

Reimagining hybrid conferences through digitalisation for sustainable and inclusive value creation

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Abstract

In response to growing demands for inclusivity, innovation, and environmental responsibility, academic conferences are increasingly adopting hybrid formats that integrate digital technologies. To examine how hybrid academic events are shaped by digital, sustainability, and marketing imperatives, 41 in-depth interviews were conducted with experienced conference participants. The findings reveal that hybrid formats with blending physical and virtual participation can reduce environmental impact, broaden access, and enhance engagement when underpinned by smart technologies and inclusive design. While integrating digital tools presents challenges, it is essential for achieving both operational efficiency and responsible marketing outcomes. This research contributes to the literature by providing a conceptual perspective on sustainable marketing in hybrid event contexts and offering strategic insights for organisers shaping the future of academic conferencing.

Keywords: Hybrid Conferences, Digital Innovation, Sustainability

Track: Sustainability, CSR, and Marketing

1. Introduction

The conference industry serves as a vital engine for the dissemination of knowledge, the cultivation of professional networks, and the generation of economic activity (de Leon & McQuillin, 2020). Amidst ongoing global transformations, two powerful forces are reshaping the landscape of academic and professional events, the rise of Artificial Intelligence (AI) and the mounting imperative of sustainability (Santos & Almeida, 2024). AI applications are increasingly embedded into participant management systems, real-time interaction tools, and data-driven feedback mechanisms (Liu et al., 2025). These twin trends have become especially salient in the wake of the COVID-19 pandemic, which accelerated the adoption of hybrid event formats to ensure both operational resilience and broader inclusivity (Ram et al., 2024). Hybrid formats not only enable continued access and participation during disruptions but also offer potential environmental benefits by reducing the need for long-distance travel (Mair & Smith, 2022).

Despite these developments, the intersection of digital solutions and sustainability within the context of hybrid event organisation remains underexplored. While prior research has addressed AI's potential to transform marketing strategies (Hassan, 2021) and the growing role of sustainability in shaping organisational branding (Mair & Smith, 2022), relatively little is known about how digital solutions contribute to the realisation of sustainability goals in the planning, promotion, and execution of hybrid conferences. This represents a critical knowledge gap in both marketing theory and practice, particularly within the sub-field of sustainable and responsible marketing.

This paper seeks to address that gap by examining the role of digital solutions in advancing sustainability within hybrid academic events. The study is guided by the following research question: How do digital solutions facilitate sustainable value creation in the context of hybrid conferences?

The structure of this paper is as follows. The next section presents a review of the literature on digitalisation, hybrid event management, and sustainability practices. This is followed by a description of the qualitative methodology based on 41 semi-structured interviews. The findings are based on the topics of innovation, digitalisation, and sustainability. Finally, the paper concludes by summarising the key contributions and outlining directions for future research.

2. Literature review

The conference industry has historically come under scrutiny for its environmental footprint, ranging from the carbon emissions associated with delegate air travel to the waste generated at large-scale venues (Leochico & Di Giusto, 2021). Fraser et al. (2017) observed that hybrid conferences were already gaining momentum in the business events sector prior to the COVID-19 pandemic, and their prevalence has increased further in the post-pandemic landscape (Abbott, 2020; Ram et al., 2024). Hanaei et al. (2022) demonstrated that attendees tend to favour hybrid conferences due to their ability to combine the advantages of both in-person and virtual formats. Hybrid models enable physical participation, which enhances interactivity, networking opportunities, and attentiveness, while also accommodating virtual attendance, offering greater flexibility, time efficiency, and cost savings (Puccinelli et al., 2022).

However, organising hybrid conferences presents a complex array of challenges, requiring meticulous planning and strategic execution. Effective management of such events demands careful attention to critical factors, including detailed logistical coordination, robust technical infrastructure, sound financial planning, optimisation of the participant experience, streamlined communication strategies, data protection protocols, content management, and mechanisms for feedback collection and evaluation (Puccinelli et al., 2022). Conferences, by nature, are bidirectional communication platforms that support professional discourse and collaborative problem-solving between speakers and attendees. Integrating physical and digital participation effectively remains a key priority, with technological advancements continuously providing new solutions (Puccinelli et al., 2022). Core technical infrastructure includes a stable internet connection, reliable streaming capabilities, efficient platform administration, and dedicated technical support across both physical and virtual venues. The primary challenge continues to be the delivery of a consistently high-quality experience for all attendees, regardless of their mode of participation, necessitating deliberate facilitation of social interaction to bridge the digital-physical divide.

In recent years, hybrid events have advanced significantly, enabling broader access by integrating in-person and virtual formats to reach a more diverse and geographically dispersed audience (Hanaei et al. 2022, Puccinelli et al., 2022). In summary, it can be argued that in-person, virtual, and hybrid conferences each offer distinct advantages and limitations, depending on the personal preferences and professional objectives guiding participants' decisions (Table 1).

Table 1. Comparison of in-person, virtual, and hybrid conferences from the participant's perspective

	In-person conferences	Virtual conferences	Hybrid conferences
Advantages	Extensive networking opportunities Opportunities for learning and establishing professional collaborations through personal interactions Enhancement of scientific performance through professional feedback following presentations Exploring a new destination Additional conference programmes Experiencing local culture and gastronomy	Increased accessibility due to low participation fees and the absence of travel/accommodation costs Improved accessibility for non-native speakers and/or participants with hearing impairments through subtitles on pre-recorded presentations Support for sustainability Enhanced learning through the availability of recorded presentations after the conference Efficient time management due to pre-recorded presentations (no delays)	Greater flexibility for participants, leading to an overall increase in attendance Extensive networking and social interaction opportunities (for in-person participants) Increased accessibility due to low participation fees and the absence of travel/accommodation costs Improved accessibility for non-native speakers and/or participants with hearing impairments through subtitles on pre-recorded presentations Fewer international travels by virtual participants, contributing to sustainability efforts
Disadvantages	Limited accessibility due to high participation fees and travel costs Environmentally harmful and wasteful travel and lifestyle during the event stay Conflicts with other commitments (such as teaching, fieldwork, laboratory work, personal life) Lack of recorded presentations hinders learning Safety concerns (natural disasters, political instability, risk of infection)	Limited opportunities for networking and social interactions Lack of or irrelevant professional feedback (less experienced experts may feel more confident to share their opinions virtually) Screen fatigue Challenges with time zone coordination, leading to presentations being scheduled too early or too late Absence of destination experiences and additional conference programmes Technical issues Cybersecurity concerns	Higher organisational costs compared to virtual conferences, which may lead to higher participation fees for online attendees Unequal quality of experience (e.g., online participants miss out on professional discussions during coffee and lunch breaks, as well as social programmes) Technical issues for online participants Complex security concerns, both on-site and in the online environment

Source: own editing based on Puccinelli et al. (2022).

The growing popularity of hybrid conferences can be attributed to their flexible participation options and the reduced costs associated with virtual attendance, while still providing opportunities for in-person networking and social interaction. Organisers are increasingly integrating innovative solutions into hybrid events in order to minimise the disparities between physical and virtual participation.

A widely acknowledged benefit of virtual and hybrid conferences is their lower ecological footprint compared to traditional in-person events, which typically involve more substantial environmental impacts (Millar & Park, 2017; Tao et al., 2021). However, emerging concerns suggest that the carbon footprint of virtual events may, under certain conditions, rival or even exceed that of in-person conferences due to increased energy usage in decentralised home settings and digital infrastructures.

By enabling participation without full physical presence, hybrid formats can reduce the overall carbon emissions of an event (Mair & Smith, 2022) and promote inclusivity by allowing individuals who are unable to travel to attend and engage (Bladen et al., 2022). Marketing such events requires a dual strategy, one that effectively engages both in-person delegates and remote participants. This includes tactics such as live-streaming content, online community facilitation, and digital experiential marketing. Initial studies indicate that well-executed hybrid conferences can deliver levels of satisfaction and networking comparable to traditional in-person events, while also contributing to organisations' CSR agendas by signalling a commitment to innovation and sustainable delivery (Carswell et al., 2023). Nevertheless, hybrid formats present unique challenges for marketers. Ensuring a consistent brand experience across physical and digital platforms, addressing technological limitations, and mitigating digital fatigue demand creative approaches and robust strategic planning.

Sustainable marketing extends the traditional scope of marketing beyond economic and customer-centric objectives to embrace social and environmental responsibilities (Belz & Peattie, 2012; Sheth & Parvatiyar, 2021). However, meaningful integration of sustainability into marketing strategies often requires rethinking conventional approaches, as standard tactics may not align with long-term societal goals (Kotler, 2011). This has led to calls for a more transformational marketing paradigm that proactively drives sustainability outcomes, rather than reactively responding to external expectations (Sheth & Parvatiyar, 2021).

In parallel with the increasing emphasis on sustainability and the proliferation of hybrid formats, digital technology has rapidly advanced in the domain of conference management. Since 2010, technological innovation has significantly transformed the industry, giving rise to high-tech conferences designed to improve efficiency and competitiveness (Chesnut, 2018). Tools such as Augmented Reality (AR), Virtual Reality (VR), and Artificial Intelligence (AI) are now integral to the contemporary event technology ecosystem (Liu et al., 2025). AI can support sustainability-oriented decision-making by optimising logistics for reduced emissions or identifying consumer segments with a high affinity for environmentally responsible products (Emon & Khan, 2024). Beyond environmental sustainability, the social dimension also merits attention, particularly in terms of how local communities are engaged, not merely as audiences but as stakeholders and contributors to the event experience (Richards & Palmer, 2010; Liu, 2016). The literature review confirms that hybrid events embody the convergence of digital innovation and sustainability trends in modern event management.

3. Methodology

A qualitative research design was employed to gain in-depth insights into the emerging phenomenon of AI-enabled sustainable marketing in hybrid events. Given the exploratory nature of the research question, in-depth interviews were chosen as the primary method of data collection (Creswell & Poth, 2016). A total of 41 semi-structured interviews were conducted with participants who had previously attended hybrid academic conferences. The participants were recruited using purposive and snowball sampling techniques to ensure relevance and diversity. The interviews were conducted throughout 2023, each lasting approximately 45 to 60 minutes. The interviews continued until theoretical saturation was reached (Sandelowski, 2008). Interview questions were designed to explore perceptions and experiences related to digitalisation, innovation, and sustainability within the context of hybrid events.

All interviews were audio-recorded with participants' informed consent and subsequently transcribed verbatim. A thematic analysis was undertaken following the six-phase approach of Braun and Clarke (2006). The data were coded and analysed using NVivo software. Each transcript was coded independently by the research team to ensure interpretative depth and rigour. Through iterative and inductive coding, initial codes were refined and grouped into broader thematic categories. To ensure consistency, a subset of transcripts was double-coded, and any discrepancies were resolved through discussion. Each interview participant was assigned a unique identifier, comprising an interview number, the sequence in which the interview was conducted, and their gender.

4. Major results

The qualitative interviews reveal multidimensional impacts in the areas of innovation, digitalisation, sustainability, and marketing. These insights demonstrate how digital tools contribute to operational efficiency, inclusivity, and the realisation of sustainable objectives in hybrid event design and delivery. The COVID-19 pandemic acted as a catalyst for accelerated digitalisation in conferencing. As noted in the interviews, the virtual experience, although effective, lacks some dimensions of in-person events. *"Before the pandemic, it was hard for people to imagine conferencing online all the time."* [09M]

"I have the impression that things will change, some conferences will remain offline, but everyone will be forced to think about whether it's absolutely important to have a conference offline and to have a conference offline from a budgetary, ecological and other point of view." [09M]

This quote highlights the growing strategic relevance of hybrid formats, as organisations increasingly aim to reduce their environmental footprint while retaining the experiential and relational value of in-person participation. From a marketing perspective, it also reflects a critical insight, the perceived value of physical presence must now be evaluated alongside evolving digital expectations and behaviours. Hybrid events, by design, integrate physical and virtual participation to broaden access and enhance flexibility (Hanaei et al., 2022). This duality, however, is not without complexity. Interview data reveal a wide spectrum of participant attitudes toward hybrid formats, ranging from scepticism and concern to optimism and endorsement. As illustrated in Table 2, these perspectives encapsulate the emotional and practical tensions that accompany the hybridisation of academic events.

Table 2. Perceptions of hybrid conferences from the perspective of interviewees

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- *"I'm much more afraid of the situation where they say you can participate both live and online. I'm finding more and more of these conferences and **I'm more scared of that because it's much harder to moderate**. The fact that half of it is live and half of it is online is terrible, it's terrible in education, I think it's **going to be terrible** in conferences."* [17M]
 - *"The hybrid conference option is likely to remain, which **is good and bad on some extent**. Because if you attend a conference online, but say the conference is on the beach, you regret it a little bit, but if you get some interesting ideas from it, it was worth joining online and you saved money."* [07F]
 - *"I definitely think it will never be the same, which is fine. I also think about conferences, **if the organisers would allow some kind of mixed package** - you can join the conference online, but obviously you can travel if you want to - that **might appeal to a lot of people**. Because of the fact that online conference participation can be done from anywhere, so that you can channel in extra parts."* [24M]
 - *"It would be nice **if you could purchase** a few presentations or sessions **as a package**, or even join them online if the conference is offline. When joining online, you can ask questions, have a discussion, and the price might be cheaper if you just watch a few presentations. **More conferences would become available** this way because there would be no travel. It's different if you go with friends and colleagues."* [13M]
 - *"I think that a combination of the two, **a hybrid organisation could be exciting** and so maybe people who can't physically be at the venue can attend, **you could think about a dual attendance**."* [12F]
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Source: based on own research.

This perspective demonstrates how digital platforms effectively address the functional need for knowledge dissemination, yet they often fall short in fostering the relational dimension of networking. *"In fact, online conferences reinforce the possibility of anonymity."* [09M] From a marketing standpoint, this dichotomy reveals the importance of audience

segmentation and the development of value propositions that respond to diverse participant priorities. For instance, digital formats strongly appeal to those who prioritise content accessibility and cost-efficiency. *"The advantage of joining online is lower participation fees, both as a speaker and as a student."* [13M]

Despite these advantages, participant engagement remains a core concern. This underscores a broader implication: digital innovation must extend beyond simply replicating in-person formats in a virtual space. To counter digital fatigue and sustain audience interest, conferences must incorporate interactivity, gamification, and AI-enhanced content delivery. In this context, hybrid events have emerged as an optimal model, striking a balance between accessibility and meaningful engagement.

However, the implementation of hybrid formats brings its own challenges. Participants clearly recognised the increased managerial and operational complexity involved in running dual-channel events. This reality points to a pressing need for the seamless integration of digital platforms, supported by robust technical infrastructure. Marketers and organisers must become adept in designing parallel engagement strategies that are effective across both physical and virtual contexts.

Digital solutions such as mobile applications and interactive platforms were widely acknowledged by interviewees as enhancing user experience while contributing to sustainability goals. *"There are all these different apps that allow you to send questions during the presentation [...] digital platforms have become very good tools for that."* [03F] This illustrates the intersection of innovation, digitalisation, and sustainability in the operational execution of hybrid events. A similar sentiment was expressed regarding reduced printed materials. *"For example, lately you can see that there is a lot less printed material [...] it's not a big thing, but I was very pleased that they were paying attention to that."* [16M]

These examples highlight concrete benefits of AI-enabled decision-making and resource optimisation. The findings suggest that digital tools underpinned by AI can further personalise participant experiences, anticipate user needs, and adapt services in real time to minimise environmental impact.

In conclusion, while individual perceptions of sustainability may vary, participants expressed a consistent view, innovation is essential. Digital technologies are not merely supportive enhancements but pivotal drivers of sustainable value creation. As hybrid formats continue to evolve, it is imperative that marketers integrate technological capability with human-centred design principles to fully realise the transformative potential of digital sustainability in the conference industry.

5. Conclusions

This study investigated how digital solutions enable sustainable value creation in the context of hybrid academic conferences. The findings, grounded in qualitative data from 41 semi-structured interviews, highlight how innovation, digitalisation, and sustainability coalesce to shape the evolving landscape of conference marketing and management.

Consistent with earlier literature (Bladen et al., 2022; Mair & Smith, 2022), the research confirms that hybrid conferences present significant sustainability advantages by reducing carbon emissions and enhancing inclusivity. These findings reinforce the argument that hybrid formats are not only a logistical adaptation but also a strategic response to the environmental and social challenges facing the conference industry (Millar & Park, 2017; Tao et al., 2021).

At the same time, the study aligns with scholars such as Fraser et al. (2017) and Hanaei et al. (2022), who observed the growing popularity of hybrid formats prior to and after the COVID-19 pandemic. Interviewees expressed a broad range of sentiments toward hybrid events, which supports the view that hybridisation introduces both opportunity and complexity. This dual nature of hybrid events demands the development of robust digital infrastructures and dual-channel marketing strategies (Puccinelli et al., 2022).

From a marketing standpoint, the findings echo calls by Belz and Peattie (2012) and Sheth and Parvatiyar (2021) for a more transformative and sustainability-oriented approach. Attendees' expectations are shifting toward personalised, immersive, and ecologically responsible experiences, which can be supported through AI-enhanced engagement, smart content delivery, and platform interactivity (Hassan, 2021; Emon & Khan, 2024). These technologies are no longer optional enhancements, they are essential tools in aligning events with sustainability. Interviewees' reflections on digital tools and sustainability practices suggest that hybrid events can successfully embed these values, provided they are strategically planned.

In conclusion, this paper offers both theoretical and practical insights into how hybrid conference formats, when underpinned by digital innovation and guided by sustainability principles, can deliver enriched participant experiences while supporting environmental and social goals. As the field progresses, future research should explore comparative analyses across cultural contexts, longitudinal impacts of digital engagement, and AI's evolving role in ethical marketing and sustainable decision-making.

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