EXPERIENCE INTERMEDIARIES FACILITATING ENTRY INTO THE XR INNOVATION ECOSYSTEM: A CASE STUDY IN THE EVENT AND ENTERTAINMENT INDUSTRY

Fabienne H. Schmidli[1][0000-0002-4352-247X], Wolfgang G. Schäfer[1][0000-0002-2945-6680], Frank Hannich[1][0000-0001-7930-2551], Leticia Labaronne[1][0000-0003-2381-7542], and Michèle Rettenmund[1][0009-0009-6941-896X]

Occupation and affiliation of principal authors
[1] Zurich University of Applied Sciences (ZHAW) School of Management and Law, St.-Georgen-Platz 2, CH-8400 Winterthur, Switzerland

Brief autobiographical note on the authors

Fabienne H. Schmidli is a Research Associate at the Center for Arts Management and Program Director for the executive programs in Event and Sponsoring Management at the Zurich University of Applied Sciences (ZHAW). Her research interests include evaluation, arts and nonprofit management, and future trends.

Wolfgang G. Schäfer, PhD, is a Senior Researcher at the Institute of Marketing Management and Program Director of the executive programs in Customer Experience Management and Immersive Marketing at ZHAW. He researches consumer cultures, experiences, and identities at the intersection of AI and virtuality.

Frank Hannich is Professor of Marketing and Head of the Center for Customer Management & e-Commerce at ZHAW. His teaching and research interests are in marketing for cultural institutions, most recently with a focus on AI and XR usage.

Leticia Labaronne is Professor of Arts Management and Head of the Center for Arts Management at ZHAW. Her research interests include a broad range of topics relating to the management of arts and cultural organizations.

Michèle Rettenmund is a Research Associate at the Institute of Marketing Management at ZHAW. In this role, she works on various projects and contributes to education programs. She holds a Master's degree in Business Administration with a Major in Marketing and has experience in digital marketing and project management.

ABSTRACT

This paper looks at how experience intermediaries influence the development of the XR innovation ecosystem by facilitating access for new participants who, due to a lack of experience with XR technologies, do not yet understand the value of XR content. Experience intermediaries operate at the boundaries of the XR innovation ecosystem and offer a core service for which they have a positive reputation among these new participants. By extending this core service with offerings from the XR innovation ecosystem, they build bridges of entry into it by helping to adopt XR content and

technologies. Using the event and entertainment industry as an empirical setting, this study examines six XR technologies to explore how an experience intermediary can convert existing customers into participants of the XR innovation ecosystem. Our findings suggest that the systematic use of XR offerings to emotionalize existing services and develop a valuable and unique XR experience can facilitate the scaling of XR technology adoption and integration into existing service offerings.

Keywords: XR, innovation ecosystem, experience intermediaries, event and entertainment industry, technology adoption.

1   Introduction

Innovation ecosystems are central to building networks of companies, customers, and other stakeholders that work together to create value and pursue common goals in the event and entertainment industry (Jütting, 2020). A growing body of research is addressing this phenomenon in response to an increasingly complex and dynamic environment in which the causes of problems are no longer identifiable, and solutions require the cooperation of different actors (Suominen et al., 2019; Tsujimoto et al., 2018). An innovation ecosystem of great economic and societal relevance is forming around extended reality (XR) technologies (Jalo et al., 2022). It consists of hardware manufacturers, software developers, customers, service providers, investors, regulators, and others cooperating to determine the importance and value of these XR technologies through innovations (Egliston & Carter, 2022). This cooperation is being expressed through exchanges at conferences, joint product development, and other initiatives.

The success of an innovation ecosystem results from the value created which in turn is largely determined by co-creation and by the acquisition of new participants (Daniel et al., 2022). This is because, in addition to new ideas and skills, new participants often bring financial resources into the ecosystem that further support the development of innovations (Mason & Brown, 2014). Entry barriers for potential participants are a critical threat to the enlargement of these ecosystems, and they can also threaten the overall continuity and success of the innovation ecosystem (Cobben et al., 2023; Spigel et al., 2020). In the case of the XR innovation ecosystem, one such barrier is that potential participants have no experience with XR technologies and, therefore, find it difficult to assess their value. Identifying and overcoming these barriers is thus a vital issue from both an economic and a scientific perspective.

In addition to the barriers that make it difficult for potential participants to enter an innovation ecosystem, there is still a lack of knowledge about the conditions that facilitate overcoming these barriers (Cobben et al., 2023). These include, for example, legal structures (Wang et al., 2022), but the type of cooperation between existing members or even the engagement of certain actors inside or outside the ecosystem (which, for the purposes of this study, we call *experience intermediaries*) can also be such conditions (Vargo & Akaka, 2012). Against this background, this study examines entry barriers at the boundaries of the XR innovation ecosystem and explores possible conditions that would facilitate overcoming them to gain a better understanding of the development and persistence of innovation ecosystems.

This article is structured as follows. First, we present the theoretical lens through which the iteratively collected data was analyzed. In the subsequent section, we outline the methodological approach, which combines qualitative interviews with thematic analysis and a quantitative survey. Our findings lead us to the concept of the "experience intermediary," an actor who helps to overcome entry barriers in innovation ecosystems, which we explain and discuss in the concluding section.

2   Theory

In innovation and management research, the metaphor of a biological ecosystem illustrates the interplay of multiple actors, practices, and resources for value co-creation. Research in this field distinguishes between business, innovation, and platform ecosystems (Jacobides et al., 2018). The common characteristics of these ecosystems are participant heterogeneity, value generation at the macro level of the ecosystem, significant independence of participants despite mutual influence, and the nature of ecosystem governance, such as orchestrating (Autio, 2022).

An innovation ecosystem promotes the creation of value by integrating various local activities of isolated participants, integrating new participants, managing the flow of investments in innovative technologies, and ultimately commercializing them (Adner, 2017; Jacobides et al., 2018). Central to the success and continuity of an ecosystem is creating a momentum that motivates potential participants to enter the ecosystem and provides initial rules for participation (Autio, 2022). New knowledge flows into the ecosystem as new participants join, which, on the one hand, represents a growing value of the ecosystem, but on the other, also presents challenges such as the more elaborate orchestration of a larger number of participants or the collaborative alignment of a strategy (Jiang et al., 2022).

Pre-existing knowledge within the ecosystem, such as about XR technologies, could be a barrier to entry because new participants must first understand and then adapt this knowledge as an addition to their existing knowledge before they can finally contribute their knowledge to the ecosystem (Straub, 2009). This study, therefore, applies adoption theory and its technology acceptance model (TAM) as the theoretical lens through which to look at and explore this barrier and how it might be overcome (Davis, 1989). Research on the use of XR technologies already makes extensive use of the TAM, often focusing on the barriers that prevent the actual use of the technologies by individuals (Manis & Choi, 2019; Sagnier et al., 2020).

To overcome such barriers, intermediaries help as bridges by providing access to new knowledge and facilitating the creation of new value (Chiambarettoa et al., 2019; Johns & Davey, 2019; Spulber, 1999), which is particularly important when introducing new technologies to the creative industries (Hutchinson, 2017; Smith Maguire & Matthews, 2010). As their products are primarily an "experience good" (Caves, 2000), and XR technologies are aimed at creating new virtual experiences (Dwivedi et al., 2022), the intermediaries in this case have a dual experience orientation: Mediating experiences so that creatives can better understand XR technologies (Verona et al., 2006), while also supporting the creation of virtual experiences with these technologies (Stockley-Patel & Swords, 2023). For this reason, we call these intermediaries "experience intermediaries" in contrast to, for example, innovation (Ròmul Sala-Vilar et al., 2024) and cultural intermediaries (Bourdieu, 1984). This approach is inspired by studies in which cultural mediators provide new experiences for others, for example, to support them socially (Azzari et al., 2021).

Cultural and innovation intermediaries share various functions that define their role in their ecosystem (Saad et al., 2024), such as brokering (of information), orchestrating (of interactions), or sponsoring (of financial and other resources) (Howells, 2024). The extent to which these functions apply to experience intermediaries or need to be understood differently due to their dual experience orientation is a research interest of this study. Thus, our study's contribution is proposing a new type of intermediary particularly relevant to the creative industries. Therefore, this study aims to contribute new findings on the TAM in innovation ecosystems by looking at what we conceptualize as experience intermediaries.

3   Methodology

We used a mixed-methods approach (Venkatesh et al., 2013), combining semi-structured interviews with B2B customers and a quantitative online survey conducted between February and March 2023. The semi-structured interviews combined with thematic analysis explored the current level of XR

awareness, adoption, and perceived usefulness, along with related barriers to its use from the perspective of B2B clients at a leading Swiss event provider (Habegger AG). The interviews served to identify relevant items for constructing the online survey questionnaire. The selection of individual customers as interviewees was made directly by Habegger based on their assessment of the experience that each person had already gained in the field of XR technologies in the past. In total, five interviews were conducted with B2B clients from the industrial (automotive) and services (banking, insurance, live communication) sectors, with the interviewees being responsible for events, hospitality, (live) marketing, and digital management. To contextualize the findings from the interviews further, two additional expert interviews were conducted, one with the person responsible for Habegger's AR/VR Lab and the other with the person responsible for sales at Habegger. All interviews were conducted virtually via video conferencing software and lasted between 40 and 60 minutes. The interviewees consented to their interview being recorded. While following a specific structure for all interviews, the semi-structured design supported a natural flow and allowed specific follow-up questions for clarification purposes or to go into depth concerning a particular topic. The interview findings were analyzed using thematic coding as part of the interpretative thematic analysis technique (Spiggle, 1994).

Conducting a quantitative survey across the whole B2B customer base of the event provider (online survey, n = 145) produced standardized insights into the level of XR awareness and adoption, specifically customers' usage, perceived usefulness, perceived ease of use, behavioral intention to use, attitude toward use, expected services from an event provider, and general technology acceptance. The questions were derived from the theoretical foundation of the technology acceptance model (TAM; see Davis, 1989), which focuses on whether users will refuse or accept a new technology. For the operationalization of the different constructs, a seven-point Likert scale ranging from "strongly disagree" to "strongly agree" was used. The order of statements within a scale was not randomized.

The survey was sent to all subscribers of Habegger's newsletter, namely people interested in events and entertainment. Of these, 145 provided complete and valid responses to the survey. Most respondents (59%) work at small and medium-sized enterprises (SMEs, with under 250 employees, n = 125), while the remaining 41% work at larger companies (Jalo et al., 2022). A good third of the survey participants work in the "Marketing and/or Communication" department (34%), followed by 27% in Event Management, with a further 2% each in Sponsoring and Branding. Under "Other," departments such as "Innovation," "AR/VR," or "Brand Experience" were named (n = 125). The majority of the survey participants hold a leadership position in the company, either as head of department (25%), managing director (20%), or team leader (19%). In comparison, nearly a quarter hold the position of employee (24%), followed by 12% who indicated an "other" position (n = 125). Age distribution among the respondents was quite normal, with 2% younger than 25 years old, 10% 25-34 years old, 22% 35-44 years old, 37% 45-54 years old, 26% 55-64 years old, and the rest (4%) over 65 years old. Most survey participants (59%) were male (n = 125). The data from the online survey was analyzed using IBM SPSS Statistics while mainly focusing on descriptive statistics (Winkler, n.d.).

4　Findings

Technology acceptance in our sample was relatively high. Asked to select the TAM statement that describes them best, 12% of participants selected the innovator statement, 30% the early adopter statement, 48% the early majority statement, and 10% the late majority statement; none opted to describe themselves as laggards (see fig. 1).

This shows that for most participants, general technology acceptance does not seem to be a big obstacle to entering the XR innovation ecosystem; there may not be enough motivating factors. For this reason, participants were asked to name the motivations that would be relevant for deciding to use one of the XR technologies described in the survey during their events. The XR technologies are

stereoscopic videos, holographic projections, augmented reality, volumetric videos, VR showrooms, and transparent screens. Entertainment was clearly the most common motive for all six technologies surveyed. On average, 60% of participants found this motivation relevant to create wow effects for their visitors, making their events unique, memorable, and worthwhile. In the case of holographic projections, this was a relevant motivation for 72% of participants. Nearly as frequent, at 59%, was the motivation to use XR technologies to support a technically progressive image of the company hosting the event.
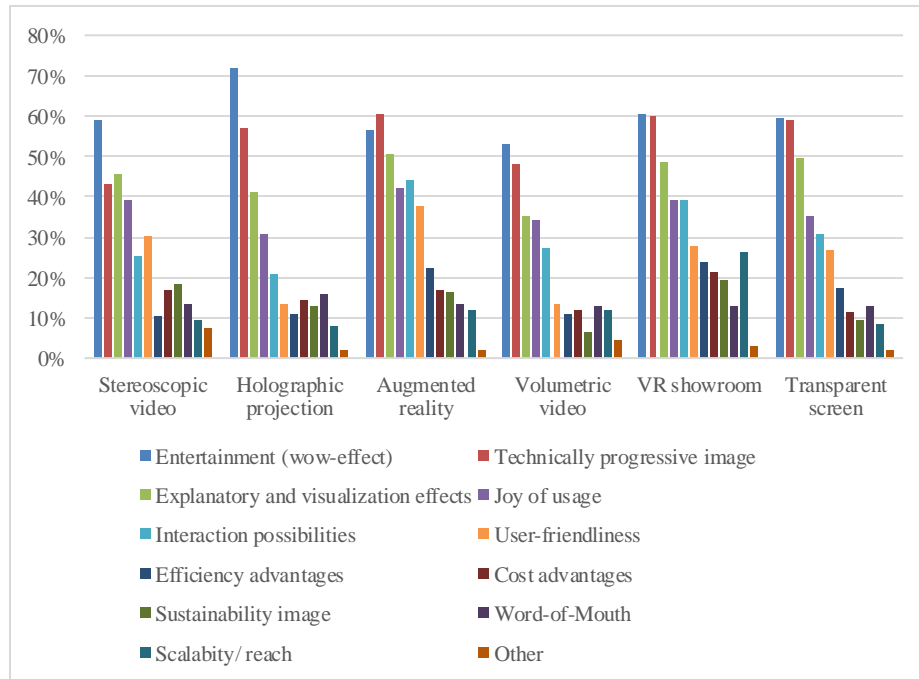
**Fig. 1.** Motivations to use XR technologies at events

A technically progressive brand image and entertainment are motivations to increase the emotional value of events. The fact that only a few event hosts use XR for their events makes it relatively easy to use XR to differentiate oneself and achieve the desired emotional and image effects. Several experts mentioned a fear of missing a significant development as motivation.

At 45%, nearly half of the participants found the explanatory and visualizing potential of XR technologies a relevant motivation, which addresses knowledge transfer rather than emotionalization. Many participants invest in business events as well as fixed installations like museums, visitor centers, or brand experience centers. Hence, when experience intermediaries include XR offerings in the design of experiences, they are actively building a bridge for customers into the XR ecosystem. It is through this experience of XR that understanding of (and, in turn, the need for) further ideas for XR experiences and applications emerges.

By contrast, the explanatory and visualization effects are geared more toward knowledge transfer. Here, the content often already exists (for example, CAD files of products, which can be quickly converted into XR content for customers). But here, too, the experience (CX) design (Wei et al., 2019; Zarantonello & Schmitt, 2023) is important, albeit to a lesser extent, for these effects to be remembered. In both cases (emotionalization and knowledge transfer) experience intermediaries like Habegger help overcome the knowledge barriers of innovation ecosystems. Although none of the XR technologies surveyed has been tried by more than a minority of the survey participants (augmented reality, 29%; VR showroom, 25%; holographic projection, 13%; transparent screen, 13%; stereoscopic video, 11%; volumetric video, 6%), 50% of participants have tested at least one (see Fig. 2). The average perceived

benefit is positive (more than four on average on a seven-point scale in each case), but not tremendously positive. Many participants have seen mixed results from their XR usage. The most significant benefit for their respective events was achieved using holographic projections (5.39) and transparent screens (5.28).

Participants were also asked if they perceived XR technologies as easy to use. Three technologies score average values above five on the seven-point scale (AR, 5.13; transparent screen, 5.09; stereoscopic video, 5.01). However, for all technologies, a sizeable group of users expect it to be challenging; this is especially true for VR showrooms, whose average is below 4 (3.49).
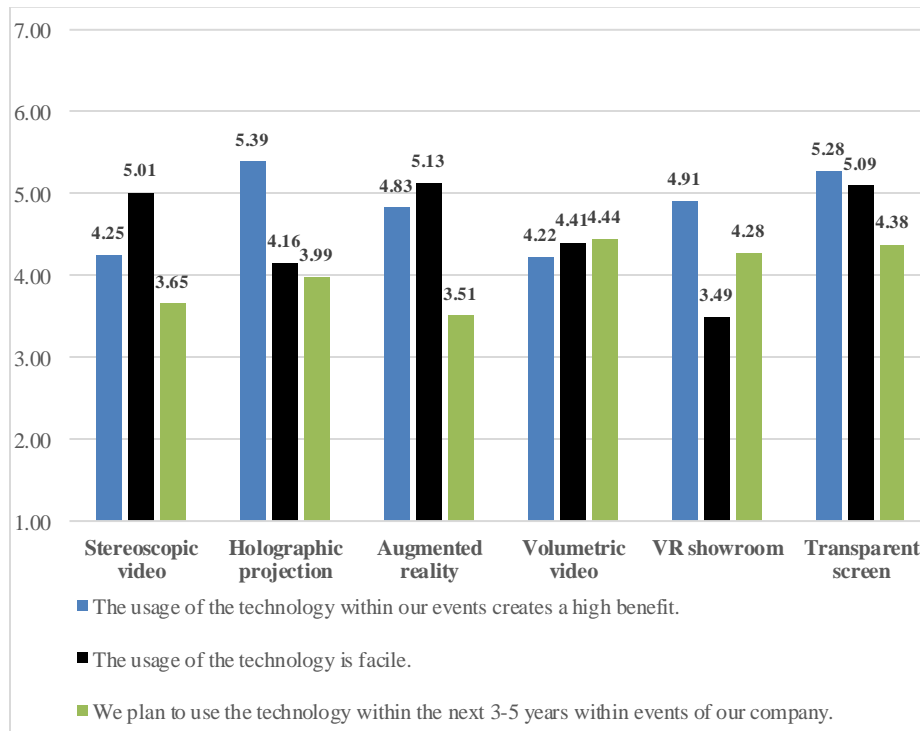

Fig. 2. Benefit, ease of use, and future use of XR technologies

Ease of use is clearly not a one-dimensional parameter that explains the willingness to use XR technology in the future. Two of the three technologies that are most facile to use are least likely to be implemented in the next 3-5 years by participants (stereoscopic videos, 3.65; augmented reality, 3.51), while VR showrooms are the third most likely (4.28) after volumetric videos (4.44) and transparent screens (4.38).

The expert interviews for this project showed that it is hard for event-hosting companies to imagine specific usages for the new XR technologies within their own events and that a more holistic service than just providing technical event infrastructure for XR technologies is needed. Moreover, the experts emphasized that they have solid in-house competencies for event management themselves and need only focused help with individual aspects. These customers explicitly demanded a modular service package from which they could select or not select certain elements.

This resulted in a corresponding question in the quantitative study: nearly three-quarters of customers (73%) liked the idea of a modular XR technology service. In comparison, 46% liked a complete holistic service that covers all aspects of XR technology usage in events (see Fig. 3).
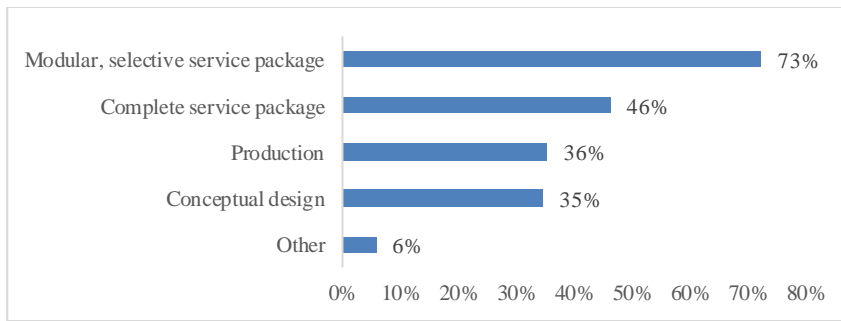
Fig. 3. XR technology service preferences

5   Discussion and Conclusion

The role of the existing members of the XR Innovation ecosystem, such as software developers, hardware developers, and regulators primarily consists of anticipating and identifying potential experience intermediaries, but also improving and shaping the ecosystem's framework (edges) to support the entry of new members into the ecosystem. Whether and to what extent the anticipation and identification of potential intermediaries by existing members is already happening in practice remains an open question.

As an experience intermediary, Habegger serves as a bridge between the existing and potential members of the ecosystem. As a leading event provider in Switzerland, Habegger must recognize and appropriately fulfill its role as experience intermediary, acting as gatekeeper and enabler. To promote the entry of new participants into the XR innovation ecosystem and remove barriers to entry, Habegger must foster and encourage mutual exchange with stakeholders inside and outside the ecosystem. By acting in this role, an experience intermediary can establish a link with customers and generate a valuable and unique customer experience. Habegger's creation of this value proposition is also crucial for existing ecosystem members such as developers, consumers, investors, software and hardware producers, and platforms, to name a few.

This study shows that experience intermediaries can considerably facilitate the entry of new potential participants into innovation ecosystems. An experience intermediary, already recognized among those participants in other ecosystems, serves as a bridge to overcome the barrier of entry. In the case of the XR innovation ecosystem presented here, this is the competence to design experiences for events and entertainment generally, for which Habegger is already known and valued by its customers. The enhancement of these experiences by immersive XR content through the experience intermediary represents the guided adoption process through which consumers gain initial experience with XR technologies before they are ultimately transformed into participants in the XR innovation ecosystem. For a successful adoption process, an experience intermediary must design its experience service offerings in a modular way. This fosters the acceptance of the new XR technologies among consumers because as long as they are overwhelmed by the multitude of innovations, risks, and changes, they will perceive the necessary transformations as a burden rather than a benefit. Selective and radical commercialization of new XR technologies is more likely to lead to defensive reactions from potential consumers. Accordingly, the continuous scaling of a modular offering of XR experiences seems more promising because it offers customers a gradual habituation to and adoption of the XR technologies. Here, an experience intermediary should start building the bridge in familiar experiences and offerings because these present a firm foundation of already recognized competencies to build on.

The role of experience intermediaries is by no means confined to the XR innovation ecosystem. Lecturers and researchers can also take on the role of intermediaries by teaching about XR in the context of its application and experiential dimension in their classes at universities and colleges. In doing so, lecturers and researchers can use problem-solving-oriented teaching material that demonstrates possible

XR tools or conduct user demos and test trials in lab settings to familiarize students with potential tools and enable them to implement practical recommendations for various application areas.

Our findings suggest that the systematic use of XR offerings to emotionalize existing services and develop a valuable XR experience by the experience intermediary can facilitate the scaling of XR technology adoption and integration into existing service offerings in the creative industries. From this, we conclude that leading actors in the creative industries, such as event providers, must recognize and appropriately fulfil their role as EI, acting as gatekeepers and enablers. To promote the entry of new participants into the XR IE and remove barriers, they must foster and encourage mutual exchange with stakeholders inside and outside the ecosystem.

Future research can build on our exploratory findings by operationalizing facilitating conditions and quantitatively assessing their importance to experience intermediaries such as Habegger for overcoming existing barriers, particularly to new participants seeking to enter the XR innovation ecosystem. Additionally, broader context research beyond the event and entertainment industry can produce further insights. Finally, longitudinal pre- and post-adoption research designs can be employed to explore further the role of experience intermediaries in facilitating the entry of new participants into the XR innovation ecosystem (Jalo et al., 2022).

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