
| RESEARCH ARTICLE

Project Management in the Metaverse: Building Virtual Worlds

Raja Manambedu Vijayakumar

Westcliff University, Irvine, CA, USA

Corresponding Author: Raja Manambedu Vijayakumar

| ABSTRACT

The management of projects in the Metaverse, which combines decentralized blockchains and virtual reality (VR), requires new challenges to be considered that cannot be applied in the context of traditional models. Such technical challenges as limitations of scalability, latency, and cross-blockchain interoperability require a higher-level solution architecture and real-time system optimization. This presents governance-related problems due to the lack of a centralized decision-making system of organizations such as DAOs, where rules and regulations are extremely unclear and have complicated tokenomics that need very precise planning to make the project sustainable. Projects based on VR have to deal with extra issues connected with user experience, the privacy of biometric information, and moderation within the immersive environments. In answering these, the classic project management tools such as Gantt charts and Scrum have been adjusted to work in the digital setting. This allows Gantt charts to be implemented with AI-based predictive forecasting and real-time teamwork, and an Agile approach, such as Scrum, to increase the flexibility of a team, particularly in the Web3 use case. Distributed teams are more supported with the integration of such tools as Jira and CI/CD pipelines. It is this process of hybridization between traditional and digital project management systems that is crucial in the process of realizing scalable, regulatory, and user-driven metaverse projects within the presently changing world of technology.

| KEYWORDS

Metaverse; project management; blockchain; virtual reality; decentralized autonomous organizations; Scrum; Gantt charts; Web3; interoperability; digital collaboration

| ARTICLE INFORMATION

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1. Introduction

2. Unique Challenges in Managing Decentralized, Blockchain-Based, and VR Projects

Metaverse project management is an innovative and complicated domain as it combines new solutions, such as blockchain, virtual reality (VR), and decentralized networks. These projects present special difficulties which are not very similar to standard-type project management models.

2.1 Technical Complexity and Scalability in Decentralized Systems

Most metaverse projects rely on decentralized blockchain-based platforms, although such a platform comes with scalability and interoperability problems. Traditional blockchains cannot scale to thousands of simultaneous users and asset transfers, so instead, they are either prone to latency, exorbitant gas prices, or overwhelmed by congestion. According to one source, the virtual world involves a lot of data and interaction to be managed, and it takes a lot of computing power, space and bandwidth (Khan et al., 2021)

Also, there is a technical challenge of cross-platform communication; as the number of blockchains with varying consensus protocols and data models grows, communication between them will need bridges, sharding or common standards to provide interoperability of assets and identity. The project managers are required to synchronize cross-team activities to be able to architect systems that reduce latency, implement layer-2 solutions, and develop physiological layers, sometimes within very tight deadlines.

2.2 Governance, Legal Liability, and Tokenomics

Decentralized governance, often through DAOs, brings in huge complexities in decision-making and accountability. DAOs are also likely to experience voter apathy or centralization in that the token-holders might concentrate power on themselves at the expense of democratic values (Johnston, 2023). In the lack of legal wrappers, developers encounter liability uncertainty, as it will be ambiguous what liability a developer of code will have towards a DAO project that receives the code.

Moreover, token omics is to be carefully planned to ensure asset value and sustainability. When the incentives are poorly structured, they may result in inflation or too much money going into the hands of the rich (Tomer Warschauer Nuni, 2024). According to the citation, other economic problems are inflation, deflation, redistribution fairness, and market liquidity, which are essential to the ecosystem plan in long-term sustainability. Providing the best token models, conducting treasury management, and standing by the legal requirements should be handled as non-common issues of a typical PM.

2.3 User Experience, Privacy, and Community Moderation in VR

Metaverse projects involving VR make the issues of UX, privacy and social governance more problematic. The VR hardware is still fairly costly, the bandwidth demands are high, and most people do not know what to expect, which is creating a steep learning curve (HogoNext, 2024). Patients need their privacy in VR environments that gather vital biometric information (eye-tracking, voice, and body movements), forming a novel set of vulnerabilities that cannot be covered by the existing privacy laws, such as GDPR (Dwived et al., 2022).

Immersive worlds present moderation problems of their own on a social level. Absent centralized control, communities tend to either employ a combination of automated solutions and community managers or volunteer moderators, both of which have limitations; automation can easily overclassify bad behavior, and volunteer moderators are usually underappreciated or overworked. VR governance requires designing a welcoming onboarding, promoting anti-harassment capabilities, educating the moderators, and protecting privacy on immersive experiences.

3. Adaptation of Traditional Project Management Tools to Digital Environments

Conventional tools of project management, such as Gantt charts and Scrum, have also transformed dramatically to accommodate digital, blockchain, and VR premises.

3.1 Enhanced Gantt Charts with AI and Real-Time Collaboration

The once-static Gantt charts are currently enjoying cloud-native solutions (namely, Asana, Microsoft Project) that allow managers to update a chart in real-time anywhere (Michał, 2024). By using AI, these tools have included predictions based on analytics and set up automated assignments of resources to identify delays and optimize (Nair, 2025). In the hybrid context, it is possible to superimpose the agile sprints on conventional timelines with Gantt graphics, providing a unified picture of the iterative and staged delivery. Consequently, the managers will be in a position to move across fixed and agile cycles.

3.2 Scrum in Decentralized and Web3 Projects

The principles of iteration, self-organization and constant feedback work well with speedy digital projects (Agileasia, 2024). As an example, 95 % of organizations that implemented Agile on a blockchain project reported 30-50 % faster delivery, whereas implementing Scrum alone increased productivity by more than 30 % (Vasile Crudu, 2025). In such a Web3 application scenario as TryHards, daily stand-ups combined with one-week sprints, daily backlog grooming, reviews, and Scrum Poker complemented a tri-technological stack of a front end, back end, and smart contracts, albeit the latter were themselves more waterfall-like (Red Berry, 2023).

3.3 Integrating Tools and Platforms

The digital project environment is based on unified toolchains, Jira, Trello, Confluence, cloud-based and transparent communications via CI/CD pipeline and Slack/Teams (Eranda Angunawala, 2025). Kanban boards and burndown charts display progress so that remote teams can monitor their velocity, note bottlenecks, and quickly adjust workloads (Radigan, 2024). These

mixings enable the managers to combine the Gantt planning, agileence, and working dashboards to create a synergistic hybrid PM system.

4. Conclusion

The traditional PM tools are being re-conceptualized within modern digital environments, especially those of blockchain and VR/metaverse undertakings. Gantt charts are turning into active, machine-learning-based timeline managers, whereas Scrum introduces dexterity in dispersed teams.

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References

- [1]. Agileasia. (2024, July 2). Agile Asia. Retrieved on 01st July 2025 from: <https://agileasia.com/how-agile-can-be-used-to-develop-blockchain-applications>
- [2]. Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., Ribeiro-Navarrete, S., Giannakis, M., Al-Debei, M. M., ... & Wamba, S. F. (2022). Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International journal of information management*, 66, 102542. <https://www.sciencedirect.com/science/article/pii/S0268401222000767>
- [3]. Eranda Angunawala. (2025, June 20). The Changing Landscape of Project Management — From Gantt Charts to Generative AI. Retrieved on 01st July 2025 from: <https://medium.com/%40eranda.angunawala84/the-changing-landscape-of-project-management-from-gantt-charts-to-generative-ai-01426d463e8b>
- [4]. HogoNext. (2024, June 8). Project Management in the Metaverse: A New Frontier - HogoNext. Retrieved on 01st July 2025 from: <https://higonext.com/project-management-in-the-metaverse-a-new-frontier>
- [5]. Johnston, A. (2023). Blockchain and the metaverse, part 2: Challenges. Retrieved on 01st July 2025 from: <https://www.spglobal.com/market-intelligence/en/news-insights/research/blockchain-and-the-metaverse-part-2-challenges>
- [6]. Khan, D., Jung, L. T., & Hashmani, M. A. (2021). Systematic literature review of challenges in blockchain scalability. *Applied Sciences*, 11(20), 9372. <https://www.mdpi.com/2076-3417/11/20/9372/pdf>
- [7]. Michał. (2024, December 28). The Evolution of Project Management Tools: From Gantt Charts to AI-Powered Platforms - Future Code IT Consulting. Retrieved on 01st July 2025 from: <https://future-code.dev/en/blog/the-evolution-of-project-management-tools>
- [8]. Nair, P. (2025, January 2). Gantt Charts in Software Project Management. Retrieved on 01st July 2025 from: <https://appvero.com/articles/gantt-charts-software-project-management>
- [9]. Radigan, D. (2024). What is kanban? Retrieved on 01st July 2025 from: <https://www.atlassian.com/agile/kanban>
- [10]. Red Berry. (2023, October 20). How We Utilized Scrum Framework to Build Tryhards. Retrieved on 01st July 2025 from: <https://redberry.international/scrum-framework-for-a-web3-project>
- [11]. Tomer Warschauer Nuni. (2024, December 12). Tokenomics 101: Building Sustainable Economic Models. *Forbes*. Retrieved on 01st July 2025 from: <https://www.forbes.com/councils/forbesbusinessdevelopmentcouncil/2024/12/12/tokenomics-101-building-sustainable-economic-models/>
- [12]. Vasile Crudu. (2025, April 11). Discover the Top Project Management Frameworks for Blockchain Success. Retrieved on 01st July 2025 from: <https://moldstud.com/articles/p-discover-the-top-project-management-frameworks-for-blockchain-success>