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Commercial Development Plan for VR Glasses of X Technology Company

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MSc in Business Administration

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MSc, Miguel Jorge da Cruz Lage, Invited Lecturer
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Department of Marketing, Operations and General Management

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Resumo

Este projeto tem como objetivo investigar a estratégia de marketing dos headsets Pimax VR fabricados pela X Technology Company na indústria de realidade virtual altamente competitiva. No projeto, a análise PESTE é aplicada para identificar os fatores tecnológicos, econômicos e sociais que definem o setor e analisar a concorrência de mercado, incluindo gigantes como Meta e Apple. O objetivo principal do projeto é determinar formas de adquirir e manter clientes, aumentando a visibilidade da empresa e expandindo suas fontes de receita. O método de pesquisa utilizado no estudo é uma abordagem qualitativa que se baseia em dados secundários coletados por meio da análise de relatórios do setor e dados primários de entrevistas com gerentes de produto e especialistas em marketing. Algumas das restrições reconhecidas incluem baixa consciência da marca, altos custos de produção e baixa interação com o cliente. Os principais grupos-alvo de consumidores são entusiastas de tecnologia, trabalhadores em áreas criativas e jogadores bem pagos que buscam desempenho, qualidade de imagem e design. Para mitigar esses desafios, o projeto recomenda um mix de marketing que inclui geração de leads por meio de técnicas digitais, inbound marketing, otimização da taxa de conversão e retenção de clientes por meio de CRM, incluindo programas de fidelidade, uso de técnicas de design de jogos, iniciativas de conteúdo gerado pelo usuário e técnicas de evangelização do cliente para promover laços duradouros com o cliente. A combinação de modelos CLV e análise RFM melhora ainda mais o conceito de retenção. Algumas das soluções incluem melhor integração de produtos, utilização de esquemas de referência, um site otimizado e um canal de distribuição estendido. Ao coletar e analisar dados e fornecer serviços ao público-alvo, a X Technology Company será capaz de aumentar o valor de seus produtos e serviços para seus clientes, garantir um alto ROI, e se tornar uma empresa líder na esfera de serviços premium VR. Os resultados também indicam que na indústria de tecnologia altamente competitiva, uma abordagem estratégica orientada para o cliente é necessária para o crescimento a longo prazo.

Palavras-Chave: Óculos VR; Estratégia de Marketing; Análise do Consumidor; Aquisição de Clientes; Marca Posicionamento;

JEL Classification: M31,O33

Abstract

This project aims to investigate the marketing strategy of the Pimax VR headsets manufactured by the X Technology Company in the highly competitive virtual reality industry. In the project, PESTE analysis is applied to identify the technological, economic, and social factors defining the sector and analyze the market competition, including giants like Meta and Apple. The project's primary purpose is to determine ways of acquiring and maintaining customers while also increasing the company's visibility and expanding its sources of revenue.The research method used in the study is a qualitative approach that relies on secondary data collected through the analysis of industry reports and primary data from interviews with product managers and marketing specialists. Some of the recognized constraints include low brand awareness, high production costs, and low customer interaction. The primary target consumer groups are technology enthusiasts, workers in creative fields, and well-paid gamers who seek performance, picture quality, and design.To mitigate these challenges, the project recommends a marketing mix that includes lead generation through digital techniques, inbound marketing, conversion rate optimization, and customer retention through CRM. It includes loyalty programs, the use of game design techniques, user-generated content initiatives, and customer evangelism techniques to foster lasting customer bonds. The combination of CLV models and RFM analysis enhances the retention concept even further.Some of the solutions include better product onboarding, utilizing referral schemes, an optimized website, and an extended distribution channel. By collecting and analyzing data and providing services to the target audience, X Technology Company will be able to enhance the value of their products and services for their clients, guarantee a high ROI, and become a leading company in the sphere of premium VR services. The results also indicate that in the highly competitive technology industry, a customer-oriented, strategic approach is necessary for long-term growth.

Keywords:

VR Glasses; Marketing Strategy; Consumer Analysis; Customer Acquisition; Brand Positioning;

JEL Classification: M31,O33

Table of Contents

List of Tables

List of Figures

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 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. It is known for its excellent screen clarity and immersive visual experience and is 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 "Headlight," 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 of 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. 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-of-view, 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 have 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 some 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 discomfort 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.

This thesis aims to develop a comprehensive commercial development strategy for the Pimax VR headsets by X Technology Company, focusing on enhancing brand positioning, improving customer acquisition, and overcoming market entry barriers in the global VR industry. Through a mixed-method approach combining in-depth interviews and secondary data analysis, the study identifies key challenges, including weak brand visibility, high product pricing, and suboptimal user experience. Strategic marketing proposals are developed to target high-value consumer segments—tech enthusiasts, professionals in creative industries, and high-income gamers—by refining the product's value proposition and expanding distribution channels. The thesis concludes with actionable recommendations that leverage innovation, data-driven marketing, and customer-centric branding to strengthen the company's competitive positioning in the evolving virtual reality market.

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 technical boundaries, the general feeling is that its market share is relatively small when compared with mainstream competitors. Positioning Pimax for innovation rather than mass-market appeal 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 invest 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 have hindered its capacity for timely demand meetings.

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, a 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 Damocles 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 to create related products in the gaming and entertainment industries (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 1995, but it failed in less than a year due 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). Game engines have also revealed complete VR compatibility, 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 a computer operating system that directly mimics the external natural environment; the user is thrown into the simulated three-dimensional space natural environment, and it is difficult to distinguish the truth 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 a 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 both strengths and abandons its weaknesses. You will probably think of it as an enhanced version of AR. But in fact, there are obvious differences between MR And AR: First, 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, it also pointed out the development direction of MR Technology for human beings (Guo et al., 2021).

To summarize, VR technology is illusory; it brings the user's consciousness into the illusory natural environment and requires the user to wear VR equipment to achieve it. AR is a combination of real environment and unreal elements, blending unreal elements into the real world. It is based on the principle of optical and three-dimensional reconstruction of images generated by the user, who 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 MR will certainly be the wave of the future. Regardless of whether 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 the 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. At present, high-tech VR is widely used in the international community in the real estate industry, banking systems, 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 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 lose 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, 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 live transmission, virtual reality technology offers a 360° panoramic view, and the immersive experience is higher (Akm et al., 2023). Through 3D technology, the sense of picture is stronger and more real, and the sense of interaction is relatively strong. Through VR technology, users can experience the live broadcast process, fully experience the live atmosphere and applause, drag the display screen, alter the viewing angle, and do several 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 mainly uses 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-around 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 a 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 that studied 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 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; 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 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 the most popular and well-accepted theory in the information system discipline. It was at first employed to identify primary variables that explain the extent of computer utilization by people. This theory was developed from the Theory of Reasoned Action, which was developed by Fred D. Davis at the University of Michigan in 1989 (Scherer et al., 2019). TAM has been formulated and is employed to explain the process of technology acceptance and utilization.

The TAM includes behavioral intention to use (BI), perceived usefulness (PU), perceived ease of use (PEOU), and attitude toward using (AT) (Rahimi et al., 2018). The perceived utility is defined as the level of assurance that a particular technology positively influences the performance or productivity of the users. Usability is an evaluation of how difficult or otherwise it is to manage the system by the users. It stands for the Customers' perception of the exploitation of new technologies. Lastly, BI is defined as the level of a person's interest in using the technology, which measures the person's willingness to use the technology (Al-Emran & Kamaludin, 2018).

These, along with the real usage of external factors, are the constituents of the TAM framework. Nevertheless, it is crucial to know that both PU and PEOU depend on external factors, and, at the same time, PU and PEOU define AT. In this case, PU does not only impact AT but also has a direct impact on BI. The usage of AT influences BI, which in return affects

the likelihood of the individual using the system. In addition, PEOU has a direct impact on PU, and consequently, through PU, it impacts 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 proposed the Unified Theory of Acceptance and Use of Technology (UTAUT) to incorporate the factors that determine a person's intention to accept or use new technologies. The model comprises four factors, namely Social Influence, Effort Expectancy, Performance Expectancy, and Facilitating Conditions. Thus, among the six variables, Use Behavior and Behavioral Intention are dependent variables, while the other four variables are independent variables (Xue & Ouyang, 2024).

The model also includes four control variables, namely gender, age, experience, and voluntariness, in the relationships between the variables. The disadvantage of the previous models is that they fail to explain fully the usage of the technology after its adoption (Tamilmani et al, 2021).

In the case of the UTAUT model, it has been established that Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC) are determinants of the behavioral intention and usage intention of the users in the integration of technology. PE is, therefore, defined as the view that a certain technology will make a difference in the user's job and effectiveness. It adopts some concepts from previous models: Perceived Usefulness (PU) from the technology acceptance model, extrinsic motivation from the motivation model of PC utilization, relative advantage from the diffusion of innovation theory, and outcome expectations from the social cognitive theory (Andrews et al., 2021). EE is the user's perceived ease or difficulty in using a particular technology, which is comprised of the PEOU from the TAM, the computer utilization model difficulty, and the ease from the DOI theory. SI describes the degree to which they are influenced by others' behaviors, opinions, and attitudes when using technologies or systems (He et al., 2018). Theoretical sources include social factors of the 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 the 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, social, and functional value (price functional and performance functional value) (Zauner et al.,2015). To investigate the effect of usage intentions on mobile network service subscriptions, perceived value was obtained from perceived utilitarianism, perceived hedonism, perceived ease of use, and perceived cost. According to their research, perceived utility, perceived entertainment, perceived technical ease, and perceived cost may affect the perceived value and, hence, behavior (Wicaksono & Maharani, 2020). As a result of this, mobility ease, perceived value of the mobile technology, compatibility of the service, security threats, and cognitive effort have been considered for testing mobile commerce. As stated by García et al. (2018) and Karjaluoto et al. (2019), perceived value has a positive and significant influence on consumers' behavioral intentions.

The two TAM constructs that are adopted in this research are perceived usefulness (PU) and perceived ease of use (PEOU). The meaning of perceived ease of use can be described as the extent to which consumers find it easy to understand and use a particular technology. That is why the users will easily accept a certain technology if they find it easier to use and manage

according to Marangunić and Granić (2014). On the other hand, if users believe that the technology is complex and challenging to grasp, they may not use it at all (Ursavaş, 2022).

The term PU refers to an individual's perception of the role of technology in enhancing productivity at the workplace or in one's existence. The attitude towards the use of a particular technology is likely to be positive if the individual believes that the technology affords a lot of benefits and convenience (Ambalov, 2021). For instance, in an enterprise environment, the employees will be willing to adopt and use the new software because they have been made to understand that this will enhance productive use of time and productivity.

Besides the PEOU and PU, trust, social influence, and Innovation resistance have a significant impact on the Technology Acceptance Model. Trust is the amount of confidence users have in the security and reliability of a particular technology, and higher trust increases the rate of technology acceptance (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 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 - the personal characteristics of consumers and the 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

mainly involve their uniqueness, compatibility, and relative 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 consider whether a new electronic product is compatible with their existing devices, and they tend to prefer new products that are 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, 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. Moore 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. 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 are withdrawn 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).

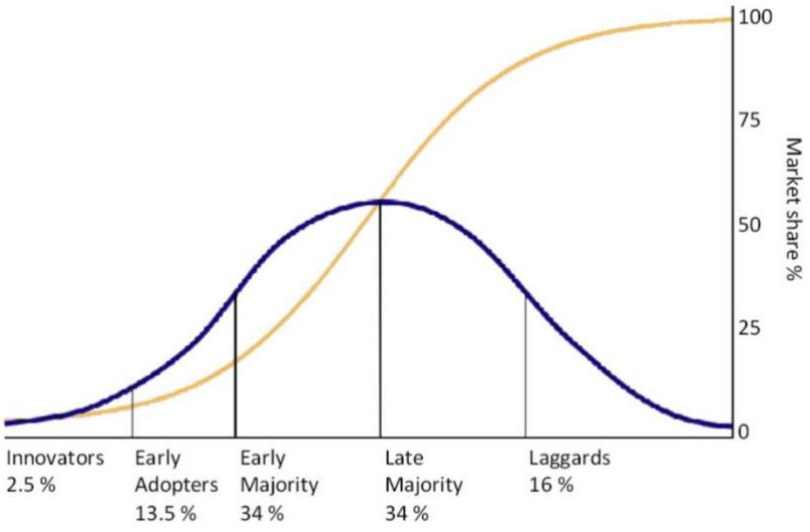

Figure 2.1: Five distinct types of technology consumers make up the technology adoption life cycle, which is shaped like a bell curve and represents the whole possible market share for a given technology.

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 the 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 the 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 consumers' purchase 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, provides 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 enhancing the growth of the VR headset market in the region. Quest 3 also introduces some very important improvements in the technical specifications, including the resolution and the refresh rates, which make it more enjoyable to use.

Marketing and social impact

Another important criterion is the efficiency of the marketing and the impact it has on society. This is because technology giants and market leaders like Meta and Apple have contributed to the enhancement of the market awareness and acceptance of VR headsets. Besides, social

networks and word of mouth also play an influencing role in the decision-making process of the user (Dwivedi et al., 2021).

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

The economic environment, technological advancement, cultural factors, and marketing promotion in the global market influence the adoption of virtual reality headsets. Owing to their economic power and technical enabler factors, VR headsets are popular in North America and Europe and have multiple applications that can be implemented quickly. 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 per cent 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 in 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). Despite economic imbalances and poor technology infrastructure in Africa and the Middle East, 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).

2.5 Customer Acquisition Strategies

Customer acquisition is the process of attracting new consumers and converting them into paying customers. In the modern world, companies implement complex and data-oriented strategies that do not necessarily involve advertising. The three most important approaches in this domain are lead generation, inbound marketing, and conversion rate optimization.

Digital Lead Generation

Lead generation in the digital environment is the process of attracting the interest of potential customers through channels like social media marketing, PPC advertising, storing content behind a form or registration, and webinars. These tactics are perhaps useful in industries that

include virtual technologies, whereby customers who are willing to purchase such a product are very keen and selective. Chaffey and Ellis-Chadwick (2019) also emphasized that one of the most effective strategies is to target the right audiences at the right stage of the buyers' journey using messages focusing on the buyer's journey and tools such as SEO landing pages, Google Ads, downloadable resources.

LinkedIn and YouTube are also being effective in generating business-to-business and business-to-consumer leads (Cortez et al., 2023). In this case, VR products are best suited for platforms that convey a story through graphics that give the experience a feel.

Not only do social media platforms like LinkedIn and YouTube remain crucial for digital lead generation, but new forms of communication, such as virtual reality product demonstrations and immersive types of ads, are also extremely useful in the tech products niche (Al-Issa & Thanasi, 2024). These tools enable the potential customer to get a feel of the product's value proposition within a typical usage application before they can buy it. For example, when product demonstrations or virtual try-before-you-buy options are incorporated into the landing pages, there is likely to be a huge boost in engagement as well as the quality of the leads. Additionally, incorporating chatbot and lead optimization systems into the website would also eliminate lead generation drop-off by responding to leads in real-time, as argued by John (2025), hence improving the conversion rate. This also means that AI powers analytics and makes it possible for marketers to always make changes in the ongoing campaigns depending on the best-performing content type, channels, and formats based on behavior.

Inbound Marketing

Inbound marketing refers to reaching out to people with relevant content that is beneficial to the consumer, as identified by Assiriyage et al. (2018). It includes blogging, making video tutorials, performing SEO, and the email nurturing processes (Järvinen & Taiminen, 2016). For VR headset companies, it is possible to position the brand as a thought leader by providing more educational content on the use of VR in games, design, and the workplace.

Inbound marketing is cost-effective and yields higher engagement rates compared to traditional outbound methods. Research suggests that inbound leads create a 14.6% sales rate, compared to outbound sales, which is 1.7%, hence tending to convert more effectively (Lindblom & Andréasson, 2019).

Another advantage of inbound marketing is that it fosters long-term customer relations by offering value on an ongoing basis. In the case of companies in the VR field, this can be a series of emails providing special tutorials, updates on the latest news, or examples of VR applications

in specific fields for different target audience segments: educators, gamers, or 3D designers. Also, inviting the audience to organized live webinars or Q&A sections with product engineers, experienced users, or other industry specialists can enhance trust. Apart from generating quality leads, such sessions also help the company establish itself as a credible source of information in the expanding VR space. According to Varjonen (2024), the use of marketing automation platforms takes inbound marketing a notch higher since it allows companies to track the interaction with content, customize the messages according to the stage of the sales funnel, and nurture the leads in a much better way.

Conversion Rate Optimization (CRO)

Even if a business attracts traffic and leads, it must also convert them into customers. This is where CRO becomes vital. CRO uses A/B testing, user behavior analytics (such as heat maps or scroll tracking), and call-to-action (CTA) refinement to maximize the percentage of visitors who take a desired action (Heath, 2020). For high-consideration products like VR headsets, CRO tactics might include offering live product demos, customer testimonials, interactive spec comparisons, or limited-time offers.

Optimizing conversion points—whether on landing pages or checkout flows—not only improves marketing return on investment (ROI) but also enhances the user experience. Data-driven CRO is especially critical for companies with premium offerings like Pimax, where product differentiation must be clearly communicated to justify a high price point.

Personalization is another important aspect of CRO, and its implementation can dramatically enhance conversion rates by addressing the specific needs of different users, geolocation, and preferences. For example, suppose the customer revisits the Pimax website. In that case, they may be shown product packages, items they have recently looked at, or upgrade offers on the basis of the visited pages. Mobile optimization is also important because a large number of consumers use their mobile devices for researching and purchasing tech products (Venkatesh et al., 2017). Making sure that the landing pages are fast-loading, display in the right format, and are easy to navigate through mobile devices decreases bounce rates and improves conversion rates. Furthermore, understanding post-click behavior, like how long users stay on product pages or if they abandon carts can be useful to enhance the messaging and visuals, as well as the checkout experience. Combined with dynamic retargeting ads, these insights assist in regaining lost conversions and promoting to the potential audience at the right time of their buying process.

2.6 Customer Retention Strategies

Customer retention plays a crucial role in building long-term business success, particularly in the technology sector, where acquisition costs are high and customer relationships are essential for sustainable growth. Virtual reality products such as VR headsets demand considerable customer investment, not just financially but also in terms of time and technological adaptation. As Hawkins and Hoon (2019) demonstrated, increasing customer retention by 1% increase in customer retention providing as much as a 5% positive change in a firm's financial standing. Thus, brands that invest in retention initiatives are more likely to benefit from consistent revenue streams, higher customer lifetime value, and stronger brand advocacy.

Loyalty and Retention Programs

Loyalty and retention programs are among the most effective strategies for increasing customer stickiness and ensuring repeat engagement. These are useful in exchange for user loyalty through methods such as offering freebies, early access to new albums, or membership levels. Melnyk and Bijmolt (2015) observed that loyalty programs are not just tools meant to encourage repurchase behavior but also create an emotional bond with the brand. For instance, for Pimax, which is a company operating in the high-tech segment, the loyalty programs may comprise free software for the company's products, access to new products for testing, virtual content, or free warranty services. Such incentives increase the perceived value of the relationship and thus help avoid the development of a switch to a competitor.

Churn Reduction Techniques

Churn, or customer attrition, poses a major risk to long-term revenue in customer markets characterized by numerous substitutes and fast technological advances. Customer churn management entails recognizing early signs of customer disinterest and addressing the issue by taking measures to bring the customer back to the fold. According to Huang and Rust (2021), firms can avoid churn by using predictive analytics and tracking users' behaviors. Measures like enhancing the onboarding program, providing adequate and relevant support, and conducting customer satisfaction surveys can be taken to directly tackle sources of customer frustration. For example, providing tutorial services or live sessions may be critical for customers who have never used VR goggles before. It is also effective in enhancing the notion that the company has the customer's best interest at heart and is willing to hear from them in advance.

Personalized Marketing

Personalization is becoming more and more critical to current approaches to retention marketing. With the use of strategies such as segmentation, organizations can bring timely and valuable content, offers, and messages to the users. According to Anderson (2025), personalization leads to increased customer loyalty and satisfaction because it makes the customers feel valued. In the context of VR headsets, personalization involves sending emails with suggestions on VR applications that the customer has bought before, notifications about accessories for the headset, or marketing messages that are within the user's usage pattern. Such strategies are also more effective in strengthening the bond between the customer and the brand, especially when consumers are in search of personalized experiences in the market.

Customer Experience (CX) Management

Offering a great customer experience or CX is perhaps one of the most effective ways of retaining customers. CX can be described as the entire customer experience, starting from the awareness and purchasing phase, use of the product, and even when the customer has a problem with the product. De Keyser et al. (2015) state that in superior CX, the user interfaces and service delivery are not only smooth and integrated but also emotionally appealing. For technology firms, this means easing the product configuration, including easy-to-follow instructions and guides, post-purchase support, and integrated services. A headset manufacturer such as Pimax has to pay attention to areas such as comfort and fit, helpful user groups and communities, prompt and polite customer care, and content after the purchase. Every positive interaction with a customer at any of the stages of the buying process tends to lead to repeat patronage and recommendations.

Community Engagement and Peer Interaction

Aside from formal retention strategies, building a strong and active customer community can greatly contribute to customer loyalty and retention. According to Nguyen (2024), community engagement is the process of making an online environment for the clients, for example, a forum, Discord chat, or private group in social networks, where customers can discuss, troubleshoot, or demonstrate. These platforms act as the base, channel of marketing, and innovation zones at the same time. As suggested by Carlson et al. (2019), when customers participate in value co-creation within the community, they develop strong emotional bonds with the brand. For a VR company such as Pimax, using incentives to get users to upload gameplay videos, post their modding tutorials, or join a product feedback session can be a way of increasing retention and product improvement. Such measures include providing recognition,

special products, or other privileges to the community leaders or “super-users” of the application thus enhancing their loyalty and advocacy to the application.

Education-Based Retention

Another significant retention strategy is educational support, which is an important factor in technology sectors, where the barriers to adoption can cause its quick rejection. For products such as VR headsets, where the user is likely to require some amount of training before they can fully utilize the product, as mentioned by Wolfartsberger et al. (2023), constant training will help the customers get the most out of their purchase. This can be a video tutorial series, engaging learning interfaces, training courses for higher-level users, or live webinars with the technical support team. From the perspective of Harmeling et al. (2017), customer education not only enhancess satisfaction but also decreases the support cost and increases the product's usage intensity. Pimax can create a digital learning center with pre-designed training paths for gamers, developers, or simulation enthusiasts and linked performance badges and unlockable content to make learning fun. It is very effective in helping the users acquire knowledge of the product, thus leading to increased brand loyalty.

2.7 Customer Lifetime Value Models and RFM Analysis

Customer lifetime value (CLV) means determining how much money each customer is likely to spend in the future, thus facilitating the decision-making process regarding marketing investments. This is where Customer Lifetime Value CLV models come in handy. As defined by Ali and Shabn (2024), CLV is the total amount of revenue that can be expected from a particular customer account over the entire course of the relationship. It assists organizations in moving from short-term sales to long-term customer relationships, especially in areas such as VR, where initial outlay is considerably high and the sale period is long.

CLV models assert the perspective that retention is usually even more profitable than acquisition. Chamberlain et al. (2017) state that CLV helps to define customer groups with high potential in terms of customer value and focus on developing these relationships. The loyalty, satisfaction, and personalization of customers, as well as the implementation of customer loyalty programs, is a strategic way of increasing the customer’s worth per value and decreasing the cost of acquiring new customers. However, a focus on CLV has the advantage of enabling the companies to categorize the customers and differentiate the goods and services appropriately.

A widely used and easy-to-understand CLV method is RFM analysis, which categorizes customers according to their Recency, Frequency, and Monetary value. Recency, frequency,

and monetary value are the keys to understanding customers; recency shows how recent a customer's last purchase was, frequency measures how frequent a customer is, and monetary value is how much money they spend. This model is quite useful in the sense that it focuses not only on active customers but also on profitable ones. According to Samidi et al. (2023), RFM analysis is helpful for customer categorization and developing segments such as 'champions,' 'potential loyalists,' and 'at-risk' users that can be implemented to define specific marketing approaches.

When applied to a particular product, for instance, the VR headset brand Pimax, it is possible to identify the RFM that consists of loyal customers who are frequently repurchasing their hardware or accessories. Such customers could then be rewarded with VIP programs or with privileges of early access to new features. On the other hand, if the recency score reduces, then the firm may wish to remind the customers through reactivation or even get their perception of satisfaction. CLV and RFM help justify investment in customer experience, support, and communication with clients.

2.8 The Role of Customer Relationship Management (CRM)

Customer Relationship Management (CRM) can be described as an organizational concept and a technology solution used in managing current and potential customer relationships, as acknowledged by Buttle and Maklan (2019). CRM is a necessity in the contemporary world, as it is filled with a large amount of data. CRM plays a crucial role in the constant connection of marketing, sales, and customer service in order to improve customer loyalty, retention, and revenue of a business. In the case of high-involvement products like VR headsets from the technology firm X Technology Company, CRM is useful in guaranteeing that the firm provides timely, relevant, and valuable experiences to the clients.

In its essence, CRM entails acquiring and managing customer information to develop customer profiles that would assist a business entity in understanding the customer's needs, buying habits, and past purchase history, as described by Boppana (2017). Such information is useful in implementing the concept of segmentation, communicating with the specific segment, and recommending the most suitable product or service to the segment. According to Nguyen and Simkin (2020), CRM enables firms to move from mass marketing to segmented marketing because it helps to create customized marketing strategies that meet the needs and expectations of the clients. In industries like VR, where buyers are already techno-savvy and have high-performance standards, CRM can assist in identifying the power user or early adopters and then provide them with content, incentives, or support.

In addition to marketing, CRM also manages post-purchase communication, which is essential for overall customer satisfaction and loyalty. A good CRM system captures the service requests, organizes the follow-ups, and guarantees that the problems are addressed and solved quickly, which helps to create a favorable experience for the client. As cited by Singh et al. (2023), the fast and timely response to services provided and constant communication enhance the trust of the customer and hence increase the chances of the customer to engage in the services again. Furthermore, the integration of CRM with AI technologies and automation platforms also makes it possible for companies to reply immediately, evaluate the overall sentiment, and recognize potential dissatisfaction or churn indicators.

For a business such as Pimax, the adoption of CRM practices would be of great significance in both the business-to-consumer and business-to-business environments. For instance, a user who is working in a design or a simulation field may need certain specific software additions or assistance. These clients' requirements can be handled through CRM systems and, at the same time, offer insights into the need to develop new products. In addition, it integrates the sales, support, and research and development activity, which means that the CRM feedback loop is closed.

3 Methodology

The aim of this chapter is to explain the research methods used in the study to achieve the objectives of this research. Qualitative research and secondary data analysis are used to explore key marketing strategies for X Technology Company's Pimax brand VR headsets. The following sections describe 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 conducted to find 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 discover emerging trends and issues in the larger virtual reality industry, especially in places such as healthcare and education and the expansion of the global market.

Population: The study subjects are professionals currently working in the VR headset industry.
Key Informants Selection: Five key informants were selected for the in-depth interviews using a sampling method.

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

An in-depth qualitative analysis of industry reports, expert opinions, and market trends will be conducted to complement and validate the findings from the interviews. 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 VR market challenges 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 provides a deep understanding of the current status of the VR industry.

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 formally analyze 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 Commercial Development 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 to increase brand awareness by 30% and achieve an increase in market share within the high-tier segment in the next 12 months, supporting the company's viable financial growth.

4.2. Main Findings of In-depth Interviews

Interviewing five professionals in the VR industry provided the following insights into the Pimax brand and the VR industry challenges and opportunities:

- **User experience is a key driver of product adoption:** Emily Zhang also pointed out that user experience is one of the main factors determining VR product usage. She said that Pimax has good technology but lacks recognition and should develop more engaging and individualistic aspects for the consumers. Her arguments underscore the perpetual need to create and introduce new products to the market to cater to the buyer's changing needs.
- **Brand awareness and market penetration:** Michael Li discussed the issue of brand recognition in the VR market. He recommended that Pimax consider working with some influencers and offer attractive prices to grab a slice of the market. His view implies that advertising and appropriate pricing strategies are useful to help the company popularize its brands and penetrate the market.
- **Simplify the UI to improve usability:** Sophia Chen pointed out the need to make VR devices' interfaces more natural and easier to use from a user experience design standpoint. Her testimonial showed that most potential customers are of the opinion that existing devices are cumbersome to use, and this discourages them. She also proposed that Pimax could further its reach and explore the education market since there is always demand for easy-to-use technology for educational purposes.

- **Global market expansion and cross-industry applications:** According to David Wang, the prospects for Pimax include market expansion at the global level and the use of the company in different industries. He stated that emerging industries like remote work and telemedicine are widely incorporating VR technology. His outlook prompted Pimax to seek opportunities outside the video game market and to consider what business models might allow the company to expand to global markets, thus diversifying its customer base.
- **Medical opportunities for VR:** Anna Liu further pointed out that there was much that could be achieved in the healthcare industry through the use of VR. She proposed that Pimax could consider medical applications and deployments, such as in the areas of rehabilitation and remote surgery, since VR has a lot of value to offer. This is a clear strategic direction for Pimax to move into a niche market, thereby giving it a competitive edge by venturing into the medical technology market that brings about social value and possible revenues.

4.3. External Situational Analysis

4.3.1. PESTE Analysis

This part focuses on the macro environment that surrounds the business and has an influence on it.

4.3.1.1. Political and Legal Context

Issues such as trade policies, data privacy laws, and others that are within the political and legal sphere have a considerable impact on the global VR industry. For example, the rivalry between the leading technology-producing nations, such as the US and China, may sometimes lead to trade wars through tariffs and bans on exports, which in turn affects the cost of production. Also, data protection legislation, including the GDPR in the European Union or any similar legislation, requires considerable planning and affects the design and management of VR technologies.

4.3.1.2. Economic Context

Economic conditions play an important role in consumer spending on expensive items like VR headsets; though the demand declined in 2023 due to financial conditions, the global economy might recover at a better pace in the future. As more development takes place, there

are chances of applying in other industry sectors, including gaming, education, and healthcare, among others. However, the key issue that may have an impact on the benefit analysis for Pimax is inflation, which is linked to volatility in exchange rates that can influence the pricing of its products and company profits. As much as this is true, the company must be able to adapt to the fact that economic change lies close to such trends and should be able to change its business strategies in such a circumstance.

4.3.1.3. Socio-Cultural Context

Consumer attitude is also a key factor in the success of VR headsets because society has shifted its attitude toward the acceptance of technology. There is an increasing tolerance for virtual environments, especially among the youth population. It has also been observed that with the use of virtual conferencing and other collaborating means, there is a growing need for better virtual reality solutions. However, there are still challenges to the acceptability of VR and its impact when used for a long time, as well as the digital inequity where some people have limited or no access to such technologies. In this regard, the following are the suggestions that X Technology should consider in order to overcome these challenges: User education, Ergonomics, and Inclusive marketing.

Success here depends on the shift of consumers' preferences and the attitude of society towards technology. There is a growing level of acceptance of virtual experiences in society, with youths being more receptive. There has also been a rise in demand for complex VR as most workers and teams have switched to remote working due to the COVID-19 pandemic. 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 its 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 increasing dramatically as a result of the improvements in the processing power of computers, AI, and display technologies. Newer developments are lighter and more comfortable headsets that feature high-definition screens and accurate motion capture. The use of AI improves user experience by providing a better variety of choices.

Nevertheless, the latest technology has been noted to be very expensive to research and develop. It is highly competitive, and the major players are very active in introducing new products and services to the market. In order for X Technology to differentiate itself, it needs to bring technological advancement and apply it to the Pimax brand through either the display or the content.

4.3.1.5. Environmental Context

Environmental factors are now playing a very crucial role in the technological industry. The consumer and regulatory forces are now urging companies to minimize e-waste and carbon emissions. For X Technology, incorporating more environmentally friendly materials and increasing the energy efficiency of the products could be its unique selling proposition. Furthermore, the promotion of recycling activities or the production of more durable goods will enable the company to gain the approval of buyers who have concerns about the environment. Managing these environmental conditions is in line with the international sustainability objectives, and it may increase consumer confidence and brand associations.

4.3.2. Sector Analysis

Although Virtual Reality (VR) is still a young market, the industry has expanded in the past few years. It was formerly applied only in games but has now spread in fields like health, education, estate, and training. Today, the VR market is approximately $16 billion and is projected to grow at a rate of more than 15% for the next five consecutive years. This is because there is better technology, better hardware, and more software and content being developed, particularly in professional areas such as health and industrial training.

The two broad categories of VR devices are consumer devices and professional devices. Meta and Sony are the leading firms in the consumer product market segment, which is cheaper and is mainly used in gaming and entertainment. Professional-level devices are intended for professional use, for example, in the simulation, design, architecture, or other industrial training of high precision. These devices are normally more costly than the simple ones in the market, but they are usually more powerful and have more functionalities.

More often, businesses are trying to understand how VR can be used in various sectors, and thus, competition is tight. The major brands in the electronics market are large companies such as Meta, Apple, and others, which have a large market due to their large production capacity. However, small companies like Pimax and X Technology Company are still experiencing

challenges of market penetration, although they have great potential in other professional segments, which care more about performance than prices.

However, there is also an increasing market for niche premium products like the Pimax brand, especially in the professional and high-end audience. Due to the increase in demand for higher-performing devices in specialized applications, Pimax had a year-on-year sales increase of 30% from 2021 to 2022; however, X Technology Company struggles to achieve greater market share.

4.3.3. Competitor Analysis

Some of the key players in the VR market include Meta, Apple, and ByteDance. These firms tend to be highly capitalized with strong research and development and distribution, and the barriers to entry are quite high.

- **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 adoption by consumers and professionals in the market. 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, which is 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.

Several local players in the Chinese VR market 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. The affordability of hardware solutions for businesses rather than consumers gives them the edge over competitors. DPVR is unique because it allows affordable, customizable VR systems with industry-specific 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, consumers and businesses using VR have many options. These available options put 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 and 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 in further optimizing 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 one of the leading companies in the VR industry due to its high-quality displays, large field of view, and accurate tracking. This technological advantage places Pimax strategically among the leading companies in the VR market for high-end devices.
- **Specialized Market Segment**: Unlike other companies that aim for the general population, Pimax aims for technologically inclined professionals and enthusiasts by offering high-end VR solutions.
- **Diversification of products**: Pimax’s focus on innovation, as illustrated by the Pimax 8K and 12K series, clearly indicates that the Company is ready to offer state-of-the-art products for sophisticated applications.

Weaknesses

- **High Pricing:** Most of Pimax's products are priced fairly high; thus, a number of consumers will be discouraged from buying these products, especially in the electronics market. This pricing strategy may reduce accessibility and, therefore, slow the market growth.
- **Complex Setup and Usability**: Some of the features of Pimax's VR systems are complex, and this brings about a difficult time when it comes to setting up, especially for users with less experience in handling such systems. Also, this may cause discomfort during prolonged use of the device, which will affect the satisfaction of the users.
- **Low Brand Awareness**: Meta, Apple, and Pimax are some of the known brands in the market; however, Pimax has low visibility in the global market. This leads to the problem of limited visibility, which poses a challenge to Pimax's expansion and, therefore, may lead to a slow expansion of its market share.

Opportunities

- **Expansion into Education and Healthcare:** It is evident that there still is a lot of potential in integrating VR with education and healthcare segments, which means that Pimax has a good chance to expand and grow in these industries. These sectors need VR-based training, simulation, and therapy; this is why Pimax focuses on cutting-edge technology.
- **Strategic Partnerships:** Creating synergy with content creators and software developers can only benefit Pimax and bring in additional solutions and content that would be exclusive to the platform. Such partnerships could make it possible for Pimax to stand out and create more value for its products.
- **Growing Demand for Virtual Collaboration Tools**: With the increasing use of the internet and technology in business, the need for VR systems for virtual collaboration has increased due to the need to hold meetings remotely and work remotely. These developments are tailored to fit this emerging need by Pimax's more developed VR systems.

Threats

- **Intense Market Competition**: The VR market is very saturated with key market players, including Meta, Apple, and ByteDance. This is an indication that Pimax's pricing strategies and marketing strategies are competitive; thus, Pimax has to compete for its share in the market.

- **Emergence of Alternative Technologies**: A host of new technologies, such as AR and MR, may pose a threat to the growth of VR technologies. These other technologies could provide more practical or versatile solutions for some purposes, thus diverting attention away from VR.
- **Economic and Market Fluctuations**: The use of other technologies, including Augmented Reality (AR) and Mixed Reality (MR), may challenge the growth of the VR market. These technologies could provide somewhat more flexible or functional approaches for some applications and, therefore, can distract 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 current competitive strategy that has been adopted for the Pimax brand of VR headsets is the differentiation strategy based on technology, market segmentation, and strategic alliances. Such approaches are aimed at responding to the major challenges indicated in the course of the market research and at leveraging growth opportunities.

The key business strategy of X Technology's Pimax VR headsets is based on technological advancement, market niches, and partnerships. These measures are aimed at countering the main threats in the market and tapping new opportunities for development.

4.5.2.1. Product Differentiation through Technological Innovation:

One of the key competitive advantages of X Technology is the usage of unique technologies in optics, displays, and interaction for better performance compared to competitors. The specific aspects that Pimax VR headsets will focus on for improvement include the resolution of screens, the breadth of the field of view, and the latency. The brand will also consider adding artificial intelligence and augmented reality features to the products to satisfy the competition.

4.5.2.2. Premium Positioning and Market Segmentation*:*

By targeting the high-end market segment, Pimax will maintain a quality brand image while at the same time expanding its customer base. The market shall be divided into three major categories: game freaks, professionals, designers and engineers, and businesspeople from various fields, such as education and healthcare, among others. Special promotions and targeted advertisements will then be created for each segment with particular emphasis on the entertainment value of the games and the efficiency boost that working professionals can obtain from the use of the products.

4.5.2.3. Enhanced User Experience and Ecosystem Development*:*

To enhance the user base of X Technology, emphasis will be put on the enhancement of the physical products and content offerings. In order to expand the offer of exclusive and high-quality VR content, Pimax will work with independent content developers and enter into strategic cooperation with key software vendors. This will involve the enhancement of the ergonomic design, focusing on customer service provision, and making it easier for clients who are using the service for the first time to undertake the process easily.

4.5.2.4. Strategic Partnerships and Collaborations*:*

X Technology has set its strategic directions to foster cooperative relationships in order to enhance its market position. This entails engaging with other software developers, gaming platforms, and industry stakeholders in the development of an end-to-end VR ecosystem. Educational institutions and healthcare providers will also be targeted so as to expand its applicability in the non-gaming sector. These alliances will offer niche content, better compatibility, and product differentiation that increase the value of the alliances to certain customers.

4.5.2.5 Global Market Expansion and Localization*:*

X Technology seeks to diversify its international market and move from North America and Europe to Asia and Latin America. This will be done through the use of regional marketing and translating the application's interface into various languages. Marketing communication campaigns at regional levels will also be planned in a manner that will capture new markets within regions of the world and with reference to the cultural and economic systems of different regions.

4.5.2.6. Sustainability and Corporate Social Responsibility (CSR):

In response to the environmental challenges, X Technology will ensure that sustainability is implemented as part of the company's operations. This is achieved through practising green production, using green raw materials, and ensuring that various processes within the supply chain adhere to green philosophy. Informing consumers about these efforts will increase the brand's image and find a positive response from buyers who are concerned about the environment.

4.5.3. Commercial Development Plan Objectives

- **Increase Brand Awareness**
  To increase brand awareness by at least 30% in the next year, integrated marketing campaigns, influencer relations, and event sponsorship.
- **Grow Market Share**
  Increase the company's market share in the premium segment of the VR industry among the target audiences consisting of technology-oriented consumers, professionals, and gamers.
- **Launch New Products**
  Launch two new models of Pimax VR headsets for different categories of consumers and increase the versatility and popularity of the product line.
- **Improve Customer Retention and Reduce Churn**
  Improve customer retention through the introduction of loyalty and communication programs and improved post-sales support.
- **Diversify Revenue Streams**
  Look for other revenue sources beyond individual customers through VR content monetization, B2B simulation and training, and hardware and software bundles.

4.5.4. Segmentation, Targeting and Positioning

4.5.4.1 Market Segmentation:

Based on a survey of the VR industry and market trends, X Technology divides its Pimax VR headsets into the three following segments:

4.5.4.2 Tech Enthusiasts and Early Adopters:

This group involves people with a keen interest in current technological advancement and inventions. Thus, they are interested in the latest technology, like the Pimax headset, due to its unique features, including the higher resolution and a larger field of vision. This population cares about performance and novelty rather than price, which makes them the right target for high-end VR products (FXMweb, 2024).

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

This segment comprises experts who rely on VR for specific purposes, such as in 3D graphics modelling, virtual reality tours, and even simulation. For these users, it is important to have a high level of rendering, as well as the field of view and accuracy of the Pimax headset, to improve productivity and provide better results in their areas of specialization (Yu et al., 2023).

4.5.4.4 High-Income Gamers:

This target market is major gamers, those with disposable income who are willing to spend their money on such immersive experiences. They demand high-end gaming technology, and the Pimax headset provides high resolution, high refresh rates, and a large field of view for complex and demanding graphical games (Eurogamer, 2023).

4.5.4.5 Targeting Strategy:

As for the Pimax brand, each segment has its unique marketing strategy that highlights the features of the headset:

- **Tech Enthusiasts:** Messaging will communicate the unique and superior features of the Pimax headset, which will attract the audience interested in owning the newest technologies and possessing the latest achievements in this sphere.
- **Professional Users:** The campaigns will highlight the professional use and high quality of the headset with better performance, functionality, and designs for use in design, architecture, and healthcare.
- **High-Income Gamers**: This segment will be centred on the enhanced gaming experience that customers get from the Pimax headset and how its features are better than those of the other products.

4.5.4.6 Positioning Strategy:

Pimax's key values are focused on the customers and the environment. Content ecosystem and sustainability are two strategic objectives that can be beneficial for Pimax. Thus, the Positioning Strategy involves providing the best quality VR experiences at the highest level of price while addressing customers' needs and the environment. The message highlights four key differentiators:

- **Superior Resolution**: This factor makes Pimax outstanding as it provides high-quality images that are suitable for use in professional and gaming domains. Such an emphasis on the quality of graphics corresponds to Pimax's desire to satisfy the high demands of its clientele and is a true reflection of Pimax's orientation toward its target audience.
- **Ergonomics and Comfort**: Pimax headsets are built to be comfortable for the user, especially when used for an extended period. It also eliminates a major issue in the VR market, and it is in line with the company's user-oriented strategy in product design.
- **Environmental Sustainability**: Environmental responsibility is one of Pimax's key values. The company is also keen on using environmentally friendly materials in the products and packaging in the manufacturing process. This aligns with Pimax's greater sustainable development plan, which seeks to minimize its environmental impacts.
- **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.

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

Table 4.1: Market Segmentation for Pimax VR Headsets

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

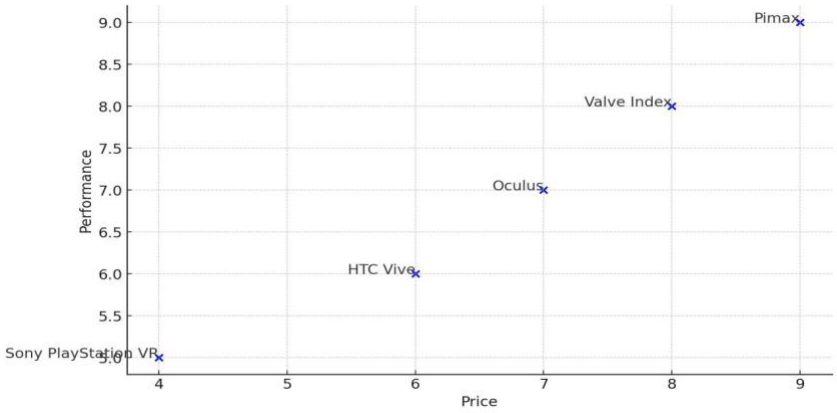

Figure 4.1: Positioning Map of VR Brands

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

4.5.5. 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 and 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 enhances the user experience and helps Pimax maintain its position in a highly competitive industry.

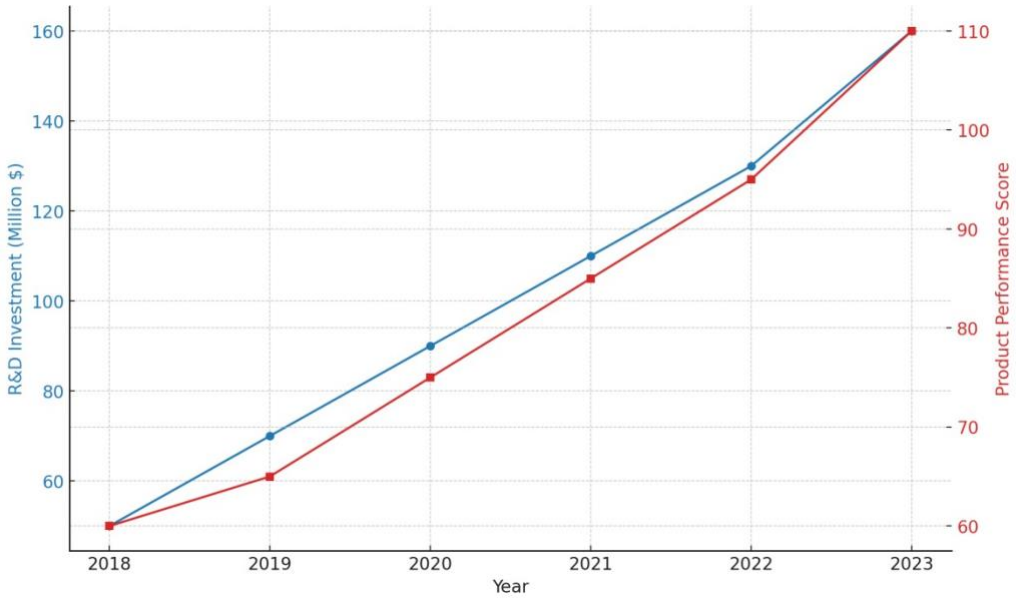

Figure 4.2: R&D Investment Over Time vs. Product Performance

(Source: https://www.auganix.org/vr-news-pimax-secures-almost-30m-in-series-c1-fundingto-expand-its-virtual-reality-offering/)

- **Effective Brand-Building and Market Credibility**: Since Pimax is a company that operates in the high-end market, it is crucial to establish a strong brand. The strategies that should be used to enhance the branding of Pimax should aim at branding it as a product that is quality and unique. This can be achieved through marketing and advertising, partnerships

with popular people, and participation in large tech fairs like CES. Also, consumer trust should be constructed through honesty and providing high-quality products all the time. This is helpful in creating a long-term brand image or brand association. For instance, Anna Liu discussed the use of VR technology in the medical sector. Pimax's vision is to cooperate with medical facilities to use VR in medical rehabilitation and telesurgery, produce VR equipment with certain characteristics, help brands enter virgin territories, and open up new sources of income.

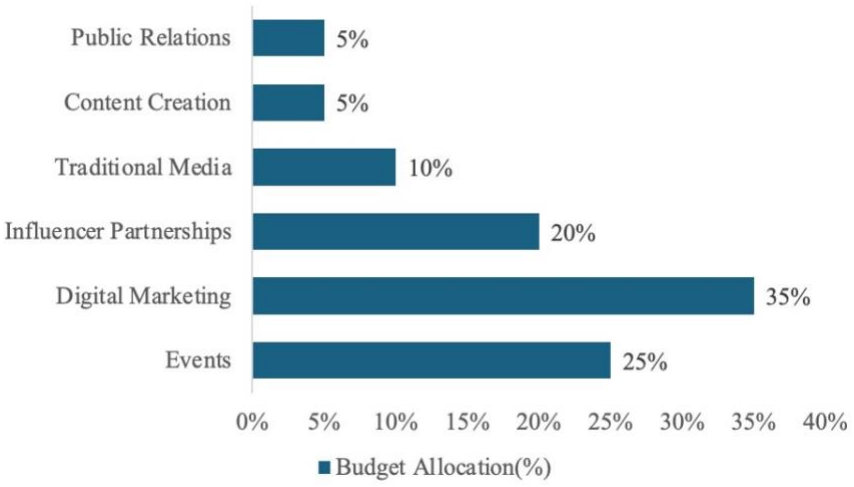

Figure 2.3: Marketing Spend Allocation for Brand-Building

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

- **Robust After-Sales Service and Support Network**: Offering quality after-sales services is very important since it will ensure that the customers are well-satisfied and remain loyal. This means providing good warranty schemes, quick response to customers, and a wide number of stores to repair and provide technical assistance. Timely and effective customer support may help attract more consumers to become loyal clients who will return and recommend the product to others. Additional services for professional customers, such as services from a specialist visiting your office or providing priority in solving problems, will also make you different from other service providers.

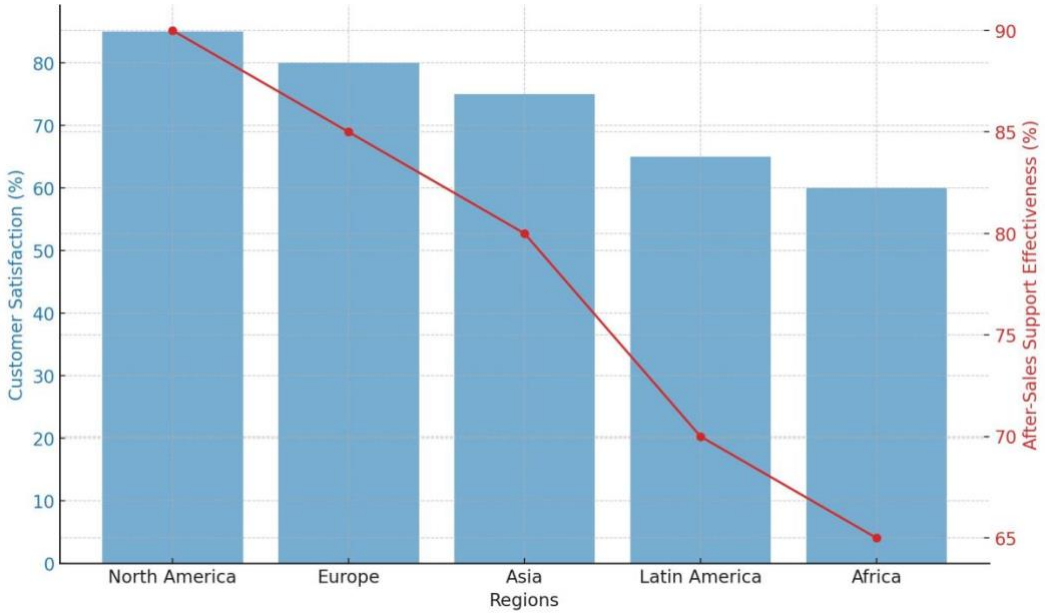

Figure 4.4: Customer Satisfaction vs. After-Sales Support

(Source: https://www.radiantvisionsystems.com/blog/meeting-customer-quality-expectationsar/vr-displays)

4.6. Marketing-Mix

In the contemporary world, especially in such innovative industries as virtual reality, customer satisfaction is virtually not limited to the purchase of the product. With services becoming a part of products—like technical support, onboarding support, and digital interactions—an extended marketing mix framework is required. Thus, this section employs the 7Ps model, comprising of People, Processes and Physical Evidence in addition to the conventional 4Ps of Product, Price, Place and Promotion. These additional elements are necessary to incorporate the intangible aspects of customer experience, which are vital for products such as Pimax VR headsets as they have to be backed up by various digital apps, support services, and experiences.

4.6.1. Product

Pimax currently has multiple VR headsets that are aimed at different consumers depending on what activity they are going to use the headset for. Its main products include:

- **Pimax 8K X**: The Pimax 8K X is the largest of the Pimax line and is equipped with two displays natively running at 4K. It is capable of going up to 90Hz in native 4K resolution to provide sharpness and clearness of details. This headset is targeted at business and performance users who require the best image quality in the areas of gaming, simulation, and design.

- **Pimax Vision 8K X**: Despite its similarity to the 8K X, Vision 8K Plus lacks the original 4K resolution. Rather, it employs the upscaling technique to make the resolution as high as 8K from a lower initial picture quality. It supports up to 110Hz refresh rates, and it is designed for those users who are willing to get a high resolution at a slightly cheaper price compared to the 8K X.
- **Pimax 5K Plus**: This model has a total of two arrays of 2.5K for a total of 5120 by 1440 pixels. The most important advantage of the 5K Super is the high refresh rate of up to 180Hz, which is perfect for gamers who need a fast response. While it lacks the resolution of the 8K models, it focuses more on performance instead of the quality of the picture.
- **Pimax Artisan**: The Artisan is Pimax's least expensive headset with a 170-degree FOV and 3200 x 1440 resolution. It is cheaper than its competitors but does not compromise on the company's field of view or performance. This model will, therefore, suit newcomers to the world of VR while offering a superior experience to that experienced with other ordinary headsets available in the market.

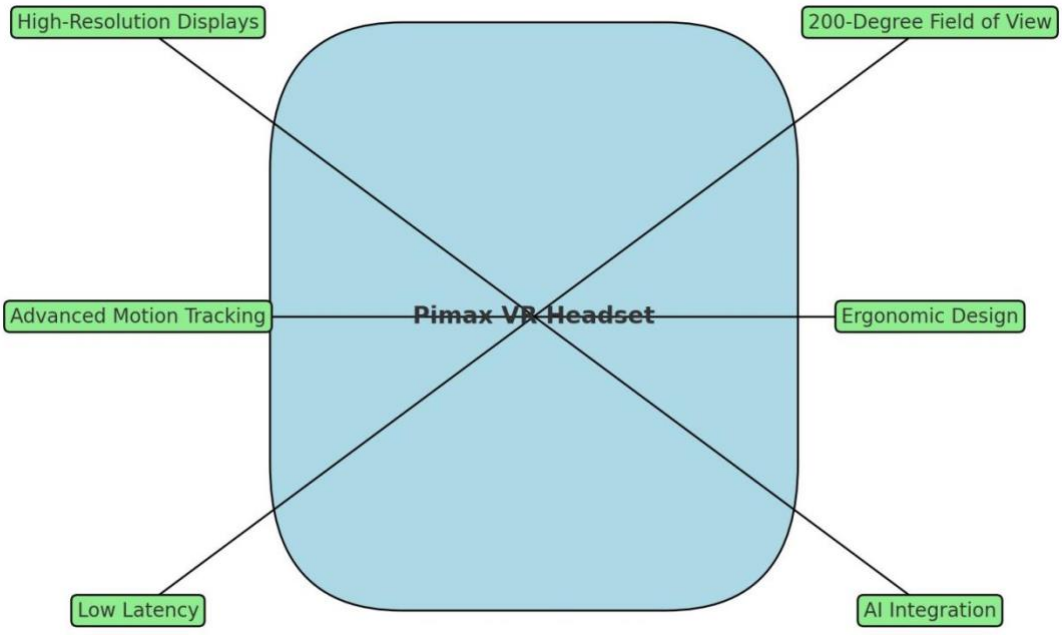

Figure 4.5: Key Product Features of Pimax VR Headsets

(Source: CES 2020: Pimax's Full VR Headset Lineup Compared (roadtovr.com))

4.6.2. Price

The premium pricing strategy indicates that the gadgets are equipped with high-tech features and are aimed at customers willing to pay extra for better performance. Measures like financing or selling the product together with other complementary products are made available for the product to be affordable. Pimax primarily focuses on technology enthusiasts, high-income gamers, and professionals searching for a more immersive virtual reality experience. Nevertheless, it is noteworthy that the company also provides choices for the consuming public with a limited budget. The Artisan model is priced at $449, and it is targeted at this group as it provides a basic VR experience at an affordable price but with a 90Hz refresh rate and a very wide field of view. This model allows newcomers and price-sensitive customers to feel the greatness of Pimax technology despite the fact that they may not be the target market.

Michael Li's opinions, which are presented in the interview, represent the views of industry practitioners regarding the VR product pricing strategy. Michael proposed that the method of setting a low price at the initial stage to capture the market share should be used and then gradually increasing the price over time as to the worth of the technical aspect of the product and the enhanced user experience. It can also be used with a brand awareness promotion tactic in order to increase the brand's reach via events and social media integration.

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

Table 4.2: Pimax VR Headset Pricing Strategy

(Source: https://pimax.com/blogs/blogs/pimax-reveals-two-new-high-end-vr-headsets-at-itsannual-frontier-keynote)

4.6.3. Place

Pimax has direct online sales and collaborates with speciality electronics stores as part of its distribution network. Special attention is paid to the customers' experience in the process of making a purchase and in the utilization of the purchased product. In order to ensure that consumers from various markets embrace the products produced by the company, the company follows direct selling and indirect selling strategies.

- **Direct-to-Consumer Sales:** At the moment, the company is directly selling to consumers through the Internet, specifically through a website known as Pimax. This implies that customers are able to purchase products, seek services, and provide feedback with less effort, thus improving the experience. Direct sales are also advantageous to Pimax since the company will be able to understand its customers much better.
- **Retail Partnerships:** Current businesses involve physical stores, which are collaborations with local stores. This is crucial for those customers who are not comfortable shopping online and prefer to buy the products personally. Such affiliations are especially effective in markets where people are not accustomed to buying gadgets like VR headsets over the Internet.
- **Specialized Electronics Stores:** Pimax also uses particular electronics retailers that are more suitable for its specialized and unique products. These stores are applicable since gamers and other working users are likely to visit them, and the working staff will be able to provide working recommendations to customers interested in more professional VR solutions.
- **International Distributors:** International distribution is one of the key ways through which Pimax plans to penetrate the global market. These distributors supply Pimax products to local and speciality stores, which makes it easy for consumers to access them around the globe. This is especially important in regions where Pimax currently has no sales market.
- **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.

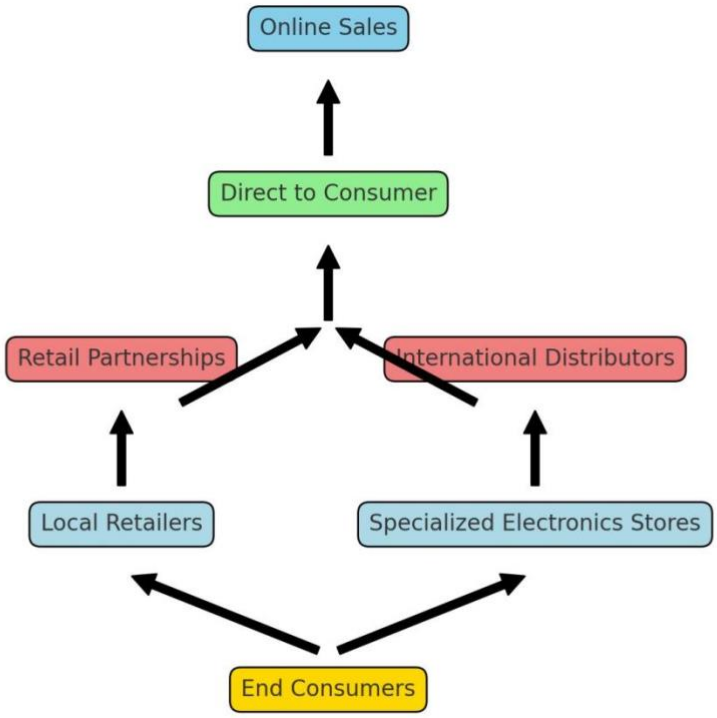

Figure 4.6: Distribution Channel Strategy

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.

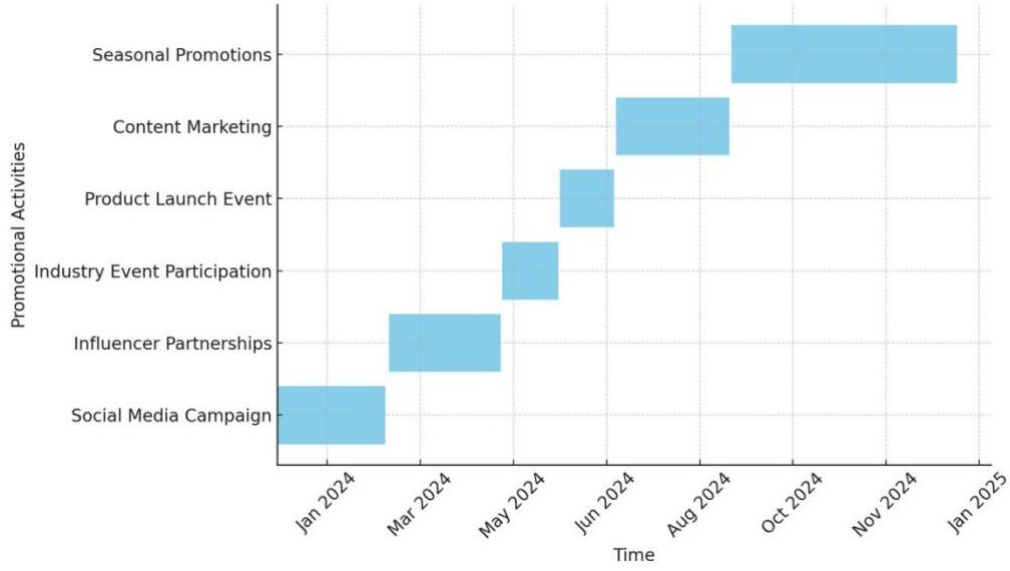

Figure 4.7: Promotional Strategy Timeline

(Source: https://smartglasseshub.com/effective-vr-marketing-campaigns/)

However, a stronger focus will now be placed on **retention-driven promotion strategies**:

- **Email and CRM-Based Retention Marketing**:

Segment-based email campaigns will be triggered by customer behavior, such as post-purchase follow-ups, exclusive product previews, and feedback requests. CRM tools will be used to automate and personalize communications across the customer lifecycle.

- **Pimax Loyalty Program**:

A structured loyalty program will reward customers with points or tiers based on purchases, referrals, engagement, and content contributions. Benefits may include discounts, early access to new releases, and VIP customer support.

- **Gamification in the Pimax Ecosystem**:

Introducing elements such as achievement badges, user rankings, and community status tiers can drive continued product usage and interaction, especially among gamers.

- **User-Generated Content (UGC)**:

Campaigns that encourage users to share gameplay videos, product reviews, or setup tutorials will help build organic brand advocacy. Top contributors can be featured on the company's social media and rewarded through the loyalty system.

- **Customer Advocacy Program**:

Identifying loyal and influential users to serve as brand ambassadors can enhance trust and authenticity in communication. These advocates will be equipped with exclusive content, affiliate links, and promotional materials to support outreach in niche communities.

4.6.5 People

Since virtual reality is a high-involvement category, the nature of the interaction between the customer and the brand has a particular impact on how the customer perceives it. Therefore, the "people" part of the marketing mix involves support and services, community managers, technical specialists, brand ambassadors, and the like.

To increase sales, Pimax should establish dedicated customer support departments that are knowledgeable in issues concerning VR glasses, initial setup, and live chat services. These agents will be accessible across the brand's website and social media, making it possible to interact at the right time when consumers are making their decisions to purchase and after they have made a purchase. Moreover, allowing community managers to moderate Pimax forums and Discord channels will also enhance the company's support and engagement with consumers.

Besides ensuring customer-oriented positions, it is crucial to maintain the internal focus on brand unity and invest in the training of the employees to maintain the quality of the brand perception for customers, no matter if the interaction is with a sales representative, a technical support engineer, or a member of the community management team. The products that are associated with virtual reality could be technically demanding and can be challenging to use; therefore, the staff needs to be trained to understand the products in detail and be able to provide support in case of any challenges. Organizations must consider using internal knowledge-sharing platforms, certification, and monthly product training as ways to guarantee that the team members are always ready to assist customers with confidence.

4.6.6 Processes

The "processes" part of the marketing mix involves all the activities that make up the services provided by a company to the customers. They range from how a product is bought and brought into the consumer's home to how assistance is obtained and information gathered. For such companies as Pimax that operate mostly in the digital realm, both operational efficiency and customer satisfaction depend on the smooth and fast performance of various processes.

In order to enhance the customers' overall experience in the e-commerce platform, Pimax will incorporate an effective and efficient purchasing system. This will entail order tracking, payment options, currency conversion and estimated time of delivery depending on the location of the customer. They enhance transparency, help to minimize customer concern and raise confidence in the purchase decision at the point of purchase.

In post-purchase, the implementation of the CRM systems will help Pimax provide efficient and timely support. Customers will be able to open and monitor tickets, seek self-service solutions, download firmware and drivers, and fill in feedback and satisfaction questionnaires. This not only offloads the support teams but also allows users to solve problems on their own to a large extent.

Another addition will be the creation of an onboarding website, which will help customers familiarize themselves with Pimax devices and their usage. In addition to this page, it will contain tutorials, videos, Frequently Asked Questions, and live setup support. If the organization makes the onboarding process easier, the customer realizes the value of the product they are selling and this is done with less hassle.

From the perspective of managing marketing operations, specific technologies will be used to track loyalty program activities, referral management, and lifecycle e-mail marketing. These systems will make the engagement timely, relevant, and consistent across the customer path to enable high levels of engagement and retention of customers as well as a smooth running of customer digital touch points.

4.6.7 Physical Evidence

While the VR headsets themselves are physical products, many aspects of Pimax's brand are defined through digitally-mediated interactions and environmental stimuli that affect customers. Here, the term "physical evidence" encompasses not only the tangible product but all the visual and tangible aspects of the brand, both in the virtual and the actual world. This involves aspects like packaging, screen designs, unboxing, experience, community creations, and social platforms.

To enhance these touchpoints, Pimax will incorporate quality packaging that would depict the product as technologically superior and luxurious. Packaging design will also be focused on esthetic look, protective function and clear recommendations on the usage of the pack. The unboxing experience will be considered one of the key brand experiences that will compel the users to share the content on social media—thus converting the physical proof into word-of-mouth marketing.

As for the digital aspect, the official website of the company or the loyalty program, as well as the users' accounts, will be redesigned in a manner that reflects the essence of the VR experience. Easy to read, clear sections, and a seamless flow, as well as 3D product views, will improve user engagement and contribute to the formation of trust. From mere web surfing to purchase or payment, all the touch points will endeavor to emulate the quality and the distinctiveness of the physical headset.

Moreover, the current branding will also apply to email templates, social media, downloadable product manuals, and virtual events. Altogether, these elements create a coherent physical and digital image that strengthens customers' trust and improves their perception of the value of the product, which would help Pimax stand out from other competitors in the sphere of premium VR products.

4.7 Implementation Schedule

Activity	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Market Research & Customer Segmentation												
Website Optimization & Digital Storefront Setup												
Launch of CRM System & Data Integration												
Inbound Marketing & Content Creation												
Email Marketing & Loyalty Program Setup												
Gamification Features Implementation												

User-Generated Content Campaigns												
Product Launch – New Headset Models												
Customer Advocacy Program Rollout												
Digital Sales Channel Expansion												
KPI Tracking & Performance Monitoring												
Feedback Collection & Product Iteration												

Table 4.3: Implementation Schedule

4.8. Requirements for Implementation

4.8.1. 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 centres will also be essential.

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

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))

4.8.2. 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.

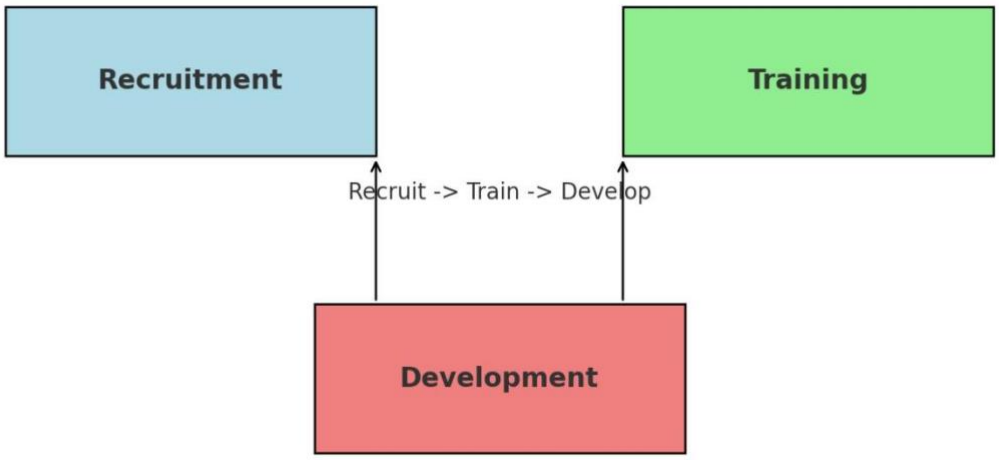

Figure 4.8: HR Development Plan

4.8.3. 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.

Investment Area	Budget Allocation (USD)	Description
Research & Development (R&D)	$10,000,000	Focus on advancing VR technology, including optics, display, and motion tracking.
Software Development	$5,000,000	Development of user interface, 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 Technology	$4,000,000	Investment in advanced manufacturing equipment to ensure high-quality production of VR headsets.
Logistics & Distribution	$2,500,000	Strengthening global distribution networks and optimizing supply chain management.
CRM & Retention Marketing Systems	$750,000	Implementation of CRM platforms, automated email workflows, and customer segmentation tools to improve retention.
Loyalty & Referral Program Development	$600,000	Creation of point-based loyalty systems, referral incentives, and ambassador programs to drive repeat purchases and organic growth.
Digital Sales Channel Expansion	$1,000,000	Establishing a presence on global e-commerce platforms (e.g., Amazon, JD.com) and enhancing DTC online storefront capabilities.

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 (fortunebusinessinsights.com))

4.9. Economic and Financial Viability Analysis

4.9.1. Financial Projections

The financial model predicts a steady increase in revenue over the next five years, with break-even expected by 2027, 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: For the first year, we anticipate to sell 20,000 units and earn $5 million in revenues due to high demand from early adapters, and premium VR enthusiasts. This means that by the end of the year 2028, sales should hit the 100000-unit mark and the sales' revenue will be $25 million. This can be attributed to the growth in the VR market, emphasis on high performance characteristics, and marketing, customer service, and incentives for the use of the product.

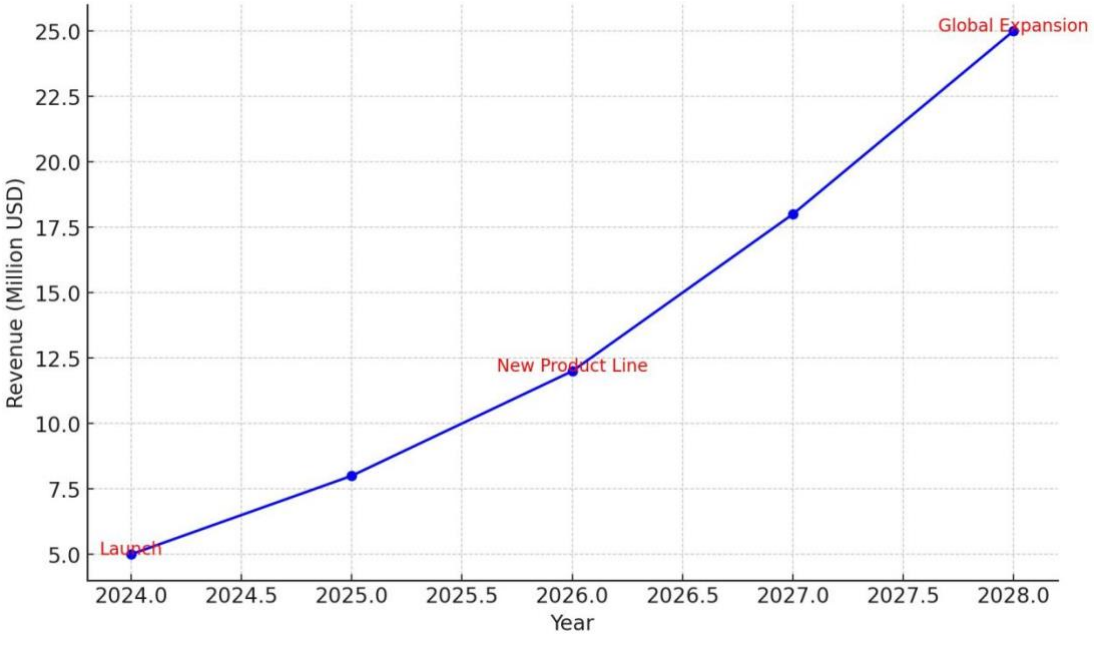

Figure 4.9: Revenue Growth Projections

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

(marketsandmarkets.com))

4.9.2. 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.

Department	Budget Allocation (%)	Notes
Research& Development (R&D)	35%	Focus on innovation and product 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

Table 4.6: Budget Allocation by Department

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

4.9.3. 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.

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

Table 4.7: Risk Analysis Matrix

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

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

This project aimed to analyze the marketing strategy of the Pimax brand of VR headsets developed by X Technology Company in a changing market of VR devices. The VR market is no longer an emerging market but a growing market due to technological advancement, changing customer needs, and more use cases in areas like health, learning institutions, and games.

X Technology Company has some threats, such as low brand awareness, high cost of production /acquisition, and competition issues, especially from giants such as Meta, Apple, and ByteDance, among others. While the firm has incorporated advanced technologies such as high-resolution displays and a wide field of view, none of these have yet successfully reached the mass market, thus making market expansion very challenging.

The primary goal of this project was to create a commercial plan that exploits the company's assets and solves some of the main branding and perception challenges. The strategy is primarily aimed at the following three segments of the market: technophiles, creative professionals, and affluent gamers. It also contains actionable strategies regarding product innovation, content delivery, and the improvement of after-sales services.

To assess the external and internal environment of the VR industry, various tools like PESTE analysis, Porter's Five Forces, sector analysis, and Competitor benchmarking were used. It gave a basis for how advancements in technology, changes in the economy, and consumer behavior influence the market and strategy.

The main findings emphasize the role of innovation, brand management, customer relations, and differentiation. The recommendations derived from this analysis include developing strategic cooperation with content creators, implementing variable pricing, and improving product support. The necessary funding has been identified, and a budget plan has been developed to fund the proposed strategies in areas like increasing the awareness of the brand, reaching out to a larger market, and improving customer satisfaction.

However, the project has its own limitations. Its major disadvantage is that it relies on secondary data on consumer trends, which limits the analysis of concrete behavioral patterns of certain regions, especially in emerging markets. Further research using quantitative data collection techniques, including questionnaires and focus group discussions, should be conducted to better establish the user preference and factors that may lead to adoption.

Thus, it can be stated that X Technology Company has all the potential needed to counteract stiff competition and market pressures and carve its niche into the high-end VR segment. The

proposed strategy can help the company build up its competitive advantage, aim at the essential customer groups, and benefit from the rising global trend of VR and other immersive entertainment.

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Appendices

Appendix 1: Emily Zhang

Interview subject: Emily Zhang, company Pimax Inc, 3 years experience in the 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:

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

Emily: One of the main technical challenges in the VR industry is how to balance high-performance hardware with user needs, especially in reducing the complexity and learning curve of the equipment while ensuring its performance. Pimax has certain advantages in this regard, especially in technological innovation and high-resolution display equipment development. 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 can we 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 there is still room for improvement in optimizing user experience. 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 on the actual user experience and word-of-mouth communication.

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.

Q5: 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 the 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 on 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, which 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.

Q3: 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 adapted to provide corresponding products for different consumer levels, which can maintain the brand's high-end positioning and expand the user base through entry-level products.

Q4: 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 expand its market share further, 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.

Q5: 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 is an advantage over 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 terms of 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. Furthermore, he stated that Pimax could increase its business size on a global level by venturing into other fields like education and healthcare. In light of globalization, the company has the prospects of excelling in the VR business by adopting advanced technologies and strategies in the market.

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 and user interface designer with five years of working experience in virtual reality. She is currently occupying the position of UX design manager at VR EduTech Solutions. She is currently working on the study of user interface design in VR products in the education sector to improve the learning effects of VR products in accordance with the user experience. Sophia also discussed her vision of the use of VR in the sphere of education, as well as the importance of the user experience for the acceptance of the product and its marketing.

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 use of virtual reality in education is highly beneficial because it allows for a learning process that is otherwise unattainable with conventional teaching. By means of virtual reality, students can not only "experience" a historical event or travel across the universe but also perform various operations and experiments that could be dangerous or impossible to conduct with real chemicals or equipment. Thus, this interactivity and immersion can help foster students' interest and engagement in learning. As for the cases of science, engineering, and medicine, for instance, compared to textbooks, VR can explain concepts in a more natural way.

Q2: What role do you think user experience plays in VR products?

Sophia: User experience is one of the core factors that contribute to 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 provides 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 user 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 regarding operation fluency and user guidance, Pimax's devices may feel that the threshold is high for some users unfamiliar with high-tech products. For example, the device setup process should be 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 have used 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, in what direction do you hope the future product design will develop?

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 the 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:

Q1: 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.

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

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.

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

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 leading global 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.

Q5: 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 the VR industry as Chief Technology Officer (CTO)

Interview time: August 28, 2024

Interview background: Anna Liu is currently serving as the Chief Technology Officer of VR Healthcare Innovations. She has 6 years of experience in the VR industry, and they primarily work on utilizing VR technology in the healthcare sector. She has embarked on the advancement of medical services such as virtual surgery training, telemedicine, and patient rehabilitation through VR technology. In this interview, Anna has provided her opinions on the use of VR in the medical profession and how to address the issue of VR brands in the medical field through the use of technology.

Interview content:

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

Anna: The application of VR is especially relevant in the medical sphere, including surgery practice, patient recovery, and therapy for mental illnesses. With the help of VR technology, simulation practice of surgeries can be done, and this will not only cut the rate of surgeries that have gone wrong but also save on practice expenses. In rehabilitation treatment, it is possible to use VR to help a patient recover from exercise and practice in a controlled environment. Moreover, VR also has a great influence on managing mental disorders, including anxiety and post-traumatic stress disorder (PTSD) as well. Patients can be exposed to the source of the fear with the help of virtual reality and, thereby, reduce the 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 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.

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

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.

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

Anna: There is still a wider room for development of the application of VR in enhancing patient experience and medical outcomes, which has not been tapped yet. The first of them is the issue of patient-centred care. In the case of VR, the plan for rehabilitation and psychotherapy can be created for each patient individually and depends on the patient's need for the content of the VR. The second is telemedicine. In rural areas, for instance, the doctor can assess the condition of the patient, make a preliminary diagnosis, and sometimes even conduct complicated surgeries through virtual reality. Besides, it also enhances the patients' engagement and adherence to the treatment, particularly for patients who have to stay for quite a long time on treatment. They can learn more aspects of health through VR, know the status of the disease and treatment process, and cooperate with the treatment.

Summary: From the interview with Anna Liu, one can get a profound understanding of the use of VR technology in the medical industry. She also stressed that there are numerous uses of VR in surgery practice, physical therapy, and mental health and that there could be other areas of usage in the future because of the progressive enhancement in technology. She also noted that other issues affecting brands such as Pimax in the medical field are accuracy, stability, and hygiene of the equipment. The pricing aspect is very sensitive in the medical industry, and through flexibility in the business models, a brand can lessen the cost factor in a hospital. Anna also supposes that the development of VR in treatment and telemedicine will be the future direction of development.