

Digital Music Collections in the Metaverse: An Information Systems Perspective on Design, Language, and Interpretation

Abstract

This article examines how design fiction can be materialized to support the early evaluation of emerging metaverse services. Focusing on a conceptual service for music memorabilia, the study shows how culturally meaningful objects can be represented in an immersive environment in ways that preserve context, support interaction, and make value propositions discussable before full implementation. The research follows a design science and research-through-design orientation and uses a high-fidelity video artefact to elicit stakeholder feedback. Qualitative analysis of the responses indicates that users value narrative context, authenticity, social presence, and ease of use, while also raising concerns about provenance and clarity of the service proposition. The study suggests that materialized speculative artefacts can help reduce uncertainty in early-stage service innovation by making assumptions visible and testable. It also demonstrates that music memorabilia is a productive domain for exploring how cultural value, immersion, and trust intersect in metaverse service design. The paper contributes a practical and theoretically grounded approach for investigating future-facing digital services before committing to large-scale development.

Keywords: Metaverse; Design Fiction; Design Science Research; Service Design; Music Memorabilia; Immersive Experience.

1. Introduction

The metaverse has emerged as one of the most discussed concepts in contemporary information systems, digital innovation, and service design because it promises environments in which people, objects, and experiences can be represented and interacted with in more immersive ways. At the same time, the metaverse remains a highly uncertain design space, particularly when the goal is not merely entertainment but the creation of culturally meaningful services that users will value and use. This uncertainty is especially acute when the intended service requires significant investment in three-dimensional environments, narrative design, and social interaction features. For these reasons, researchers and practitioners increasingly need methods that can reveal assumptions before they become expensive implementation commitments.

Within this context, design fiction offers a valuable way of exploring future possibilities. Rather than attempting to predict the future with certainty, design fiction creates plausible scenarios and artefacts that allow people to discuss, critique, and imagine alternative futures. The method is especially useful in emerging digital domains because it translates abstract ideas into concrete and discussable forms. In the present topic, the focal domain is music memorabilia, a category of cultural artefacts whose value rests not only on materiality but also on memory, authenticity, and

identity. When such objects are placed in a metaverse environment, they raise important questions about how meaning is preserved and how interaction is shaped.[link.springer+5](#)

This article therefore takes the view that future-oriented service innovation should begin with a materialized fiction rather than a full system build. By materializing the idea into a high-fidelity artefact, designers can test whether the proposed service is understandable, desirable, and credible to users and stakeholders. This approach is consistent with design science research, which emphasizes the creation and evaluation of artefacts as a path to knowledge generation. The article contributes by showing how a speculative service concept can be turned into a practical research instrument that supports stakeholder reflection and reduces uncertainty.[aisel.aisnet+4](#)

2. Research Problem

The central problem addressed in this paper is the gap between ambitious metaverse concepts and the limited ability to evaluate them before development. In many metaverse projects, ideas are attractive at the level of vision but remain untested at the level of user experience, business logic, and technical feasibility. This creates a risk that organizations will build services that are impressive in theory but weak in practice. The literature suggests that this risk is particularly high in domains where meaning and value depend on context, such as cultural heritage, music, and memorabilia.[acm+4](#)

Music memorabilia provides a compelling use case because its meaning is not purely functional. A memorabilia object is tied to story, provenance, emotional memory, and social recognition. If such an object is digitally represented in a metaverse environment without careful attention to context, authenticity, and interaction, much of its value may be lost. On the other hand, if the experience is designed too heavily around spectacle, the service may become entertaining but shallow. The problem, then, is how to design a future service that is both culturally meaningful and practically viable.[onlinelibrary.wiley+4](#)

This challenge becomes even more significant when organizations need to make decisions about investment and implementation before the platform exists. In such circumstances, decision-makers need a way to see and discuss the future service before it is built. Design fiction addresses this need by creating a speculative but material artefact that can be evaluated by users and stakeholders. The research problem can therefore be stated as follows: how can a design fiction be materialized in a way that helps evaluate the assumptions underpinning a metaverse service for music memorabilia ?[pure.royalholloway+3](#)

3. Theoretical Foundation

The theoretical foundation of the study rests on design fiction, speculative design, and design science research. Design fiction is concerned with imagining plausible futures through artefacts, narratives, and scenarios, not for prediction but for reflection and critique. Dunne and Raby's work established speculative design as a way of designing for debate, while later work by Auger, Blythe, and others highlighted the value of ambiguity, extrapolation, and narrative in future-

oriented design. In this article, design fiction is used as the initial design move that shapes the metaverse service concept.aisel.aisnet+7

Materialization is the key bridge between speculation and evaluation. A fiction remains abstract until it is embodied in a prototype, video, or other artefact that people can respond to. Once materialized, the fiction becomes something stakeholders can interpret, critique, and use to clarify assumptions. This is particularly important in service innovation, where the value of a concept often depends on whether it can be understood and experienced in concrete terms. In the present case, the artefact allows the proposed service to be experienced as a possible future rather than merely imagined as an idea.research.cbs+4

Design science research provides the methodological justification for this approach. Hevner and colleagues argue that knowledge in information systems can be created through the construction and evaluation of artefacts that solve relevant problems. Peffers and colleagues similarly describe a structured process of problem identification, objective definition, design and development, demonstration, evaluation, and communication. The study follows this logic by using a materialized design fiction as both a prototype and a research device. This makes the work appropriate for an ISJ-style article, where theoretical contribution and artefact relevance are both important.semanticscholar+6

The theoretical foundation is further strengthened by metaverse and service design literature. Recent work on metaverse service design emphasizes the importance of service models, scenarios, principles, and value chains in designing future immersive services. Other metaverse studies highlight the importance of social presence, embodiment, usability, and user acceptance in shaping meaningful experiences. The music memorabilia scenario is therefore theoretically relevant because it allows the study of cultural value in an immersive digital environment.acm+5

4. Literature Review

The literature on design fiction demonstrates its increasing relevance as a method for exploring future sociotechnical possibilities. Auger's speculative design work positions design fiction as a critical practice that helps question assumptions and expose hidden implications. Dunne and Raby argue that speculative artefacts should not only propose futures but also provoke reflection on the present. Blythe and colleagues extend this view by showing how narrative, irony, and ambiguity support the design of future scenarios.onlinelibrary.wiley+5

A second body of literature focuses on materializing speculative futures. This work shows that fictional concepts become more useful when they are embodied in artefacts that people can see, hear, and discuss. Materialization helps researchers move from abstract concept to shared discussion and early validation. In the context of emerging technologies, this is important because users often struggle to imagine how a future service will actually feel. The present article builds on this idea by using a video-based prototype as the vehicle through which the fiction is materialized.pure.royalholloway.ac+4

A third strand of literature is design science research. Hevner's original work and later methodological clarifications by Peffers, Gregor, and others argue that artefact creation is a

legitimate way of producing scholarly knowledge in information systems. Recent work has also emphasized the need to choose appropriate study designs and to integrate qualitative methods with design science in a rigorous way. This is directly relevant here because the design fiction artefact is not the final product but the means by which insight is generated.[link.springer+7](#)

Metaverse and service design research form the fourth strand. Studies on metaverse governance and service design suggest that these environments require careful attention to value creation, user participation, and immersive service structures. Broader metaverse scholarship also highlights user perceptions, usability, and social influence as key issues. This literature supports the use of music memorabilia as a case because it combines immersive interaction with a strong cultural and emotional dimension.[pmc.ncbi.nlm.nih+5](#)

Finally, the literature on music in the metaverse demonstrates that this domain is already being discussed as a space for creativity, collaboration, and new forms of participation. Work on musical metaverse needs shows that users and creators want flexible, expressive, and socially meaningful environments. This suggests that memorabilia-based experiences can extend the musical metaverse into curation, memory, and cultural engagement.[onlinelibrary.wiley+5](#)

5. Research Design and Method

The study adopts a design science and research-through-design orientation. The first step was to define the design problem: metaverse services are difficult to evaluate early, and culturally meaningful services require methods that can reveal both experiential and business assumptions. The second step was to define the objectives of the solution, namely to clarify the value proposition, test user assumptions, and examine whether a music memorabilia experience could be meaningfully represented in an immersive environment.[aisel.aisnet+4](#)

The third step was to develop a future scenario. In this scenario, users enter a metaverse environment where they encounter curated memorabilia, contextual information, and opportunities for interaction. The scenario was then materialized into a high-fidelity video prototype designed to communicate the service experience in a tangible and discussable form. This artefact functioned as a first prototype of thought, not as a final product.[pure.royalholloway.ac+3](#)

The fourth step was demonstration and evaluation. The materialized fiction was shown to users and stakeholders so that their responses could be collected and interpreted. Because the purpose was exploratory rather than statistical, qualitative feedback was the most appropriate form of data. This approach is consistent with prior design fiction research that uses artefacts to elicit discussion, reaction, and interpretation.[iris.unitn+4](#)

6. Data Collection and Analysis

Data were collected through qualitative feedback from participants who viewed the artefact and responded to questions about value, authenticity, usability, and emotional resonance. The feedback included reactions to the visual presentation, the narrative framing of memorabilia, the

perceived usefulness of the service, and the extent to which the concept felt credible. Because the aim was to understand how users made sense of the future service, the study relied on interpretive rather than numerical data.[knowledge.lancashire+3](#)

The analysis followed a reflexive thematic analysis approach. First, the responses were transcribed and repeatedly read to identify initial meaning units. Next, open coding was used to mark statements related to attraction, hesitation, trust, cultural significance, and interaction quality. These codes were then compared and grouped into higher-order themes that captured recurring patterns in the data. This staged process is consistent with best practice in qualitative analysis.[pmc.ncbi.nlm.nih+4](#)

Several themes emerged from the analysis. The first was the importance of narrative context: users wanted memorabilia to be embedded in a story rather than displayed as isolated digital objects. The second was authenticity and provenance: users wanted to know where the memorabilia came from and why it mattered. The third was immersion and social presence: users were interested in shared, interactive experiences rather than passive viewing.[journals.plos+4](#)

A fourth theme concerned usability and clarity. Even when the concept was appealing, users stressed that the service must be understandable and easy to navigate. A fifth theme was the value of early prototyping: participants found it easier to comment on a concrete artefact than on a vague concept. This suggests that materialized design fiction can support requirements elicitation and help surface assumptions that would otherwise remain hidden.[pmc.ncbi.nlm.nih+4](#)

Overall, the analysis showed that the artefact worked as an elicitation device. It enabled participants to express what they valued, what they doubted, and what they would need for real adoption. This outcome reinforces the view that design fiction becomes particularly powerful when it is made material and placed in front of stakeholders early in the innovation process.[pure.royalholloway+2](#)

7. Findings

The analysis revealed that users were most positive when the music memorabilia were presented with rich context and a clear sense of provenance. They saw these objects not only as visually interesting but as carriers of memory and identity. This finding aligns with research on cultural artefacts and soundscapes, which shows that meaning depends heavily on context.[link.springer+3](#)

A second finding was that trust mattered. Participants wanted assurance that the memorabilia were authentic and that the digital representation did not distort their historical or cultural significance. This suggests that curatorial credibility and provenance signalling are essential design concerns in cultural metaverse services. Without those elements, the experience may feel entertaining but not authoritative.[pmc.ncbi.nlm.nih+3](#)

A third finding concerned social interaction. Participants valued the idea of experiencing memorabilia together with others, discussing items, and sharing reactions in the environment. This points to the importance of social presence in metaverse service design. It also suggests that

music memorabilia could support community-building as well as individual exploration.sciencedirect+5

A fourth finding related to ease of use. Even participants who liked the concept emphasized that the service should remain simple enough to understand quickly. This indicates that immersive design should not sacrifice clarity in pursuit of visual novelty. In this sense, the findings support the need for a balanced service design approach.acm+5

8. Discussion

The findings have several implications. First, they show that materialized design fiction is not just a storytelling exercise but a practical method for reducing uncertainty in emerging service development. By making assumptions visible, it helps stakeholders discuss feasibility, desirability, and viability before investment. This is exactly the kind of problem design science research is intended to address.aisel.aisnet+4

Second, the study shows that culturally meaningful metaverse services must be designed around memory, authenticity, and context rather than spectacle alone. Music memorabilia can provide a strong use case because it naturally connects digital interaction to emotional and historical value. This suggests that the metaverse may be most compelling when it is used not simply for simulation, but for cultural experience and curation.acm+3

Third, the study confirms that early artefacts can serve as boundary objects in conversations between designers, users, and business stakeholders. A materialized fiction creates a shared reference point that supports interpretation and negotiation. This is especially valuable in service innovation, where multiple stakeholder perspectives must be aligned.acm+4

9. Tables and Figures

Table 1
Theoretical and methodological alignment of the study

Component	Content
Research orientation	Design science research and research-through-design aisel.aisnet+1
Core design method	Design fiction as first-form prototyping pure.royalholloway.ac+1
Materialization mode	High-fidelity video prototype / future scenario artefact pure.royalholloway.ac+1
Application domain	Music memorabilia in a metaverse environment pure.royalholloway.ac+1
Data source	Qualitative stakeholder and user feedback iris.unitn+1
Analysis method	Reflexive thematic analysis iris.unitn+1
Main outcome	Early validation of assumptions and service concept refinement pure.royalholloway.ac+1

Table 2

Emergent themes from the qualitative analysis

Theme	Description	Design implication
Narrative context	Users want memorabilia embedded in a meaningful story link.springer+1	Add curatorial storytelling and contextual metadata
Authenticity and provenance	Users care about the origin and legitimacy of objects onlinelibrary.wiley+1	Display source, ownership, and credibility cues
Immersion and presence	Users value a strong sense of being inside the environment sciencedirect+1	Support spatial interaction and sensory richness
Social participation	Users prefer shared experiences and discussion journals.plos+1	Add collaboration, sharing, and community features
Usability and clarity	Users need a simple and understandable service flow pmc.ncbi.nlm.nih+1	Reduce friction and clarify the value proposition

Table 3

Design implications for metaverse service development

Design dimension Recommendation

Experience design	Prioritize immersion without sacrificing clarity pure.royalholloway.ac+1
Curatorial design	Treat memorabilia as cultural objects, not only digital assets link.springer+1
Trust design	Make provenance and authenticity visible pmc.ncbi.nlm.nih+1
Social design	Enable co-presence and conversation around objects journals.plos+1
Business design	Test assumptions early using materialized fiction pure.royalholloway.ac+1

Figure 1

Research process of the study

Problem identification → Objective definition → Scenario building → Design fiction materialization → Stakeholder exposure → Qualitative feedback collection → Thematic analysis → Design implications and refinement.aisel.aisnet+1

Figure 2

Conceptual architecture of the metaverse memorabilia service

Input layer: archive sources, artist collections, label content, user memories.pure.royalholloway.ac+1

Experience layer: immersive gallery, interactive memorabilia, avatar-based navigation, story objects.sciencedirect+1

Value layer: engagement, trust, cultural preservation, social sharing, monetization.pure.royalholloway.ac+1

Figure 3

Theme map of the qualitative findings

Central theme: value of a culturally meaningful immersive experience.

Surrounding themes: narrative context, authenticity, immersion, social participation, usability.pmc.ncbi.nlm.nih+3

10. Future Research Directions

Future research could extend this work in several directions. First, the design fiction could be developed into a more interactive three-dimensional prototype to test whether users respond differently when the experience becomes navigable rather than only video-based. Second, studies could examine larger and more diverse user groups, including musicians, collectors, casual users, and cultural curators, to determine how expectations vary across stakeholder types.sciencedirect+3

Third, long-term adoption should be studied, because initial enthusiasm does not always translate into sustained use. Fourth, future research should examine trust mechanisms, provenance markers, and curation logic in more detail, since these appear to be decisive in cultural metaverse services. Fifth, governance and business models should be explored alongside experience design, because cultural sustainability depends on both symbolic and economic viability.pubmed.ncbi.nlm.nih+5

More broadly, the line of research could be extended to museums, audio archives, heritage services, and other cultural domains where material objects need to be represented digitally without losing meaning. Future studies could also investigate how AI, personalization, and generative interaction might enrich or complicate these environments. In that sense, the present study can serve as a foundation for a broader research agenda on future cultural services in the metaverse.pmc.ncbi.nlm.nih+5

11. Conclusion

This article has argued that materialized design fiction is a valuable way to investigate emerging metaverse services. In the case of music memorabilia, the approach helps reveal how cultural value, trust, immersion, and usability intersect in the design of a future service. The study shows that a speculative artefact can generate meaningful feedback long before a full platform is built.link.springer+3

The main contribution is methodological and conceptual. Methodologically, the paper demonstrates how design fiction can be used as an early prototype in design science research. Conceptually, it shows that music memorabilia is a productive domain for understanding immersive cultural services in the metaverse. The practical implication is that organizations should materialize speculative ideas early to test assumptions and reduce development risk.semanticscholar+4

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