

Human Resource Management Analysis in the AR/VR Industry: A Case Study on Meta Company

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Abstract. This research paper delves into the complex landscape of human resource (HR) management within the Augmented Reality and Virtual Reality (AR/VR) industry, using Meta Company as a prime focal point. The study thoroughly examines key challenges facing the industry, including critical skill gaps, mismatches in talent demand and supply, high rates of employee turnover, and the intricacies of cross-cultural management. It delves into the various methods employed for recruitment and selection, the strategies implemented for training and development, and the initiatives taken for effective employee retention within the AR/VR industry. The findings of this study reveal that despite the unique and rapidly evolving challenges of the AR/VR landscape, deploying effective and strategic HR management can significantly enhance talent acquisition, foster skill development, and ensure successful retention of employees. This research paper contributes valuable academic and practical insights to the understanding and management of human resources in the burgeoning field of AR/VR, providing a comprehensive perspective that could potentially facilitate sustainable growth and development within the industry.

Keywords: AR/VR industry, human resource, employee performance, welfare.

1. Introduction

1.1. Background Information

The Augmented Reality and Virtual Reality (AR/VR) industries represent a cutting-edge technological frontier that has witnessed rapid growth in recent years. This growth transcends mere entertainment, catalyzing significant transformations across global industries. Concurrently, these advancements have unveiled complex challenges related to the talent landscape, including pronounced skill gaps, talent mismatches, and specialized training requirements.

1.2. Problem Statement

Within this context, talent strategy has emerged as a paramount consideration within high-tech enterprises. The strategic processes of recruiting, training, managing, and retaining talents are not merely functional requirements but vital components of an organization's competitive edge and long-term survival. Hence, a detailed study of the current situation and challenges facing human resource management in the AR/VR industry is necessary, leading to the requirement of practical and fact-based solutions.

1.3. Research Objective and Significance

This study analyzes the AR/VR industry's human resource management practices, focusing on identifying extant challenges and proposing viable solutions. By examining the case of Meta Company, this research contributes to understanding talent strategy in high-tech organizations and offers broader implications for the industry. Furthermore, the findings of this study could facilitate collaboration between governmental bodies, educational institutions, and industry practitioners, thus enhancing both talent development and the overall health of the AR/VR sector.

1.4. Structure of Research

The research paper is organized as follows: Section II provides an overview of the fundamental concepts and prevailing trends in the AR/VR industry. Section III delves into analyzing talent demands and current employee management practices. Section IV investigates the challenges faced by AR/VR companies in human resource management and proposes potential solutions. The conclusion, Section V, synthesizes the principal findings, emphasizes the vital role of human resource management in AR/VR companies, and outlines the limitations and prospective avenues for future research.

In conclusion, this research is poised to add significant value to the academic and practical understanding of human resource management in the burgeoning field of AR/VR, thereby contributing to its sustainable development.

2. Overview of AR/VR Industry

2.1. Explanation of AR/VR Concept

AR superimposes digital content onto the real world, creating an interactive experience. This overlay can range from simple data to complex animations. Devices like smartphones, tablets, and specialized AR glasses facilitate this. Popular applications include real-time navigation maps, interactive 3D models in education, and immersive gaming.

VR, contrarily, grants a comprehensive digital experience. With VR headsets, individuals can disengage from the actual world and enter a digital environment, which is occasionally complemented with real-world components. Expanding across various fields of endeavor, its applications include gaming, pilot training simulations, and virtual tourism.

2.2. Development and Trends in the AR/VR Industry

The growth trajectory of AR/VR technologies has been nothing short of phenomenal. Initial applications were primarily in gaming and entertainment. However, as technology matured, its applicability extended. The total revenue generated by AR/VR industry from 2017 to 2023 is illustrated in Figure 1, with extrapolated data from 2024 to 2027.

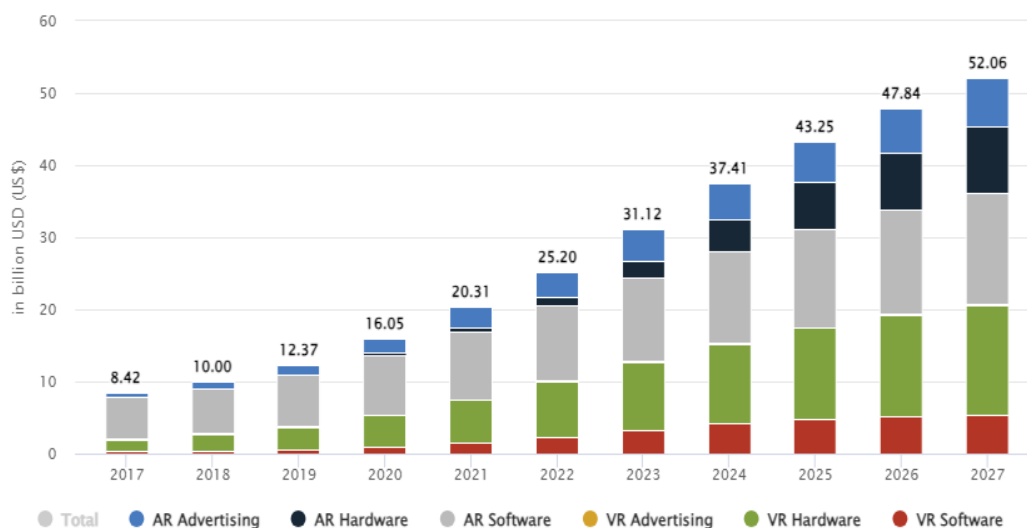


Figure 1. Revenue projection of AR/VR industry by market [1]

Predictions suggest that by 2027, the AR/VR market could surpass \$52.06 billion, indicating quantitative growth and significant advancements in hardware and software capabilities. Beyond the gaming industry, AR/VR finds diverse applications in several sectors, including healthcare, where it is used for surgeries and patient care; real estate, where it enables virtual property tours, education through interactive learning modules, and even social media platforms that use filters and virtual

meeting spaces. The evolution of hardware and software has also been remarkable. Early VR experiences, which were tethered to powerful PCs, have given way to standalone VR headsets, and AR glasses have transitioned from bulky prototypes to sleek, user-friendly designs. Additionally, software development kits are becoming more accessible, enabling a larger community of developers to create AR/VR content. It is anticipated that the applications of VR/AR technology will extend and intersect with various sectors. As described by Debevec et al. in their study, a 'virtual factory' exemplifies the utility of VR/AR in practical scenarios. This innovative tool can significantly enhance the training of production process planners by allowing them to carry out production plans or schedules in a virtual environment. This not only saves material and energy resources but also prevents any disruption to the ongoing production process. Moreover, the virtual factory can be leveraged to design novel production systems or augment existing ones, highlighting the myriad applications of VR/AR, particularly in the engineering sector.

2.3. Characteristics and Challenges of AR/VR Companies

AR/VR companies operating at the forefront of technology showcase unique characteristics. They thrive on innovation, with the rapid pace of technological advancements necessitating a constant evolution of products and services. An inherent aspect of these companies is the interdisciplinary collaboration they foster, bringing together professionals such as engineers, designers, content creators, and domain experts, owing to the convergence of hardware, software, design, and application in their products. However, they also face significant challenges. The fast-paced nature of the technology requires frequent upskilling, which, combined with high development costs, especially in hardware, poses financial risks.

Despite the hurdles, the AR/VR space carries on its growth. It is through the integration of HR strategies, talent acquisition, and retention that a company truly thrives. This investigation will examine the intricacies of HR management in AR/VR companies, identifying distinct challenges, leveraging established strategies, and offering a unified viewpoint on technological and HR aspects.

2.4. Rationale for Meta as Case Study

Meta, formerly known as Facebook, presents an ideal case study for this research due to its pioneering role in the AR/VR industry. As one of the leading tech giants globally, Meta has been at the forefront of AR/VR technology development, most notably through its Oculus brand, making it a key player in shaping the industry's trajectory. Furthermore, Meta's ambitious vision for building the 'metaverse,' a collective virtual shared space expected to revolutionize how people interact with digital environments, places it at the cutting edge of AR/VR innovation.

Meta's size and global presence also provide a wealth of data and insights into HR practices and challenges in the AR/VR industry [2, 3]. The company's talent acquisition, retention, and skill development strategies in its AR/VR sector can offer valuable lessons for other players. Moreover, Meta's initiatives in managing workforce diversity and inclusion, addressing skill mismatches, and fostering a culture of innovation can shed light on effective HR practices in a rapidly evolving tech domain.

Therefore, an in-depth examination of Meta's approach to HR management in its AR/VR sector can provide a comprehensive understanding of the HR challenges and strategies in the AR/VR industry. This analysis can serve as a valuable guide for other companies navigating the HR landscape of this exciting and dynamic field.

3. HR Needs of AR/VR Companies

3.1. Skill Demands in the AR/VR Industry

Table 1 outlines the current critical skills the AR/VR industry demands. The AR/VR job market requires diverse skills, emphasizing technical expertise and soft skills. Such a requirement reflects the industry's need for well-rounded professionals adept in technology, communication, creativity, and

global collaboration. Including specialized skills like 3D modeling and foreign languages highlights the sector's niche demands and global reach. Companies, preeminent players like Meta, must prioritize comprehensive training and foster a diverse, inclusive work environment. The complexity of these demands suggests a highly competitive job landscape, underscoring the need for continuous skill evolution and adaptability.

Table 1. Essential skills demanded by the AR/VR job market [4]

Skill Category	Skills
UI/UX Design	Design principles, accessibility, human-computer interaction, usability
Software Design	Object-oriented programming, product lifecycle management, software testing and debugging, source control
Principles	3D modeling software (Maya, Blender, etc.), visual effects, animation, prototyping
Asset Design	Tracking, lighting, rigging, mapping, visual effects, shaders, computer graphics
Graphics	C/C++, Java, Python, Swift, SQL, programming frameworks (Unity, Unreal), deep learning frameworks
Rendering	Prioritization, meeting deadlines, time management skills
Programming	Ambition, willingness to learn
Time Management	Accuracy, precision, eye for detail
Motivation	Autonomous work, self-direction, taking initiative, problem-solving
Attention to Detail	Written communication (copywriting, editing, blogging), verbal communication, presentation skills
Independence	Team management, collaboration, cooperation, networking, client relationship
Communication	Problem-solving, analytical thinking, research skills
Interpersonal	Issue management, product launch, project documentation, posting schedule
Analytical	Creative thinking, storytelling, out-of-the-box ideas
Administrative	Data gathering, data collection, trend monitoring, data reporting
Creativity	Geometry, linear algebra, 3D math, vector math
Research Skills	Proficiency in Spanish, French, German, Italian, Chinese, etc.
Mathematical Skills	Project management methodologies, project documentation, lean/agile methodologies
Foreign Language	Understanding of AR/VR hardware devices (Oculus Rift, HTC Vive, Microsoft HoloLens)
Project Management	
Hardware Knowledge	

3.2. Recruitment Channel and Method

In their quest to boost AR/VR projects, companies are constantly seeking fresh talent and exploring different channels and methods of recruitment. One significant platform for talent scouting is AR/VR conferences. Events like Oculus Connect and Augmented World Expo attract many professionals and enthusiasts in the field, providing an excellent opportunity for companies to interact with potential candidates, understand their expertise, and evaluate their suitability for their teams.

Universities providing AR/VR curricula among these institutions hold immense value as talent sources. Companies form collaborative relationships with these institutions to gain exclusive access to students' pool and researchers. Of note is the University of Washington's Reality Lab, which has received funding from top tech companies - Facebook, Google, and Huawei. The lab serves as a research hub for AR/VR, and companies often collaborate with the lab or directly hire from its talent pool [5].

The rise of digital platforms has also made online recruitment a popular method for hiring. Companies often post job openings on websites or portals like LinkedIn to attract potential candidates. Other innovative avenues for talent spotting include hackathons and competitions, which challenge

participants to solve complex problems or develop innovative solutions, allowing companies to assess potential recruits' technical skills and problem-solving abilities.

Internship programs are also commonly offered in AR/VR to students or young professionals. These programs provide the interns with practical experience and allow the companies to evaluate their performance for potential full-time positions. Additionally, companies often turn to recruitment agencies, leveraging their vast databases of potential candidates and their expertise in matching candidates with the right company job roles.

By employing these diverse recruitment channels and methods, companies can ensure they attract the best talent in the AR/VR field to propel their projects forward.

3.3. Selection and Assessment Method

Many AR/VR companies, especially startups, are known for their rigorous interview processes, sometimes including hands-on project assessments or hackathons.

AR/VR companies like Meta Platforms, Inc. use a thorough 7-step hiring process to select the best candidates: (1) Resume screen. The process begins with a review of the candidate's resume to assess their background, skills, and experience in the AR/VR field. (2) Recruiter call. After the resume screening, a recruiter calls the candidate for an initial discussion about their qualifications and interests and to provide more details about the role. (3) Phone Screens. If candidates are deemed suitable, they proceed to one or more phone screens. These involve deeper discussions about the candidate's technical knowledge and past projects. (4) Onsite interviews. Successful candidates are then invited to onsite interviews. These include rounds with different team members and involve technical and behavioral questions. The aim is to assess the candidate's practical skills and cultural fit. Three to six onsite interview rounds that last nearly an hour each. (5) Debrief. After the interviews, the interviewers gather for a debrief to discuss the candidate's performance, technical abilities, problem-solving skills, and cultural fit. (6) Hiring committee. If the feedback from the interviewers is positive, the candidate's profile is presented to the hiring committee. This committee decides on the candidate's suitability for the role. (7) Salary negotiation. The final stage is salary negotiation once the hiring committee approves. The recruiter discusses the compensation package with the candidate. If both parties agree on the terms, an offer is extended. This meticulous process allows companies to ensure they hire the most capable and fitting candidates for their AR/VR projects [6].

4. Challenges and Solutions in HR-Management: Meta as Case Study

Until 2022, Meta exhibited robust performance. However, the convergence of several factors, including the COVID-19 pandemic and the bursting of the metaverse bubble, led to the company experiencing its first decline in total revenue, as depicted in Figure 2.

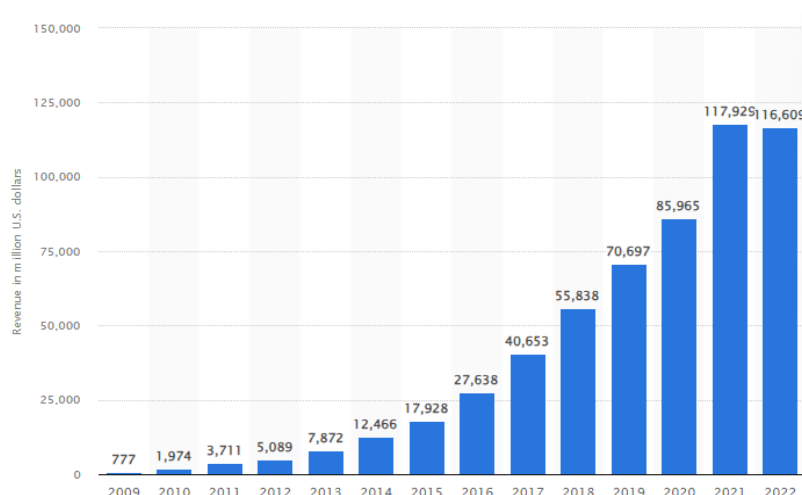


Figure 2. Annual revenue generated by META, in million US dollars (Photo credit: Original)

This decrease can partially be attributed to challenges in the HR domain, given the increasingly competitive nature of the market. These hurdles underscore the criticality of effective HR strategies in maintaining growth and stability in such a dynamic industry landscape [7].

4.1. Skill Gap and Talent Demand Matching

The rapid evolution of the AR/VR industry brings significant challenges to HR management. Companies, including Meta, often face a mismatch between the available talent pool and the specific skills required in the industry. For instance, Meta's 2022 annual report highlighted a 15% skills mismatch in their AR/VR department. Meta employs a dual strategy of establishing external partnerships and cultivating talent internally to navigate this issue. This combined approach bridges the skills gap and ensures a steady supply of qualified professionals for its AR/VR projects.

The primary targets of META's collaborations are colleges. Meta Materials Inc. (NASDAQ: MMAT) has joined Stanford University's SystemX Alliance in 2021 to address challenges in the growing augmented reality/virtual reality (AR/VR) industry. This move highlights Meta's commitment to overcoming the skill gap in AR/VR. The alliance allows Meta to sponsor collaborative research at Stanford and connect with students for recruitment and internship opportunities.

George Palikaras, Meta's CEO, emphasizes the alignment between the partnership and Meta's presence in Silicon Valley. This collaboration focuses on critical areas like photonic, AR, solar, and quantum technologies while offering networking and learning opportunities with academic experts.

Meta's engagement reflects broader industry challenges. Their 2022 annual report revealed a 15% skills mismatch in their AR/VR department. Meta's strategy includes academic partnerships for curriculum alignment, internal talent development through mentorship and training, and leveraging global talent platforms for recruitment. This strategic move exemplifies Meta's proactive approach to tackling AR/VR's evolving landscape and addressing the talent-skill gap [4].

4.2. High Employee Turnover Rate

Intense Competition in the AR/VR Industry Leads to High Employee Turnover. The attractiveness of better opportunities often leads to frequent job switches. According to the compensation data site Comparably, Meta ranks in the top 10% of companies of similar size when retaining high-quality employees. It is noted that 59% of its workforce would choose to stay with Meta even if they received a higher-paying job offer elsewhere. Additionally, 78% of its employees look forward to going to work each day. In general, 60% of the employees believe that Meta is taking the appropriate steps to retain them, while 40% might consider other job opportunities [8]. High-quality employees are hard to come by, so their retention becomes all the more critical.

To tackle this, Meta has implemented several strategies. These include providing competitive salaries and benefits, creating a good working environment through flexible hours, remote work options, health initiatives, and offering development opportunities through clear career progression plans. These measures have proven effective in enhancing job satisfaction and deterring employees from seeking external opportunities.

4.3. Cross-Cultural Management

AR/VR Companies, in general, May Involve Employees from Different Cultural Backgrounds. Meta is a global company with diverse teams, leading to potential communication gaps. Such a problem is addressed by creating an inclusive work environment. Diversity and inclusion initiatives at Meta are at the forefront of their HR policies. As disclosed by its proxy statement, Meta is committed to fostering diversity across its organization to further its mission. Moreover, it actively promotes diversity among businesses that collaborate with Meta. All employees are encouraged, and all interviewers must undertake the "Managing Bias" training. This initiative aims to reduce the influence of bias in the workplace and enhance understanding of diverse perspectives. In 2022, Meta also introduced civil rights training for all its employees, designed to equip them with the knowledge to identify and address civil rights issues daily [9].

4.4. Summary

The HR challenges in the AR/VR industry are distinct and require proactive solutions. Meta's approach to these challenges is well-rounded, focusing on the skill gap and inclusivity. The company's efforts in maintaining competitive salaries, providing opportunities for learning and progression, and fostering an inclusive work environment are commendable. Balancing technological advancements with human resource requirements will be critical as the industry evolves. Meta's strategies provide valuable insights into effective HR management in the rapidly growing AR/VR industry [10].

5. Conclusion

In this research, the paper meticulously explored the intricate relationship between the AR/VR industry and the challenges and opportunities it presents in human resource management. From immersive gaming to transformative medical applications, the limitless possibilities of AR/VR have instigated a dynamic shift in various sectors. The industry's trajectory promises exponential growth, but with that comes the escalating complexity of managing human resources.

The central challenges identified include the substantial skill gap, primarily fueled by the rapid development of AR/VR technology. Companies like Meta have recognized this disconnect and have taken proactive steps, such as forging partnerships with educational institutions and diversifying their recruitment processes. Employee retention remains a pressing concern. The lure of competitive opportunities has led to significant turnover in many AR/VR companies. Solutions adopted, particularly by giants like Meta, involve competitive remuneration, fostering a conducive working environment, and offering tangible growth pathways. As technology evolves, there is an overarching necessity to keep employee skills current. The emphasis on continuous learning, as demonstrated by the considerable resources allocated by companies for employee training, reflects this need.

Finally, the global nature of the industry means that cross-cultural management cannot be overlooked. Fostering an inclusive work environment and emphasizing cross-cultural communication is paramount to mitigating potential misunderstandings. In the future, as the AR/VR landscape continues to change, companies will need to be agile in adapting their HR strategies. They must anticipate new challenges and remain committed to ensuring their workforce is equipped, satisfied, and aligned with the company's vision. While this research provides a snapshot of the current scenario, it also underlines the importance of continuous evaluation and adjustment in the dynamic AR/VR sector.

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