Automation and Self-Sufficiency Through Scripting

VR as a Social Tool: Meta Versus VRChat

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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General Research Problem: Analyzing Enterprise-Level Adaptions of New Technologies

Intro:

Virtual technology has continued to advance rapidly over the last three decades, and as a result companies have incorporated many of these technologies into their workflow and product lines. From automation to socialization, companies and individuals have developed many different implementations, both in terms of technology and culture. This paper will serve as a case study of such adoptions of automation and virtual reality at enterprise levels and try to understand the reasoning behind these differences, how these differences inform the response to these implementations.

In order to accurately analyze enterprise-level adoptions of new technologies, I propose two projects. My technical project will involve recounting the process of creating an automated solution in an enterprise environment to better understand how that process happens. The second is to analyze Meta's approach to VR social spaces in the form of Horizon Worlds, and VRChat in order to understand why VRChat continues to grow and Meta's Metaverse is being rejected (Meyers).

Technical Research Problem: Automation and Self-Sufficiency Through Scripting

As companies have become more digitized in the last three decades, many create or manage mass quantities of information which is integral to their operations. Problems tend to arise at the sheer volume of information that must be documented, organized, and stored daily, creating bottlenecks in enterprise workflows that can disrupt projects or even company-wide operations. One such instance of this problem was when a particle accelerator facility in Virginia found its system-info database to be out-of-date and unreliable. This database held information on many systems that supported both the accelerator managers and on-site developers, so the outdated information held by this database frequently led to problems with reading accelerator measurements and confusion on which systems required support or replacement. With hundreds of systems spread across the campus and no engineers with the free time to correct information on every one of them, an automated solution was seen as the most cost-effective option. I created this solution in the form of a user-friendly Bash script utilizing several Secure Socket Shell connections across 200+ systems, allowing the user to check information on systems all around the campus without having to leave their chair, all in a matter of seconds. The script would check

the information gained from each SSH and cross-examine it with the information present in the database. This script presented several options to the user in how and where data was collected to promote its usability and convenience. The project was successful and, with some minor tweaks, was integrated into the workflow of several system engineers on site as well as the database manager, creating a much more accurate and robust systems database, allowing the appropriate out-of-service systems to be replaced. However, this script was only utilized by the Linux system management. Expanding the script to encapsulate the Windows system database could yield similarly positive results on system/database management workflow.

STS Research Problem: VR as a Social Tool; Meta Versus VRChat

As virtual reality has grown from its conceptual infancy, more companies have begun taking notice of its potential, not only as a platform for entertainment, but education, work, and even social interactions as well. VR as a social platform is a relatively new idea (although virtual social platforms have been around in the form of chatrooms for decades) and the implementation between these platforms varies widely and as such, the reception to those platforms also falls into a wide range of responses. This paper will analyze the goals and executions of two such platforms, Meta's Horizon Worlds and VRChat, to assess why public responses to each platform vary so much, and how those responses further influence their ongoing development. These platforms were chosen for their contrasting properties, such as the fact that Horizon Worlds is backed by Meta, a multi-billion-dollar corporation, while VRChat is a self-published title from a small company wholly dedicated to the maintenance and updating of VRChat. This difference creates a dichotomy between each product, Horizon Worlds has a strong foundation of developers and resources to aid in its implementation, but it also restricts what Meta can do with Horizon Worlds as any controversy will be highly scrutinized. Conversely, VRChat has very few resources to pull from as the VRChat Inc. did not exist before VRChat, though this allows for a great deal of freedom. This assessment will take each implementation into account, contrasting the pros and cons of each and, especially in Meta's case, examine how the context of these platforms informs the opinions of the people using them.

Social VR as a Sociotechnical System: History and Goals

Social media has become one of the largest social platforms in existence today and is still growing each year. In a post-pandemic world, these virtual connections have become more prominent in daily life than ever before. Virtual reality and its social platforms have experienced a similar growth, VRChat alone has tripled its playerbase since before the pandemic (xPaw). As these platforms continue to grow and become more intertwined in our lives, their impact on individuals and society will continue to grow, so it is important to assess how these platforms came about, why people are attracted to them, how they are monetized, and how the practices of the companies that create these platforms could change how society perceives and engages in online social interactions in the future.

The history of online social spaces is long and complex, with the technology available at times throughout history informing the culture, forming a intricate sociotechnical system. An integral part of this system is anonymity, a natural consequence of how the internet and its social spaces (forums, chatrooms, etc.) were formed in the beginning, with usernames (or lack thereof) serving to hide the personal information of the people behind them. Whether or not this aspect of internet culture is good or bad is certainly up for debate, but the reality is that it has become the norm for the majority of internet spaces (generally, social media is NOT included in this statement, but they can be anonymous as well). Anonymity has given rise to a unique culture that is not present in ANY other form of communication (as almost all other forms of communication require the relinquishing of some form of information) and is fundamental to how many people interact with the internet. An example of this is marginalized communities, which have been using anonymous internet forums and chatrooms to communicate and form communities where they would otherwise be persecuted (Tennent). VRChat reflects this aspect of the internet quite well, as a user can put as much or as little information on their profile as they like. Conversely, Meta is much less anonymous, as they used to require a Facebook account to even use their headsets, although this decision was recently reversed.

Even without these tied accounts, however, Meta's notorious reputation for data-collection and excessive moderations creates doubt on how anonymous and 'free' their VR platform truly is. In a poll conducted by the Washington Post, 72% of American internet users don't trust Facebook to handle their personal data (Kelly). Meta's reputation as an invasive data-collection corporation has also had a heavy influence on public reaction to their venture into the metaverse. Being such a large corporation, Meta's culture is that of secrecy and efficiency, where development ideals and methods are hidden behind closed doors and tight lips. This is heavily juxtaposed against the transparency of the VRChat developers, who regularly publish updates on development, monetization, security, and safety to their users. With a technology as new and untested as VR, creating a multi-billion-dollar social platform is as ambitious as it is uncertain. This is the primary difference in mindset between the development of VRChat and Horizon Worlds, the former is a platform of transparency and community, founded by a group of open developers, while the latter is a money-making venture, and seen by many as the vanity project of a billionaire CEO with a questionable ethics track record. Regardless of their true intentions, neither of these ventures exist in a vacuum, and the context in which they are developed has had a significant effect on how the public has responded.

The internet has had a history of being a boon to groups of people who feel uncomfortable expressing themselves in their physical lives, giving them a platform to pursue interests and identities that may not be accepted elsewhere. These groups have historically been members LGTBQ+, neurodivergent individuals, as well as young adults and teenagers. Online spaces give these groups a safe space to express themselves, communicate with others like them, and even practice social interaction, such as giving people with Autism Spectrum Disorder a controlled environment to practice social skills while still immersing the user and allow them to

experience certain social indicators that were previously only present during in-person interactions, such as body language (Hutson). VR is also an excellent vector for self-expression, in a study involving interviews with several VRChat users, a trans interviewee said

> "Using a feminine avatar makes me confident not only in VR but also in real life. I feel like that would be actually more real than the real you in real life. Because in real life, you're stuck with what you were born with. But in VR, you can be what you truly feel like you are inside. This experience actually gave me confident to start my [transgender] procedure in the real life" (Freeman 5).

This particular example cites the robust nature of avatar creation in VRChat to their ability to express themselves and their identity. This is opposed to Meta's implementation, which is much more restrictive in that a user can only choose from certain combinations of developer–created assets.

Avatars are the main vector through which users can express themselves in VR social spaces and have become an integral part of not just the technology, but the culture of these spaces as well. It is so much the case that some people have taken to professionally creating these avatars for VRChat, taking commissions for each project. Depending on the complexity of these commissions, the price of such projects can be that of hundreds of dollars. The technical limitations of VRChat also heavily influence the creation of avatars, as one that is too geometrically complex will cause major slowdowns and even crashes for users. As such, simpler designs have become preferred for many avatars, with 'anime' avatars becoming very popular as they are geometrically simple with simple faces (generally the most difficult part of a person to simulate in 3d space). This is just one way the technology of VR and the culture of the social spaces have influenced each other in VRChat's case. Meta has none of this culture, as every avatar is just a combination of presets created by developers, which is much safer and easier to moderate (as many VRChat avatars can and are explicit and certainly not suitable for minors), but much more restrictive.

Methods

The primary method of collecting evidence will be through analyzing research papers related to social VR platforms, VR as a technology, and some primary sources containing statistics pertaining to sales, player count, and public opinion. These papers will help shed light on why people use VR as an avenue for socialization, why many young and neurodivergent people see it as a valuable form of escapism, and how certain implementation details (such as avatar and world creation) can influence how people interact with these spaces. These papers will also be used to analyze the technical aspects of creating social spaces in VR and how some technical limitations of current computing hardware has influenced how theses spaces have been developed. The statistical sources will be used to create an approximation of public opinion on VRChat and Meta's Horizon Worlds to reinforce how different implementations influence reactions.

Conclusion

By the end of my STS research, I hope to have a better understanding of how sociotechnical factors influence the decisions of these companies when creating social VR spaces, and how those decisions mold the technologies as they mature. From my technical research, I hope to better understand some the processes that developers go through when adopting a new technology and applying it to an enterprise-level workflow. When this work is finished, I hope to provide and deeper level of understanding pertaining to how social values and trends influence how companies adopt new technologies, and how those decisions can in turn influence the society that they were born from.

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