A Bibliometric Analysis in Mapping The Interplay of Augmented Reality and Marketing

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Abstract—The integration of Augmented Reality (AR) and marketing transforms consumer interact with brands by merging digital and physical environments into immersive experiences. The research on AR marketing is still fragmented with inconsistent conceptual framework and limited theoretical coherence. This study conducts a bibliometric analysis of 709 Scopus index publications from 2000-2025 to map the collaboration patterns, intellectual structure and thematic evolution of AR in marketing by applying biblioshiny. The research finds two domain clusters which are AR technology and marketing with limited overlaps that indicate the gap between technology innovation and consumer behavior study. The findings reveal that the research dominantly focuses on utilitarian and experiential value creation while ethics, culture and long-term behavioral aspect remain underexplored. This study contributes by offering a systematic overview of AR marketing, future research direction to bridge the gap between the practice of marketing and technology development.

Keywords—marketing, augmented reality, bibliometric analysis, immersive technology, consumer engagement

I. Introduction

Augmented reality (AR) provides a transformative technology blending physical environment and digital elements to enhance interaction and perception of user. AR rapidly evolves, expanding the applications across education, marketing, tourism and healthcare. AR emerge in marketing as a key driver of digital transformation, enabling personalization, interactive and immersive consumer experiences enhancing purchase intention and brand engagement [1].

AR in marketing provides virtual try-on, dynamic visualization, interactive storytelling and improve perceived value, consumer trust and purchase intention. However, AR marketing research remains dispersed across discipline such as consumer behavior, computer science and psychology.

Therefore, bibliometric analysis offers a quantitative and systematic approach to assessing evolution and intellectual structure of AR marketing research.

II. Literature Review

A. Augmented Reality (AR)

Augmented Reality (AR) combines physical environment and digital elements to enhance the perception and interaction of user with growing applications in marketing, healthcare, education and tourism. The foundation work of augmented reality concept was introduced by Azuma [2] and it expands rapidly with diverse uses [3][4]. However, the research on augmented reality remains fragmented with limited theoretical grounding and inconsistent terminologies [5]. Augmented reality in education enhances significantly the learning retention and engagement yet standardized the evaluation metrics and still lack of unified frameworks [3]. It reveals the need to consolidate the existing knowledge to strengthen consistency of methodology and clarity of concept.

AR as a disruptive technology overlays the content of digital onto real-world environments. It creates interactive experiences for consumers. Augmented reality (AR) become transformative tools in marketing to enhance the interaction of consumer through experiential and immersive engagement. Recent studies indicate AR increase enjoyment, perceived value, trust and improve purchase intention and brand attitude [5][6]. AR transform traditional promotion by enabling the product trial virtually and influence the decision to purchase the product. Therefore, AR has an important role in design the modern strategies in marketing [7].

Augmented reality marketing define as the integration of computer-generated content and digital into the real world environment of users to enhance the experience of consumer and influence the outcome of marketing. According to situation cognition theory, AR create a third space which consumer experience simultaneously the virtual and physical world, enable richer engagement and cognition than traditional media [1]. Some AR unique digital features such as real time interactivity, immersive visualization and spatial registration allow the intervention of marketing to increase flow, presence and the engagement of sensory to elevate enjoyment (hedonic) and task relevant (utilitarian) value for consumer [8]. AR integration into marketing open a broader shift toward technology driven and experiential approach that redefine the interaction between brand and customer.

The theoretical mechanism of ARM from consumer behaviours perspective posits immersive and interactive features of AR enhance control and exploratory behaviour that boost engagement and attitude towards product or brand. AR strength the loyalty and reduce mental imagery effort and perceived risk by enabling virtual model of try before you buy in one's own environment [5]

The interest in ARM grow drive by the adoption of this technology in some industries such as tourism, advertising and retail. Some studies analyse the impact of AR on consumer behaviour, purchase intention, brand perception in enriching consumer experience and emotions [5]. However, there's still needs to obtain comprehensive understanding in AR and marketing by mapping the landscape of research in AR and marketing. The existing research often analyse qualitatively to get insightful of AR and marketing and need more analyse to identify emerging themes, journal and authors [9]. Bibliometric analyses is one of method to overcome this gap by mapping the research systematically and guidance scholarly for future research [10]. It provides networks of citation, trends on publication and conceptual structure for deep understanding of AR marketing development and the opportunities for future studies.

B. Bibliometric Analysis

Bibliometric analysis gain significant attention in business research due to bibliometric software advancement such as VOSviewer, Gephi and large database accessibility such as Web of Science and Scopus [11][12]. This method is applied to analyse the pattern of collaboration, identify the emerging trends, uncover intellectual structure of fields and identify emerging trends [13][14]. This method allow scholars to understand and map the scientific knowledge evolution by combining the objective measures such as counts of citation with the evaluations of interpretive thematic [15].

There are some steps in bibliometric analysis which are data collection, cleaning, analyse, interpretation. [16] Bibliometric analysis emerge as a robust quantitative method to examine academic literature focus on citation, articles, keyword occurrence, co-authorship. Compare to traditional narrative literature review, bibliometric analysis able mapping the research landscape such as most cited works, collaboration cluster, emerging topics by applying tools such as VOSviewer and Bibliometrix [17]

III. RESEARCH METHODOLOGY

A. Data Collection

The research gather the data from Scopus database it consists of a lot of various discipline academic literature that include accurate citation and abstract [18]. Furthermore, Scopus consists of a lot of peer-review publications collections that consist of books, journals and conference proceedings.

This research applies some terms to collect the data which are "augmented reality" AND "marketing". The process continues by applying some conditions such as period set in 2000-2025, document type limited to article and conference paper, publication stage limited to final, source type limited to journal and conference proceeding and the language limited to English. The final data gathered is 709. The combine queries to searching are as follows: (TITLE-ABS-KEY ("Augmented Reality") AND TITLE-ABS-KEY ("Marketing")) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "cp")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SRCTYPE , "j") OR LIMIT-TO (SRCTYPE , "p")) AND (LIMIT-TO (LANGUAGE , "English"))

B. Data Analysis

Bibliometric analysis applies quantitative techniques such as the analysis of citation. The research applies bibliometric analysis to present the research topic at a specific time and its development by dividing in several periods [19].

The data is downloaded in csv file and apply biblioshiny from R-Studio and VOSviewer to analyze the data gathered. The raw data uploaded in biblioshiny interface generates multiple datasets for further analysis.

C. Research Objective & questions

This research aims to map the landscape of thematic and intellectual of Augmented Reality in marketing research. This study contributes to a comprehensive understanding of how AR is globally shaping marketing practice and research.
The research questions are as follows:
1. What are the most influential institutions?
2. What is the co-occurrence network of keywords?
3. How is the collaboration pattern?
4. What are the gaps and future research directions?

IV. FINDINGS AND DISCUSSIONS

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A. Main information

Fig. 1. Main information

The dataset shows the research in 2000 – 2025 are growing rapidly with 709 documents in 332 sources and 16.7% annual growth rate. No single author and 6.83 co-author per document indicate strong collaboration and high network community. 37.58 average citation and young document age for 4.02 years reveal high impact and current relevant. 2,248 authors, 5,332 references and 1984 keywords indicate the diverse and high collaboration topics.

B. Wordcloud

Fig. 2. Wordcloud

The wordcloud highlights augmented reality and marketing as central themes. It reflects research focus on how immersive technology transform consumer engagement and practices in marketing. The other keywords such as commerce, sales, virtual reality and consumer behaviour reveal the applied orientation toward purchasing outcomes and the effectiveness of digital marketing while smaller terms such as user experience and decision making indicate interdisciplinary links to information systems and psychology.

The pattern indicate the current research focus on experiential value and the integration of technology but lacks depth in cultural, ethical examination, and long-term behaviour impact. Future study must explore how AR-driven marketing influence trust and customer loyalty sustainability by applying longitudinal and mixed method to capture the customer responses evolvement.
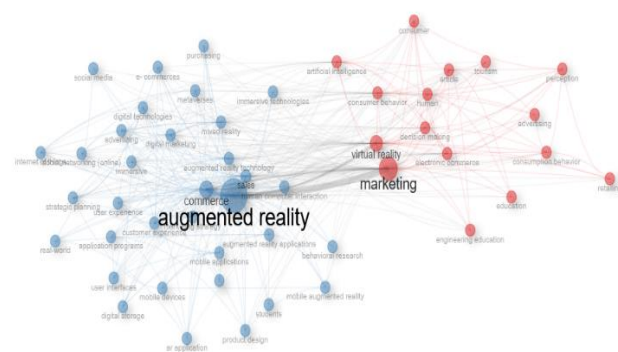
C. Co-occurance network

Fig. 3. Co-occurrence network

The co-occurrence map highlights two domain clusters which are marketing as the main consumer-focused domain. and augmented reality as central technology hub. Augmented reality cluster is linked strongly to some terms such as user experience, product design, immerse technology while marketing cluster linked to decision making, consumer behavior and advertising. The limited overlap between this cluster indicates the research gap between marketing applications and AR technology development. Future study must focus on the integration of these areas such as interactive and immersion influence purchase intention, consumer engagement, brand perception.
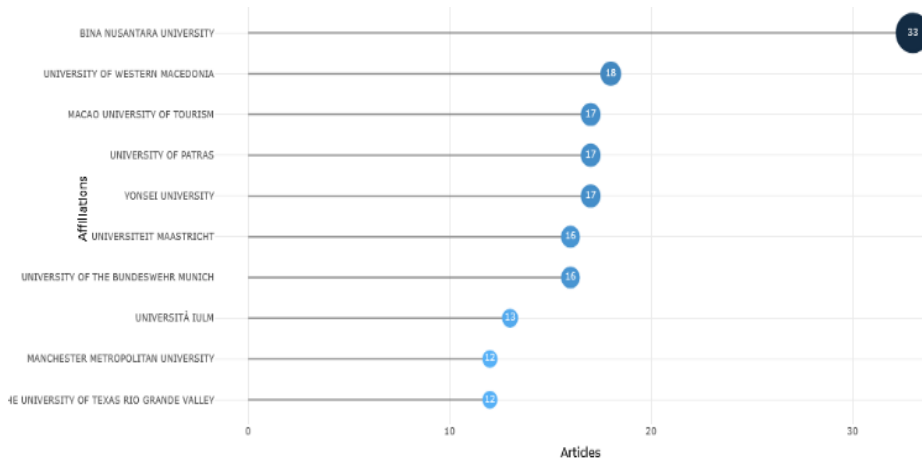
D. Most relevant affiliations

Fig. 4.   Most relevaresearcnt affiliations

The chart shows 33 articles affiliates with Bina Nusantara University, 18 articles with University of Western Macedonia, 17 articles with each University of Patras, Macao University of Tourism and Yonsei University. The data indicates a research concentration gap where a university influence heavily the article publication.

V.   CONCLUSION AND FUTURE WORK

This study provides a comprehensive bibliometric mapping the evolving research on Augmented Reality (AR) in 2000 to 2025. Analyzing 709 Scopus indexed publication using biblioshiny, the finding indicates two domain clusters which are consumer and technology driven AR which remain partially integrated. It reveals a need for more cohesive framework aligning marketing strategy, technology capability and consumer psychology.

The findings highlight AR marketing research focus on consumer engagement, experience and purchase intention. It indicates strong interest in utilitarian value creation and hedonic and limited research in culture, ethics, sustainability and long-term behavioral consequences of AR driven interactions.

A.   Theoritical implications

This study applies systematic overview the evolving of the field to understand the augmented reality marketing. It identifies the necessity to develop integration of theoretical models bridging digital marketing strategy, consumer behavior, human computer interaction.

B. Practical implications

The finding highlights augmented reality strategic platform despite only promotional tools for the innovation of customer experience. Marketers use augmented reality to build strong emotions, enhance personalization, foster stories.

C. Future study

The findings reveal some future research for scholars and practitioners to understand the interplay between marketing and augmented reality. Some further research is as follows: longitudinal and mixed method research; cross culture and contextual study; emerging technology integration; psychological perspective and ethics; inclusivity and sustainability.

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