Магістерська робота

на тему:

"TRANSFORMATION OF OUTSOURCING AGENCY TO LEADER OF IMMERSIVE TECHNOLOGY INDUSTRY"

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CAPTER 1. INTRODUCTION AND KEY RESEARCH FINDINGS

1.1. **Introduction to the Immersive Technology Industry**

Immersive technologies refer to technologies that create a sense of immersion, presence, and engagement in a virtual or augmented environment. These technologies include virtual reality (VR), augmented reality (AR), and mixed reality (MR), and they offer a range of applications in various industries, from entertainment and gaming to education and training. Immersive technologies are part of the Fourth Industrial Revolution, which is characterized by the convergence of digital, physical, and biological systems. As part of this revolution, immersive technologies have the potential to transform the way we work, learn, and interact with the world around us. For example, in the manufacturing industry, VR and AR can be used to simulate and test products before they are built, reducing the risk of errors and improving efficiency. In the healthcare industry, VR and AR can be used to train medical professionals and simulate complex medical procedures. Overall, immersive technologies have the potential to revolutionize various industries and create new opportunities for growth and innovation.

The roots of immersive technologies can be traced back to the mid-20th century, when experiments with virtual environments and telepresence began to emerge. One of the first examples of immersive technology was the Sensorama, developed in the 1950s by Morton Heilig, which combined 3D visuals, stereo sound, and wind and odor generators to create a multisensory experience. In the 1960s, Ivan Sutherland developed the first head-mounted display, which was a precursor to modern virtual reality headsets. In the 1990s, the first commercial VR systems were developed, such as the Virtuality system, which was used in

arcades and amusement parks. Since then, immersive technologies have continued to evolve and become more accessible and sophisticated, with the introduction of consumer VR headsets like the Oculus Rift and HTC Vive, and AR technologies like Apple's ARKit and Google's ARCore. These technologies have a wide range of applications, from entertainment and gaming to education, healthcare, and industrial design. For example, in education, immersive technologies can be used to create engaging and interactive learning experiences. In healthcare, immersive technologies can be used to simulate medical procedures and train medical professionals

Immersive technologies have the potential to impact human wellbeing, mindset, and philosophy in various ways. On the one hand, immersive technologies can be used to create therapeutic and educational experiences that promote positive mental health and wellbeing. For example, virtual reality has been used in therapy to treat anxiety and phobias, as well as in palliative care to reduce pain and anxiety in cancer patients. On the other hand, immersive technologies can also be used to create addictive and potentially harmful experiences that can impact mental health and wellbeing. For example, there is growing concern about the potential negative effects of virtual reality gaming addiction, which can lead to social isolation, depression, and other mental health issues. Additionally, the use of immersive technologies can raise ethical and philosophical questions about the nature of reality and the relationship between humans and technology. Overall, while immersive technologies have the potential to provide significant benefits, it is important to consider the potential risks and ethical implications, and to ensure that these technologies are used in a responsible and mindful way

Even philosophy is beginning to engage with the implications of immersive technologies like VR. One book that explores these themes is "Reality+: Virtual Worlds and the Problems of Philosophy" [4]

As of 2023, the immersive technology market is highly competitive, with major players including companies like Facebook, Sony, and Microsoft. The market is expected to continue to grow, driven in part by the impact of the COVID-19 pandemic and resulting lockdowns, which have increased demand for virtual and augmented reality solutions. However, the global recession and ongoing conflict between Russia and Ukraine may also impact the industry, creating economic uncertainty and potentially affecting investment in new technologies. Despite these challenges, the industry is continuing to develop new technologies, including digital twins and metaverses, which have the potential to transform various industries.

To gain a thorough insight into the Immersive Technology sector, we will investigate prevailing tendencies through the application of market research employing PEST analysis.

1.2. Analyzing the Immersive Tech Domain Using PEST Analysis

In today's dynamic business landscape, PEST analysis serves as a crucial tool for companies seeking to venture into the immersive technologies market. By examining the political, economic, social, and technological factors influencing the industry, PEST analysis provides valuable insights that enable organizations to identify opportunities, mitigate risks, and tailor their strategies for success. The rapidly evolving nature of immersive technologies, which encompasses virtual reality, augmented reality, and mixed reality, demands a comprehensive understanding of the external environment to ensure competitiveness and sustainability. By employing PEST analysis, companies can effectively navigate the complexities of this innovative market, anticipating shifts in consumer preferences, regulatory frameworks, and technological advancements, ultimately fostering growth and long-term profitability.

"PESTEL analysis has two basic functions for a company. The first is that it allows identification of the environment within which the company operates.

The second basic function is that it provides data and information that will enable the company to predict situations and circumstances that it might encounter in future"[1].

We created the following model proposed to evaluate current situation on Immersive Technologies landscape:

Political Factors:

1. Regulatory frameworks:existing and potential regulations
2. International trade policies: Global trade situation
3. Government initiatives and funding: grants, tax incentives, and public-private partnerships.

Economic Factors:

1. Market size and growth potential: The current market size, growth rate, and future prospect
2. Economic recession impact
3. Capital and investment opportunities: funding sources, including venture capital, angel investments, and government-backed loans

Sociocultural factor:

1. Demographic trends: adoption of immersive technologies and their applications
2. Consumer attitudes and preferences: Perception of immersive technologies

Technological Factors:

1. Technological advancements and innovations: Key innovations and technological breakthroughs, including hardware, software, and content development
2. Infrastructure and connectivity: high-speed internet access, in the widespread adoption and accessibility

3. Integration with other emerging technologies: potential synergies with artificial intelligence, the Internet of Things, and 5G connectivity

1.2.1. PEST Analysis: Political Factors

In the context of political factors, the regulatory frameworks for metaverse and immersive technologies are still in their infancy. The Competition and Markets Authority (CMA) highlights that "there is a need for international cooperation among regulators to ensure fair competition, data protection, and consumer rights in the emerging digital spaces."[5]. They emphasize working with partners, stakeholders, and other regulators to establish a robust framework that balances innovation with user protection.

Deloitte's report on regulating augmented reality in a digital world posits that regulators must strike a balance between "protect[ing] users, preserv[ing] privacy, and prevent[ing] abuse, while not stifling innovation."[8] Potential regulations could encompass content moderation, privacy, intellectual property rights, and safety. eSafety's perspective on immersive tech underscores the importance of addressing risks like exposure to inappropriate content, privacy concerns, and user safety while promoting a positive user experience.

Consequently, as metaverse and immersive technologies continue to advance, collaboration between regulators at the international level is expected to create comprehensive guidelines and best practices. This development will likely lead to a more standardized and robust regulatory environment, which businesses should monitor to ensure compliance and capitalize on emerging opportunities.

Regarding international trade policies, the global trade situation is heavily influenced by the ongoing China-US technology competition. The Diplomat article points [9] to the continuing "chip war" between the two nations, resulting

in significant implications for global trade and supply chain dynamics. This intense rivalry has led to trade restrictions and barriers that impact businesses and consumers globally.

The Real Instituto Elcano analysis highlights the repercussions of the US-China technology war on Europe, as the continent grapples with maintaining technological autonomy and securing a stable supply of critical components amidst global competition [10]. The Economist's article [11] emphasizes the increasingly dangerous nature of the China-US contest, with both countries vying for supremacy in emerging technologies like AI, quantum computing, and biotechnology, leading to potential disruptions in global trade and heightened geopolitical tensions.

In light of these developments, businesses operating in the technology sector must closely monitor the evolving trade policies and geopolitical dynamics between China and the US, as they could significantly impact operations, resource access, and overall growth potential.

Focusing on government initiatives and funding, there is a growing interest in supporting the development and adoption of immersive technologies. The FirstNet article [13] demonstrates this, with the establishment of the Immersive Test Center, which provides advanced training opportunities for first responders using virtual reality and augmented reality tools.

Inline Policy's article and the TU Dublin [15] announcement showcase government-backed grants and initiatives that promote immersive technologies in education and training, such as the Meta Immersive Learning Grant. The ITIF report [14] highlights the value of incorporating immersive technologies into apprenticeship programs, potentially leading to increased government funding and support. The OECD's Trends 2023 publication [16] also emphasizes the role of governments in fostering innovation through public-private partnerships and targeted investments in emerging technologies like AR and VR.

Government initiatives and funding for immersive technologies are increasing, with grants, tax incentives, and public-private partnerships playing a crucial role in advancing the sector. Businesses in the immersive technology space should stay informed about these opportunities and leverage government support to spur innovation, accelerate growth, and expand their market presence. As governments continue to prioritize the development and adoption of these technologies, increased collaboration and funding opportunities are anticipated in the coming years.

In conclusion, the political factors within the PEST analysis reveal that the metaverse and immersive technology industry is influenced by evolving regulatory frameworks, international trade policies, and government initiatives and funding. As regulators collaborate to establish comprehensive guidelines and best practices, businesses should closely monitor the regulatory environment to ensure compliance and capitalize on emerging opportunities. The ongoing China-US technology competition impacts international trade policies and has repercussions for global trade, supply chain dynamics, and regional autonomy. Therefore, businesses in the technology sector must remain vigilant about the evolving geopolitical landscape and trade policies to navigate potential challenges and leverage opportunities. Finally, with governments increasingly supporting the development and adoption of immersive technologies through grants, tax incentives, and public-private partnerships, businesses should stay informed about these opportunities and utilize government support to drive innovation, growth, and market expansion. As these trends continue, the industry can anticipate further collaboration and funding opportunities in the coming years.

1.2.2. PEST Analysis: Economic Factors

Vantage Market Research estimates the global AR market to reach a value of $97.76 billion by 2028, growing at a CAGR of 43.8% from 2021 to

2028. This growth is driven by advancements in technology, increasing adoption across various sectors, and the rise of smartphones and wearable devices. Grand View Research supports this outlook, projecting the global AR market to grow at a CAGR of 43.8% from 2021 to 2028 due to the growing demand for immersive experiences in gaming, healthcare, retail, and education.[28]

MarketWatch's report on the immersive market anticipates substantial growth between 2023 and 2028, with a projected CAGR of 19.1% during the forecast period. Key factors contributing to this growth include the increasing demand for VR in entertainment, gaming, and enterprise applications, along with advancements in hardware and software technologies.

In the context of the metaverse, a Bloomberg press release cites a Grand View Research report that projects the global metaverse market to hit $936.6 billion by 2030, growing at a CAGR of 41.6%. This significant growth potential is driven by the integration of various technologies, including AI, blockchain, and AR/VR, as well as increased investment, user engagement, and expanding use cases. Precedence Research's report on the immersive technology market also highlights a promising outlook, with the market projected to grow at a CAGR of 23.5% from 2020 to 2027, reaching a value of USD 231.6 billion by 2027. Integrated data from the researches pointed above is highlighted in the table 1.2.2.1

Table 1.2.2.1

Integrated data from Research`s reports

Research Firm	Market Segment	Projected Market Size	Year	CAGR	Timeframe
Vantage Market Research	Augmented Reality (AR)	$97.76 billion	2028	43.8%	2021-2028

Grand View Research (1)	Augmented Reality (AR)	(same as Vantage)	2028	43.8%	2021-2028

Continuation of the Table 1.2.2.1

MarketWatch	Immersive Virtual Reality	(not specified)	2028	19.1%	2023-2028
Grand View Research (2)	Metaverse	$936.6 billion	2030	41.6%	(not specified)
Precedence Research	Immersive Technology	$231.6 billion	2027	23.5%	2020-2027
Emergen Research (via Bloomberg)	Digital Transformation	$2,669.48 billion	2030	(not specified)	(not specified)

Economic recessions can have a significant impact on the technology industry, as evidenced by the 2022 tech layoffs reported by Bloomberg [21]. These layoffs reflected the broader challenges faced by the global economy and the tech industry. In the face of these challenges, the technology industry has demonstrated resilience and adaptability. Deloitte's Global Economic Outlook 2023 [23] highlights that despite economic uncertainties, the technology sector continues to be a "critical driver of productivity and innovation."

Capital and investment opportunities remain strong in the technology sector, especially in areas like metaverse and immersive technologies. Deloitte's Technology Industry Outlook [24] reiterates the significance of investment in the technology sector, with a focus on emerging technologies such as artificial intelligence, machine learning, and immersive experiences. The report states that "ongoing investment in research and development will be crucial for companies looking to maintain a competitive edge."

In conclusion, the PEST analysis of economic factors reveals that the metaverse and immersive technology industry has a promising market size and growth potential. Substantial growth is expected in the coming years, driven by advancements in technology, increased adoption across various sectors, and rising demand for immersive experiences. The industry has demonstrated resilience and adaptability in the face of economic recessions, with capital and investment opportunities remaining strong, particularly in emerging technologies. To maintain a competitive edge, businesses should capitalize on these growth opportunities, innovate, adapt to the evolving market landscape, and stay informed about market dynamics. By focusing on research and development, companies can harness the potential of the metaverse and immersive technologies, fostering innovation and long-term profitability in an increasingly interconnected world.

1.2.3. PEST Analysis: Sociocultural Factors

Demographic trends play a significant role in the adoption and use of metaverse and immersive technologies. Insider Intelligence estimates that the number of US AR and VR users is expected to reach 93.3 million in 2022, representing 28.1% of the population. In terms of age demographics, an analysis by AListDaily [26] reveals that VR users are "disproportionately younger" with a majority aged between 18 and 34 years, indicating that younger generations are more likely to engage with immersive experiences.

Statistics from Zippia [29] highlight the gender distribution among VR users, showing that 59% of users are male, while 41% are female. Furthermore, a study by Statista reveals that the gaming community, a significant user base for immersive technologies, is diverse, with 41% of gamers in the United States being female and 59% being male. With the growing interest in the metaverse and immersive technologies, these demographic trends are expected to evolve, further expanding the user base and driving industry growth.

In conclusion, demographic trends indicate a strong adoption of metaverse and immersive technologies among younger populations, with a diverse user base in terms of gender. Understanding and catering to these demographic trends is crucial for businesses operating in the immersive technology space, as it can help inform marketing strategies, product development, and user engagement initiatives. Integrated data from the researched pointed above is highlighted in the table 1.2.3.1.

Table 1.2.3.1.

Integrated Demographic trends

Demographic Factor	Percentage/Statistic	Source
US AR/VR users (2022)	93.3 million	Insider Intelligence [25]
US AR/VR users (% of population)	28.1%	Insider Intelligence[25]
VR users (Age 18-34)	Majority of users	AListDaily [26]
VR users (Gender)	59% Male, 41% Female	Zippia [29]
US Gamers (Gender)	59% Male, 41% Female	Statista [30]

Consumer attitudes and preferences towards immersive technologies play a significant role in shaping the adoption of metaverse and related technologies. According to AIMultiple's research [31], AR use cases are diverse, with industries such as retail, healthcare, and education benefiting from its potential. A study conducted by Xi Bampouni and Juho Hamari highlights [32] that "user acceptance and intention to use AR applications are influenced by factors such as perceived ease of use, perceived usefulness, and social influence." Meanwhile, GfK's "Inside the Minds of the Cross-Realities (XR) Consumer"

[34] report reveals that "63% of consumers are interested in XR, with 35% of them willing to pay extra for XR features in products." These studies indicate that consumers are increasingly embracing immersive technologies as they recognize their potential benefits and ease of use across various industries and applications.

In conclusion, the PEST analysis of sociocultural factors reveals that demographic trends and consumer attitudes play significant roles in shaping the adoption of metaverse and immersive technologies. Younger generations and a diverse gender distribution form a strong user base, driving industry growth. Catering to these demographic trends is crucial for businesses to inform marketing strategies, product development, and user engagement initiatives. Furthermore, consumer attitudes and preferences indicate an increasing interest in immersive technologies, with diverse applications across industries such as retail, healthcare, and education. Factors such as perceived ease of use, usefulness, and social influence impact user acceptance and intention to use AR applications. As consumers continue to embrace immersive technologies and recognize their potential benefits, the metaverse and related technologies will experience further growth and adoption across various industries and applications.

1.2.4. PEST analysis : Technological Factors

In the realm of immersive technologies, rapid advancements in hardware, software, and content development are driving the sector's growth and transforming various industries. Technological breakthroughs have led to the miniaturization and cost reduction of hardware components, enabling the production of more accessible and user-friendly devices ("Emerging Immersive Technologies: Opportunities and Challenges for Extending Reality") [44]. The development of advanced software platforms has further facilitated the creation of realistic and engaging virtual environments, with applications spanning

across healthcare, education, and entertainment ("What is XR and How is it Transforming Healthcare?") [36]. Pioneering use cases of AR, such as remote assistance, training, and navigation, demonstrate the vast potential of immersive technologies in revolutionizing the way we live and work ("Top AR Use Cases and Applications") [31]. Moreover, the integration of immersive technologies with artificial intelligence (AI) and machine learning (ML) has given rise to personalized, adaptive, and data-driven experiences ("Augmented Reality in Medicine: Applications, Benefits, and Challenges") [37] As global leaders in the extended reality (XR) market continue to innovate and push the boundaries of what is possible, the immersive technology sector is poised for exponential growth in the coming years ("Top 9 Globally Leading Companies in the Extended Reality Market") [38]

Infrastructure and connectivity, particularly high-speed internet access, play a pivotal role in the widespread adoption and accessibility of immersive technologies. As Ericsson's "Augmented Reality Over 5G" report [39] highlights, "5G networks are expected to play a crucial role in enabling the full potential of AR and VR technologies". The low latency, high data rates, and enhanced capacity of 5G networks facilitate seamless, real-time experiences for users, unlocking new possibilities for extended reality (XR) applications across various industries ("XR and 5G: Extended Reality at Scale with Time-Critical Communication") [40]. A study conducted by ResearchGate emphasizes that "5G and 5G-Advanced New Radio Standardization" will contribute significantly to the growth and evolution of XR applications [41]. Moreover, the enhanced connectivity offered by 5G networks is expected to drive the development of innovative use cases, such as remote surgery, virtual collaboration, and smart cities, transforming the way we interact with the digital world ("Study: 5G Brings Enhanced Connectivity to XR", 2022) [42]. As the GSMA suggests, "5G networks will be the key enabler for XR's commercial success"[43], fostering the growth of the immersive technology sector and

paving the way for a more connected and immersive future ("How 5G Will Transform XR: Emerging Use Cases in 3 Key Industries", 2021)[44].

In conclusion, the immersive technology sector is experiencing rapid growth, driven by advancements in hardware, software, and content development, as well as the vital role of infrastructure and connectivity. Technological breakthroughs have enabled the production of accessible and user-friendly devices, while advanced software platforms facilitate realistic virtual environments across various industries. The integration of AI and ML with immersive technologies has led to personalized, adaptive experiences, further emphasizing the sector's potential. Moreover, 5G networks, with their low latency, high data rates, and enhanced capacity, play a crucial role in realizing the full potential of AR and VR technologies, unlocking new possibilities for XR applications across diverse industries. As companies continue to innovate and push the boundaries of what is possible, the immersive technology sector is poised for exponential growth, paving the way for a more connected and immersive future

1.2.5. PEST analysis conclusion: Opportunities and Risks

In conclusion, the integrated PEST analysis of the metaverse and immersive technology industry highlights the significant influence of political, economic, sociocultural, and technological factors on the sector's growth and development. The industry's regulatory environment is evolving, with businesses needing to monitor and comply with emerging frameworks while navigating the effects of international trade policies and geopolitical tensions, particularly the ongoing China-US technology competition. Governments are increasingly supporting the industry through grants, tax incentives, and public-private partnerships, presenting opportunities for innovation and market expansion.

Economically, the industry has demonstrated resilience in the face of recessions, with a promising market size and growth potential driven by advancements in technology, increased adoption across various sectors, and rising demand for immersive experiences. Businesses should focus on research, development, and staying informed about market dynamics to maintain a competitive edge.

Sociocultural factors, such as demographic trends and consumer attitudes, play significant roles in shaping the industry's adoption and growth. Catering to younger generations and diverse gender distribution, as well as understanding consumers' attitudes and preferences, is crucial for businesses to inform marketing strategies, product development, and user engagement initiatives.

Technological advancements, including the integration of AI, ML, and 5G networks, are transforming the immersive technology sector. These breakthroughs enable accessible devices, realistic virtual environments, and personalized experiences across various industries. As companies continue to innovate and push the boundaries of what is possible, the immersive technology sector is poised for exponential growth, paving the way for a more connected and immersive future.

According to the PEST analysis, small companies operating in the XR market face the following risks:

Political:

Regulatory Uncertainty: The emerging regulatory frameworks for XR technologies are still in their infancy. Small companies may face difficulties navigating and adapting to new and evolving regulations and compliance requirements.

Trade Policies: The ongoing global trade tensions, especially between the US and China, can result in trade restrictions and barriers, potentially affecting the supply chain, accessibility to critical components, and market opportunities for small companies.

Economic:

Market Competition: Small companies face intense competition from well-established industry players with vast resources and expertise, making it challenging for them to gain a foothold in the market.

Access to Capital: Limited access to capital and investment opportunities can hinder the growth and innovation potential of small companies, as they may struggle to secure funding for research, development, and marketing efforts.

Sociocultural:

Demographic Trends: Small companies need to understand and adapt to the preferences and demands of their target audience, which may vary across age groups and genders. Catering to diverse user needs may require additional resources and efforts.

Consumer Adoption: Building trust and credibility with users can be challenging for small companies, as consumers may prefer to engage with more established brands, especially if they perceive them to be more reliable and innovative.

Technological:

Rapid Technological Advancements: Keeping up with the pace of technological advancements in hardware, software, and content development can be challenging for small companies with limited resources.

Infrastructure and Connectivity: Small companies may face difficulties in leveraging the full potential of 5G networks and other advanced technologies to deliver seamless, real-time experiences to users, given the associated costs and technical complexities.

To mitigate these risks, small companies in the XR market should stay informed about the evolving political, economic, sociocultural, and technological landscapes, proactively adapt to market changes, and seek strategic partnerships, government support, or other funding opportunities to fuel innovation and growth.

1.3. Company overview and importance of evolution: From Outsourcing Agency to XR Consultancy Leader and WebXR Innovator

Qualium Systems, established in 2010, initially functioned as a standard outsourcing agency. Over the course of the company's evolution, the top management team recognized the importance of not only providing resources but also delivering exceptional value to clients through comprehensive technical and business expertise.

The traditional outsourcing model often faces a number of issues, primarily centered around communication, quality control, and a lack of deeper understanding of the client's business. The service can often be impersonal, with a focus more on completing tasks rather than understanding the broader picture. Furthermore, the commoditization of outsourcing services has driven prices down, but often at the expense of quality, leading to customer dissatisfaction.

In contrast, the high-level service model that Qualium Systems is transitioning to is designed to address these issues. This model emphasizes a collaborative relationship, where we work closely with clients to understand their business needs and provide tailored solutions. It allows us to maintain high-quality standards, as we are involved in all stages of the project, from strategic planning to execution.

Moreover, this model enables us to use our technical knowledge and business acumen to provide strategic insights and innovative solutions, rather than just completing assigned tasks. It also facilitates a deeper understanding of the client's business, which is invaluable in providing services that truly add value.

The transition to high-level services also fosters a more engaging and fulfilling work environment for our team, promoting the development of expertise and encouraging innovation. This not only leads to higher employee satisfaction but also ensures that we are always at the forefront of the latest

developments in the XR domain, allowing us to provide the best possible services to our clients.

Overall, our transition to a high-level service provider represents a step forward, promising a more integrated, personalized, and high-quality service to our clients, while simultaneously driving growth and innovation within Qualium Systems.

We are confident that as a premier service provider and XR consultancy, we can deliver substantial business value to our clients and partners by leveraging our extensive experience and industry knowledge. Through the utilization of a comprehensive suite of project management methodologies and transformation initiatives, we aim to make a significant impact on our operations.

As a result, we can command higher fees for our specialized services, leading to increased revenue streams. Additionally, our focus on continuous improvement and the adoption of cutting-edge methodologies and transformation initiatives will enable us to optimize our operations, further boosting our financial performance.

At Qualium Systems, we are guided by a set of core values that underpin everything we do. These values include innovation, quality, integrity, and collaboration. We believe that by staying at the forefront of technological advancements and maintaining a commitment to excellence in everything we do, we can deliver real value to our clients and contribute to the growth and success of the immersive tech industry.

As a vital component of the XR ecosystem, we believe it is crucial to contribute to the community. Thus, in 2023, our team has launched our own open-source plugin, WebXR for WebGL.

WebXR for WebGL is a robust plugin tailored for the Unity game engine, empowering developers to craft AR experiences accessible through web browsers. The plugin offers essential features that allow developers to produce

immersive and captivating AR experiences, including target recognition, target capture, face recognition, surface recognition, and AR geolocation.

A significant advantage of WebXR for WebGL is that Unity developers can implement it without mastering JavaScript, simplifying the development process and allowing them to concentrate on the creative aspects of AR experience creation.

At present, the WebXR for WebGL plugin fully supports the Chrome browser on Android devices; however, some features may not function on other browsers or iOS devices. Detailed information about the requirements for each feature can be found in their respective descriptions.

WebXR for WebGL is built upon MindAR and Three.js, two formidable frameworks that guarantee developers access to cutting-edge tools and features. By utilizing this plugin, Unity developers can create AR experiences compatible with web browsers, introducing their projects to an entirely new audience. Whether it's developing interactive educational content, immersive gaming, or captivating marketing experiences, WebXR for WebGL is an outstanding option for developers seeking to create top-tier AR experiences without the need to learn a new programming language or toolkit.

1.4. Analyzing Competitors with the 4C Marketing Mix

Qualium Systems is operating in the immersive technology industry in Ukraine. As the market for immersive technology grows, competition among companies in this industry is becoming increasingly fierce. To stay ahead of the competition, we have decided to conduct a competitive analysis of three Ukrainian IT companies that also operate in the immersive technology industry. The aim of our analysis is to identify the advantages and strengths of our competitors in order to develop a marketing strategy that can differentiate us from our competitors.

To conduct the competitive analysis, we will be using the Marketing Mix 4Cs framework. This framework emphasizes the importance of customer-centric marketing and focuses on four key elements: customer, cost, convenience, and communication. By analyzing each of these elements for our competitors, we can gain insights into their strengths and identify areas where we can differentiate ourselves.

The marketing mix is a classic framework used by marketers to develop a marketing plan that meets the needs of customers while achieving the goals of the company. Traditionally, the marketing mix consists of four Ps: product, price, promotion, and place. However, in recent years, marketers have recognized the limitations of this model, particularly in the context of the IT industry. IT products and services are often intangible, complex, and rapidly evolving, making it difficult to apply the traditional marketing mix to these businesses. As a result, a new marketing mix framework has emerged, called the 4Cs.

The 4Cs framework consists of four elements: customer, cost, convenience, and communication. The 4Cs are customer-focused, whereas the traditional 4Ps were product-focused. The customer element of the 4Cs emphasizes the importance of understanding the needs and preferences of the

target market. The cost element of the 4Cs focuses on the total cost of ownership of the product or service, rather than just the initial price. The convenience element of the 4Cs emphasizes the ease of access and use of the product or service. Finally, the communication element of the 4Cs focuses on the two-way communication between the company and the customer.

In the context of IT companies that provide AR/VR engineering services, the 4Cs framework is particularly useful for competitor analysis. AR/VR engineering is a rapidly growing field that is highly competitive, with many companies vying for market share. By analyzing the four elements of the 4Cs for their competitors, companies can gain insights into their strengths and weaknesses and develop a strategy that better meets the needs of their target market.

For example, by analyzing the customer element of the 4Cs, companies can gain insights into their competitors' target markets, their customers' preferences and needs, and the customer experience they offer. By analyzing the cost element of the 4Cs, companies can understand their competitors' pricing strategies, their total cost of ownership, and the value they offer to their customers. By analyzing the convenience element of the 4Cs, companies can gain insights into their competitors' distribution channels, delivery mechanisms, and user experience. Finally, by analyzing the communication element of the 4Cs, companies can understand how their competitors communicate with their customers, how they handle customer feedback, and how they build relationships with their customers.

In conclusion, the 4Cs framework is a useful tool for IT companies that provide AR/VR engineering services to analyze their competitors and develop a marketing strategy that meets the needs of their target market. By analyzing the customer, cost, convenience, and communication elements of their competitors, these companies can gain insights into their strengths and weaknesses and develop a competitive advantage.

To fully address the needs and wants of our customers, we will assess our competitors' offerings across various parameters. We will evaluate the range of services provided, their technical expertise, domain experience, customer engagement, and value proposition. By doing so, we will gain insight into how our competitors cater to the market, and in turn, determine how we can differentiate ourselves.

In terms of cost, we will scrutinize our competitors' pricing strategies, payment terms, hidden costs, and ways to reduce costs. By analyzing their total cost of ownership and value proposition, we can identify areas where we can offer more value to our customers and compete on price.

To improve convenience, we will evaluate the integration and deployment process, flexibility, and technical expertise of our competitors. We will assess their distribution channels, delivery mechanisms, and user experience to identify opportunities for enhancing our customer experience and differentiating ourselves from the competition.

In the communication element, we will examine how our competitors engage with their customers, their marketing strategies, messaging, case studies, and demonstrations, and communication channels. We will study how they handle customer feedback and build relationships with their customers to identify opportunities for enhancing our communication strategy and building stronger customer relationships.

In conclusion, the Marketing Mix 4Cs framework provides us with a structured approach to conduct a competitive analysis of our competitors in the immersive technology industry in Ukraine. By using this framework, we can gain insights into our competitors' strengths and identify areas where we can differentiate ourselves. This will help us develop a marketing strategy that can help us stay ahead of the competition and grow our market share in the industry. 4Cs research is overlined in the Appendix A.

1.5. Highlighting High-Level Services as a Key Competitive Advantage

This research has analyzed the AR/VR engineering industry and identified several key competitors. Through this analysis, it has become clear that while many competitors offer similar services at similar prices, our company has a distinct competitive advantage in the form of a high level of service.

Our company offers customized AR/VR solutions tailored to meet the specific needs and wants of each customer. We prioritize customer convenience, providing a seamless integration process, ongoing support and maintenance, and flexible deployment options. Additionally, we are committed to providing excellent customer service, with a dedicated team that proactively addresses any issues or concerns that customers may have.

This focus on service sets us apart from our competitors and has helped us to build strong relationships with our customers. By providing customized solutions and excellent support, we can help our customers achieve their business goals and stay ahead of the competition.

Moving forward, we will continue to prioritize service and focus on delivering the highest quality solutions to our customers. We will also continue to monitor the industry and adapt our strategies to stay ahead of emerging trends and technologies. Overall, we believe that our commitment to service will be key to our continued success in the competitive AR/VR engineering industry.

CAPTER 2. TRANSFORMATION: APPROACHES, PLANNING, AND PRACTICAL IMPLEMENTATION

2.1. The Benefits of Implementing a Continuous Improvement Approach in Small Service Companies

Continuous improvement (CI) is a transformation philosophy that is firmly established within companies today. The XR industry has become an integral part of both business processes and everyday life, and the latest PEST research predicts that the industry will continue to grow at an unprecedented pace, with new advancements and innovations being introduced regularly. To stay ahead of the competition, it is important for companies in the XR industry to continuously improve their services. Fortunately, our 4Cs competitor research indicates that our company has a solid foundation to take a leading position in this niche.

By embracing a culture of CI, companies in the XR industry can reap a variety of benefits. First, by regularly seeking feedback and making incremental improvements, companies can enhance customer satisfaction by ensuring that their products and services meet the changing needs and preferences of their customers. Second, by streamlining processes and reducing waste, companies can increase efficiency and reduce costs, enabling them to offer more competitive pricing and stay ahead of the competition. Third, by embracing a culture of CI, companies can encourage their employees to think creatively and develop new ideas that can drive innovation in the industry. Finally, by continuously improving their products and services, companies can stay relevant in a rapidly evolving industry and avoid becoming obsolete.

Given the rapid evolution of the industry and the possibility of generative AI replacing basic app development, continuous improvement of our level of service is a key parameter for both maintaining and enhancing our position. CI is an approach that emphasizes identifying and implementing incremental

changes to improve business processes, products, and services over time. In the context of the XR industry, CI can help companies stay ahead of the curve and provide the best possible services to their customers. In the following paragraphs, we will explore how CI can be applied in the XR industry and why it is a critical factor for success in this rapidly evolving market.

2.1.1. Continuous Improvement: Definition and Explanation

A continuous improvement approach is a structured and systematic process of identifying and implementing incremental changes to improve business processes, products, and services over time. The goal of continuous improvement is to enhance efficiency, productivity, and quality while reducing waste and errors. This approach is based on the principle that small and gradual improvements over time can lead to significant long-term gains. Continuous improvement is an ongoing process that requires commitment and involvement from all levels of an organization.

Continuous improvement is often associated with the Lean and Six Sigma methodologies. Lean focuses on eliminating waste and improving process flow, while Six Sigma aims to reduce defects and variability in processes. Both methodologies use data and analysis to identify areas for improvement and prioritize actions. However, continuous improvement is not limited to these specific methodologies and can be applied to any business process or activity.

To implement a continuous improvement approach, organizations need to establish a culture of continuous learning, innovation, and collaboration. This involves providing employees with the necessary training, tools, and resources to identify and solve problems, encouraging open communication and feedback, and recognizing and rewarding successful improvement initiatives. By adopting a continuous improvement approach, organizations can stay competitive, meet customer needs, and adapt to changing market conditions.

The concept of continuous improvement has its roots in the quality management principles developed in Japan in the 1950s, most notably the Toyota Production System. The approach was popularized in the West during the 1980s and 1990s, as businesses began to adopt total quality management and other quality improvement methodologies.

Since then, continuous improvement has become a widely adopted approach across various industries, including manufacturing, healthcare, education, and service sectors. It has become a core component of many management systems, such as ISO 9001, which requires organizations to continually improve their processes and products.

The rise of digital technologies has also enabled continuous improvement to become more widespread, with organizations using data analytics, machine learning, and other tools to identify areas for improvement and measure the impact of changes.

The main pivot idea of continuous improvement is to continually identify and implement small, incremental changes to improve business processes, products, and services over time. The approach is based on the principle that small and gradual improvements can lead to significant long-term gains.

2.1.2. Common Continuous Improvement Approaches

There are several continuous improvement approaches that are widely known and used by organizations around the world. Some of the major continuous improvement approaches are:

Lean: Lean is a continuous improvement approach that focuses on reducing waste and maximizing customer value. It involves identifying and eliminating any activities that do not add value to the customer while optimizing the flow of work.

Six Sigma: Six Sigma is a data-driven continuous improvement approach that aims to reduce defects and variability in processes. It involves using statistical analysis to identify and solve problems, with a focus on improving quality and reducing costs.

Total Quality Management (TQM): TQM is a continuous improvement approach that involves a holistic approach to quality management, where every individual in the organization is responsible for quality improvement. It focuses on continuous improvement, customer satisfaction, and employee involvement.

Kaizen: Kaizen is a continuous improvement approach that emphasizes making small, incremental improvements to processes over time. It involves the participation of all employees in the organization and a focus on improving efficiency, quality, and safety.

Agile: Agile is a continuous improvement approach that is commonly used in software development but can be applied to any project or process. It involves breaking down work into small, manageable parts and adapting quickly to changing requirements and feedback.

2.1.3. CI's Impact on Small Service Companies

Continuous improvement (CI) could be a game changer for small service companies for several reasons: by focusing on continuous improvement, small service companies can enhance their services and stay ahead of the competition. Increased efficiency and productivity, enhanced customer satisfaction, competitive advantage, improved employee engagement, and adaptability to changing market conditions are some of the key benefits of CI.

One of the primary benefits of CI is increased efficiency and productivity. This is achieved by focusing on identifying and eliminating waste, reducing errors, and optimizing processes. By implementing CI initiatives, small service

companies can improve their efficiency and productivity, which can help them meet customer demands and increase profitability.

Another key benefit of CI is enhanced customer satisfaction. CI involves a customer-centric approach, where the goal is to deliver high-quality services that meet or exceed customer expectations. By continually improving their services, small service companies can enhance customer satisfaction and loyalty, which can lead to increased revenue and a positive reputation.

Small service companies that adopt a CI approach can also gain a competitive advantage. By delivering superior services that are more efficient, reliable, and cost-effective, they can differentiate themselves from their competitors. This can help them gain a competitive edge in the market and attract more customers.

CI can also lead to improved employee engagement and satisfaction. By engaging employees in the improvement process, empowering them to identify and solve problems, and recognizing and rewarding their contributions, small service companies can increase employee engagement and satisfaction. This can improve retention rates and reduce turnover.

Finally, CI can help small service companies adapt to changing market conditions and customer needs. By continuously improving their services, they can stay ahead of the curve and remain competitive in a rapidly changing business environment.

2.1.4. CI Integration Challenges for Small Service Companies

Small service companies may face several obstacles when attempting to integrate a continuous improvement approach into their operations. Some of the common obstacles are:

Limited resources: Small service companies often have limited resources, including financial, human, and technological resources, which

can make it challenging to implement a continuous improvement approach. They may not have the budget to invest in specialized software or hire experts to assist with improvement initiatives.

Lack of management commitment: Continuous improvement requires buy-in from management and a commitment to making changes. Small service companies may struggle to get their leadership team on board with the idea of continuous improvement, particularly if they are focused on day-to-day operations and do not see the value in investing time and resources in improvement initiatives.

Resistance to change: Some employees may resist change and be hesitant to embrace new ways of doing things. This can make it difficult to implement continuous improvement initiatives, particularly if employees do not see the benefits or are not involved in the process.

Limited time: Small service companies may be focused on meeting customer demands and delivering services quickly, leaving little time for improvement initiatives. This can make it challenging to allocate time and resources to continuous improvement efforts.

Lack of data and metrics: Continuous improvement relies on data and metrics to identify areas for improvement and measure the impact of changes. Small service companies may not have access to data or may not have the tools to collect and analyze data, making it difficult to implement a data-driven continuous improvement approach.

2.1.5. The PDSA Cycle: A Flexible Methodology for Small Service Company Improvement

One continuous improvement method that can be used by small service companies is the Plan-Do-Check-Act (PDCA, or Shewhart- Deming) cycle. The PDCA cycle is a simple and effective continuous improvement method that can

help small service companies identify areas for improvement, implement changes, and monitor results.

The Plan-Do-Study-Act (PDSA) cycle is a methodology well-suited for small service companies for several reasons. Firstly, the PDSA cycle is a simple and straightforward approach that does not require extensive resources or technical expertise, making it easy for small service companies to apply to improve their processes, products, and services. Additionally, the PDSA cycle is a flexible methodology that can be applied to any service or process, allowing small service companies to identify problems, test solutions, and refine their services based on customer feedback.

Moreover, the PDSA cycle emphasizes the importance of data and measurement in the improvement process. Small service companies can use data to track the impact of changes and make data-driven decisions to improve their services. Finally, the PDSA cycle involves collaboration between different stakeholders, including employees and customers. Small service companies can engage their employees in the improvement process and use customer feedback to make changes that meet customer needs. By utilizing the PDSA cycle, small service companies can improve their services and processes while engaging their employees and meeting the needs of their customers.

The PDCA cycle consists of four steps:

1. Plan: In this step, the company identifies a problem or opportunity for improvement and develops a plan to address it. This involves setting objectives, identifying potential solutions, and developing an action plan.

2. Do: In this step, the company implements the plan. This involves carrying out the actions identified in the plan and collecting data to measure the results.

3. Check: In this step, the company analyzes the data collected to determine whether the plan was effective in addressing the problem or opportunity for improvement. This involves comparing the actual results to the

expected results and identifying any gaps or areas for further improvement.

4. Act: In this step, the company takes action based on the results of the Check step. This involves making adjustments to the plan, implementing further improvements, or continuing with the current plan if it was successful.

2.2. Planning the transformation

Regardless of company size, continuous improvement (CI) is a crucial aspect of a company's evolution and must be incorporated throughout the entire life cycle of the business. As such, it is essential to plan for CI at the outset. By implementing a culture of CI, companies can continually improve their processes, products, and services, leading to increased efficiency, productivity, and customer satisfaction.

Additionally, by prioritizing CI from the beginning, companies can establish a strong foundation that will help them stay competitive in a rapidly changing business environment. Ultimately, CI is not just a one-time initiative, but a long-term commitment that can help companies thrive and grow over time.

2.2.1 Establishing a Transformation Unit (TU) for Company Improvement

The second step in "Leading Change" by Dr. John Kotter is "Forming a Powerful Coalition". Upon establishing a sense of urgency, Kotter suggests the subsequent move should be to assemble a team equipped with the power and influence necessary to drive the change effort forward. This team, or Transformation Unit (TU), should comprise individuals from various levels and functions within the organization, united by a shared vision and commitment to the change initiative. Kotter postulates that this coalition should possess enough credibility and authority to overcome resistance to change, engaging other

employees and stakeholders in the process. By forming a powerful coalition, leaders can generate momentum and lay a foundation for successful change efforts.

Kotter outlines several steps leaders can follow to create a powerful coalition:

Identify key stakeholders: Leaders should recognize the individuals and groups who hold a stake in the change initiative and can contribute to its success.

Develop a shared vision: Leaders should collaborate with the coalition to formulate a shared vision for the change initiative. This vision should be compelling, motivating, and aligned with the organization's values and goals.

Build trust and credibility: Leaders should build trust and credibility among the coalition members by demonstrating their commitment to the change initiative and by communicating openly and transparently.

Empower the coalition: Leaders should empower the coalition by equipping them with the authority and resources they need to drive the change effort forward. This might include providing training, coaching, and mentoring.

At this stage, assigning appropriate roles to each TU member is crucial, which requires understanding their individual personalities and motivations. This necessitates a profound understanding of one's team, solid emotional intelligence, and strong leadership skills from the company owners. As company owners, we must also recognize and accept that our continuous engagement with the TU and personal commitment to fully immerse ourselves in the process, without exception, can guide the implementation of the Continuous Improvement (CI) process towards success.

To effectively instruct the TU in the application of CI, we must first thoroughly understand the system ourselves, a task demanding significant effort. This detailed comprehension of the system is paramount to fostering a successful transformation within our organization. Over several months, we, as company owners, dedicated ourselves to gaining an in-depth understanding of the system. This process entailed not just studying the technical aspects but also understanding the operational complexities and nuances. We spent time across all business functions, learning from employees and observing how the system worked in real-world scenarios. Balancing our regular duties while leading this significant initiative posed a considerable challenge. The transformation process, being a substantial project in itself, required a significant amount of time and energy. Juggling this with our existing responsibilities occasionally led to high-stress situations and a strained workload.

Another difficulty was the sheer depth and complexity of the learning process. Understanding and implementing the multi-faceted system required considerable time and mental energy. This was particularly challenging as we had to ensure the smooth running of the company's day-to-day operations alongside this.

Despite these hurdles, we remained committed to our objective, recognizing that these initial challenges were essential steps towards achieving our goal of successful transformation and continuous improvement.

2.2.2. Organizational Structure and Key Responsibilities of the Transformation Unit

In the initial phase of setting up a transformation unit, it is crucial to pinpoint the key stakeholders and ensure their engagement in the process. In smaller IT service companies, organizational structures tend to be fairly consistent, allowing for the application of a standard structure with minimal modifications. At Qualium Systems, we have established a clear organizational

framework and designated distinct responsibilities for each position, as detailed here:

CEO/founder, with the following responsibilities:

- Lead and envision company transformation
- Align transformation with strategy and goals
- Provide resources and support for success
- Oversee development and implementation of plans
- Communicate importance to stakeholders
- Monitor progress and make adjustments
- Lead by example, demonstrate commitment
- Encourage collaboration and communication
- Foster innovation and creativity
- Prioritize transformation success and growth

CTO/founder, with the following responsibilities:

- Guide technical leadership for Transformation Unit
- Evaluate and recommend technology solutions
- Identify optimization and automation opportunities
- Collaborate with Production for integration
- Collaborate with Sales and Relationship for tools usage
- Collaborate with Marketing for technology utilization
- Ensure secure, reliable, and scalable infrastructure

Head of Producion, with the following responsibilities:

- Implement process improvement initiatives
- Ensure effective communication and collaboration
- Manage production timelines and deadlines
- Resolve production-related issues
- Implement lean manufacturing principles
- Develop and monitor KPIs for efficiency

Head of Sales and Relationship, with the following responsibilities:

- Collaborate on sales strategies and tactics
- Collect and analyze customer data
- Optimize customer journey and experience
- Identify new business opportunities
- Monitor sales performance metrics
- Develop and implement staff training programs

Head of Marketing, with the following responsibilities:

- Define and execute marketing strategies
- Conduct market research
- Develop and manage marketing campaigns
- Collaborate for consistent brand image
- Manage and analyze campaign data
- Continuously improve tactics and strategies

Head of HR/Recruitment, with the following responsibilities:

- Develop employee training and development programs
- Identify key skills and competencies for success
- Assess workforce and identify skill gaps
- Implement performance management systems
- Support continuous improvement culture
- Implement HR technologies and tools
- Ensure compliance with labor laws and regulations

To further enhance the effectiveness of the transformation unit, we have implemented efficient communication channels and a feedback system, facilitating collaboration and fostering a culture of continuous improvement. Regular progress updates and performance metrics are monitored, ensuring that the transformation goals are on track and that adjustments can be made as needed.

2.2.3. Evaluating Goal-Setting and Action-Planning Frameworks

In the situation of remote work and the lack of face-to-face meetings, it is important for the transformation unit to increase productivity. One effective way to achieve this is by using a goal-setting and action-planning collaboration framework. Such frameworks enable teams to set clear goals, identify necessary actions, and track progress, even when working remotely. By implementing a collaborative framework, the transformation unit can streamline its operations, ensure alignment between team members, and ultimately achieve its objectives more efficiently.

The most popular goal-setting and action-plannig frameworks:

SMART Goals: SMART is an acronym that stands for Specific, Measurable, Achievable, Relevant, and Time-bound. This framework is widely used in business and personal development to set clear and actionable goals.

OKRs: OKRs stands for Objectives and Key Results, a framework popularized by Google that emphasizes setting ambitious goals and tracking progress using measurable key results.

GROW Model: GROW stands for Goal, Reality, Options, and Will, a framework commonly used in coaching and personal development to set and achieve goals.

Eisenhower Matrix: The Eisenhower Matrix is a time management framework that categorizes tasks based on their urgency and importance, helping individuals prioritize their actions and focus on high-impact tasks.

4DX: 4DX, or Four Disciplines of Execution, is a framework that emphasizes setting and achieving goals using clear, measurable actions and accountability. It is often used in business and project management to drive results.

After checking out those frameworks the team has adopted the OKRs (Objectives and Key Results) goal-setting framework. The main reasons important for the TU were the following:

Clarity and focus: OKRs help teams and individuals clarify their priorities and focus their efforts on achieving specific objectives that align with the organization's overall goals.

Measurability: OKRs are designed to be measurable, with clear and specific key results that enable teams to track progress and make data-driven decisions.

Agility: OKRs are flexible and adaptable, allowing teams to adjust their goals and priorities in response to changing circumstances or new opportunities.

Alignment: OKRs promote alignment between teams and individuals, helping to ensure that everyone is working towards the same objectives and contributing to the organization's overall success.

Motivation: The OKRs system provides a clear sense of purpose and direction, which can motivate individuals and teams to achieve their goals and drive results.

2.2.4. Utilizing the OKR Framework for Practical Goal-Setting

In order to effectively approach our company transformation, we recognized the need for tools to set and monitor goals for both our team and management. After researching different options, we decided to adopt the Objectives and Key Results (OKR) approach, which has been successfully utilized by many companies since its inception in Intel in the 1970s. Our team spent time studying the theory behind OKRs, primarily using John Doerr's book "Measure What Matters: OKRs: The Simple Idea that Drives 10x Growth," and held training sessions with our transformation team.

Once we were familiar with the OKR framework, the transformation team presented our transformation plan as a set of objectives and key results.

Tasks were assigned to team members with specific deadlines to ensure progress towards our goals. Coordination meetings were held every two weeks to review progress and address any issues.

In general, using of OKRs provided us with an effective tool for measurable and visible progress towards our goals, allowing us to maintain focus and motivation. This approach also fostered healthy competitiveness and improved communication and coordination between different departments, as team members learned to work together and involve each other in completing tasks. Additionally, all members of the transformation team now have a better understanding of the big picture of the company, beyond just their own department.

6 popular tools for working with OKRs are outlined in table 2.2.4.1

Table 2.2.4.1

6 popular OKR tools

Tool Name	Features	Price	Pros	Cons
Asana	Goal setting and tracking, progress monitoring, collaboration tools	Free to $24.99/user/month	Easy to use, integrates with other tools, good for team collaboration	Limited customization options
Weekdone	OKR management, progress tracking, priority setting, performance analysis	$4-$9/user/month	Easy to use, customizable, integrates with other tools	Limited features in lower tier plans

Continuation of the Table 2.2.4.1

Perdoo	OKR tracking, performance management, automated reports	$7-$14/user/month	Customizable, automated reporting, performance management features	Limited collaboration features
15Five	Goal setting and tracking, feedback tools, employee engagement	$7-$14/user/month	Good for employee engagement and feedback, customizable, integrates with other tools	Limited features in lower tier plans
Goals.com	Goal setting and tracking, coaching tools, performance tracking	$10-$15/user/month	Customizable, good for individual and team goal tracking, coaching tools	Limited collaboration features
SugarOKR	OKR tracking and monitoring, progress reporting, goal alignment	Free to $9/user/month	Simple and easy-to-use, good for small teams, integrates with other tools	Limited features compared to other tools

CAPTER 3. CASE STUDIES AND BEST PRACTICES

In the process of our company's improvement, we realized that with limited resources, it would not be feasible to work on all points of improvement simultaneously. Therefore, it was crucial to prioritize and localize the most important two or three aspects and gradually involve others. At Qualium Systems, we started with fundamental improvements such as process mapping and documentation covering and customer experience management (CEM). The latter is an umbrella approach for several core company activities, such as sales and relationship development, marketing, and account management. These two improvement areas, process mapping and documentation covering and customer experience management (CEM), are interrelated, as process documentation is used for blueprinting in CEM, and feedback from clients in CEM is used for process improvement. By prioritizing and gradually implementing these improvements, we can effectively manage our resources and work towards enhancing the overall efficiency and quality of our company's activities. This approach allows us to focus on the most important areas for improvement while still making progress in other areas over time.

3.1. Case study N1: Process mapping and documentation covering

In this case study, we explore the application of process mapping and documentation as a strategic tool for organizations seeking to optimize their operations and enhance customer satisfaction. We delve into the various benefits of process mapping, including the identification of bottlenecks, support for onboarding and training, and its role in customer experience management. Through our systematic approach and emphasis on continuous improvement, we demonstrate how process mapping can lead to a more efficient, unified organization, fostering a culture of ongoing optimization and growth.

Process mapping, as described by IBM [47], is a visual representation of a company's workflows, processes, and activities designed to facilitate understanding, analysis, and improvement. By illustrating tasks, responsibilities, and decisions, process mapping enables organizations to gain insights, identify inefficiencies, and optimize performance. This crucial activity requires substantial time and resources, but its long-term benefits in streamlining operations and enhancing productivity make it a worthwhile investment.

One primary problem that process mapping addresses is identifying bottlenecks and inefficiencies within workflows. By providing a clear visual of the entire process, it becomes easier to pinpoint areas for improvement. Furthermore, process mapping supports onboarding and training of new team members, ensuring they quickly gain an understanding of their roles and responsibilities. This accelerates their integration and helps maintain the organization's quality standards. Additionally, process maps serve as essential components of customer experience management (CEM) activities, supplying valuable data for process blueprints instrumental in driving business optimization and enhancing customer satisfaction.

Our process mapping approach began with identifying high-level processes, followed by a gradual deepening of each process to uncover its intricacies. This iterative method ensured that we thoroughly examined and refined every aspect of the organization's workflows. To maintain continuity and avoid disruptions between processes, we regularly reviewed the connectivity of different departmental processes throughout each iteration. This systematic approach was driven by our primary objective of creating a cohesive, interconnected system rather than isolated processes. Consequently, our process mapping strategy fostered seamless collaboration and communication between departments, resulting in a more efficient and unified organization.

To effectively assess our process mapping efforts, we established a metrics system for each process, enabling us to compare the AS IS state with the

envisioned TO BE state. By quantifying the differences between the current and desired outcomes, we could measure progress and the overall impact of the implemented improvements, ensuring our process optimization efforts were data-driven and results-oriented.

Upon completion of mapping and documenting all processes, we undertook essential steps to ensure successful implementation and continuous improvement. First, we prioritized communication and training by clearly conveying the documented processes to all relevant employees, providing comprehensive training to guarantee a thorough understanding of their roles and responsibilities within the system. Next, we implemented a regular monitoring and review system to track process performance using established metrics and periodically reassess the mapped processes to maintain their relevance and accuracy.

We also emphasized continuous improvement by identifying areas for enhancement based on performance metrics and iteratively optimizing processes to boost efficiency, alleviate bottlenecks, and streamline operations. Lastly, we cultivated a process-oriented culture within the organization, encouraging process awareness and continuous improvement among employees, empowering them to take ownership of their processes, and actively contribute to ongoing optimization efforts.

An example of high-level processes list in Qualium Systems, including their descriptions, process owners, stakeholders, can be found in the Appendix D.

3.2. Case study 2: Customer experience management approaching.

In today's competitive business environment, Customer Experience Management (CEM) has emerged as a critical approach for companies to differentiate themselves and excel. According to Schmitt , CEM is "the process of strategically managing a customer's entire experience with a product or a company" [45]. To effectively implement our CEM approach, we utilize the framework of Ideal Client Profiles (ICP), Customer Journey Maps (CJM), and process blueprints as the foundation. This comprehensive approach encompasses all interactions between customers and organizations, focusing on understanding, meeting, and even surpassing customer expectations. CEM is particularly vital in the context of service levels, as exceptional customer experiences are directly linked to customer satisfaction, loyalty, and advocacy. By prioritizing CEM, businesses can foster long-lasting relationships with their customers, ultimately driving growth, profitability, and a sustainable competitive advantage.

3.2.1. Ideal Client Profile, Customer Journey Mapping, and Process Blueprint: A Practical Framework for Small Service Companies

In the competitive landscape of small service companies, developing a practical framework that combines Ideal Client Profiles (ICPs), Customer Journey Maps (CJMs), and Process Blueprints is essential to driving growth and customer satisfaction.

By integrating ICPs, CJMs, and Process Blueprints, small service companies can create a powerful and practical framework that aligns their operations with their customers' needs and expectations. This comprehensive

approach allows businesses to target their ideal clients more effectively, deliver exceptional customer experiences, and optimize their internal processes, ultimately resulting in increased customer satisfaction, loyalty, and long-term success.

An ICP represents a comprehensive description of a company's most valuable customers. By identifying the characteristics of these ideal clients, businesses can better target their marketing efforts, customize their offerings, and ultimately increase their chances of attracting and retaining high-value customers [46]. ICPs are especially crucial for service companies, as they allow for tailored service delivery, improved resource allocation, and a deeper understanding of customer needs.

Structure of the basic ICP model is outlined in the table 3.2.1

Table 3.2.1

Basic ICP model

Element	Description
Industry and Niche	Identify the industry sector(s) and niche markets where ideal clients operate to understand their unique needs and preferences.
Company Size	Define the size of ideal client companies (e.g., revenue, number of employees) to better customize offerings and target suitable prospects.
Geographic Location	Pinpoint the geographical areas where ideal clients are located for focused regional marketing and sales efforts.

Basic ICP Model

Client Role	Recognize the specific roles or job titles within client organizations that are most relevant to the business's offerings, ensuring the right decision-makers or influencers are targeted.
Demographics	Describe relevant demographic characteristics of decision-makers or influencers within ideal client companies (e.g., age, gender, education level) to create tailored messaging and content.
Psychographics	Outline the values, attitudes, interests, and lifestyle preferences of ideal clients for more personalized marketing and sales approaches.
Pain Points and Challenges	Identify the main problems or needs that the business's product or service can address, positioning it as a valuable solution for ideal clients.
Decision-Making Factors	List the key factors that ideal clients consider when making purchasing decisions (e.g., price, quality, convenience, brand reputation) to refine the business's value proposition and better meet client expectations.
Communication Preferences	Indicate the preferred communication channels and platforms for ideal clients (e.g., email, social media, in-person meetings, industry events) to ensure marketing and sales efforts are reaching them effectively and efficiently.

At Qualium Systems, we view the Ideal Customer Profile (ICP) creation as a continuous process tailored for each client's specific groups. Additionally, we treat it as a hypothesis that we test and refine during sales and marketing research activities.

An example of a custom ICP we developed for use within Qualium Systems, targeting "Creative Marketing Agencies," is presented in the Appendix C.

Customer Journey Mapping (CJM) serves as a graphical depiction of the complete customer journey, encompassing every phase from the initial awareness of a product or service to the interactions that occur after the purchase (TechTarget) [48]. These visualizations enable organizations to methodically identify pain points, gaps, and areas of opportunity to enhance the overall customer experience. By using CJMs, we can make informed, data-driven decisions that facilitate the alignment of their resources and efforts to improve customer satisfaction and foster loyalty. Additionally, Customer Journey Maps offer valuable insights into customer behaviors, expectations, and preferences, allowing organizations to tailor their marketing strategies, products, and services to better cater to their target audience. In turn, this fosters stronger relationships between customers and businesses, driving long-term growth and success.

Example of the CJM for the ICP "Creative Marketing Agencies" is outlined in the Appendix B.

A Process Blueprint is a detailed diagram of a company's processes and workflows, capturing the sequence of activities, decision points, and interactions between different roles. Process Blueprints provide a holistic view of an organization's operations, making it easier to spot inefficiencies,

streamline operations, and ensure seamless communication and collaboration across departments.

As mentioned before for the Process Blueprints we use process documentation we created in the phase of Process mapping. High level processes list is outlined in the table 3.2.1.

CAPTER 4. MANAGEMENT CONCLUSION

To capitalize on opportunities and mitigate risks, we, the management team of Qualium Systems, are committed to focusing on innovative services and offerings within the immersive technology industry. By leveraging market research to target high-potential segments and creating tailored solutions, our company will remain competitive and ready to seize new opportunities.

Organizational and process improvement is another crucial area for success. Establishing a Transformation Unit (TU) with a well-defined structure and clear responsibilities will enable effective execution of transformation initiatives. The implementation of the OKR framework for goal-setting and action planning, coupled with the utilization of the PDSA cycle for continuous improvement, will further enhance our company's performance.

Proactively addressing potential risks arising from political, economic, sociocultural, and technological factors is essential for minimizing potential negative impacts on our business. Employing proactive risk management strategies will ensure our company's resilience in the face of challenges.

To capitalize on future opportunities and drive growth, Qualium Systems will stay up-to-date with emerging trends and technologies in the immersive technology industry. Continuously investing in research and development, as well as employee training and upskilling, will maintain our competitive edge in the market.

As a management team, we urge all our colleagues to embrace the strategic recommendations and prioritize continuous improvement and transformation efforts to drive growth and long-term success. Focusing on innovation, customer-centric solutions, and proactive risk management will position Qualium Systems as a leader in the immersive technology industry and enable us to capitalize on future opportunities.

The implementation of continuous improvement and transformation strategies, supported by the establishment of a Transformation Unit (TU) and the adoption of the OKR framework, will ensure our company remains agile and adaptable in a rapidly changing industry. By fostering innovation, improving operational efficiency, and enhancing our ability to meet customer needs and expectations, these approaches will help us stay ahead of the curve.

While significant progress has been made in establishing the Transformation Unit and implementing the OKR framework, there are areas where we have yet to fully realize our potential. As we continue to refine these processes, we recognizing the needs for further development. One of the challenges we've faced is the reality that a smaller company cannot afford to allocate TU members to work full-time on new initiatives, thereby slowing the pace of change compared to our desired rate. Our achievement in the first OKR iteration stands at 60% of all Key Results (KRs).

We also understand that KRs might be set incorrectly, and the owners of these KRs may only realize this after investing some time. In fact, one of our initially set KRs has already been marked as unsuccessful. Nevertheless, our team understands that even an unsuccessful result is an opportunity to analyze our overall process. We use it as a reflection point, not as a reason to stop.

Another challenge we face as owners and OKR evangelists is dealing with the fact that the team enthusiastically engages with the initial KRs we formulated, but when it comes to the next stage—proposing their own ideas for KRs—some difficulties arise. A portion of the team struggled with independently formulating KRs, prompting the owner's team to assist in setting KRs. This process took more time than initially anticipated.

We acknowledge that these are complex initiatives, and their successful implementation will require time. Despite these challenges, we remain committed to our continuous improvement efforts and are confident that our dedication will lead us towards our goals.

We emphasize the importance of a customer-centric approach and proactive risk management in our further activities, which will enable us to build stronger relationships with our clients and mitigate potential challenges. Investing in research and development, as well as employee training and upskilling, will maintain our competitive edge in the market and capitalize on emerging trends and technologies.

The set of management solutions outlined in the diploma are designed to align with our company's overall goals and objectives while addressing the specific needs and challenges of the immersive technology industry. By executing these strategies and maintaining a commitment to continuous improvement, we are confident that Qualium Systems will achieve the desired results and solidify its position as a leader in the immersive technology space.

The successful implementation of the improvements and strategies described in the diploma will create a solid foundation for the future evolution of Qualium Systems. We are considering several strategic gains for our future growth, including strategic partnerships and collaborations, vertical integration, diversification of product and service offerings, becoming an industry thought leader, and pursuing mergers and acquisitions. These potential evolutions will help us expand our market presence, acquire new technologies, and consolidate our position as a leading immersive technology solutions provider.

APPENDIX A

Marketing Mix 4Cs

Parameters	Definiton	Averege grade				Postion of Qualium Systems comparing with competitors
		Qualium Systems	Company #1	Company #2	Company #3	
Range of Services	The provider covers all areas of Immersive Technology, including Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR), WebXR, and 3D.	4.6	3.7	4.0	3.3	Qualium Systems maintains a strong position among its rivals, yet we will also spotlight Company#2 as an exemplary XR company offering a diverse array of ImmersiveTech services.
Expertise	Years of expertise					
Customer Engagement	Ability to actively involve the customer in the development process. This includes offering business analysis, providing proof of concepts, and delivering minimum viable products (MVPs) to enable customers to experience the technology and provide feedback.					
Pricing Level	Publicly available data on pricing	5.0	3.7	4.0	4.0	Qualium Systems offers transparent pricing with no hidden fees, aligning with the expected price range for a Ukrainian service provider.
Payment Terms	Publicly available data on terms					
Ways to reduse costs	Redusing costs in immersive tech, emploing strategies like prototyping, project planning, reusing tech components, outsourcing, optimizing resources, and adopting lean processes, all while maintaining quality and performance.					
Integration and deployment	Ability to seamlessly integrate and deploy their immersive tech products or services within the customer's existing systems and processes. Compatibility with various hardware and software platforms, offering easy-to-use APIs and SDKs, and providing clear documentation and support to ensure successful integration and deployment. Experience with posting apps to various app stores such as Apple App Store, Google Play Store, and Oculus Store.	5.0	4.3	3.7	4.3	The convenience currently meets an acceptable standard, continuous development and adaptation are necessary to achieve elevated customer satisfaction levels.
Flexibility	Ability to adapt and customize their immersive tech products or services to meet the unique needs and requirements of individual customers. This includes offering flexible pricing and payment options, providing customization and personalization options, and offering scalable solutions that can grow and evolve with the customer's needs.					
Marketing	Provider`s data about site traffic, traffic channels, paid ads	4.1	4.9	4.4	4.5	Communication is generally good, but there's room for improvement, particularly on targeted platforms like LinkedIn. Need more attention in field of Marketing support
Messaging	Carity and effectiveness of the messaging used by each competitor to communicate the value proposition and benefits of their solutions. Look for competitors who use clear, concise, and compelling messaging that resonates with your business and your end clients.					
Case Studies and Demonstrations	Case Studies and Demonstrations: showcase the effectiveness and versatility of their solutions; corporate blog, and expertise of the content					
Communication Channels	Data about social networks presence, amount of subscribes					

Table A.2

Marketing Mix 4Cs: Customer Needs And Wants

Parameters	COMPARING							
	Qualium Systems		Company #1		Company #2		Company #3	
	Specification	Grade	Specification	Grade	Specification	Grade	Specification	Grade
Range of Services	Virtual reality Augmented & Mixed reality Metaverse/NFT WebXR Mobile Apps SAAS Products Computer vision 3D Modeling	4.5	Virtual reality Augmented reality	3	AR & VR Simulations AR & VR Trainings & Education Web AR AI-Powered Robotics 3D Modeling & Animation	4	Virtual reality Augmented reality Mixed reality Metaverse development Computer vision 3D Modeling Services Motion graphics and VFX	4
Expertise	13 years	4.5	7 years	4	7 years	4	15 years	5
Customer Engagement	Proof of concepts Ideation/tehcnical consulting MVP Business analysis	4.9	Rapid prototyping Ideation Business analysis	4	Rapid prototyping	4	No special ways of the Customer Enagagement	3
Average grade		4.6		3.7		4.0		4.0

Table A.3

Marketing Mix 4Cs: Costs

Parameters	Comparing							
	Qualium Systems		Company #1		Company #2		Company #3	
	Specification	Grade	Specification	Grade	Specification	Grade	Specification	Grade
Pricing Level	Avg. Hourly Rate: $25 - $49 / hr	5	Avg. Hourly Rate: $50 - $99 / hr (Clutch.co)	4	Avg. Hourly Rate: $100 - $149 / hr (Clutch.co)	3	Avg. Hourly Rate: $25 - $49 / hr (Clutch.co)	5
Payment Terms	Flexible	5	Flexible	5	Flexible	5	Flexible	5
Ways to reduse costs	Our proprietary "Foundation" library features a collection of standard solutions that significantly decrease development cost and time. We also offer an in-house WebXR plugin, as well as a custom ball movement physics library.	5	Provide tailored solutions for training, gaming, and marketing purposes, including a corporate metaverse and an augmented reality (AR) catalog.	4	No own solutions	3	No own solutions	3
Average grade		5.0		4.3		3.7		4.3

Table A.4

Marketing Mix 4Cs: Convenience

Parameters	Comparing							
	Qualium Systems		Company #1		Company #2		Company #3	
	specification	Grade	specification	Grade	specification	Grade	specification	Grade
Integration and deployment	Have a dedicated web and mobile division that expands the possibilities for the clients, offering seamless integration with existing systems.	5	Possess extensive experience in XR technology, but we do not currently offer web or mobile development services. As a result, options for integration with existing client systems may be limited.	4	Possess extensive experience in XR technology, but we do not currently offer web or mobile development services. As a result, options for integration with existing client systems may be limited.	4	Have a dedicated web and mobile division that expands the possibilities for the clients, offering seamless integration with existing systems.	5
Flexibility	Providing bespoke solutions	5	Providing bespoke solutions	5	Providing bespoke solutions	5	Providing bespoke solutions	5
Average grade		5.0		4.5		4.5		5.0

Table A.5

Marketing Mix 4Cs: Communication

Parameters	Qualium Systems		Company #1		Company #2		Company #3	
	Specification	Grade	Specification	Grade	Specification	Grade	Specification	Grade
Marketing	On the company's website, there is a blog that contains approximately 199 posts. The posts can be sorted using filters. According to the Serpstat service, the pages with the highest search traffic and number of keywords are mainly the homepage and blog pages, which attract visitors with informational queries. The blog contains relevant information for the company's target audience: examples of technology usage for different industries, trends, definitions of concepts, etc. The blog posts are supported by statistics and examples. The posts are structured with subheadings, introductions, and conclusions, which allows for quickly finding the necessary information. Additionally, the text of the posts is accompanied by photo and video illustrations. The blog posts include calls to action - contacts and links to relevant commercial service pages.	3	According to Similarweb data, the Company#1 website received the highest number of visits among competitors, with 19,000 visits in a month. At the same time, the bounce rate was the lowest among competitors, at 26%, while the average bounce rate for most projects on the internet ranges from 50% to 70%. The top three countries for website visits were the United States (19%), India (14%), and the United Kingdom (11%). Given that the company provides outsourcing services and targets Western countries, this is a good indicator. The main traffic channels to the website are roughly in line with competitors, with 66% of traffic coming from search and 34% from direct visits to the site. According to the Serpstat service, the domain authority of the Company#1 has similar indicators to competitors, at 35 out of 100, and the number of keywords the website is optimized for is 3,370, which plays an important role in SEO promotion. This traffic acquisition channel is the main one for both the Company#1 o and its competitors.	5	According to Similarweb data, the Company#2 website received 5,300 visits in a month. The bounce rate was 75%, which is higher than the average bounce rate for most projects on the internet, ranging from 50% to 70%. The top three countries for website visits were the United States (34%), Thailand (15%), and Sri Lanka (11%). Given that the company provides outsourcing services and targets Western countries, this is a decent indicator. The main traffic channels to the website are roughly in line with competitors, with 50% of traffic coming from search, 37% from direct visits to the site, and 13% from referral traffic. According to the Serpstat service, the domain authority of the Company#2 has similar indicators to competitors, at 35 out of 100, and the number of keywords the website is optimized for is 526, which is one of the lowest indicators among all companies. This traffic acquisition channel is the main one for both the Company#2 and its competitors.	4.4	According to Similarweb, the website of the Company#3 had 10800 visits in a month. However, the bounce rate was also the highest and amounted to 92%, while the average rates typical for most projects on the web vary from 50 to 70%. The top 3 countries where the visits came from are India - 20%, Mexico - 14%, and Russia - 11%. Considering that the company provides outsourcing services and focuses on Western countries, this does not fully reflect their intentions. The main traffic channels to the website are roughly in line with competitors, with the search traffic accounting for the largest share of 64%, and 36% being direct visits to the site. According to Serpstat, the domain authority of the Company#3 has similar indicators to competitors and amounts to 40 on a scale of 0 to 100, while the number of keywords that the site is promoted with is 6230, which plays an important role in SEO promotion. This channel of traffic acquisition is the main one both for the Company#3 itself and for its competitors.	4
Messaging	"On the company's website, there is a blog containing approximately 199 posts that can be sorted using filters. According to the Serpstat service, the pages that have the highest search traffic and number of keywords are mainly the homepage and blog pages, which attract visitors with informational queries. The blog contains relevant information for the company's target audience, including examples of technology usage in different industries, trends, definitions of concepts, and more. The blog posts are supported by statistics and examples, and are structured with subheadings, introductions, and conclusions, which makes it easy to find the information you need. Additionally, the text of the posts is accompanied by photo and video illustrations. The blog posts include calls to action such as contact information and links to relevant commercial service pages."	5	On the company's website, there is a blog containing approximately 66 posts that can be sorted using filters. According to the Serpstat service, the pages with the highest search traffic and number of keywords are mainly the homepage and blog pages, which attract visitors with informational queries. The blog contains relevant information for the company's target audience, including examples of technology usage in different industries, trends, definitions of concepts, and more. The blog posts are supported by statistics and examples, and are structured with subheadings, introductions, and conclusions, which makes it easy to find the information you need. Additionally, the text of the posts is accompanied by photo and video illustrations. The blog posts include a call to action for contact, but there are no clear links to relevant commercial service pages. The pages contain a newsletter subscription form and a contact form	5	The company's website has a blog that contains approximately 58 posts. However, it is not possible to sort the posts according to specific criteria, which makes it difficult to find the required information. According to Serpstat, the pages that lead visitors to the site through informational queries and generate the most search traffic are the main page and the blog pages. The blog contains relevant information for the company's target audience, such as examples of using technologies in various industries, trends, and definitions of terms. The posts in the blog are supported by statistics and examples, and are structured with subheadings, introductions, and conclusions. This makes it possible to quickly find the required information. Additionally, the text in the posts is accompanied by photo illustrations. There are no calls to action or links to relevant commercial pages with services in the blog posts. Only a "Contact us" button is available.	4	The company's website has a blog section that contains approximately 279 posts. Posts can be sorted using filters. According to the Serpstat service, the pages that lead in search traffic and the number of keywords are mainly the homepage and blog pages, which bring visitors to informational requests. The blog contains relevant information for the company's target audience: examples of technology use for different industries, trends, definitions, etc. The posts in the blog are supported by statistics and examples. The posts are structured with headings, introductions, and conclusions, making it easy to find the necessary information. The text of the posts is also accompanied by photo illustrations. The blog posts include a call to action for contact, but there are no links to relevant commercial service pages. The pages contain a subscription form for news and a contact form.	5

Marketing Mix 4Cs:Communication

Case Studies and Demonstrations	The website has a section with case studies, but they cannot be sorted. The case studies are presented for different industries and have the following structure: main idea, challenges, solution, and technologies used. There is also information about the team composition and development timelines	5	The website has a section with case studies that can be sorted by the technology used: AR or VR. The case studies are presented for different industries and have the following structure: information about the client and their needs, the technologies used, a description of the development process, challenges, and the final results	5	The website has a section for case studies. However, it is not possible to sort the case studies. The case studies are presented for different industries and have a more concise structure compared to other companies. They typically include the project goal and the solution	4	The website has a section with case studies that can be sorted by the technologies used. The case studies are presented for various industries and include the following structure: information about the client and their needs, the technologies used, a description of the challenges, the development process, and the achieved results.	5
Communication Channels	The company is present on all major social media platforms, including YouTube, which is particularly relevant in light of the growing popularity of video content. As the main sales on social media are through LinkedIn, we evaluate its performance based on the number of followers: LinkedIn - 1183 followers.ers.	3.5	The company is present on all major social media platforms, including YouTube, which is particularly relevant in light of the growing popularity of video content. As the main sales on social media are through LinkedIn, we evaluate its performance based on the number of followers: LinkedIn - 2615 followers	4.5	The company is present on all major social media platforms, including YouTube, which is particularly relevant due to the growing popularity of video content. Since the primary sales channel through social media is LinkedIn, we evaluate the company's LinkedIn account based on the number of followers, which is currently 10,688.	5	The company is present on all major social networks, including YouTube, which is particularly relevant due to the growing popularity of video content. Since the main sales on social networks are made through LinkedIn, we evaluate it based on the number of followers: LinkedIn - 759 followers.	4
	Average grade	4.1		4.9		4.4		4.5

APPENDIX B

Customer Journey Map for Creative Marketing Agencies: Provider Side

		Awareness	Lead Nursing	Consideration	Decision	Procuction&Delivery	Loyalty and Advocacy
	Client activities	Passive recieving information	Meeting with potential subcontractors Checking all abilities and possibilities	Project is starting	Project work initialisation	Checking and monitoring	
	Client goals	Collecting potentialy useful contacts	Understand with whom is comfortable to work, find if the provider is a potentially good match	Companing provider`s offers Find trusted provider	Solve all paper works Work is strating already	Get the project with needed quality and terms	
	Touchpoints	First message in Linkedin Bidding in Upwork Presentation (company profile, service overview, case studies, etc) Demo apps / Demo videos Company site (incl. company blog) Company profiles (YouTube, FaceBook, Linkedin, Instagram, Twitter, Reddit Article on technical recources OpenSource posting Posts on social media Company profile on domain recources Clutch Public references from clients	Follow-up messages Content in social networks Face-2-face meetings (road shows, events) Greetings	Calls with presales team Additional marketing materials (if needed) Estimation, proposal Client references Face-2-face meetings (visiting QS or client office)	Docs (contract, SOW, invoice) Kickoff meeting	Project meetings Ongoing daily communication Tickets in Jira Demos Reporting Invoicing Continuous deliveries Mails with questions Repository Documentation Company update Regular coordination meetings with sales team	Request for reference
CLIENT SIDE	Barriers			Competitors with better expertise or lower price Lack of trust Inhouse opposition		Bad communication from the clients side late responce on issues from PM side Bad work with expectations lack of money	
	Emotional experience :-D						
	:-)						
	:-|						
	:-\						
	:-(						
		Interest, curious	Interest fade	Feeling of own importancy (I'm a boss, they are fighting for me as a client)	Problefm is solved!	Lot of questions, need to pay money	Job is done!

Customer Journey Map for Creative Marketing Agencies: Client Side

COMPANY SIDE	**Business goals**	Fill the sales funnel	Nursing qualified prospects Keep connected to not lose the right moment Find all pain points Uncover all decision makers	Look better than competitors Provide all needed information for the deal Working with concerns	Sign the contract	Work with expecations	Recieve feedback Recieve reference the next project
	KPIs	Number of qualified leads Amount of content Level of content	Level of interest		Number of clients who refuse working on this stage is 0	Level of client satisfition	
	Organisation activities	Creating content (content plan) Collecting and qualifing leads	Personalised content according to research	Show expertise seniority Good presentation by docs	Documents activities	Engineering Communication	
	Responsible	Marketing team Sales team(by profile, by messege)	Marketing team Sales team	Sales team Presales team	Sales team Prod team Bookkeeper Lawer	Prod team Sales team Bookkeepers	Sales Marketing
	Technlology systems	Linkedin, Upwork, Site, Social media	LIn, social media, CRM	CRM, documentation	CRM, documentation	Slack, Jira, comunications (Slack, Jira, mail, ect)	
	Attention points	Information about QS has to be credible Make lead thinking about new ideas	Information about QS has to be near client`s attention always	Find the last pain points, close them	Show responsibility and professianalism Feeling of the right desition	Show careness, attention to project, interest to project, proaciveness	

APPENDIX C

Table C.1

ICP Creative Marketing Agencies

Element	Description
Industry and Niche	Ideal clients operate in the marketing and creative agency industry, focusing on emerging technologies, such as VR, AR, and MR. Approximately 60-80% of their projects involve XR technologies.
Company Size	Ideal clients are mid-sized to large agencies with 50-500 employees and annual revenues of $10M-$200M, having the resources and vision to invest in advanced technologies like XR and the capacity to manage complex projects.
Geographic Location	Ideal clients are located in technology hubs or major cities, such as San Francisco, New York, London, Berlin, Tokyo, and Singapore, where the adoption of emerging technologies like XR is more prevalent, and there is a higher demand for innovative solutions.
Client Role	Key contacts within ideal client companies include agency owners, C-suite executives , innovation directors , product managers,creative directors, and digital strategists.

ICP Creative Marketing Agencies

Demographics	Decision-makers within these agencies are likely to be well-educated professionals aged 30-50 years, with a strong background in marketing, advertising, design, or technology. Approximately 70% have a bachelor's degree or higher.
Psychographics	Ideal clients are forward-thinking , open to experimentation, and keen on staying ahead of industry trends . They value partnerships with companies that share their vision and can support them in delivering unique and engaging experiences to their customers.
Pain Points and Challenges	Ideal clients may struggle with identifying suitable XR technology partners , managing complex projects involving emerging technologies , and ensuring the successful integration of XR solutions into their clients' campaigns or experiences.
Decision-Making Factors	When selecting an XR engineering and consulting partner, ideal clients prioritize expertise, industry reputation, a proven track record, strong communication and collaboration skills, competitive pricing , and the ability to deliver results on time and within budget
Communication Preferences	Ideal clients may prefer a mix of communication channels: email , video conferences meetings . They are likely to be active on professional networking platforms like LinkedIn and may attend industry conferences, webinars, or workshops to stay informed about the latest trends and best practices in XR and related technologies.

APPENDIX D

List of High-level Processes

Name of Process Document	Short Description	Process Owner	Process Stakeholders
Project Management Process	This process outlines how projects are planned, executed, monitored, and closed. It ensures efficient resource allocation.	Project Manager	Project Team, Clients, Management
Production Process	This process guides the development and project management activities, ensuring timely delivery and high-quality work.	Development Manager	Dev Team, PMs, QA, Clients
Pre-sale Support Process	This process defines how to assist clients before a sale, including technical advice, product demonstrations, and proposals.	Sales Engineer	Sales Team, Technical Team
Sales Process/Lead Generation	This document describes the process of identifying, engaging, and converting potential clients into new business opportunities.	Sales Manager	Sales Team, Marketing Team

List of the High-Level Processes

Account Management Process	This process aims to strengthen client relationships, ensuring satisfaction, retention, and potential upselling opportunities.	Account Manager	Clients, Sales Team, Management
Communication Guide	This guide sets standards for internal and external communication, ensuring professionalism, clarity, and consistency.	Communication Manager	All Employees, Clients
HR/People Partnership Process	This process outlines how HR partners with employees and managers to support a healthy work environment and growth.	HR Manager	Employees, Managers, HR Team
Recruiting Process	This document defines the process of sourcing, interviewing, and selecting candidates for open positions within the company.	Talent Acquisition Manager	Hiring Managers, HR Team, Candidates

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