

## Evaluating Technology (Social Media and Apps) And Blockchain for Cost-Savings and Efficiencies in Event Management

Rakesh Sarpal<sup>1</sup>, Tamil Selvi Renganathan<sup>2</sup>, Rachel Low Ti Yin<sup>2</sup>

<sup>1</sup>INTI International College Subang, Subang Jaya, Selangor, Malaysia

<sup>2</sup>Taylors University, Selangor, Malaysia

\***Email:** rakeshs.skumar@newinti.edu.my

### Abstract

This literature review investigates the transformative impact of technology, particularly social media, event-mobile apps, and blockchain on the event management industry. This exploration of technology's influence on the industry reveals a profound shift in how events are planned, marketed, and executed. It addresses two key research questions: the influence of apps and social media on cost savings in event marketing and how blockchain technology enhances efficiencies, specifically in ticketing and data security. Social media is shown to be a cost-effective marketing tool that reduces expenses, though it comes with its own set of challenges, such as data management and maintaining visibility in a crowded digital landscape. Event-mobile apps are highlighted for their ability to reduce costs, streamline logistics, and improve attendee experiences, but they face obstacles related to user adoption and potential obsolescence. This review also delves into how blockchain technology revolutionizes the industry by addressing issues like ticket fraud and manipulation through transparent and immutable transaction records. However, it introduces concerns about data privacy and visibility. In summary, technology is reshaping the event management landscape, offering cost reduction and operational efficiency, while simultaneously presenting ongoing challenges and opportunities for innovation.

### Keywords

Social Media, Event Mobile Apps, Blockchain, Cost Savings, Efficiencies

### Introduction

Amidst the rapid transformations in both society and technology, the event management industry is in a state of rapid evolution. Fueled by an increasingly diverse approach to technology, the event industry is picking up the pace, delivering an ever-increasing array of services to the highly sophisticated consumer market, while also seeking innovative avenues to engage with consumers through technological means (Ryan et al., 2020). According to the 2017 Global Meetings and Events Forecast Report, the volume of events and the scale of attendees are projected to an upward trajectory. Yet, this growth poses a dual challenge for event organizers. On one front, it entails

**Submission:** 1 June 2024; **Acceptance:** 5 October 2024



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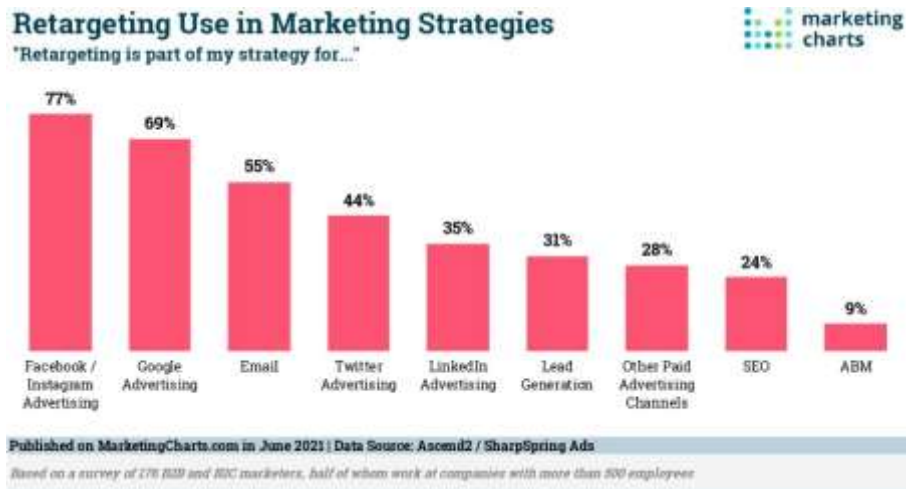
rigorous planning and execution. On the other, despite this upsurge, event budgets are expected to grow only marginally, increasing by a mere 1.1% (American Express, 2016). In response, event organizers are compelled to explore innovative strategies for reducing costs and optimizing resource utilization to ensure the continued delivery of high-quality, efficient events (Qiu et al., 2020).

The obstacles to implementing successful events are typically the difficulty of identifying credible and trustworthy event organizers, as well as securing suitable event locations (Anwar et al., 2021; Komninos et al., 2019). Furthermore, Bala and Verma (2020) have emphasized that, in comparison to traditional marketing channels, sustainable social media marketing is the most cost-effective channel for event promotion. However, it is not without its intricacies. As stated by Nosrati et al. (2020) and Dsouza and Syndhya (2023), social media is multi-dimensional, encompassing online privacy concerns, misinformation, cyberbullying, and the addictive nature of these platforms. Additionally, the gathering of personal details for cashless transaction payments raises pertinent privacy concerns, notably among users who are uncertain about the handling, storage, and security of their data (Zhaofeng et al., 2020). Therefore, Blockchain can contribute to securing payment data by employing strong cryptography and using decentralized networks to help solve these problems (Mistry et al., 2020; Henry et al., 2018).

Two research questions will be delved deeply into this literature review. Firstly, will social media and apps affect the cost in the event management industry? With mounting tension for event organizers to optimize the utilization of resources while maximizing revenues, the event organizers will need to reduce costs and break new ground without compromising customer satisfaction and sustaining the level of quality and efficiency of their events. Hence, this literature will apply a theoretical analysis to answer this question. Secondly, how does Blockchain increase efficiencies in the event management industry? Recent issues, such as information leaks, ticket fraud, and scalping, have imposed substantial costs and credibility concerns on event-goers, especially in the secondary ticket market (Feulner et al., 2022). Blockchain technology can facilitate improved ticketing systems by offering digital transparency and ticket authentication to address these concerns.

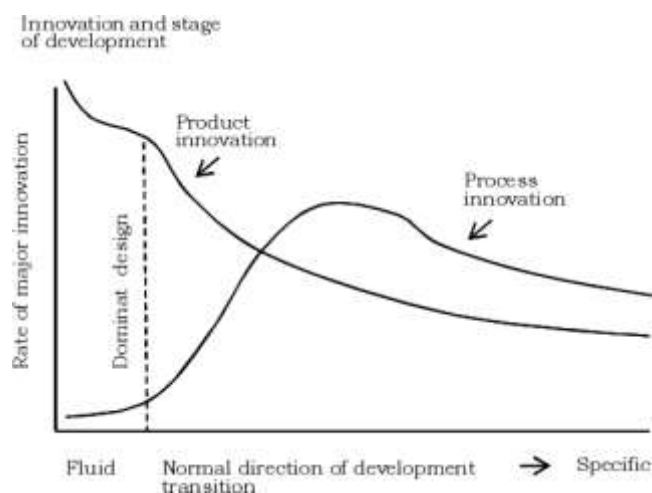
### **Technology Transformation: The Evolution of Social Media and Mobile Apps**

In the dynamic landscape of event technology, social media has evolved into a highly influential and cost-saving communication medium, particularly within the event industry (Kapoor et al., 2017). This transformation has sparked significant awareness, especially among event marketers who recognize its potential (Harb et al., 2019). Social media has fundamentally reshaped modern communication, setting a new standard for interaction in contemporary society and becoming a vital channel for event organizers to establish direct and dynamic connections with their customers (Zollo et al., 2021; Cao et al., 2021; Lashgari et al., 2018).



**Figure 1: Retargeting Use in Marketing Strategies (Sprout Social, 2023).**

Kirtis and Karahan's 2011 study highlighted the cost-saving effectiveness of social media as a marketing tool, significantly reducing marketing expenses within the event industry (Ahmad et al., 2018). Consequently, social media not only reduces costs in the event industry but also empowers potential attendees to discover local events, access reviews, and quickly build public relationships, ultimately leading to increased attendance. As depicted in Figure 1, retargeting advertisements emerge as the preferred choice among marketers, with a significant 77% of both B2B and B2C marketers integrating retargeting into their Facebook and Instagram advertising strategies (Sprout Social, 2023). This statistic further underscores the influential role of social media in contemporary marketing strategies, emphasizing its pivotal position as a cost-effective channel for reaching and engaging with target audiences in the event industry and beyond.



**Figure 2: Model of Abernathy and Utterback (1975) (Kasztlar et al., 2012).**

Utterback's theory of innovation aligns exceptionally well with this context. This theory posits that innovation undergoes two critical phases: the dynamic "fluid phase" and the established "specific phase" (Maidique, 1980) (Figure 2). In the fluid phase, innovation flows rapidly as diverse ideas and technologies are vigorously tested and refined (Utterback and Abernathy, 1975). Social media's evolution within the event industry mirrors this theoretical framework, illustrating how cost-saving strategies have evolved. It has traversed its own "fluid phase", where a multitude of cost-saving platforms and strategies were explored and advanced. Today, it stands on the threshold of entering a "specific phase", having firmly established itself as an indispensable cost-saving tool for event organizers. During this fluid phase, social media remains subject to constant adaptation and experimentation by event marketers, keeping them at the forefront of cost-saving event promotion and communication.

However, Zhang et al. (2020) and Fu et al. (2020) argue that the influx of data on social media creates a dilemma for event organizers seeking to ensure their message reaches the right audience. Similarly, Bawden and Robinson (2020) raise concerns that in an environment filled with a multitude of events, businesses, individuals, and organizations vying for attention, posts, and announcements can easily be lost in a sea of other updates. For instance, the rapid flow of posts can cause event-related updates to quickly get buried in users' feeds, making it challenging for event organizers to maintain visibility. Simultaneously, false or misleading information about events may spread quickly on social media, sowing confusion and potentially undermining event credibility (Khan et al., 2020; Lovari and Bowen, 2019).

Social media undoubtedly acts as a cost-saving tool in the event industry, substantially altering the landscape of event promotion. It provides event organizers with a budget-friendly means of reaching their target audience. While adeptly using social media platforms can reduce marketing costs and enable rapid information dissemination, it is important to recognize that social media's impact is not without its challenges. The influx of data and the fast-paced nature of social media can create a daunting problem for event organizers. However, Andreou et al. (2018) and Dwivedi et al. (2021) indicated that social media platforms offer robust targeting capabilities, allowing event planners to reach particular demographics, interests, and behaviors. This suggests that content related to events can be directed to finely specified audiences, enhancing the chances of the message reaching its intended recipients. Although social media can empower prospective participants to explore events, read reviews, and cultivate connections, it is crucial to evaluate the impact of these endeavors critically and recognize that it is not a universally applicable solution.

In alignment with Kapoor's (2023) insights into the event technology trends for 2023, the growing prominence of native mobile technologies and event-mobile apps offers significant potential for cost savings. These mobile apps enable event participants to navigate routes, track distances, access event information, and interact, reducing the reliance on printed materials and on-site staff for assistance, and consequently, significantly lowering costs in the event industry (Kim and Jung, 2022; Choi et al., 2021). Additionally, mobile apps have a profound impact on the attendee experience by offering real-time event information, personalized schedules, and interactive features that promote engagement and networking (Anwar et al., 2021; Wei et al., 2023). These apps not only streamline the event's logistics but also provide valuable data to organizers, enhancing the overall event management process.



**Figure 3: Size of the event management software (EMS) market worldwide from 2017 to 2022 (in billion U.S. dollars) (Vailshery, 2022).**

As reported by Vailshery (2022), the global value of the event management software (EMS) market has experienced remarkable growth. At the outset of this period, in 2017, the international EMS market was valued at a substantial 6.38 billion U.S. dollars (Figure 3). This ongoing expansion of the EMS market underscores the increasing significance of technology-driven solutions such as mobile apps in the event management industry. Event mobile apps extend their utility beyond convenience and cost-saving benefits. They play a crucial role in emergency response, averting chaos, and ensuring attendee safety through features like panic buttons, SOS alerts, robust emergency notifications, location sharing, and map-based navigation, resulting in more efficient crisis management and reduced manpower costs (Baryannis et al., 2018; Zio, 2018; Berawi et al., 2020; Mody et al., 2020).

While it is essential to recognize and carefully assess the potential benefits and limitations of event apps within the context of event planning and attendee experience, there are valid concerns that deserve consideration. Reluctance among event attendees to readily embrace app downloads and usage, particularly without compelling incentives, can lead to fragmented user experiences and an overall reduction in engagement levels (Kim et al., 2022). Notably, Li et al. (2020) also argue that event apps are often tailored for specific events or fleeting trends, often resulting in a short lifespan that can render them impractical and potentially obsolete once the event concludes. Furthermore,

like any software, event apps may encounter technical glitches, leading to disruptions in the user experience and attendee frustration (Hertzum and Hornbaek, 2023; Goetsu and Sakai, 2023). Navigating event apps can pose challenges for some attendees, especially older or less tech-savvy individuals, leading to a steep learning curve and potential frustration. This highlights the crucial need for event organizers to prioritize user-friendly design.

Adhering to the prevailing ideology, the surge event-mobile apps provide a significant opportunity to enhance the attendee experience while improving operational efficiency and realizing cost savings in event management. The potential of event mobile apps in delivering real-time information, facilitating interpersonal interactions, and even managing crises underscores their valuable contribution. Nevertheless, it is essential to acknowledge that not all attendees will readily embrace these technologies. This underscores the imperative of offering compelling incentives to stimulate app adoption and ensure a seamlessly rewarding experience. Furthermore, while event apps are often designed for specific events or trends, it is suggested that event organizers invest in creating versatile app structures that can be easily adapted and expanded for future events, which ensures that applications remain relevant beyond a single event.

### **Revolutionizing Event Management: The Impact of Blockchain and Privacy Considerations**

Blockchain can be viewed as a digital public ledger that systematically records all digital transactions within a structured and ordered data framework, which is systematically distributed across the network (Niranjanamurthy et al., 2018; Ghosh, 2019). In recent years, blockchain has evolved from experimental use to become a dominant technology, fundamentally changing how data is stored and secured. Trust is the linchpin of blockchain's functionality, as it rigorously examines and sanctions transactions before appending them to the unchangeable chain of code, ensuring all transaction details are accessible to network participants (Ahram et al., 2017; Cai, 2021). Blockchain also maintains the chronology of events, guaranteeing the accuracy of recorded transactions over time (Al-Jaroodi and Mohamed, 2019). Since no individual can unilaterally modify any recorded transaction, the potential for falsifying records or deviating from established protocols becomes remote. Consequently, numerous industries and enterprises are exploring blockchain adoption, with ongoing research focused on its effective integration (Tyagi et al., 2021; Konstantinidis et al., 2018).

In the event industry, ticket sales significantly impact a company's revenue and value proposition (Celuch, 2020). However, ticket fraud and scalping activities result in substantial costs and erode trust among event attendees, especially in the secondary ticketing market (Feulner et al., 2022; Bosnjak, 2021). To address these challenges, various publications and initiatives have proposed using Blockchain technology to foster digital trust and improve ticket verifiability, ultimately enhancing the integrity of event ticketing systems. Event organizers usually aim to both maximize fan attendance and provide a means for customers unable to attend to recover their costs through ticket resale, which creates conflicts stemming from the need for ticket personalization to tie tickets to the audience, control the secondary market, and simultaneously implement an anonymous event ticketing system (Courty, 2019).

Blockchain's decentralized network, which transparently and immutably records transactions, proves highly effective in bolstering the integrity of ticketing systems. Its ability to ensure that all

stakeholders can observe every ticket transaction significantly reduces the likelihood of scalpers manipulating ticket prices or selling counterfeit tickets, making the ticketing process more efficient and reliable (Elefant, 2018; Ahmad et al., 2020). Blockchain's journey in the event industry perfectly mirrors Utterback's theory of innovation, progressing from a phase of experimentation to dominance. It has seamlessly evolved from addressing initial challenges to becoming a fundamental and widely adopted solution, effectively tackling longstanding issues such as ticket fraud and supply chain inefficiencies. For example, the partnership between FIFA and Algorand, making Algorand the official blockchain platform for FIFA, underlines the sports industry's growing acceptance of blockchain technology and its effectiveness in ensuring transaction integrity (Inside FIFA. 2022). Aligned with Utterback's innovation theory, the incorporation of blockchain technology into ticketing systems showcases a transformative evolution, progressing from initial experimentation to a position of dominance. This highlights blockchain's potential to revolutionize conventional practices, contributing to improved integrity within the event industry.

Furthermore, event organizers can harness the synergy of Blockchain technology and Radio Frequency Identification (RFID) systems to establish robust and secure event management solutions across various industries (Azzi et al., 2019). RFID operates through wireless radio waves to identify and track objects or individuals, and it finds widespread use in applications like inventory management and access control (Omoadoni, 2019). The convergence of Blockchain and RFID has notably transformed event experiences, particularly in the context of mobile ticketing and cashless festivals. Utilizing RFID tags and integrated wristbands, attendees can seamlessly make payments for a range of amenities, from food to beverages and merchandise (Rajeb and Karim, 2019). The combination of RFID technology and Blockchain enabled cashless payment systems not only enhances event revenue but also bolsters data security, contributing to an overall improved attendee experience (Cimbaljević et al., 2019).

One of the most compelling facets of integrating Blockchain into the event industry lies in its potential to streamline operational efficiency. Blockchain technology significantly improves ticket validation, reduces wait times at entry points, and facilitates cashless payment systems (Putrevu et al., 2023). These enhancements extend beyond mere attendee convenience; they yield more efficient logistical operations, spanning registration, access management, and cashless transactions. This streamlined approach allows event organizers to dedicate their efforts to delivering a seamless experience to attendees, secure in the knowledge that ticketing and payment systems are both efficient and secure. For instance, smaller charity events may stick to traditional methods like paper tickets and cash donations due to their simplicity and smaller scale. In contrast, large tech conferences such as Web Summit leverage advanced blockchain technology for secure ticketing, and RFID systems to enhance networking and robust attendee tracking (Canada Helps, 2023; Abdi et al., 2020).

While Blockchain offers transparency, it also introduces significant privacy concerns in the context of public blockchains. Transactions in public blockchains are visible to all participants, potentially exposing sensitive data to the public (Barnabe et al., 2019; Bayan and Banach, 2023). Blockchain transactions typically do not reveal personally identifiable information (PII), such as names or addresses, they are associated with unique encrypted addresses or public keys, resulting in transactions being pseudonymous rather than completely anonymous (Hassan et al., 2019; Jawaheri et al., 2020). Over time, the analysis of transaction patterns and the potential linkage of

specific addresses to individuals or entities, especially if they are associated with real-world identities, becomes plausible (Yin et al., 2019). In Blockchain systems that rely on cryptographic keys for security, the loss of a private key means irrevocable forfeiture of access to one's assets or data (Xu et al., 2018; Kumar et al., 2021). These factors could lead to event attendees' spending behavior and participation in events gradually becoming part of a public record, posing a potential threat to their anonymity and privacy.

Considering the implications of the research, the integration of blockchain technology into the event industry is a promising and transformative development. It addresses critical challenges such as ticket fraud, scalping, and inefficient entry processes, ultimately leading to enhanced efficiency and trust. The transparency and security that blockchain provides create a solid foundation for event organizers and attendees alike, ensuring that transactions are secure and that data integrity is maintained. While privacy concerns and private key risks demand careful attention, blockchain's potential to streamline event management, reduce operational friction, and enhance the attendee experience is clear. As this technology evolves, it has the power to revolutionize event organization and attendance, increasing efficiency, security, and enjoyment.

### **Conclusion**

In conclusion, the event management sector is experiencing a profound transformation propelled by technological advancements. Empirical evidence affirms that social media and event-mobile apps effectively curtail marketing expenditures and establish stronger connections between organizers and their target demographics, thereby addressing the initial research query regarding the impact of these technologies on cost savings. Simultaneously, as elaborated in response to the second research question, blockchain technology has emerged as a revolutionary solution, particularly in its role in countering ticketing fraud and optimizing the ticketing process's efficiency. These technological breakthroughs are reshaping the entire industry, offering event planners and participants opportunities for cost reduction, operational enhancements, and enriched experiences. Looking ahead, the industry is poised for further advancements, including the integration of virtual and augmented reality, AI-driven chatbots, data analytics, sustainability initiatives, expanded blockchain applications, and enhanced privacy measures. These developments promise to deliver more engaging, efficient, and secure event experiences, positioning the industry for continued growth and innovation.



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