PCs, have limited broader market adoption compared to more accessible options like Oculus or HTC Vive.
- *Revenue and Market Share:* With proper sales figures of Pimax not publicly shared, judging by reports from industry trackers, Pimax is supposed to have carved a niche

for itself in the high-end segment of the VR market. While the company is known to push the technical boundaries, the general feeling is that its market share is relatively small when compared with mainstream competitors. In positioning Pimax for innovation rather than mass-market appeal, it creates both uniqueness and challenges to broader commercial viability.

- Regional Sales Insights: The most vibrant markets for Pimax would be North America, Europe, and Asia, where people are more technologically advanced and thus more willing to make investments in high-end VR. Sales come through in these regions due to their reputation for some of the biggest resolutions and field-of-view headsets available to date. Applications include hard-core gamers and professional users in industries related to design and simulation.
- *Challenges Affecting Sales:* Not with standing all the technological strong points, the following are the challenges affecting Pimax's sales performance:
 - *High Costs:* Headsets, generally offered via Pimax, are much more expensive compared to their mainstream counterparts, which lowers the desirability for budget-conscious buyers.
 - *Technical Complexity:* The need for strong hardware and constant software updates can get in the way of the less technically inclined user, deferring broader adoption.
 - Supply Chain Problem: Pimax, like many other technology companies, faces production and supply chain problems, especially amid global chip shortages, which has hindered its capacity for timely demand meeting.

This report is organized as follows:

- Chapter 1 provides an overview of the VR headset industry, discussing the technological evolution, market trends, and future outlook.
- Chapter 2 delves into the current market status of X Technology Company's Pxxx VR headsets, identifying the main challenges and opportunities.
- Chapter 3 presents a detailed analysis of competitors, examining their strengths, weaknesses, and strategies in the VR market.

- Chapter 4 outlines the proposed marketing strategy, including target customer segments, brand positioning, pricing strategy, and promotional tactics.
- Chapter 5 concludes the report with actionable recommendations and insights for the implementation of the marketing plan.

2. Literature Review

2.1. Overview of VR Technology

2.1.1 Origin and Development of VR Technology

1956 saw the release of the first VR technology by Sensorama. Its sheer size prevents it from being converted into a commercial entertainment venue, even though it features six short films that may be seen, a stereo speaker, an odor generator, 3D projection, vibrating seat, and more. In 1961, the company developed a head-mounted display called the Headsight. It combines monitoring and head tracking, although its primary function is to examine hidden data (Berkman et al, 2018). The first iteration of today's basic VR glasses was the GAFViewMaster, which debuted in 1966. It doesn't have any electrical virtual imaging or audio components; instead, it creates 3D visual effects using built-in lenses. Many people believe that the 1968 film The Sword of Damocle marked the genuine birth of virtual reality technology. It was created by the Massachusetts Institute of Technology and served as a model and source material for the creation of virtual reality and even augmented reality devices (Colagrossi, 2018).

The first VR system to be sold commercially, the RB2, debuted in 1984. It had motion tracking gloves and other position sensors, and its design was modeled like contemporary popular goods. NASA created an LCD optical head-mounted display in 1985 with the goal of creating a compact, lightweight device that could offer an immersive experience. The device's design and construction were later widely used (Steven et al, 2023). Several well-known businesses have also attempted to employ virtual reality technology in the gaming and entertainment industries to create related products (Paíno & Rodríguez, 2020). Sega, the developer of video games, intended to create a head-mounted virtual reality headset for the system in 1993, but a secret test revealed that the headset would not function adequately (Wu, 2024). Nintendo introduced the Virtual Boy, a VR-based gaming device, in 1995, but it failed in less than a year owing to its limited display capabilities, low game content quality, and slow refresh rate. In 1995, the University of Illinois created a VR system dubbed "CAVE" using a three-wall projection room and three-dimensional LCD shutter glasses to provide an immersive experience (Rothbaum, et al 1995). The OculusRift, released in 2009, and the debut of an early device for developers in 2013 at a price of under \$300, marked the actual arrival of commercial VR equipment into the consumer electronics industry. In 2014, Facebook announced the acquisition of Oculus at \$2 billion (Robertson, 2018).

2016 was a significant turning point for the VR device and content market. Samsung's Gear VR, HTC Vive, and Oculus Rift headsets were all formally unveiled at CES 2016. VR is now being supported at the chip level by Qualcomm and Intel (Welch, 2016). Complete VR compatibility has also been revealed by game engines including Source, CryEngine, Blender, and Unity. Large gaming firms such as Tencent, UBISOFT, NetEase, EA, and Netdragon have published their own representative works in the realm of game entertainment. Since the start of the year, a lot of money has been pouring into the VR content (video games, films, and television) sector due to growing optimism (Conditt, 2018).

Globally, virtual reality (VR) technology has steadily advanced toward multisensory immersive experiences that are haptic, aural, and visual. Simultaneously, the associated hardware equipment is becoming more transportable and miniaturized. Working with Nvidia and Adobe, Stony Brook University in New York has created a system that uses eye-tracking technology and the saccade suppression of the human eye to give users a realistic walking experience in vast virtual settings. A business named MojoVision has stated that it intends to reduce the size of its VR gadget to that of a contact lens and release a corresponding commercial product in 2020. In order to enable stereo sound effects for VR headsets, Oculus introduced Oculus Go at GDC2018. Because the headset's speakers are built into the device, users may enjoy virtual scene sound almost naturally without the need for earplugs. In order to prevent the device's sound from disturbing the surrounding area, it employs a directional speaker design. A group of researchers from ETH Zurich (ETH) and the Ecole Polytechnique Federale de Lausanne (EPFL) have created the DextrES, a portable haptic feedback glove. The gadget's entire weight is only 40g and its thickness is only 2mm, while the total weight of the sensor and feedback device linked to the user's finger is as low as 8g, allowing VR users to receive more natural haptic input (Lee et al,2024).

2.1.2 Differences between AR/VR/MR

VR is a computer simulation technology that allows users to create and explore virtual worlds. Various output devices employ computer-generated electronic signals to translate real-life scenes into scenes that humans can experience, so that users can have virtual feelings, and promote the interaction between users and the virtual world.

It mostly possesses the following three qualities:

First, immersion refers to the use of computer operating system directly mimics the external natural environment, the user is thrown into the simulated three-dimensional space natural environment, it is difficult to distinguish the true and false, the simulation of the natural

environment things look like real, sound like real, so that people's senses are immersed in it (Bonetti et al,2018); Second, interactivity means that users can interact with or react to things in the virtual world. In the virtual world, users may, for instance, handle an object in their hands, the shape of the item can be sensed visually, and the item can also move through convenient operation (Flavián et al, 2019); Third, imagination means that people's imagination of the objective real world is greatly enriched in the virtual world. It can not only imagine the actual scenes in the objective reality, but also imagine the situations that will not occur or cannot happen in the objective real world (Alpha3DTeam, 2023).

AR technology interacts with the real physical situation from an intuitive or indirect viewpoint, and the interactive part has been enhanced, and the enhanced effect will be transmitted through computer simulation generation, including voice, video, image and GPS information (Pauls & Karsakov, 2021). Obviously, VR itself is generated through personal computers, and augmented virtual reality is related to the real environment of the user, so it can also be considered based on mobile computing. AR refers to the use of three-dimensional model, information tracking and registration, intelligent interaction, sensing and other technical means, the text generated by the computer, graphics, three-dimensional model, sound, image and other virtual data superimposed in the real world, the virtual and real information to interact, so as to achieve the effect of enhancing the data in the real world (X. Wu, 2024).

Mixed reality, or MR, is a relatively novel idea. MR is based on augmented reality (AR) technology, which outputs and combines virtual components with the physical world. With MR technology, users may engage in real time with a high sensation of reality (Wang et al, 2021). The real world and unreal aspects may be integrated by MR network's effective environment adaption learning technology to create a full environment. The digital analog environment and the real physical environment can complement one another to produce information interaction (Pellas et al, 2019). MR not only takes place in the virtual world or the real physical environment, but also combines the unreal and the real together, using immersive technology to include VR and AR, so MR Technology can realize the integration of holographic analog images and the real physical environment. The real feeling of MR is completely derived from the perfect combination of holography and the real physical environment, and it enhances the authenticity of the user's emotions by creating a mutual feedback signal loop between the user, the actual world, and the virtual environment (Pellas et al., 2019).

Simply put, MR is actually a fusion of AR and VR, a technology that takes the strengths of both and abandons the weaknesses of both. You will probably think of it as an enhanced version of AR. But in fact, there are obvious differences between MR And AR: First, whether it can be identified by the location of virtual objects, that is, MR can change according to the change of users, while AR does not change; The second is to see whether it is possible to make a clear distinction between unreal and real objects, which AR can do, and MR can not do. In 2015, MagicLeap released a film featuring a fin whale leaping out of the sea, making it virtually impossible to distinguish fictional objects from real ones. Although this video was later proved to be only video special effects, and cannot use real MR Means, but also pointed out the development direction of MR Technology for human beings (Guo et al, 2021).

To summarize, VR technology is illusory, is to bring the user's consciousness into the illusory natural environment, requires the user to wear VR equipment to achieve. AR is a combination of real environment and unreal elements, blending unreal elements into the real world, which is based on the principle of optical and three-dimensional reconstruction of images generated by the user can see the effect only with the naked eye. MR Is a new product that combines VR and AR technology, so relatively speaking, MR can be understood as a fusion of the first two technologies. MR, on the other hand, seamlessly connects the unreal and the real. What is certain is that MRwill certainly be the wave of the future. Regardless of AR or VR, in fact, can be counted as a different field in a path, and eventually will inevitably move towards the development route of MR (Yu et al, 2023). Therefore, a single technology cannot be adapted to the more complex applications of the future.

2.1.3 Key Use Cases for VR in Industry

The military was the primary focus of early VR research and implementation; the US has long employed VR to demonstrate simulated warfare environments, soldier simulation training and joint exercises. The UK is undoubtedly a leader among European countries in the field of VR technology development in the design and application research of assistive devices such as haptic feedback. Japan is the leading country in the research and use of virtual reality technologies in Asia, and the focus of Japanese research is to build a vast VR knowledge repository (Pang 2009). At present, the high-tech VR is widely used in the international community in the real estate industry, banking system, construction engineering, games, news, psychology and other fields.

(1) Shopping field

The use of VR in the retail industry overcomes the limitations of traditional retail models. Consumers can feel the atmosphere of the store without going to the mall in person. VR may provide consumers access to a wide range of product data and allow them to experience and interact with the things in a virtual environment.(Kim et al, 2022). But this is only a marketing means, if the use of VR technology marketing, there will be more shopping centers facing the problem of restructuring, but also lost the fun of shopping malls, so virtual shopping technology is often more appropriate for usage by the elderly and physically impaired individuals (Xi & Hamari, 2021).

(2) Stadium field

VR technology headsets, which are typically utilized in athletes' training and simulation activities, are typically employed in the stadium application of VR. Through the use of VR, athletes may engage in simulation exercises that replicate the on-site setting of the game, so enhancing their experience and proficiency in the virtual realm (Putranto et al, 2023). Athletes may also watch themselves repeatedly and experience sporting talents from various perspectives thanks to virtual reality technology, which helps them develop a deeper perception of themselves and improve their competitive formation.

(3) Live broadcast field

VR technology often combines live broadcast technology with VR virtual technology in the field of live broadcast. In the context of 5G, the network speed is increasing faster and quicker. In the realm of live transmission, virtual reality technology offers a 360° panoramic angle of view, and the immersive experience is higher (Akm et al, 2023). Through 3D technology, the picture sense is stronger, more real, and the sense of interaction is relatively strong. Through VR technology to experience the live broadcast process, to fully experience the live atmosphere and applause, users may drag the display screen, alter the viewing angle, and do a number of interactive activities. This is a really useful and engaging feature (Hu et al, 2021).

(4) Medical field

VR is also frequently employed in the medical industry. Patients may use VR to fully understand the course and cause of their condition, which encourages them to actively participate in their treatment (Mahtab & Egorova, 2022). For instance, the fact that older people frequently fall and that the nurse's straightforward description of the problem is not

always successful in drawing the attention of family members are just two examples of how this basic narrative fails to draw in patients and their families (Aliwi et al, 2023). However, the causes and effects of falls may be shown through 3D movies using virtual reality technology, giving patients a firsthand look at the procedure. This can not only improve the understanding of patients, but also improve the prevention awareness of patients and their families, essentially reducing the occurrence of such things (Loetscher et al, 2023).

(5) Film field

Compared with 3D technology, VR viewing technology builds 360° three-dimensional space images, and the audience can choose the viewing Angle at will to experience different story feelings (Mendonça et al, 2022).

(6) Construction field

The realization of VR technology in engineering is mainly to use simulation technology to achieve interactive visual effects, convert geometric data into three-dimensional models, and provide users with stereoscopic visual effects according to virtual technology (Oje et al , 2023). Usually, 2D CAD graphics are converted into 3D building models by 3Dmax software, and UE4 or Unity 3D software is combined with VR technology to make the building models operable. Then to improve people's feelings from the first perspective, it can also be presented on the mobile phone or PC side, showing the three-dimensional structure model in front of the user in an all-round way (Guo et al, 2022).

(7) Education field

The application of VR technology in education has changed the traditional teaching mode and broken through the limitations of teaching experiments (Radianti et al, 2020). Through VR technology, some abstract things and practices in teaching can be displayed in a virtual way, and perfect teaching resources can be provided for students in the form of videos and pictures (Mergen et al, 2024).

2.1.4 Emerging Technologies and Innovation in VR

There are currently two distinct ways that VR technology is being developed: desktop virtual development and immersive virtual experience modes (Dincelli & Yayla, 2022). Whichever development model is most likely to be employed in modeling in the future, interaction, rendering, system construction and other fields, and according to the different

requirements of various fields, to create a series of new characteristics, mainly the following points: (1) Technique for dynamic modeling. The fundamental function of virtual reality technology is to create virtual environments. Dynamic modeling technology primarily consists of gathering real environmental data and creating virtual environments of different scenarios based on the data gathered and real-world requirements (Liu & Zhou, 2021). (2) Technologies for creating and displaying 3D virtual models in real time. The technology for creating 3D models has advanced significantly in recent years. However, the challenge now lies in producing virtual models instantly. Research is needed to determine what type of technological solutions are necessary to avoid altering the image's complexity or effect (Jahangir et al , 2021). Through language technology, the mode, characteristics, attributes and other contents needed for modeling are transformed into the information needed for modeling, and then artificial intelligence is combined with graphics processor for design and evaluation, which fully displays the model object and effectively connects various static models and dynamic models, so as to complete the system model construction (Wen et al, 2021).

2.2. Theoretical Framework and Model of Innovative Product Adoption

2.2.1 Diffusion of Innovation (DOI) Theory(Rogers)

Innovation Diffusion Theory (IDT) is one of the classical theories to study the effect of innovation diffusion. By studying more than 3,000 cases of innovation diffusion in different countries and different fields, Professor Everett M.Rogers, an expert in communication studies, published the Diffusion of Innovation in 1962, in which he proposed to study innovation diffusion as a systematic theory (Miller, 2015). According to Rogers' thesis, media may be used to influence people to adopt novel concepts, innovative goods, and innovative technology. Diffusion of Innovation provides an overview of the S-shaped curve changing law of innovation diffusion over time, as well as the process of innovation diffusion and the internal and external elements that influence its rate (Blessing ,2024).

"Innovation" refers to a new thing (such as an object, method, or practice) considered by a particular or group of people. According to Rogers, "diffusion" is a unique kind of communication that occurs when a social system's structure and functions are altered, while "innovation" refers to concepts, items, or goods that are seen as innovative by individuals or other adopters (Morad et al , 2021). The process of innovation diffusion is the way it spreads over time and across different groups in a social system, that is, the process in which an innovation spreads throughout the community or a certain group of people through a specific communication channel and is gradually understood and adopted by community members or the group. In this process, individuals can subjectively feel the dissemination and diffusion of relevant information about an innovation (Vargo et al, 2020).

IDT holds that when an innovation just begins to spread among the target group, people usually have a low acceptance of it, so the diffusion process is relatively slow at the beginning. Once the percentage of adopters reaches a critical value, the diffusion process will accelerate, taking off, and most of the target group will begin to accept the innovation at this stage (Guidolin, 2023). As the invention is embraced by an increasing number of social system participants, the innovation will naturally spread among the target group without much external help, that is, the early adopters influence the later adopters. After that, the diffusion rate slowed down again, and people's acceptance and adoption of innovation gradually reached a saturation point. If this diffusion process is visualized in the form of a graph, it is usually presented in the form of an "S" shaped curve, that is, the "S" shaped diffusion curve often mentioned in IDT (Oeij et al, 2019). At the same time, the concept of "critical majority" in the curve is also frequently mentioned, which means that during the diffusion process of an innovation, enough individuals in the social system have adopted the innovation, so that the further diffusion of the innovation is relatively stable and has a self-sustaining ability (Mazzarol & Reboud, 2019).

2.2.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is one of the most established and reliable theories in the field of information systems. It was first developed to identify the main factors influencing individuals' decisions to use computers. This theory originates from the Theory of Reasoned Action and was initially proposed by Fred D. Davis in 1989 at the University of Michigan (Scherer et al, 2019). Over time, TAM has evolved and is now widely applied to study how people adopt and use new technologies.

The core concepts of TAM include behavioral intention to use (BI), perceived usefulness (PU), perceived ease of use (PEOU), and attitude toward using (AT) (Rahimi et al, 2018). PU refers to the degree to which users believe that using a particular technology will enhance their job performance or efficiency. PEOU relates to how simple or straightforward users find the system to operate. AT represents the positive or negative feelings users have toward adopting new technologies. Lastly, BI refers to a person's willingness to use the technology, reflecting their intention to engage with the system (AI-Emran & Kamaludin, 2018).

These concepts, along with external factors and actual system use, form the foundation of the TAM framework. External factors influence both PU and PEOU, and in turn, PU and PEOU shape AT. PU not only impacts AT but also directly influences BI. AT affects BI, which subsequently determines whether the individual will use the system. Furthermore, PEOU influences PU, and through PU, it indirectly affects both AT and BI. Therefore, PU serves as a mediating variable between PEOU and its impact on AT and BI (Cheng, 2015).

2.2.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

In 2003, Venkatesh introduced the Unified Theory of Acceptance and Use of Technology (UTAUT) model to explain the key factors that influence an individual's willingness to accept or use new technologies. The model is made up of four main components: Social Influence, Effort Expectancy, Performance Expectancy, and Facilitating Conditions. Two variables, Use Behavior and Behavioral Intention, are dependent, while the other four components act as independent variables (Xue, & Ouyang, 2024).

The model also considers how four moderating factors—gender, age, experience, and voluntariness—can influence the relationships between the variables. The purpose of the UTAUT model is to address the limitations of previous models by providing a more comprehensive and accurate way to predict technology adoption and usage (Tamilmani et al, 2021).

The central idea of the UTAUT model is that Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC) all affect users' intentions and behaviors when adopting technology. PE refers to users' perception of whether using a particular technology will enhance their job performance and productivity. It incorporates concepts from various earlier models, such as Perceived Usefulness (PU) from TAM, extrinsic motivation from the motivation model, job fit from the model of PC utilization, relative advantage from the Diffusion of Innovations theory (DOI), and outcome expectations from social cognitive theory (Andrews et al, 2021). EE is the user's cognition and evaluation of the difficulty of using a certain technology, which is integrated by the PEOU of TAM, the complexity of computer utilization model and the ease of DOI theory. SI describes the degree to which are influenced by others' behaviors, opinions and attitudes when using technologies or systems (He et al, 2018). Theoretical sources include social factors of computer utilization model, subjective norms of rational behavior theory and images of innovation diffusion theory. FC refers to the support degree of hardware and software such as technology and equipment when users use the system, which is composed of the perceptual

behavior control of planned behavior theory, the enabling conditions of computer utilization model and the compatibility integration of DOI theory (Taherdoost, 2018). Additionally, the effects of the four key factors—Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions—are moderated by gender, age, experience, and voluntariness. Experience refers to the user's level of skill and familiarity with the technology or system. Voluntariness describes the degree of freedom the user has in choosing whether to adopt the system or technology (Wan et al, 2020).

2.3. Consumer Behavior in Technology Adoption

2.3.1 Perceived Value Theory (PVT)

In 1988, Zeithaml VA formally introduced the Perceived Value Theory (PVT). The core principle of this theory is that consumers make consumption decisions based on their overall evaluation of a product or service, which involves weighing perceived costs against perceived benefits. The framework of PVT includes components such as perceived value, perceived quality, perceived price, perceived pay, and behavioral intention, among others. Ever since its inception, the theory has garnered significant attention from academics across several disciplines, and it is frequently employed to elucidate consumers' inclinations and purchasing patterns within certain contexts (Sánchez & Iniesta 2007). Bolton and Drew, however, draw attention to the oversimplification of defining value as a function of both price and quality. Using only one item to measure customer perceived value leads to insufficient validity (Sweeney & Soutar, 2001). Therefore, many scholars continue to supplement and improve the dimensional composition of perceived value in the process of research. In the research of consumer shopping experience evaluation, the perceived value is divided into utilitarian value and hedonic value. When measuring consumers' perception of the value of durable consumer goods, we put forward the measurement dimensions of emotional value, social value, functional value (price functional value and performance functional value) (Zauner et al. 2015). To explore the influence of usage intentions on mobile network service uptake, perceived value was calculated using perceived utility, perceived entertainment, perceived technological ease of use, and perceived cost. According to their findings, perceived utility, perceived entertainment, perceived technical ease of use, and perceived cost may all impact perceived value, which in turn influences behavior (Wicaksono & Maharani, 2020); In order to examine how perceived value affects mobile technology use, mobility ease, service compatibility, security threats, and cognitive effort are taken into account. According to academics,

consumers' behavioral intentions are directly and significantly impacted by perceived value (García et al, 2018; Karjaluoto et al, 2019).

The two main parts of the Technology Acceptance Model (TAM) are PU and PEOU. The term "perceived ease of use" describes how simple a technology is for consumers to understand and operate. Users are more inclined to accept technology when they believe it is straightforward to use and run (Marangunić & Granić, 2014). Conversely, if users think the technology is complicated and difficult to understand, they may hesitate or refuse to use it (Ursavaş, 2022).

The term PU describes how a user views the contribution of technology to increased productivity at work or in daily life. People are more inclined to use a technology if they think it provides a lot of advantages and ease (Ambalov, 2021). For example, in an enterprise setting, employees will be more motivated to accept and use new software if they believe it will increase productivity and productivity (Luo et al, 2024).

In addition to PEOU and PU, other psychological factors such as trust, social influence, and innovation resistance also significantly influence technology adoption. Trust refers to the degree of trust users have in the security and reliability of technology, and high trust helps to improve the adoption rate of technology (Emete et al, 2024). Social influence includes recommendations and usage habits from colleagues, friends, or social groups, and when they observe others around them using a technology extensively, consumers are more inclined to embrace it as well. Resistance to Change reflects the user's rejection of new technology, usually due to fear of the unknown or dependence on existing habits (Lu et al, 2019). Before a new product is ever given a chance to be evaluated, people can decide to reject it immediately. Customers will reject the new product because they believe the present product is too wonderful to be discontinued rather than because it is inferior, and as a result, they will act negatively toward the new product (Zhang et al, 2019).

2.3.2 Consumer Attitudes Towards Innovative Products

The way that consumers embrace new products has drawn a lot of attention in the field of marketing research. Most of the previous studies on new product adoption behavior start from the product diffusion model, thinking that buying new products and eliminating old products are two problems, that is, assuming that consumers are willing to buy new products means they are willing to eliminate old products, and vice versa (Chorowski et al, 2023). Therefore, many studies focus on why consumers are willing to buy new products and the pre-factors of new product adoption, which mainly include two aspects - personal

characteristics of consumers and technical characteristics of new products (Kwon et al, 2023). (1) Personal characteristics of consumers, such as consumer innovation. Consumer innovation is the extent to which consumers tend to adopt innovative technologies faster than others around them. Many studies have shown that consumer innovation is an important factor affecting new product adoption behavior (Al-Jundi et al, 2019). (2) The technical characteristics of new products primarily include originality, compatibility, and comparative advantage. Regarding originality, consumers are more likely to adopt a new product when they perceive it as being different or unique (Li et al, 2014). For compatibility, Ma, Gill, and Jiang found that some consumers take into account whether a new electronic product is compatible with their existing devices, and they tend to prefer new products that are both compatible with old products and offer incremental innovations (Wei & Huang, 2019). In terms of comparative advantage, when consumers perceive that the new product offers clear advantages over older versions, their willingness to adopt the product increases significantly. In the existing literature on consumer innovation and the impact of new product technology characteristics, most researchers agree that consumers' willingness to purchase new products is influenced by their acceptance of technological innovation and perceived value (Al-Jundi et al., 2019).

The choice to embrace a high-tech product is influenced not only by the desire to acquire a new product but also by the desire to eliminate an old one. When consumers are debating whether to purchase a new product, the old one they are presently using is frequently in good working order and has a high salvage value (Robson et al, 2019). Prior research has demonstrated that consumers' old products will bring the following three obstacles to the adoption of new products - surplus value, usage habits and psychological resistance (Gomes et al, 2023). ① Surplus value. For example, while consumers find technologies like Face ID on Apple's Macbook Air useful, however, the purchase may be delayed because the existing laptop will last another year or two (residual value) (Brynjolfsson et al, 2003). ② Usage habits. For example, consumers may not consider buying the latest generation of MacbookAir because they are not used to the iOS operating system or can't find files easily when changing computers (Reichheld et al, 2023). ③ Psychological resistance. Consumers may refuse to buy a new product because it breaks with established traditions or social norms. In summary, Hei-denreich and Handrich refer to the above obstacles to the adoption of new products as "innovation resistance" (Cornescu & Adam, 2013). They point out that sometimes consumers refuse to adopt a new product not because the new product is not good enough, but because they are more satisfied with the old product and refuse to "get rid of the old".

2.3.3 The Technology Adoption Lifecycle

The research of technology adoption, from the perspective of the market, studies the situation of a new product being adopted by consumers after it is introduced to the market, and the law presented by it is called the technology adoption lifecycle model. The model originated from studies of the acceptance of new varieties of potatoes by American farmers, and has since been slowly adopted by the high-tech industry (Hoffman et al, 2021).

In terms of technology adoption lifecycle research, American scholar Geoffrey A.Morore chooses different stages according to potential customers' concerns about risks and the intensity of their needs (Awa et al, 2015). There are five stages in the technology adoption lifecycle: innovators, early adopters, early majority, late majority, and laggards, and it is considered that the market development process conforms to the bell distribution curve, pragmatists and conservatives constitute the mass market, the other three types of consumers form their own niche markets, and the speed of consumer adoption in the first three market stages is accelerating. In the latter two market stages, the rate of consumer adoption gradually slows down until new technology products withdraw from the market (Meade & Rabelo, 2004). Therefore, the model describes the diffusion process of new technology products in the market.

On this basis, Brown R did a further study of the cumulative proportion of adopters in each stage, and concluded that innovators accounted for 2.5% of the total users, early adopters accumulated users of 2.5% to 16%, and then entered the mass user stage, its proportion increased rapidly between 16% and 84%, and the rest was the cumulative proportion of laggards (Koul & Eydgahi, 2017).



Figure 2.1. Five distinct types of technology consumers make up the technology adoption life cycle, which is shaped like a bell curve and represents the whole possible market share for a given technology.

Source: Tungston (2009), public domain Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Diffusionofideas. PNG).

Although the above two models have played a huge guiding role in the practical application of high-tech industry, they all believe that the diffusion of high-tech products is a smooth and continuous process, and the development of various stages of the market is taken for granted. As a result, countless seemingly promising high-tech companies have lost their way and faded during the life cycle of emerging technology adoption (Wynn & Clarkson, 2017). In response, a number of researchers, most notably Geoffrey A.M., have looked for flaws in their models. He took a deeper look at the five categories of adopters and found that there were differences between each of them, with fundamental differences between visionaries and pragmatists leading to a product not transitioning smoothly, a phenomenon he defined as a "canyon," and a systematic description of differences between other adopters. Thus, the life cycle correction model of high-tech technology adoption is established. Professor William Hamilton first proposed the concept of the evolution model of new knowledge. He underlined that the successful commercialization of technology into the general market marks the end of fresh knowledge, which starts with scientific study verifying the viability of technology, which is at the intersection of "formal competition" and "applied competition" (Kirby & Tadhg, 2017). This evolution model can well describe the whole process of the diffusion of emerging technologies, but it still has great fuzziness and needs more in-depth and detailed research.

2.3.4 Factors influencing the adoption of VR headsets

Cost

Cost is one of the main barriers to the adoption of VR headsets. The high purchase price and the ongoing cost of related accessories and software may deter many potential users. For example, Apple's Vision Pro has raised the visibility of AR and VR, but its high price makes it unaffordable for most consumers (Ball et al, 2021). In contrast, more affordable headsets such as the Oculus Quest 2, which costs \$299, have significantly increased consumer interest by providing a cost-effective experience. Oculus Quest 3 is expected to continue to drive the VR headset market in 2024. According to the latest data, by 2024, the VR headset industry is predicted to generate \$9.9 billion in sales., which shows the trend of increasing market demand as costs decrease (Gilbert, 2022).

Content availability

An essential component in drawing consumers is having rich and varied content. Virtual reality headset use in gaming, education, and healthcare is one of the main factors driving consumer purchasing of these devices. VR technology is being employed in several initiatives to enhance the quality of teaching and medical services, with a particular focus on education and medical applications in the European market (Ebrahimi et al, 2022). In addition, with the increase in content creation, user interest in VR headsets is also increasing. Shipments of VR headsets are expected to reach 24.7 million units by 2028. The Oculus Quest series of headsets, especially the Quest 3, provide a rich ecosystem of content that further enhances the user experience and purchase intention (Zhuang et al, 2023).

Perceived ease of use

PEOU refers to how easy it is for users to learn and operate a VR headset. Users are more inclined to accept and use technology if they believe it is simple to set up and run (He et al., 2018). In recent years, the design of VR devices has continued to improve, such as the introduction of wireless features to make the user experience more convenient and comfortable. Quest 3 not only improves wireless functionality, but also further enhances wear comfort and user interface friendliness. In addition, the high-resolution display and ergonomic design also greatly enhance the user experience and reduce discomfort during use.

Perceived usefulness

PU refers to whether a VR headset can bring practical benefits in entertainment, education, or work. If users believe the technology will significantly improve their experience and efficiency, they have a higher chance of adopting it. For example, the increasing use of

VR in corporate training and design is not only improving the skills of employees, but also improving productivity (Jo & Park, 2023). In addition, as more apps and games are launched, the perceived usefulness of VR headsets is also increasing. Quest 3 further enhances users' perception of its usefulness through a rich application ecosystem and versatile use cases.

Technical performance

Technical performance, including resolution, refresh rate and tracking accuracy, directly affects the user experience. High-performance VR headsets provide a more immersive experience with less vertigo and latency. Varjo's new VR headset, for example, features a dual display design that improves viewing range and visual clarity (Sibley et al,2024). These technological advancements are further driving the market adoption of VR headsets. Quest 3 also features significant improvements in enhanced technical performance, such as higher resolution and faster refresh rates, which enhances the overall user experience.

Marketing and social impact

Effective marketing and social impact are also important factors. The strong promotion of technology giants and market leaders, such as Meta and Apple's input, has significantly increased the market's awareness and acceptance of VR headsets. In addition, social media and word of mouth also have a significant impact on how the user makes decisions (Dwivedi et al, 2021).

2.4 Comparative Analysis of VR Headset Adoption in Different Regions or Countries

A multitude of variables impact the worldwide uptake of virtual reality headsets, including the level of economic development, technical infrastructure, cultural acceptance, and marketing efforts. North America and Europe, due to their economic strength and technical infrastructure advantages, the popularity of VR headsets is faster and a wide range of applications. Asian markets, particularly China, Japan and South Korea, showed strong growth momentum (Grand View Research, 2022). In contrast, Latin America, Africa and the Middle East have low penetration rates, but with technological advances and economic development, the market potential of these regions is gradually being released. Understanding these regional differences will help VR companies develop more targeted marketing strategies and promote the wide application of VR technology worldwide (Fortune Business Insights, 2022). Shipments of VR headsets in the global market are expected to grow significantly by 44.2 percent to 9.7 million units in 2024. This growth was driven by new devices, including the launch of Apple's Vision Pro, as well as improved global macroeconomic conditions.

Economic development and technological infrastructure

In economically developed regions, such as North America and Western Europe, the adoption rate of VR headsets is higher. These regions have strong economies and advanced technology infrastructure, and consumers have strong purchasing power and are open to experimenting with new technologies (Pan et al , 2021). For example, shipments of VR headsets are expected to reach 24.7 million units by 2028, representing a compound annual growth rate (CAGR) of 29.2%. In these markets, significant investments by major tech companies such as Meta and Google have driven widespread adoption of VR headsets. The launch of the Oculus Quest series of headsets in particular has significantly boosted consumer interest (Wire, 2024).

Content richness and application areas

Content richness and diversity of application areas are other crucial elements impacting the uptake of VR headsets. In Europe, VR is not only widely used in the field of gaming and entertainment, but also has a lot of promise for the fields of healthcare and education. Many projects use VR to improve the quality of teaching and medical services. For example, educational institutions in the United Kingdom and Germany are actively introducing VR to enhance students' educational experience (Lee et al, 2019). In addition, the use of VR in corporate training and design is also increasing, which is further driving the adoption of VR headsets.

Cultural acceptance

Cultural acceptance also varies by region. In Asia, consumers in Japan and South Korea are more receptive to new technologies, with SONY in Japan making significant progress in hardware, while South Korea stands out in content creation and esports (Zimu, 2023). The Chinese market is showing strong growth momentum, and it is expected that the revenue of the Chinese VR headset market will reach \$3.17 billion in 2024 (Fortune Business Insight, 2024). The Chinese government's strong support for scientific and technological innovation and the active investment of local companies such as Huawei and ByteDance have accelerated the popularity of VR headsets in the Chinese market (Kurzydlowski, 2021).

Marketing and cost

Marketing efforts and equipment costs also significantly affect the adoption rate of VR headsets. In Latin America and Africa, low levels of economic development and weak

technical infrastructure have led to challenges in the adoption of VR devices. However, with increasing smartphone penetration and improved Internet access, countries such as Brazil and Mexico are beginning to see more applications in the gaming and education sectors, and the market is gradually showing growth potential (Ball et al., 2021). In Africa and the Middle East, despite economic imbalances and poor technology infrastructure, rich countries such as the UAE are actively investing in tech innovation and VR projects, and there may be more opportunities in the future (Zheleva et al, 2024).

3. Methodology

The purpose of this chapter is to present the research methods employed to meet the objectives of this study. A combination of qualitative research and secondary data analysis is used to explore key marketing strategies for X Technology Company's Pimax brand VR headsets. The following sections provide a detailed description of the research design, methods, and tools utilized in this study.

3.1 In-depth Interviews

This study utilized qualitative in-depth interviews as its primary tool of data collection. These interviews were conducted with five key informants-tenured professionals within the industry of VR headsets: product development expert, marketing director, user experience designer, business development manager, and chief technology officer. The above interviews were all conducted with the objective of finding experts' views or insights into the main challenges relating to: brand building via awareness, product acceptance, pricing strategy, and user experience of the Pimax brand. Besides, interviews also sought to find out emerging trends and issues in the larger virtual reality industry, especially in places such as healthcare and education and also in the expansion of the global market.

Population: The study subjects are professionals currently working in the VR headset industry.

Key Informants Selection: Using a sampling method, 5 key informants were selected for the in-depth interviews.

- Emily Zhang, company Pimax Inc, 3 years experience in VR industry as Product Development Specialist
- Michael Li, company X Technology Company, 7 years experience in VR industry as Marketing Director
- Sophia Chen, company VR EduTech Solutions, 5 years experience in VR industry as Lead UX Designer
- David Wang, company Meta VR, 4 years experience in VR industry as Business Development Manager
- Anna Liu, company VR Healthcare Innovations, 6 years experience in VR industry as Chief Technology Officer (CTO)

Data Collection Period: The interviews were conducted over the course of one month.

Data Analysis Techniques: The thematic analysis was done after detailing the recorded conversations. Key trends observed and patterns have been studied in industry trends, brand awareness, product acceptance, pricing strategies, and user experiences.

3.2 Secondary data: Industry Analysis

To complement and validate the findings from the interviews, an in-depth qualitative analysis of industry reports, expert opinions and market trends will be conducted. The study will also include a literature review of secondary data sources, including market research reports, VR industry white papers and academic literature. The aim is to identify current trends, opportunities and challenges in the VR market that are relevant to X Technology Company.

Therefore, in relation to the above, the collection of data for this analysis would relate to reports published in the last 5 years to ensure that when information is obtained from them, it is current and relevant. As the data used will be secondary data, it gives a deep capturing understanding of the status regarding the VR industry at present.

3.3 SWOT Analysis

Based on the insights gained from the semi-structured interviews and the industry analysis, the SWOT analysis for the VR products at X Technology Company will be conducted here. This will be a formal analysis of internal factors - strengths and weaknesses - and external factors - market opportunities and threats - with implications for strategic decisions.

3.4 Strategic Recommendations

The findings from the interviews, industry analysis and SWOT will be integrated into the development of strategic marketing recommendations. Such strategic marketing recommendations will aim at brand positioning, improving the value pricing strategy and enhancing the user experience for the Pimax brand VR headsets. The proposed strategies will be aligned with market requirements and vectors to overcome specific identified challenges.
4. Marketing Plan

4.1. Executive Summary

X Technology Company is one of the leading companies in the VR hardware market. X Technology Company is trying to raise the bar for its new marketing strategy of Pimax brand VR headsets, which will help scale up some key issues such as increased brand growth, user adoption, optimized pricing strategies, and improvement in the level of experience provided to the end user. Considering the continuous expansion of the VR market worldwide, particularly in gaming, education, and healthcare industries, Pimax is well-positioned to benefit from these emerging trends. This plan aims at increasing brand awareness by 30% and achieving an increase in market share within the high-tier segment in the next 12 months, supporting viable financial growth of the company.

4.2. Main Findings of In-depth Interviews

In-depth interviews with five key professionals in the VR industry revealed several key insights into the challenges and opportunities facing the Pimax brand and the wider VR industry:

- User experience is a key driver of product adoption: Emily Zhang stressed that user experience plays a key role in the adoption of VR products. She noted that while Pimax is technologically innovative, it needs to increase brand awareness and focus on more interactive and personalised features to improve the user experience. Her insights highlight the importance of continuous innovation in product development to meet evolving consumer expectations.
- **Brand awareness and market penetration:** Michael Li highlighted the challenges of brand awareness in the nascent VR market. He suggested that Pimax could increase awareness by partnering with influencers and using strategic pricing to capture early market share. His perspective suggests that targeted marketing efforts and strategic pricing are important tools to increase brand awareness and compete effectively.
- Simplify the UI to improve usability: Sophia Chen highlighted the need for simpler, more intuitive interfaces for VR devices from a user experience design perspective. Her feedback indicated that many potential users believe that current devices are too complex, which hinders widespread product adoption. She also suggested that Pimax could expand its applications into the education sector, where there is a growing demand for easy-to-use, immersive learning tools.

- Global market expansion and cross-industry applications: David Wang identified global market expansion and cross-industry applications as key opportunities for Pimax. He observed that industries such as remote working and telemedicine are rapidly adopting VR technology. His insights encouraged Pimax to explore partnerships beyond the gaming industry and consider developing business models that can achieve international market growth, thereby diversifying its customer base.
- Medical opportunities for VR: Anna Liu's insights highlighted the untapped potential of VR in the healthcare sector. She suggested that Pimax could focus on medical applications such as rehabilitation and remote surgery, where VR can add significant value. This represents a strategic direction for Pimax to differentiate itself by entering the medical technology market, which can bring both social benefits and profit opportunities.

4.3. External Situational Analysis

4.3.1. PESTE Analysis

This part looks at the big external factors that affect the business.

4.3.1.1. Political and Legal Context

Political and legal factors, including trade policies and data privacy regulations significantly influence the global VR industry. For example, strained relationships among leading technology-producing countries, such as the United States and China, sometimes affect supply chains, raising production costs through tariffs and the restriction of exports. Besides, observance of laws on data protection-like, for example, GDPR in the European Union-requires careful planning and influences the design and management of VR technologies.

4.3.1.2. Economic Context

Since economic conditions tend to have a great influence on the spending of consumers in high-priced items such as VR headsets, despite the decline in demand in 2023 due to financial conditions, recovery might be expected at an improving pace in the Global economy. Growing usage in industries such as gaming, education, and healthcare will open up prospects for further growth. However, inflation with fluctuating exchange rates might hit upon Pimax pricing and profitability. It is essential to note the company needs to be flexible enough to accommodate dire economic changes brought by close monitoring of such trends, while changing business strategies whenever appropriate.

4.3.1.3. Socio-Cultural Context

Changes in consumer preferences and societal attitudes toward technology are crucial for the success of VR headsets. There is a growing acceptance of immersive digital experiences, especially among younger generations. The rise in remote work and virtual collaboration has also increased the demand for advanced VR solutions. Nonetheless, widespread adoption of VR is still limited by concerns over user comfort, long-term use effects, and the digital divide, where some demographics have restricted access to such technologies. To address these challenges, X Technology should focus on user education, ergonomic design, and inclusivity in its marketing and product development strategies.

Success here is contingent upon changes in consumer preference and society's attitude towards technology. There is an increased acceptance of immersive digital experiences, especially among the younger generation. The increase in remote work and virtual collaboration has also raised demand for sophisticated VR solutions. However, wide adoptions of VR continue to remain highly restricted due to user comfort and long-term use concerns, besides the issue of the digital divide-a question where demographics are seen to have limited access to such technologies. X Technology, on this count, should strengthen their concern with users through more education, ergonomic design, and product development-inclusive handling.

4.3.1.4. Technological Context

Competition in the VR industry is evolving rapidly due to advances in processing power, artificial intelligence (AI) and display technology. Recent innovations include lighter, more comfortable headsets with high-resolution displays and precise motion tracking. The integration of AI enhances the user experience by offering more personalized and immersive options. However, cutting-edge technology requires significant investment in research and development. The competitive landscape is intense, with major players constantly innovating. To stand out, X Technology should use its technological expertise to introduce distinctive features for the Pimax brand, whether through superior display quality or seamless content integration.

4.3.1.5. Environmental Context

Environmental considerations are becoming increasingly important in the technology sector. Both consumers and regulators are putting pressure on companies to minimise e-waste and reduce carbon emissions. For X Technology, using greener materials and improving the energy efficiency of its products could differentiate the brand in the marketplace. In addition, implementing recycling programmes or designing products with longer life cycles can enhance the brand's reputation among environmentally conscious consumers. Addressing these environmental factors is in line with international sustainability goals and is likely to strengthen consumer trust and brand loyalty.

4.3.2. Sector Analysis

The Virtual Reality (VR) industry has grown rapidly in recent years. Previously used mainly for gaming, it is now being used in areas such as healthcare, education, real estate and professional training. In 2022, the global VR market will be worth around \$16 billion and is expected to grow by more than 15% every year for the next five years. This growth is due to better technology, improved hardware and more software and content being developed, especially for professional areas such as healthcare and industrial training.

There are two main types of VR devices: consumer and professional. Large companies such as Meta and Sony are leading the consumer market, which is more affordable and used mainly for gaming and entertainment. Professional-level devices are made for high-end users, such as for simulation, design, architecture or high-precision industrial training. These devices tend to be more expensive, but offer higher performance and more features.

As more companies explore how VR can be used in different areas, competition is growing. Large companies such as Meta and Apple dominate the market because of their strong brands and large-scale production. However, smaller companies such as Pimax and X Technology Company face market penetration challenges, but still have growth opportunities in professional niche markets, especially among users who value performance over price.

However, there is growing scope for specialised high-end products such as the Pimax brand, particularly in the professional and enthusiast segments. While Pimax reported a 30% year-on-year sales growth from 2021 to 2022, driven by demand for higher performance devices in specialised applications, X Technology Company faces challenges in gaining wider market penetration..

4.3.3. Competitor Analysis

The global VR market is dominated by major players such as Meta, Apple and ByteDance. These companies create formidable barriers to entry, benefiting from strong R&D capabilities, extensive distribution networks and significant financial resources.

- Meta's Oculus series: Meta's Oculus remains the leader in the VR market due to its affordability, ease of use, and strong VR content ecosystem. Backed by Meta's dominance in social media and the metaverse, Oculus enjoys widespread consumer and professional market adoption. Meta's unique selling proposition (USP) lies in its integration with social media and its strong VR platform for both casual and professional users.
- Apple's Vision Pro: Apple dominates the high-end VR market, targeting professional users in creative fields. Vision Pro's key strength is its mixed reality technology, seamlessly integrated with Apple's product ecosystem (iPhone, Mac, etc.). Although the Vision Pro is priced at a premium, Apple's financial strength and loyal user base give it the advantage of quick market penetration. Its USP is rooted in its innovation, high-performance hardware, and strong brand identity.
- **ByteDance's Pico series**: ByteDance has quickly expanded its Pico VR series, especially in Asia, by leveraging its content ecosystem with platforms like TikTok. Its competitive pricing and content integration make it appealing to a younger, price-sensitive demographic, while its increasing presence in Europe and North America highlights its ambitions to challenge more established brands. Pico's USP lies in its content distribution strength and its affordable hardware.

In the Chinese VR market, several local players have carved out important positions by leveraging their specific strengths in content distribution, enterprise solutions, and hardware. These local competitors add unique pressure to the Chinese VR market, where content and price competitiveness are critical factors.

• **DPVR:** A local VR company with great enterprise solutions ranging from education and healthcare to virtual tourism. What gives them the edge over competitors is the affordability of hardware solutions for businesses rather than consumers. What makes

DPVR unique is that it allows affordable, customizable VR systems with industryspecific requirements, making it a strong competitor in the enterprise sector.

• iQiyi VR: iQiyi VR is a subsidiary of China's leading streaming platform, and it channels the content library from its parent to create immersive VR gaming and entertainment. The USP for iQiyi VR lies in providing a content-oriented approach that enables it to give a very rich immersive environment to Chinese users whose main use case is video and media consumption through VR. This places iQiyi VR at the top in the field of consumer entertainment VR.

X Technology faces both opportunities and threats in the VR market. On the opportunity side, X Technology can focus on a niche market that needs high-performance devices. For example, professionals in areas like architecture, design, or training may prefer quality over price, which gives X Technology a chance to target this group. However, there are also threats from bigger companies like Meta and Apple, which have more money and better distribution networks. These large companies can spend more on research and marketing, making it harder for smaller companies like X Technology to compete. In the Chinese market, local competitors like DPVR and iQiyi VR are also strong, so X Technology needs to focus on its strengths in technology and try to build partnerships, especially in content and business solutions, to succeed. In addition, Sophia Chen pointed out that many VR brands are too complicated in interface design and user operation, which is the main drawback of VR products on the market. Pimax can gain a competitive advantage by simplifying the user interface and improving user friendliness.

4.3.4. Porter's Five Forces Analysis

- Threat of New Entrants: *Moderate*. While high R&D expenditures and the need for highly developed technological know-how might be considered major entry barriers, the speed of the technological race within the VR space can enable new entrants to capture significant market share by introducing disruptive new technologies or innovative business models.
- **Bargaining Power of Suppliers:** *High*. Virtual reality devices depend on a lot of critical components like special lenses, sensors, and display panels. There are very few

suppliers in the segment. Since they are concentrated, their bargaining power is high; this may raise component costs or create shortages in supplies.

- **Bargaining Power of Buyers:** *Moderate to High.* With established brands, the consumers and businesses using VR have a lot of options. These available options make buyers in better bargaining positions since firms have to differentiate, be competitively priced, and provide progressive user experiences.
- Threat of Substitute Products: *Moderate*. Alternatives include augmented reality and mixed reality devices. While these, indeed, have been growing threats for VR— especially in professional settings where AR/MR could offer more practical or versatile solutions—VR still carves a niche in fully immersive experiences, particularly in the gaming arena and simulation training.
- Industry Rivalry: *High.* Competition is very stiff in the VR market because some of the leading players, including Meta, Apple, and ByteDance, have embraced aggressive marketing and pricing. This could spur a much-needed amount of innovation but may make it challenging to attain good profit margins, particularly if one is a small or niche firm.

Global Conclusion:

The VR industry is positioned in a highly competitive environment where major players dominate the market with substantial R&D capabilities and marketing influence. While barriers to entry are moderate, new entrants must overcome high technological and capital requirements to compete. As consumer bargaining power grows, companies are increasingly focused on innovation and differentiation to maintain market share. However, the rapid advancement of substitute technologies like AR and MR presents a potential long-term threat to certain VR applications. For companies like X Technology, opportunities lie in targeting high-performance niche markets, leveraging technological expertise to cater to sectors that require advanced VR solutions, while navigating a landscape of intense competition and evolving buyer expectations.

4.3.5. Consumer Analysis

Pimax VR glasses are mainly targeted at technology enthusiasts, gamers, and professionals in the creative industries who value high performance, immersive experiences, and cutting-edge technology. This market segment is willing to invest in high-end VR

products for superior functionality (Statista, 2024). However, price sensitivity and challenges associated with complex VR setup and long-term comfort have limited wider adoption (Statista, 2024).

In an interview, Emily Zhang stressed that the VR market attaches great importance to user experience. She emphasized that while technological innovation is crucial, the improvement of user experience is the key to influencing product acceptance. Market research can prove that users' demand for interactivity and immersion is gradually increasing, which supports Pimax to further optimize its products to meet these needs. In order to expand market coverage, Pimax needs to address these obstacles by simplifying the setup process and improving user comfort. Overcoming these challenges can help them expand their customer base beyond the core market of high-end users.

4.4. SWOT Analysis

Strengths

- **High-Performance Technology**: Pimax is renowned for its advanced VR technology, including high-resolution displays, wide field of view, and superior tracking capabilities. This technological edge positions Pimax as a leader in the premium VR market.
- Specialized Market Focus: By targeting professionals and enthusiasts with high-end VR solutions, Pimax distinguishes itself from mainstream competitors that focus on broader consumer segments.
- **Innovative Product Portfolio:** Pimax's commitment to innovation, exemplified by the Pimax 8K and 12K series, demonstrates its ability to deliver advanced solutions tailored to the high demands of professional applications.

Weaknesses

- **High Pricing:** Pimax's products are positioned at a premium price point, which may deter cost-conscious customers, particularly in the broader consumer market. This pricing strategy could limit accessibility and slow market expansion.
- **Complex Setup and Usability:** The advanced features of Pimax's VR systems can result in a complex setup process, which may be challenging for users with limited technical skills. Additionally, issues with comfort during extended use may impact overall user satisfaction.

• Limited Brand Awareness: In comparison to major brands like Meta and Apple, Pimax has lower global recognition. This limited visibility can hinder Pimax's ability to attract new customers and increase its market share.

Opportunities

- Expansion into Education and Healthcare: The increasing adoption of VR in education and healthcare presents significant opportunities for Pimax. These sectors require high-quality VR solutions for training, simulations, and therapy, aligning well with Pimax's expertise in advanced technology.
- Strategic Partnerships: Collaborating with content creators and software developers can enhance Pimax's offerings by providing comprehensive solutions and exclusive content. Such partnerships could help Pimax differentiate itself and add greater value to its products.
- Growing Demand for Virtual Collaboration Tools: The rise of remote work and online collaboration has expanded the market for effective VR tools that facilitate remote meetings, teamwork, and virtual workspaces. Pimax's advanced VR systems are well-suited to meet this growing demand.

Threats

- Intense Market Competition: The VR market is highly competitive, with major players like Meta, Apple, and ByteDance dominating the space. Their aggressive pricing strategies and strong marketing efforts pose a challenge for Pimax to maintain its market position.
- Emergence of Alternative Technologies: New technologies like augmented reality (AR) and mixed reality (MR) may be a threat to the VR market. These other technologies could offer more useful or flexible solutions for some uses, taking attention away from VR.
- Economic and Market Fluctuations: The development of alternative technologies such as augmented reality (AR) and mixed reality (MR) could potentially pose a threat to the VR market. These technologies might offer more versatile or practical solutions for certain applications, potentially diverting attention from VR.

4.5. Value Proposition and Project Strategy

4.5.1. Mission, vision and values

- Mission: To create the most immersive and user-friendly VR experiences that enhance both entertainment and professional applications.
- Vision: To be the leading brand in high-performance VR technology, setting industry standards in visual clarity and user experience.
- Values: Innovation, customer-centricity, and environmental responsibility.

4.5.2. Strategy

The strategy for X Technology's Pimax brand of VR headsets focuses on differentiation through technological innovation, targeting niche market segments and establishing strategic partnerships. These approaches are designed to address the key issues identified in the market research and capitalise on emerging growth opportunities.

4.5.3. Objectives

- Increase Brand Awareness: Aim to boost brand recognition by 30% over the next year.
- Grow Market Share: Expand market presence in the premium segment.
- Launch New Products: Introduce two new product versions to cater to diverse user needs.

4.5.4. Strategy

The strategy for X Technology's Pimax brand of VR headsets focuses on leveraging technological innovation, targeting specific market segments and forming strategic partnerships. These initiatives are designed to address key market challenges and capitalise on new growth opportunities.

4.5.4.1. Product Differentiation through Technological Innovation:

A core component of X Technology's strategy is to leverage unique technologies in optics, displays and interaction to deliver superior performance compared to the competition. Pimax VR headsets will emphasise high-resolution displays, wider field of view and reduced latency to enhance the user experience. The brand will also explore the integration of AI features and augmented reality (AR) capabilities to stand out in a competitive market.

4.5.4.2. Premium Positioning and Market Segmentation:

With its focus on the high-end market, Pimax will have a premium brand image while at the same time broadening its customer base. The market will be segmented into three main groups: gaming enthusiasts, professional users (e.g. designers and engineers) and business customers in sectors such as education and healthcare. Tailored marketing campaigns will be developed for each segment, highlighting specific product benefits such as immersive gaming experiences and increased productivity for professionals.

4.5.4.3. Enhanced User Experience and Ecosystem Development:

To increase user adoption, X Technology will focus on hardware improvements and expanding the content ecosystem. The Pimax platform will be enriched with unique, highquality VR content through collaborations with content creators and exclusive partnerships with key software providers. Efforts will also be made to improve ergonomic design, enhance customer support and simplify the onboarding process for new users.

4.5.4.4. Strategic Partnerships and Collaborations:

X Technology plans to establish strategic partnerships to strengthen its market position. This includes collaborating with software developers, gaming platforms and industry leaders to build a comprehensive VR ecosystem. Partnerships with educational institutions and healthcare providers will also be pursued to drive adoption in non-gaming areas. These alliances will provide exclusive content, enhanced compatibility and distinctive features that add value to targeted customer groups.

4.5.4.5 Global Market Expansion and Localization:

X Technology aims to expand beyond North America and Europe into emerging Asian and Latin American markets. This will be achieved by adopting region-specific marketing strategies and localising the user interface into different languages. Regional marketing campaigns will be designed to effectively target new customer bases and take into account cultural and economic differences.

4.5.4.6. Sustainability and Corporate Social Responsibility (CSR):

To address environmental concerns, X Technology will integrate sustainability into its business strategy. This includes adopting environmentally friendly manufacturing practices, using recyclable materials and employing energy efficient methods throughout the supply chain. Communicating these efforts to customers will enhance the brand's reputation and resonate with environmentally conscious consumers.

4.5.5. Segmentation, Targeting and Positioning

4.5.5.1 Market Segmentation:

X Technology has tailored its Pimax VR headsets to address the needs of three key market segments, based on feedback from VR industry experts and consumer behavior analysis:

4.5.5.2 Tech Enthusiasts and Early Adopters:

This group consists of individuals passionate about the latest technology and innovations. They seek cutting-edge devices, such as the Pimax headset, for its advanced features, including high-resolution displays and a wide field of view. These consumers prioritize performance and unique experiences over price, making them ideal candidates for high-end VR products (FXMweb, 2024).

4.5.5.3 Professional Users in Industries like Design, Architecture, and Healthcare:

This segment includes professionals who utilize VR for specialized applications like 3D modeling, virtual tours, and immersive simulations. For these users, the Pimax headset's precise rendering, expansive field of view, and accuracy are crucial for enhancing work efficiency and achieving better outcomes in their respective fields (Yu et al., 2023).

4.5.5.4High-Income Gamers:

This target market comprises gamers with significant disposable income who value immersive experiences. They seek top-tier gaming technology, and the Pimax headset, with its high resolution, fast refresh rates, and wide field of view, meets their demand for complex and visually demanding games (Eurogamer, 2023).

4.5.5.5 Targeting Strategy:

The Pimax brand employs targeted marketing campaigns for each segment, focusing on the specific advantages of the headset:

• Tech Enthusiasts: Messaging will highlight the innovative features and exclusivity of the Pimax headset, appealing to those who are eager to own the latest technology and value cutting-edge advancements.

- **Professional Users:** Campaigns will emphasize the precision, reliability, and enhanced performance of the headset in professional applications, showcasing how it can improve work efficiency and outcomes in fields such as design, architecture, and healthcare.
- **High-Income Gamers:** The focus will be on the unparalleled immersive experience that the Pimax headset provides, highlighting how its superior features offer a gaming experience that surpasses competitors.

4.5.5.6 Positioning Strategy:

Pimax's values are customer-centric and environmentally responsible. Content ecosystem and sustainability are important strategic drivers for Pimax. Therefore, the Positioning Strategy focuses on delivering high-performance, premium VR experiences while prioritizing customer needs and environmental responsibility. The message highlights four key differentiators:

- Superior Resolution: Pimax is known for its industry-leading resolution, which delivers crisp visuals that meet the needs of professional users and gaming enthusiasts. This focus on visual quality is consistent with Pimax's goal of meeting the stringent needs of its customer base and fully reflects Pimax's focus on the needs of its target customers.
- Ergonomic Design and Comfort: Pimax's headsets are designed with user comfort in mind, ensuring ergonomic features for long periods of use. This solves a common problem in the VR market and reflects Pimax's customer-centric approach to product development.
- Environmental Sustainability: Pimax is committed to environmental sustainability. The company prioritizes eco-friendly materials in its product design and packaging, ensuring that the production process minimizes the impact on the environment. This is in line with Pimax's broader sustainability strategy, which aims to reduce the carbon footprint of its operations.
- Strengthening its content ecosystem: Pimax ensures that its devices are compatible with a wide range of applications by continuously strengthening its content ecosystem. By partnering with content developers who are equally committed to innovation and sustainability, Pimax ensures that its users have access to a diverse and eco-friendly library of content.

This comprehensive positioning strategy solidifies Pimax as the first choice for consumers who not only prioritize high performance but also care about environmental responsibility and a customer-first approach, whether for professional or personal use.

Table 4.1: Market Segmentation for Pimax VR Headsets

(Source: <u>Virtual Reality (VR) Headset Market Top Companies: Profiles and Strategies</u> (2024-2033) (emergenresearch.com))

Market Segment	Specific Needs	Pimax Features
		Catered to These Needs
Tech Enthusiasts and	Access to cutting-edge	High-resolution displays,
Early Adopters	technology, exclusive	wide field of view, AI-driven
	features, and early adoption	enhancements, ergonomic
	benefits	design
Professional Users	Precision, reliability,	Superior visual clarity,
(Design, Architecture,	enhanced work efficiency,	precise rendering, extensive
Healthcare)	and immersive simulations	field of view, low latency
High-Income Gamers	Immersive gaming	Fast refresh rates, expansive
	experience, top-tier	200-degree field of view,
	performance, and advanced	high-definition display
	gaming features	





(Source: <u>Oculus Quest 2 vs Pimax Vision 8KX (Comparison) - VRcompare (vr-</u> <u>compare.com)</u>;https://brandchoose.com/compare/vr-headsets/oculus/pimax;https://vrcompare.com/)

4.5.6. Critical Success Factor

• Innovation in Product Design and Performance: In order to remain competitive in the rapidly evolving virtual reality industry, continuous innovation is a must. From the data analysis in Figure 4.2, where the blue line represents the R&D investment (in millions of dollars) and the red line represents the corresponding product performance index, the positive trend shows a clear correlation between increased R&D investment and improved product performance. Therefore, Pimax must maintain its technological edge by continuing to increase its R&D investment to regularly upgrade its products to improve resolution, comfort and user interface. In addition, Pimax can integrate customer feedback to adapt its products in a timely manner. It also uses software updates and the addition of new features to ensure that its products remain relevant and attractive in the market over time. This continuous innovation not only enhances the user experience, but also helps Pimax maintain its position in a highly competitive industry.



Figure 4.2: R&D Investment Over Time vs. Product Performance (Source: <u>https://www.auganix.org/vr-news-pimax-secures-almost-30m-in-series-c1-funding-to-expand-its-virtual-reality-offering/</u>)

• Effective Brand-Building and Market Credibility: As Pimax operates in the high-end market, it's important to build a strong brand. Good branding strategies should focus on making Pimax known as a high quality and innovative product. This can be done through strong marketing campaigns, working with influencers and attending major tech events such as CES. It's also important to build consumer trust by being clear and honest and consistently delivering high quality products. This helps build long-term brand loyalty. For example, Anna Liu mentioned the application of VR technology in the medical field. Pimax plans to work with medical institutions to apply VR to areas like medical rehabilitation and remote surgery, develop VR devices with specific features, help brands enter unsaturated markets, and create new profit points.

Table 4.2: Marketing Spend Allocation for Brand-Building

(Source: https://arinsider.co/2023/10/09/how-much-is-spent-on-immersive-brand-marketing/)



• Robust After-Sales Service and Support Network: Providing excellent after-sales support is key to keeping customers happy and loyal. This means offering strong warranty programmes, efficient customer service and an extensive network of repair and support centres. A smooth support experience can turn first-time buyers into repeat customers and brand advocates. Offering special service packages for professional users, like on-site support or priority troubleshooting, could also set you apart from the competition.



Figure 4.3: Customer Satisfaction vs. After-Sales Support

(Source: <u>https://www.radiantvisionsystems.com/blog/meeting-customer-quality-expectations-</u> ar/vr-displays)

4.6. Marketing-Mix

4.6.1. Product

Pimax offers a variety of VR headsets, each designed to meet the needs of different user groups, from VR enthusiasts to professional users. Its main products include:

- **Pimax 8K X**: The flagship of the Pimax range, the 8K X features two native 4K displays, delivering a combined resolution of 8K. It supports up to 90Hz refresh rates in native 4K mode, delivering incredible detail and clarity. This headset is aimed at professionals and enthusiasts who demand the highest visual quality for gaming, simulation and design applications.
- **Pimax Vision 8K X**: Although similar to the 8K X, the Vision 8K Plus does not have a native 4K resolution. Instead, it uses upscaling technology to achieve 8K visuals from a lower base resolution. It supports up to 110Hz refresh rates and is aimed at users who want a high resolution experience at a slightly lower price point than the 8K X.
- Pimax 5K Plus: This model features dual 2.5K displays for a total resolution of 5120x1440. The key feature of the 5K Super is its incredibly high refresh rate of up to 180Hz, making it ideal for competitive gamers who require fast, fluid visuals. Although it has a lower resolution than the 8K models, it prioritises performance over image clarity.
- **Pimax Artisan**: The Artisan is Pimax's entry-level model with a 170-degree field of view and 3200x1440 resolution. It offers a more affordable VR experience while maintaining Pimax's wide field of view and solid performance. This model is ideal for those who are new to VR but want a higher quality experience compared to standard headsets on the market.



Figure 4.4: Key Product Features of Pimax VR Headsets (Source: <u>CES 2020: Pimax's Full VR Headset Lineup Compared (roadtovr.com)</u>)

4.6.2. Price

The pricing strategy is high-end, reflecting the advanced features and targeting customers willing to pay for top performance. Options such as financing or bundling with related services are offered to make the product more accessible. Pimax's main target groups are technology enthusiasts, high-income gamers and professionals seeking high-end VR experiences. However, the company also offers options for budget-conscious consumers. Priced at \$449, the Pimax Artisan model is designed to appeal to this group, offering an affordable entry level product without compromising on basic features such as a 90Hz refresh rate and wide field of view. This model ensures that new entrants and price-sensitive users can experience Pimax's technology, even if they are not the core target audience.

In the interview, Michael Li's views reflect industry practitioners' views on VR product pricing strategy. Michael suggested that a lower price strategy should be adopted in the early stages to gain market share, and that prices should be gradually increased in the future to reflect the technical value of the product and the improvement of the user experience. This can also be combined with a brand awareness promotion strategy to expand brand influence through event marketing and social media collaboration.

Table 4.3: Pimax VR Headset Pricing Strategy

Pimax Model	Price (USD)	Key Features	Target Audience
Pimax 5K Plus	699	Wide field of	Tech Enthusiasts,
		view, 120Hz refresh	Gamers
		rate	
Pimax 8K X	1299	8K resolution,	High-Income Gamers,
		Dual Engine Modes	Professionals
Pimax Artisan	449	90Hz refresh rate,	Budget-Conscious
		Budget option	Consumers, New Entrants
Pimax Vision 8K X	1399	8K resolution,	Professionals, High-
		High-end, Comfort	Income Gamers
		design	

(Source: <u>https://pimax.com/blogs/blogs/pimax-reveals-two-new-high-end-vr-headsets-at-its-</u> annual-frontier-keynote)

4.6.3. Place

Pimax VR's distribution strategy includes direct online sales and partnerships with specialist electronics retailers. The focus is on providing a smooth shopping experience and giving customers easy access to and support for their products. The company ensures that its products are accepted by different types of consumers in different markets by using a combination of direct and indirect sales channels.

- **Direct-to-Consumer Sales:** Through online platforms such as its official website, Pimax sells its products directly to customers. This allows customers to easily purchase products, receive support and leave feedback, providing a smooth shopping experience. Direct sales also helps Pimax build a closer relationship with its users.
- **Retail Partnerships:** Pimax has partnerships with local retailers as part of its bricksand-mortar presence. This is important for customers who have a preference for inperson purchases of VR headsets rather than online purchases. Especially in areas where online shopping is less common, these partnerships help Pimax reach more people.
- **Specialized Electronics Stores:** Pimax also works with specialised electronics stores that are more suited to its high-end products. These stores are important because they

attract gamers and professional users, as their staff can provide professional advice and support to customers looking for advanced VR technology.

- International Distributors: Pimax depends on international distributors for international market penetration. These distributors supply local and specialist stores, ensuring that Pimax products are available worldwide. This is an important part of Pimax's growth strategy in regions where it does not have a direct presence.
- End Consumer: The aim is to make Pimax products easily accessible to the end user, whether through online sales, local retailers or specialist stores. Offering multiple options allows Pimax to reach a wider range of customers, from casual users to professionals, giving them flexibility in purchasing.



Figure 4.5: Distribution Channel Strategy

4.6.4. Promotion

Promotional efforts will focus on digital marketing. This includes social media campaigns, working with influencers, and taking part in important industry events like CES and VR trade shows. Content marketing will showcase the product's unique features with demo videos, case studies, and customer testimonials.



Figure 4.6: Promotional Strategy Timeline (Source: https://smartglasseshub.com/effective-vr-marketing-campaigns/)

4.7. Requirements for Implementation

4.6.1. Operational Requirements

Setting up efficient production and supply chain processes is important. This includes working with key suppliers for special components. A strong logistics plan for global distribution and quick-response service centers will also be essential.

Table 4.4: Key Suppliers and Supply Chain Logistics

(Source: https://www.supplyday.com/how-vr-ar-is-changing-the-game-in-supplychain/;Exploring the Potential of VR in Logistics and Supply Chain (virtualrealitycheck.net))

Supplier Name	Location	Key Component	Logistics Plan
Supplier A	China	Display Panels	Air Freight,
			Weekly shipments
Supplier B	Germany	Optical Lenses	Rail Transport,
			Bi-weekly shipments
Supplier C	USA	Processors	Sea Freight,
			Monthly shipments
Supplier D	South Korea	Batteries	Air Freight, Bi-

	weekly shipments
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4.6.2. Human Resources

The company needs a skilled team with expertise in VR technology, marketing, and international sales. Investment in ongoing training and development programs is planned to ensure the team stays up-to-date with industry trends.



Figure 4.7: HR Development Plan

4.6.3. Technology and Infrastructure

Investments in R&D facilities, software development to improve user experience, and a strong IT infrastructure for e-commerce and customer service are crucial.

Table 4.5: Technology and Infrastructure Investments

(Source: Virtual Reality (VR) Market Size Analysis Growth Report 2024-2028

(technavio.com); Virtual Reality [VR] Market Size, Growth, Share | Report, 2032

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Investment Avec	Budget Allocation	Description
Investment Area	(USD)	
Research &	\$10,000,000	Focus on advancing VR technology,
Development (R&D)		including optics, display, and motion
		tracking.
Software	\$5,000,000	Development of user interface,
Development		integration with AI, and content creation

		tools for VR applications.
IT Infrastructure	\$3,500,000	Upgrading servers, data storage
		solutions, and enhancing cybersecurity
		measures.
Manufacturing	\$4,000,000	Investment in advanced
Technology		manufacturing equipment to ensure high-
		quality production of VR headsets.
Logistics &	\$2,500,000	Strengthening global distribution
Distribution		networks and optimizing supply chain
		management.

4.8. Economic and Financial Viability Analysis

4.7.1. Financial Projections

The financial model predicts a steady increase in revenue over the next five years, with break-even expected by 2026, two years after product launch. As shown in Figure 4.8, revenues are projected to increase from \$5 million in 2024 to over \$25 million in 2028. Key revenue sources will include direct product sales, subscription-based content partnerships, and potential licensing deals.

Sales Estimates: In the first year, we expect to sell approximately 20,000 units and generate \$5 million in revenue. By 2028, annual sales are expected to reach 100,000 units, generating \$25 million in revenue.



Figure 4.8: Revenue Growth Projections

(Source: Virtual Reality [VR] Market Size, Growth, Share | Report, 2032 (fortunebusinessinsights.com);Virtual Reality (VR) Market Size, Share, Industry Trends, 2030 (marketsandmarkets.com))

4.7.2. Budget and Funding Requirements

The budget includes major spending on R&D, marketing, and distribution. Initial funding will come from a mix of venture capital and crowdfunding, with extra revenue being reinvested into expansion.

Table 4.6: Budget Allocation by Department

(Source: https://www.worldviz.com/post/2024-worldviz-vr-budgeting-guidelines-forscientific-vr-labs; <u>Worldwide Augmented and Virtual Reality Spending Guide (idc.com)</u>)

Department	Budget Allocation (%)	Notes
Research& Development	35%	Focus on innovation and product
(R&D)		development
Marketing	25%	Emphasis on brand-building and customer
		acquisition
Sales	15%	Sales team expansion and customer
		relationship management
Operations	10%	Enhancing supply chain and logistics

Customer Support	8%	Improving after-sales service and	
		customer satisfaction	
Human Resources	5%	Recruitment and training programs	
Information Technology	2%	IT infrastructure upgrades and	
		maintenance	

4.7.3. Risk Analysis and Contingency Plans

Potential risks include fewer customers than expected and strong competition from other companies. Contingency plans involve shifting to different markets, adjusting prices, and increasing promotional efforts.

Table 4.7: Risk Analysis Matrix

(Source: <u>The Risk and Rewards of Enterprise Use of Augmented Reality and Virtual Reality</u> (isaca.org);https://www.bradley.com/insights/publications/2023/09/extended-reality-risks-andopportunities-on-the-cutting-edge)

Risk	Likelihood (1-5)	Impact (1-5)	Risk Level	Mitigation Strategy
Supply Chain	3	4	Moderate	Diversify suppliers; establish
Disruption				local backups
Technologica	2	5	High	Invest in R&D regular
l Failure				maintenance checks
Regulatory	4	3	Moderate	Keep updated on legal changes;
Changes				ensure compliance
Market	5	4	High	Innovate regularly; strong
Competition				marketing strategy
Economic	3	5	High	Diversify product offerings;
Downturn				flexible pricing strategy

Based on projected revenues and a careful allocation of budget resources, the business plan for Pimax VR appears financially viable. The product line is expected to generate significant sales, leading to consistent growth over the next five years. Despite potential risks, the company's comprehensive risk mitigation strategies further enhance the plan's long-term profitability.

5. Conclusions

The research discusses the marketing strategy for the Pimax brand of VR headsets by X Technology Company within a changing VR market. The VR world is shifting from niche to mainstream, driven by new technologies, changing consumer preferences, and increased adoption in health, education, and gaming.

Some of the difficulties X Technology Company has to face are poor brand recognition, high production costs, and a tough fight from major companies like Meta, Apple, and Byte Dance. While Pimax does possess more advanced features, including high-resolution displays and a wide field of view, these difficulties make it very tough to expand its circle among a big audience.

The core of this project will be to devise a marketing strategy based on the strengths of Pimax to address some brand awareness issues and correct brand positioning. The focus will be on three key market segments: tech enthusiasts, professional users across the creative industries, and high-income gamers. The project also aspires to offer practical advice on product design, content offering, and enhancement of after-sales service in order to improve user experience.

This includes examining PESTE analysis, the Porter's Five Forces model, sector analysis, and competitor analysis as part of the methodology. These tools enable an understanding of the environmental factors of the VR market and its competitive nature. By focusing on these factors, the project can show how technology advancement, economic conditions, and changes in consumer behaviour continue to affect the current state of the VR market.

Key results included the call for X Technology Company to focus on innovation, build its brand, engage with customers, and improve its market position. Content creator partnerships, pricing flexibility, and improvements in the quality of product support services are ways this marketing plan suggests the brand can garner consumer trust. A proposed budget of X will be used; objectives of the company include brand awareness, market share, and customer satisfaction.

This study has its own limitations, however. All analyses in the paper were based on secondary market data that cannot detail the full nuance of the local consumer base, especially in emerging markets. For future research, primary market research is recommended by placing a premium on consumer surveys and focus groups for that authentic depth of insight into user preference and potential obstacles to adoption.

In conclusion, while X Technology Company faces significant competition and market challenges, it has opportunities to establish itself as a leader in the high-end VR market. By implementing the proposed marketing strategy, the company can enhance its competitive advantage, cater to its target segments effectively, and capitalize on the growing demand for high-performance VR headsets.

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Appendices

Appendix 1: Emily Zhang

Interview subject: Emily Zhang, company Pimax Inc, 3 years experience in VR industry as Product Development Specialist

Interview Date: August 21, 2024

Interview background: Emily Zhang is a product development expert with 3 years of experience in the VR industry and currently works at Pimax Inc. She is mainly responsible for product technology iteration and user experience optimization. In this interview, she shared her views on the Pimax brand in product development and market acceptance, especially her deep insights into the core role of user experience in VR products.

Interview content:

<u>Q1: What do you think are the main technical challenges in the VR industry at present?</u> <u>What advantages does Pimax have in this regard?</u>

Emily: One of the main technical challenges in the VR industry is how to balance highperformance hardware with user needs, especially in reducing the complexity and learning curve of the equipment while ensuring the performance of the equipment. Pimax has certain advantages in this regard, especially in the development of technological innovation and highresolution display equipment. We have been committed to applying the most cutting-edge image processing technology to VR devices to provide a more immersive experience. However, the challenge brought by technological progress is how to make these innovations more user-friendly and easy for ordinary consumers to use.

Q2: In your opinion, how to improve user acceptance of VR products during product development?

Emily: User experience is the key to product acceptance. I believe that the acceptance of VR products depends not only on the technical performance of the hardware, but more importantly on the user's interactive experience. Users need not only realistic visual effects, but also simple and easy-to-use equipment that can be quickly used. Pimax has done a good job in technological innovation, but we also realize that there is still room for improvement in user experience optimization. Especially for non-technical users, we need to simplify the operation process and add personalized functions so that users feel that the equipment is tailor-made for them when using it.

Q3: What do you think of Pimax's brand awareness in the market?

Emily: I think Pimax's brand awareness is pretty good among the core VR user groups, especially in the high-end VR device market. However, in the overall market, our awareness still needs to be improved. Brand awareness directly affects the market acceptance of products, so in addition to improving the product itself, we are also thinking about how to communicate better with users. To let more potential users know and understand our products, we need to rely not only on marketing, but also through the actual user experience and word-of-mouth communication of users.

Q4: What do you think is the main development direction of VR products in the future?

Emily: Future VR products will definitely develop in a more personalized and immersive direction. Users will no longer be satisfied with simple visual experiences, they hope to experience more comprehensive and rich interactions through VR devices. Some of the products we are currently developing at Pimax are working in this direction, hoping to bring users a truly immersive experience through higher frame rates, smoother motion capture technology, and even tactile feedback technology. At the same time, I think VR has great potential for development in more practical application scenarios, such as education, medical care and other fields, which require deeper interaction with users.

<u>Q5:</u> Which aspect of product development do you personally focus on the most?

Emily: I focus on the user experience, especially how to make users feel simple and easy to use behind the complex technology. Many times, technical developers focus too much on hardware parameters and ignore the actual needs of ordinary users. I have been pushing the team to listen to user feedback and ensure that our design serves users rather than showing off the technology itself. Allowing users to enjoy the fun of VR more naturally and easily is my greatest source of accomplishment as a product developer.

Summary: Through communication with Emily Zhang, we learned her deep insights into the core role of user experience in the acceptance of VR products. She pointed out that Pimax has a leading advantage in technology, but there is still a lot of room for development in improving user experience and brand awareness. She emphasized that future VR products should pay more attention to personalization and immersive experience, while simplifying the operation process based on technological innovation to meet a wider range of user needs.

Appendix 2: Michael Li

Interview subject: Michael Li, company X Technology Company, 7 years experience in VR industry as Marketing Director

Interview Date: August 20, 2024

Interview background: Michael Li is a marketing director with 7 years of experience in the VR industry and currently works at X Technology Company. In this interview, Michael shared his insights on VR industry marketing strategies, brand awareness and market penetration, especially how to help companies like Pimax increase their influence in the highly competitive VR market through market positioning and pricing strategies.

Interview content:

Q1: What do you think is the main marketing challenge in the VR industry at present?

Michael: In my opinion, the biggest market challenge in the VR industry at present is the lack of brand awareness. Although VR technology has made great progress, VR is still a relatively niche field in the minds of mass consumers. Many consumers do not know enough about the functions and value of VR, and even some early adopters only focus on specific brands and devices. The main problem facing brands like Pimax is how to stand out in the fierce competition, especially when competing with more mature and more well-funded brands. Brand awareness is crucial.

Q2: What specific brand promotion suggestions do you have for brands like Pimax?

Michael: I think Pimax needs to expand the brand's market penetration through more targeted marketing strategies, especially through cooperation with key opinion leaders (KOLs) or industry influencers. Social media and content platforms are now very important for brand exposure, especially in the field of VR that requires actual experience and word-of-mouth communication. Pimax can use these platforms to work with technology bloggers, game live broadcasters or technology critics to let them experience and share their experience of using the device, so as to break the limitations of brand awareness.

<u>Q3:</u> How should Pimax position itself in terms of pricing strategy to better enter the market?

Michael: For brands like Pimax that focus on high-end devices, pricing strategy is particularly critical. The production cost of VR devices is relatively high, and high pricing may discourage many ordinary consumers. Therefore, I suggest adopting the strategy of "initial penetration pricing", that is, attracting early user groups through lower prices, and then

gradually raising prices according to market demand after gaining market share. For high-end product lines, "tiered pricing" can also be adopted to provide corresponding products for different consumer levels, which can not only maintain the high-end positioning of the brand, but also expand the user base through entry-level products.

<u>Q4:</u> How do you view the future market growth points of the VR industry?

Michael: The future market growth points of the VR industry will not be limited to the entertainment field. We have seen many industries begin to adopt VR technology, including medical, education, real estate, etc. If Pimax wants to further expand its market share, it must have a layout in these emerging fields. Especially in the fields of education and medical care, the application of VR can provide a unique user experience and has high social value. I think these fields will be important markets for VR technology to achieve commercial breakthroughs in the next few years.

<u>Q5:</u> What opportunities do you think Pimax has compared to other competitors? Michael:

Pimax's technological innovation is undoubtedly a major advantage, but technology itself cannot be directly translated into market success and must be driven by appropriate market strategies. Pimax's flexibility can be an opportunity compared to larger and more mature competitors. Pimax has the opportunity to respond to market trends more quickly and establish closer ties with niche markets and niche users. Through targeted marketing campaigns and pricing strategies, Pimax can gain a foothold in the high-end market while also leveraging global market expansion, especially in emerging economies.

Summary: Michael Li's views point out the key challenges and opportunities for Pimax in brand awareness, market penetration and pricing strategies. He emphasizes the use of social media marketing, key opinion leader cooperation and flexible pricing strategies to increase Pimax's market share. In addition, he also proposed that Pimax can expand its global business scale by expanding into emerging markets such as education and healthcare. In the context of globalization, Pimax has the potential to stand out in the VR industry through technological innovation and flexible market strategies.

Appendix 3: Sophia Chen,

Interviewee: Sophia Chen, VR EduTech Solutions, Lead UX Designer

Interview Date: August 20, 2024

Interview background: Sophia Chen is a user experience design expert with 5 years of experience in the VR industry. She is currently the head of user experience (UX) design at VR EduTech Solutions. She focuses on user interaction design of VR products in the education field and is committed to improving the learning effect of VR products by optimizing user experience. In this interview, Sophia shared her views on the application of VR in the education field and the key role of user experience in improving product acceptance and market promotion.

Interview content:

Q1: You are currently focusing on the application of VR in the field of education. What unique advantages do you think VR has in this field?

Sophia: The application of VR in the field of education has great potential because it can provide an immersive learning experience that traditional teaching cannot achieve. Through VR, students can not only "personally" participate in historical events or explore the universe, but also conduct complex experiments and simulations without actually touching dangerous substances or equipment. This interactivity and immersion can greatly enhance students' interest and participation in learning. Compared with traditional textbooks, VR can present complex concepts more intuitively, especially in fields such as science, engineering and medicine, helping students deepen their understanding.

<u>Q2</u>: What role do you think user experience plays in VR products?

Sophia: User experience is one of the core factors for the success of VR products, especially in the field of education. If the product's interactive design is not intuitive or the operation is too complicated, users - both teachers and students - will feel frustrated, which will affect their acceptance of VR products. When designing, we must ensure that the user interface is simple and easy to use, and provide a personalized learning experience so that students can customize learning content according to their own progress and needs. In addition, the user feedback mechanism is also a key link in our design. We will continuously optimize the product based on the user experience data to ensure that every use can provide a smooth and efficient learning experience.

Q3: What do you think brands such as Pimax need to improve in user experience design?

Sophia: Pimax's technology is undoubtedly advanced, but the user experience can be more humanized. Especially in terms of operation fluency and user guidance, Pimax's devices may feel that the threshold is high for some users who are not familiar with high-tech products. For example, the device setup process should be more simplified to reduce the user's learning cost, and provide more detailed instructions to help users get started quickly. In addition, I think the comfort and design of the hardware equipment also need to be optimized, especially for users who use it for a long time, the comfort of the equipment has a great impact on the overall experience.

Q4: How do you view the future development direction of VR user experience?

Sophia: The future VR user experience will definitely develop in a more personalized and intelligent direction. We have begun to explore how to use artificial intelligence to automatically adjust the experience based on real-time feedback from users, such as automatically adjusting the difficulty of learning content, or optimizing immersion based on the user's physiological response (such as heart rate). Personalization is an important trend in the future. Each user has different needs. We want them to feel completely natural and comfortable in the VR world. In addition, user experience is not limited to vision and interaction. We are studying how to enhance immersion through tactile feedback and sound design in virtual environments.

Q5: For VR EduTech Solutions, what direction do you hope the future product design will <u>develop in?</u>

Sophia: I hope that our future products can find a better balance between user experience and content depth. Educational applications not only need rich learning content, but also must ensure that students feel the charm of immersive learning when using them. We are exploring how to incorporate more interactive design and gamification elements into educational products to make learning more interesting and engaging. In addition, we are also paying attention to how to narrow the gap in educational resources through virtual reality technology so that more students in remote areas can also enjoy high-quality educational resources. This is not only a technological breakthrough, but also a manifestation of educational equity.

Summary: Sophia Chen's views emphasize the core role of user experience design in the success of VR products, especially in the field of education. She pointed out that the

interactivity and immersion of VR products can greatly improve students' learning effects, but at the same time emphasized that the user experience must remain simple and easy to use in order to increase the market acceptance of the product. She also pointed out that brands such as Pimax can improve user experience by optimizing operation processes and comfort in terms of user experience design. In the future, Sophia hopes to further optimize the user experience of VR products through personalized and intelligent technologies, make it more in line with user needs, and promote the application of VR in the field of education.

Appendix 4: Michael Li

Interviewee: David Wang, company Meta VR, 4 years experience in VR industry as Business Development Manager

Interview time: August 24, 2024

Interview background: David Wang is currently working as a business development manager at Meta VR. He has 4 years of experience in the VR industry and focuses on market expansion and business development of VR products. He is responsible for promoting the global market penetration of Meta VR products and finding new business opportunities in cross-industry application scenarios. In this interview, David shared his unique insights on the business model of the VR industry, market development trends, and how companies can enhance brand influence through business expansion.

Interview content:

<u>Q1</u>: What do you think are the current market trends in the VR industry?

David: The VR industry is experiencing rapid growth, especially in enterprise application scenarios. In the past, VR was mainly concentrated in the entertainment field, such as games and film and television experiences, but now, industries such as medical care, education, training, and enterprise collaboration have begun to use VR technology extensively. These new application scenarios have not only increased the market demand for VR, but also promoted the rapid innovation of hardware and software. Taking Meta VR as an example, we have successfully implemented VR projects in many companies and educational institutions around the world, especially in employee training and remote collaboration. VR can provide more efficient and interactive solutions than traditional methods.

<u>Q2: What are the main challenges you encounter in promoting the development of VR</u> <u>business?</u>

David: One of the biggest challenges in business development is to break the market's misunderstanding of VR. Many companies and customers think that VR is an expensive and complex technology and are unwilling to invest time and money to understand its potential value. Therefore, one of our jobs is to educate the market and show customers that VR is not just about games and entertainment. It has great potential in improving production efficiency, optimizing training processes, and improving education quality. For example, in the medical industry, VR has been used for surgical simulation and patient rehabilitation training, greatly reducing costs and risks. These cases have helped us dispel customers' concerns and expand the application scenarios of VR.

<u>Q3: What strategies do you think brands like Pimax should adopt in market expansion?</u>

David: For brands like Pimax, market expansion strategies should focus on two points: First, in-depth cooperation in vertical fields. Although Pimax is famous for its high-end VR equipment, if it can cooperate deeply with specific industries, such as establishing partnerships with leading companies in the medical, education, engineering and other industries, and launching customized solutions, its market expansion will be smoother. Second, the layout of the global market. Pimax already has a good international reputation, but to truly become a global leading brand, it must increase investment in emerging markets, especially Asia Pacific and Latin America, where the acceptance of new technologies is high and the market potential is huge.

Q4: What do you think about the impact of pricing strategy on the market acceptance of VR products?

David: Pricing strategy directly affects the market acceptance of VR products. Although high-end VR devices have excellent technology, the price is often prohibitive for ordinary consumers. When formulating pricing strategies, Meta VR will develop different product lines based on different market demands, such as providing high-end and mid-range devices to meet the needs of users at different levels. For Pimax, I suggest that you consider entering various markets through different levels of product pricing. In addition, Pimax can also explore rental or subscription models, especially for corporate users, which can reduce customers' initial investment and increase product acceptance.

<u>Q5:</u> How do you view the role of VR in future business development?

David: VR will play an increasingly important role in business development in the future, especially in the context of globalization, where remote work and virtual collaboration will become the norm. VR technology can provide multinational companies with an unprecedented collaborative experience, allowing employees to collaborate seamlessly in a virtual environment as if they were in the same conference room. We have seen this trend at Meta VR, and through cooperation with multiple global companies, VR has greatly improved their productivity. I believe that in the next few years, VR will become a standard tool for remote office and training for enterprises, which is a huge opportunity for brands like Pimax to capture the market by providing better enterprise-level solutions.

Summary: David Wang's views provide important references for VR brands such as Pimax in market expansion and business development. He stressed the importance of breaking market misunderstandings, deepening vertical cooperation, and expanding into global markets, especially emerging economies. He also pointed out that pricing strategies and innovative business models (such as rental or subscription models) are crucial to increasing product acceptance. David is confident about the role of VR technology in remote collaboration and enterprise applications in the future, and believes that this will bring huge business development opportunities for brands.

Appendix 5: Michael Li

Interview subject: Anna Liu, company VR Healthcare Innovations, 6 years experience in VR industry as Chief Technology Officer (CTO)

Interview time: August 28, 2024

Interview background: Anna Liu is currently the Chief Technology Officer of VR Healthcare Innovations. She has 6 years of experience in the VR industry and focuses on applying VR technology to the healthcare field. She is committed to improving the efficiency and effectiveness of medical services through VR technology innovation, including virtual surgical training, telemedicine, and patient rehabilitation. In this interview, Anna shared her insights on the application of VR in the medical field and how to respond to the challenges of VR brands in the industry through technological innovation.

Interview content:

<u>Q1</u>: What do you think are the main applications of VR technology in the medical field?

Anna: VR is widely used in the medical field, especially in surgical training, patient rehabilitation and mental health intervention. Through VR technology, doctors can conduct surgical simulation training in a virtual environment, which can not only reduce the rate of surgical errors, but also save training costs. For rehabilitation treatment, VR can help patients recover from exercise and provide a safe environment for training. In addition, VR also has significant effects in treating mental health problems such as anxiety and post-traumatic stress disorder (PTSD). Through immersive experience, patients can gradually be exposed to anxiety-provoking situations, helping them to relieve symptoms.

Q2: As CTO, how do you view the future development of VR technology in the medical field?

Anna: The prospects for VR technology in the medical field are very broad, and I believe it will become an indispensable part of medical services in the next few years. With the improvement of hardware equipment and the optimization of software, VR will provide solutions for more medical scenarios, such as remote surgery and collaboration between multinational doctors. We are also developing more personalized medical solutions, collecting patient data through VR technology, and helping doctors to develop more accurate treatment plans. Most importantly, as the medical industry becomes more receptive to technology, I believe that VR will be adopted faster than expected, especially in developing countries, where VR can help solve the problem of insufficient medical resources.

Q3: What do you think are the main challenges facing brands such as Pimax when applying VR technology in the medical field?

Anna: One of the main challenges facing brands such as Pimax when applying it in the medical field is how to make the equipment more adaptable to the needs of medical scenarios. The medical industry has very high requirements for equipment, not only requiring extremely high precision, but also ensuring that the equipment can operate stably for a long time. For example, surgical simulation requires very fine image processing and a delay-free interactive experience, which places higher requirements on the performance of the hardware. In addition, the hygiene of the equipment is also of particular concern to the medical industry. VR equipment must be easy to clean and disinfect when used in medical scenarios to ensure the safety of patients and doctors. These are all key considerations for Pimax when entering the medical market.

<u>*Q4: Does pricing strategy also have an important impact on the acceptance of VR products in the medical field?*</u>

Anna: Of course, pricing strategy is very important in the medical field, especially in the public medical system, where budget is a very big consideration. Although VR has great potential for medical applications, many hospitals may not be able to afford it if the equipment is too expensive, especially in resource-limited areas. Therefore, I suggest that brands such as Pimax consider launching special pricing strategies for the medical field, such as reducing the initial investment of hospitals through installment payments, leasing or subscription services. At the same time, working with the government to promote technological upgrades in the public medical system can also help accelerate the promotion of VR equipment in the medical industry.

<u>Q5: What potential do you think VR has in improving patient experience and medical</u> <u>effects that has not been fully explored?</u>

Anna: There is still a lot of potential for VR to improve patient experience and medical effects that has not been fully explored. The first is personalized treatment for patients. VR can provide patients with customized rehabilitation plans and psychotherapy scenarios, and adjust the treatment content according to their specific needs. The second is telemedicine. Especially in remote areas, VR can help doctors remotely assess the condition, make preliminary diagnoses, and even guide complex operations. In addition, VR can also help improve patient participation and treatment compliance, especially for patients who are undergoing long-term treatment. They can get more vivid health education through VR, understand the progress of their condition and treatment process, and better cooperate with treatment.

Summary: Anna Liu's interview provides deep insights into the application of VR technology in the medical field. She emphasized the wide application of VR in surgical training, patient rehabilitation and mental health, and the possibility of further expanding application scenarios through technological advancement in the future. She also pointed out that the challenges faced by brands such as Pimax in the medical field include the accuracy, stability and hygiene requirements of the equipment. Pricing strategy is crucial to product acceptance in the medical industry, and brands can reduce the cost burden of hospitals through flexible business models. Anna believes that the potential of VR in personalized treatment and telemedicine will be an important direction for future development.