

Strategy and Redefinition of Ambient Media Advertising in the Digital Age: Theoretical Review with Conceptual Contributions

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ABSTRACT

Ambient media advertising has evolved significantly from its traditional, physically focused origins, yet a comprehensive theoretical framework that integrates digital capabilities remains absent. This article addresses this gap by examining the evolution of ambient media advertising, synthesizing classical theory with digital advertising principles to propose a new conceptual framework. Through a theoretical synthesis approach, this study redefines ambient media advertising in the digital age as a marketing communication strategy that synergistically leverages physical and digital spaces to create unexpected, personalized, interactive, and contextual advertising experiences, powered by data- and sensor technology. The proposed Digital Integrated Ambient Media (DIAM) model comprises five key elements: Contextual Immersion, Personal Relevance, Interactivity, Surprise Effects, and a Data-Driven Feedback Cycle. The findings offer a robust theoretical foundation for future empirical research and provide practical guidance for designing integrated, experience-based advertising campaigns. The key implications of this study are the expansion of ambient media's conceptual boundaries and the provision of a testable framework for hybrid advertising strategies in contemporary marketing.

Keywords: Ambient Media; Digital Advertising; Experience-Based Marketing; DIAM Model

INTRODUCTION

Ambient media advertising, traditionally known as a non-conventional advertising strategy integrated into the physical environment, has effectively captured consumers' attention through unexpected placement and surprise effects (Dahlén, 2005; Shankar & Horton, 1999). However, the digital age has transformed the contemporary media landscape with the convergence of technologies such as the Internet of Things (IoT), Augmented Reality (AR), Virtual Reality (VR), and mobile targeting capabilities, which are changing the way consumers interact with media, making these interactions more immersive, interactive, contextual, and hyper-personal (Chaffey & Ellis-Chadwick, 2019; Lemon & Verhoef, 2016).

This paradigm shift demands a redefinition and reconfiguration of ambient media strategies that are relevant to the dynamics of the digital environment (Hutter & Hoffmann, 2014). Although ambient media has shown its effectiveness in attracting attention and producing memorable experiences, much of the existing literature still tends to address it from both physical and conventional perspectives (Othman, 2020). The integration of digital technology into ambient media still lacks theoretical elaboration, leaving a significant gap in understanding how to optimize strategies in the digital era. There is no comprehensive theoretical framework that explicitly redefines and models digital ambient media strategies (Sûla, 2018).

However, the digital age has rendered this traditional conceptualization increasingly insufficient. The proliferation of technologies such as the Internet of Things (IoT), Augmented Reality (AR), Virtual Reality (VR), and sophisticated mobile targeting has fundamentally altered how consumers interact with media, creating opportunities for experiences that are immersive, interactive, and hyper-personalized (Chaffey & Ellis-Chadwick, 2019; (Lemon & Verhoef, 2016), A meta-analysis by van Berlo et al. (2024) confirmed the general effectiveness of creative media advertising but also highlighted the need to explore how new technological integrations might amplify these effects. The convergence of physical and digital spaces, often referred to as "phygital" marketing, demands a re-evaluation of advertising strategies that operate at this intersection (Jenkins, n.d.); (Lugmayr et al., 2013).

The novelty of this research lies in its explicit attempt to bridge the gap between classical ambient media theory and contemporary digital advertising concepts (Wu et al., 2016). This study proposes a novel, integrated conceptual framework, termed the Digital Integrated Ambient Media (DIAM) Model, which synthesizes diverse theoretical perspectives from media convergence, interactive marketing, and data-driven personalization (Freberg et al., 2011). Unlike previous studies that have treated physical and digital ambient strategies as separate domains, this research posits that their synergistic integration is the key to unlocking superior advertising outcomes. The DIAM model is a significant departure from existing frameworks, as it is built upon the premise that the future of ambient media lies in the seamless orchestration of physical and digital elements, powered by a continuous data-driven feedback loop (Rudzewicz & Grzybowska-Brzezinska, 2013).

Therefore, the primary purpose of this article is to address the identified theoretical gap by providing a comprehensive redefinition and a new conceptual model for ambient media advertising in the digital age (Pogorelc & dkk., 2012). This research aims to contribute to the academic discourse by: 1) synthesizing classical ambient media theory with relevant digital advertising principles; 2) proposing the DIAM model as a comprehensive analytical framework; and 3) articulating theoretical propositions that can be empirically tested in future research. The key benefit of this research is twofold (V. Shankar & Balasubramanian, 2009). For academics, it provides a foundational framework to guide future empirical studies and advance theoretical sophistication in the field of hybrid advertising. For practitioners, it offers a structured approach to designing, implementing, and evaluating more effective, integrated, and consumer-centric ambient media campaigns, ultimately enhancing brand engagement and return on investment (van Berlo et al., 2024).

METHOD

Theoretical Synthesis and Concepts

1. Redefining Ambient Media Advertising in the Digital Age

Based on the identified theoretical gaps and the synthesis of relevant theories, this study proposes a redefinition of ambient media advertising in the digital age: Ambient media advertising in the digital age is a marketing communication strategy that synergistically leverages physical and digital spaces to create unexpected, personalized, interactive, and contextual advertising experiences, powered by data and sensor technologies (Aroyo et al., 2007).

This redefinition emphasizes several important aspects:

- **Synergy between Physical Space and Digital Space:** Realize that modern ambient media is no longer limited to just one domain, but bridges the real and virtual worlds.
- **Advertising as an Experience:** Shifting the focus from simply delivering a message to creating an immersive and memorable consumer experience (Bleier & Eisenbeiss, 2015).
- **Surprise Effect:** Maintains the core element of unpredictability that is characteristic of traditional ambient media.
- **Personal, Interactive, and Contextual:** Integrate the power of digital advertising in terms of individual relevance, active consumer participation, and message customization based on real-time context.
- **Data-Based and Sensory:** Highlights the fundamental role of technology in enabling personalization, interactivity, and contextualization.

2. Key Elements of the Digital Integrated Ambient Media (DIAM) Model

To operationalize the above redefinition, this study identifies five key elements that make up the Digital Integrated Ambient Media (DIAM) model:

1. **Contextual Immersion:** This element emphasizes the ability of ads to blend in with the user's spatial and contextual environment, both physical and digital. This goes beyond unexpected physical placements to include integration with digital environments to create experiences that feel natural, relevant, and connected to the consumer's surroundings.
2. **Personal Relevance:** The DIAM model incorporates the ability to tailor advertising messages based on consumer data profiles, including individual behavioral patterns, preferences, and needs. This involves using big data analytics and machine learning for behavioral targeting and hyper-personalization. Thus, ads not only appear in unexpected contexts but also with highly relevant content, increasing consumer engagement and positive responses.
3. **Interactivity:** This model emphasizes the active participation of consumers. Interactivity can be gamification, Augmented Reality (AR) or Virtual Reality (VR) experiences, or real-time feedback mechanisms that allow consumers to interact directly with ad content. This transforms consumers from passive recipients to active participants, deepens engagement, and drives more memorable experiences.
4. **Shock Effect:** Despite being technologically enhanced, DIAMs retain the essential element of shock inherent in traditional ambient media. The surprise can be realized through unexpected placement in a physical space or through innovative and unprecedented digital experiences. Digitally personalized surprises have the potential to create stronger memories.
5. **Data-Driven Feedback Cycle:** DIAM is inherently dynamic and adaptive. The system includes mechanisms for real-time data collection of consumer interactions, subsequent analysis, and continuous campaign optimization. This feedback cycle allows for dynamic retargeting, message customization, and progressive improvement in ad relevance over time, ensuring continued campaign effectiveness.

3. Conceptual Model: Digital Integrated Ambient Media (DIAM)

The proposed DIAM model can be conceptually visualized as an interactive cycle that puts the consumer at the center, surrounded by five interconnected elements supported by data and sensor technologies. The essence lies in dynamic interactions in one domain that inform and optimize the experience in another.

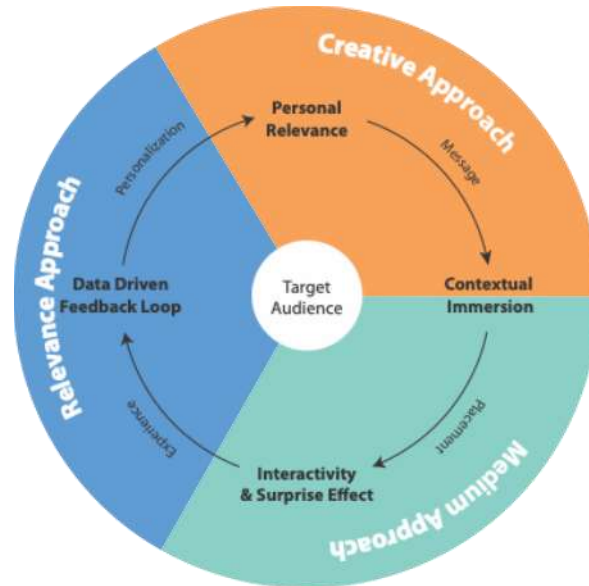


Figure 1. Visualization of the proposed DIAM model.

This model not only combines two domains, but also creates synergistic value through its integration. For example, physical location data (Contextual Immersion) can be used to personalize AR-based experiences (Personal Relevance and Interactivity), which in turn triggers a surprise effect and generates new data for optimization (Data-Driven Feedback Loop). As such, the DIAM Model is adaptive and continuously learns from consumer interactions, allowing advertising campaigns to evolve towards greater relevance and effectiveness over time (Wedel & Kannan, 2016).

a. Proposisi Teoritis

From the proposed DIAM model, we derive several theoretical propositions for future empirical research:

- **Proposition 1:** Synergistic integration between physical and digital elements in ambient media advertising (as outlined in the DIAM Model) will result in higher levels of brand engagement compared to strategies that focus only on physical or digital channels.
- **Proposition 2:** Digitally personalized surprise effects in ambient media campaigns will have a stronger impact on ad recall and brand recall than non-personalized surprise elements.
- **Proposition 3:** Increased interactivity (e.g., using AR/VR technology) in digital ambient media campaigns will significantly increase positive attitudes towards advertising and purchase intent.

- **Proposition 4:** Implementing data-driven feedback cycles in the DIAM Model will strengthen the relevance of messages and enable more effective dynamic retargeting, thereby increasing conversion rates and return on investment (ROI).

These propositions provide a foundation for future empirical research to validate and expand our understanding of the effectiveness of ambient media advertising in the digital age.

RESULTS AND DISCUSSION

Theoretical Implications

The proposed Digital Integrated Ambient Media (DIAM) model offers several key theoretical implications:

1. **Expanding the Definition of Ambient Media:** The DIAM model expands the conceptualization of ambient media from simply "non-traditional media" or "unusual ad placement" to a broader understanding of experiential, hybrid media. This redefinition shifts the focus of media as a mere channel to a medium as a platform to create a rich and integrated experience between the physical and digital worlds. This new definition prompted academics to reconceptualize ambient media as a dynamic and multifaceted category that transcended physical boundaries.
2. **Framework for Empirical Validation:** This model provides a strong theoretical foundation for future empirical testing. Propositions derived from the DIAM model can serve as the basis for experimental studies, survey research, or big data analysis, which examine the relationship between model components and key advertising outcomes (e.g., brand engagement, recall, attitudes toward ads, and conversion rates). This paves the way for advancing theoretical sophistication in hybrid advertising research.
3. **Integration of Diverse Theoretical Perspectives:** The DIAM model successfully integrates and synthesizes previously different theoretical domains, such as conventional ambient media theory, digital advertising theory (e.g., personalization, interactivity, ubiquitous advertising), and media convergence concepts (e.g., transmedia storytelling, ambient intelligence, IoT). This synthesis shows how these frameworks can complement each other in explaining increasingly complex advertising phenomena, encouraging an interdisciplinary approach in advertising research.
4. **Criticism and Expansion of Existing Assumptions:** This model implicitly challenges the traditional assumption that the effectiveness of ambient media lies only in physical shock or unconventional placement. The DIAM model offers a new perspective that digital technologies can amplify and personalize the element of surprise, and that the effectiveness of ambient media comes from its ability to produce relevant, interactive, and data-driven experiences. This encourages the revision of existing theoretical assumptions and the development of new frameworks that are more in line with the contemporary advertising reality.

Practical Implications

Beyond its theoretical implications, the Digital Integrated Ambient Media (DIAM) Model also offers valuable practical guidance for marketers, advertising agencies, and technology developers.

- 1. Experience-Based Campaign Design:** Brands no longer focus solely on placing ads in unconventional locations, but must design campaigns that create immersive experiences for consumers. It involves strategically arranging the interaction between physical and digital elements to produce a cohesive narrative and a memorable experience. For example, beverage brands can use applied reality (AR) to turn product packaging into a gateway to an interactive virtual world, or outdoor campaigns can use sensors to trigger relevant digital content as consumers approach.
- 2. Designing Highly Targeted and Adaptive Ambient Media:** Advertising agencies must develop the ability to design not only creative, but also highly targeted and adaptive ambient media campaigns. This requires leveraging big data analytics to understand consumer behavior and preferences, as well as integrating technologies such as IoT and AI to enable real-time message customization. Campaigns must dynamically respond to contextual and behavioral changes, maximizing relevance and effectiveness.
- 3. Investment in Data Technology and Infrastructure:** The implementation of the DIAM Model requires significant investment in technologies that enable physical-digital integration, such as AR/VR platforms, sensors, and IoT infrastructure. Additionally, the ability to effectively collect, analyze, and interpret consumer data is essential. This may involve developing internal capabilities or establishing partnerships with technology and data service providers.
- 4. Cross-Disciplinary Collaboration:** The successful implementation of the DIAM Model will depend heavily on close collaboration between creative, technological, analytical, and marketing teams. An isolated approach will not be effective in designing and executing complex and integrated campaigns. Instead, a team must be able to think holistically about how to create a seamless consumer experience across physical and digital touchpoints.

These practical implications show that ambient media advertising in the digital age is not just about tactical innovation, but rather a strategic transformation in the way brands interact with consumers, powered by technology and data insights (Calder et al., 2009).

CONCLUSION

The main theoretical contributions of this article are: 1. Identification of Theoretical Gaps: This study highlights the lack of a comprehensive framework that integrates conventional ambient media with digital advertising; 2. Theoretical Synthesis: This article synthesizes classical ambient media theory with the concepts of digital advertising and media convergence to build a new theoretical framework; 3. Critique of Assumptions: It criticizes the narrow view of ambient media and offers a new perspective as a hybrid medium focused on experience; 4. New Conceptual Model: It proposes the DIAM Model as a testable framework for understanding and designing ambient media strategies (Kaplan & Haenlein, 2010).

The practical contributions of this article offer guidance for advertising agencies and technology developers, namely: 1. Experience-based advertising, where physical and digital elements interact to create cohesive narratives and immersive experiences; 2. Designing ambient media with specific, adaptive targeting by utilizing big data to understand consumer behavior and preferences, enabling dynamic responses to contextual changes and maximizing

relevance and effectiveness; 3. Building cross-disciplinary collaboration between the creative industry and the technology sector.

Based on this proposal, further study of the DIAM Model, including its constituent elements—such as contextual immersion, personal relevance, interactivity, surprise effects, and data-driven feedback loops—is needed, both in advertising case studies and for its application in marketing practices. Future researchers are encouraged to quantitatively examine parameters to measure the effectiveness of ambient media advertising, ensuring that each element of the DIAM Model is incorporated into the evaluation framework.

REFERENCES

- Aroyo, L., Nack, F., Schiphorst, T., Schut, H., & KauwAtjoe, M. (2007). Pengalaman Media Ambient yang Dipersonalisasi: studi kasus move.me. *Prosiding Konferensi Internasional Ke-12 Tentang Antarmuka Pengguna Cerdas*, 298–301. <https://doi.org/10.1145/1216295.1216351>
- Bleier, A., & Eisenbeiss, M. (2015). Pentingnya Kepercayaan dalam Periklanan Online yang Dipersonalisasi. *Jurnal Perdagangan Ritel*, 91(3), 390–409. <https://doi.org/10.1016/j.jretai.2015.04.001>
- Calder, B. J., Malthouse, E. C., & Schaedel, U. (2009). Studi Eksperimental tentang Hubungan antara Keterlibatan Online dan Efektivitas Periklanan. *Jurnal Pemasaran Interaktif*, 23(4), 321–331. <https://doi.org/10.1016/j.intmar.2009.07.002>
- Chaffey, D., & Ellis-Chadwick, F. (2019). *Pemasaran Digital: Strategi, Implementasi dan Praktik* (7, Ed.). Pearson Education.
- Dahlén, M. (2005). Medium sebagai Isyarat Kontekstual: Efek Pilihan Media Kreatif. *Jurnal Periklanan*, 34(3), 89–98. <https://doi.org/10.1080/00913367.2005.10639197>
- Freberg, K., Graham, K., McGhaughey, K., & Freberg, L. A. (2011). Siapakah para influencer media sosial? Sebuah studi tentang persepsi publik terhadap kepribadian. *Public Relations Review*, 37(1), 90–92. <https://doi.org/10.1016/j.pubrev.2010.11.001>
- Hutter, K., & Hoffmann, S. (2014). Kejutan, Kejutan. Media Ambient sebagai Alat Promosi untuk Peritel. *Jurnal Perdagangan Ritel*, 90(1), 93–110. <https://doi.org/10.1016/j.jretai.2013.08.001>
- Jenkins, H. (n.d.). *Budaya Konvergensi: Di Mana Media Lama dan Media Baru Bertabrakan* (1, Ed.). New York University Press.
- Kaplan, A., & Haenlein, M. (2010). Pengguna Dunia, Bersatulah! Tantangan dan Peluang Media Sosial. *Business Horizons*, 53(1), 59–68. <https://doi.org/10.1016/j.bushor.2009.09.003>
- Lemon, K. N., & Verhoef, P. C. (2016). Memahami Pengalaman Pelanggan Sepanjang Perjalanan Pelanggan. *Jurnal Pemasaran*, 80(6), 69–96. <https://doi.org/10.1509/jm.15.0420>
- Lugmayr, A., Serral, E., Schrep, A., Pogorelc, B., & Mustaqim, M. (2013). Media Ambient Hari Ini dan Besok. *Alat Dan Aplikasi Multimedia*, 71(1), 7–37. <https://doi.org/10.1007/s11042-012-1346-z>
- Othman, H. (2020). Iklan Ambient sebagai Pendekatan Media Tidak Konvensional. *Jurnal Desain Internasional*, 10(2), 269–278. <https://doi.org/10.21608/idx.2020.81142>

- Pogorelc, B., & dkk. (2012). Media Ambient Semantik: dari Iklan Ambient hingga Kehidupan yang Dibantu Ambient. *Alat Dan Aplikasi Multimedia*, 58(2), 399–425. <https://doi.org/10.1007/s11042-011-0917-8>
- Rudzewicz, A., & Grzybowska-Brzezinska, M. (2013). Periklanan Lingkungan Merek Global. *Konferensi Bisnis Dan Manajemen - Praktik Dan Teori Di Abad Ke-21*, 128–137. https://www.researchgate.net/publication/283638341_AMBIENT_ADVERTISING_OF_GLOBAL_BRANDS
- Shankar, A., & Horton, B. (1999). Media Sekitar: Peluang Media Baru untuk Periklanan? *Jurnal Internasional Periklanan*, 18(3), 305–321. <https://doi.org/10.1080/02650487.1999.11104763>
- Shankar, V., & Balasubramanian, S. (2009). Pemasaran Seluler: Sintesis dan Prognosis. *Jurnal Pemasaran Interaktif*, 23(2), 118–129. <https://doi.org/10.1016/j.intmar.2009.02.002>
- Sûla, T. (2018). *Media Ambient dalam Periklanan: Pentingnya Desain dalam Penciptaan Media Ambient* (1, Ed.). Universitas Tomas Bata di Zlin, Fakultas Komunikasi Multimedia. <https://doi.org/10.7441/978-80-7454-682-2>
- van Berlo, Z. M. C., Meijers, M. H. C., Eelen, J., Voorveld, H. A. M., & Eisend, M. (2024). When the Medium Is the Message: A Meta-Analysis of Creative Media Advertising Effects. *Journal of Advertising*, 53(2), 278–295. <https://doi.org/10.1080/00913367.2023.2186986>
- Wedel, M., & Kannan, P. K. (2016). Analisis Pemasaran untuk Lingkungan Kaya Data. *Jurnal Pemasaran*, 80(6), 97–121. <https://doi.org/10.1509/jm.15.0413>
- Wu, J., Arora, A. S., & Arora, A. (2016). Rasakan “Suasana”: Menguji Persepsi Inovasi Periklanan Suasana di Antara Konsumen Amerika Serikat dan India. *Jurnal Internasional Pasar Berkembang*, 11(2), 148–174. <https://doi.org/10.1108/IJoEM-11-2013-0204>