Sustainable Digital Entrepreneurship and Personalized Advertising in the Age of AI: A Bibliometric Analysis of Theoretical Frameworks, Consumer Behaviour Models, and SME Innovation Pathways in Asia

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Abstract
The topic of artificial intelligence (AI) and personalized advertising has been gaining increasing academic interest, but no bibliometric mapping of this area has been conducted. This paper presents a retrospective bibliometric review of the literature on AI-based personalized advertising and its effects on consumer behavior, with references to the literature published in the Scopus database in 2015–2025. VOSviewer, R Studio (Biblioshiny package), and Microsoft Excel were used to analyze the 90 documents in order to assess the trends in publications, citation patterns, co-authorship networks, co-occurring keywords, and changes in the themes in the documents. Results suggest an exponential increase in growth, with more than 72% of the corpus being published in 2022–2025. The major contributors are the United States, India and China, with journals like the Journal of Business Research, Psychology and Marketing and the International Journal of Information Management being the main intellectual resources. The co-occurrence of keywords and bibliographic coupling are used to determine six thematic clusters: (1) Technology Acceptance and Adoption Models, (2) Persuasion and Information Processing Theories, (3) Stimulus–Organism–Response Frameworks, (4) Privacy and Ethical Decision-Making Theories, (5) Trust, Value, and Relationship Models, and (6) Emerging Interdisciplinary Approaches. The study also outlines research gaps that are critical, such as the lack of cross-cultural research, the lack of integration of explainable AI (XAI) in the models of consumer behavior, and the lack of longitudinal research that follows the changing attitudes of consumers. It suggests a research agenda in the future, whereby interdisciplinary frameworks are advocated to bridge the gap between computational advertising, behavioral economics, and regulatory science. In this context, Asia's fast-growing digital economy, the study also explores the role of AI-personalized advertising as a strategic catalyst for sustainable digital entrepreneurship, responsible innovation, and growth by SMEs. The literature has failed to sufficiently examine how SMEs and early-stage ventures in Asian markets can use ethical AI advertising to foster trust among consumers, gain differentiation, and pursue inclusive business development as evident from the corpus. This study clearly contributes to the field of AI advertising scholarship and links the results to marketing practices aligned with CSR and SME digitalisation pathways and responsible innovation frameworks. The findings of this study span the landscape of Asian entrepreneurs and SME managers, policymakers, and responsible marketers aiming to leverage AI-powered advertising while maintaining sustainability, data governance, and ethical innovation.

Keywords: *AI-personalized advertising; bibliometric analysis; technology acceptance; sustainable digital entrepreneurship; Asian SMEs; digital entrepreneurship; ethical AI; responsible innovation; sustainable marketing; entrepreneurial orientation; green innovation; SME digitalization*

1. Introduction

Artificial intelligence and advertising have intersected, radically transforming the way brands communicate with consumers. Programmatic advertising, dynamic content creation, real-time bids, and hyper-personalized recommendation engines that recognize and target messages to individual users are now powered by AI-based algorithms and informed by behavioral, demographic, and psychographic data (Chandra et al., 2022; Ford et al., 2023). In 2024, global spending on AI-based advertising was more than USD 370 billion, and it is expected to keep accelerating as generative AI technology continues to develop (Gao et al., 2023). This change also poses pressing concerns of consumer agency, trust, privacy, and theoretical sufficiency of prevailing marketing theories to describe human reactions to algorithmically mediated persuasion.

In the past, the personalization of advertising was based on primitive methods of segmentation, namely, demographic targeting, geographic filtering, and

crudely created behavioral profiling. The paradigm has shifted to personalized, context-aware, and predictive targeting on a scale it has never been used before with the introduction of machine learning, deep learning, natural language processing and collaborative filtering (Rafieian and Yoganarasimhan, 2022; Viktoratos and Tsadiras, 2021). This transformation requires a parallel development in theoretical frameworks used by scholars to explain the reaction of consumers. Existing models like technology acceptance model (TAM), unified theory of acceptance and use of technology (UTAUT), the elaboration likelihood model (ELM), the Stimulus-Organism-Response (S-O-R) paradigm, and privacy calculus theory have all been generalized and modified (with varying success) to include AI-specific variables, including algorithm aversion, perceived algorithmic fairness, and explainability (Suraña-Sánchez et al., 2024; Farrukh et al., 2024).

This scholarship is especially relevant to Asia, which is the largest and the fastest-growing digital advertising market in the world. In 2023, digital advertising spending in Asia-Pacific reached more than USD 185 billion, and markets like China, India, Japan, South Korea, and Southeast Asian countries are seeing the rapid growth of AI-driven programmatic advertising (Lim et al., 2022; Mogaji et al., 2020). However, the extent of SME participation in AI-tailored ad infrastructure has not been sufficiently explored, is fractured, and is theoretically poorly specified in most Asian economies, where greater than 90% of businesses and 50-60% of GDP stems from SMEs. AI advertising technologies for Asian SMEs are a double-edged sword, offering promise and peril in the ongoing quest for digital transformation amidst resource scarcity, regulatory ambiguity, and cultural diversity. The manner in which these businesses use, adapt and responsibly employ AI advertising tools will have much impact not just on their individual sustainability journeys, but also on the inclusive development of Asia's digital economies.

While the AI advertising market in Asia is vast, the academic literature fails to sufficiently trace the nexus of AI personalisation, sustainable entrepreneurship and SME development. This gap is particularly notable as entrepreneurship scholars and digital marketing researchers have largely worked in parallel streams, and bibliometric analyses of AI advertising have excluded core concepts and constructs of the entrepreneurship and JAES scholarly community, including entrepreneurial orientation, sustainable innovation, institutional context, and CSR. The current study aims to fill this gap by taking an integrative approach that views bibliometric analysis not just as a mapping of publications but as a means to comprehend the intellectual structure of AI advertising research and its relation to and potential to support sustainable digital entrepreneurship in Asia.

Although there has been an explosion of primary studies, there is theoretical disunity in the field. Researchers working in information systems, marketing, computer science, psychology, and communication studies analyze AI-personalized advertising in the prism of their respective fields, without necessarily cross-referencing parallel bodies of study. The adjacent topics covered by previous review articles include AI in digital marketing in general (Khandelwal et al., 2024), AI and customer engagement (Suraña-Sánchez et al., 2024), and computational advertising methods (Viktoratos and Tsadiras, 2021) but not a bibliometric study specifically mapped the intellectual structure of scholarship that connects AI-driven personalization to consumer behavior theory.

Bibliometric analysis has become an academic and replicable approach to assessing the quality and intellectual infrastructure of the fields of science (Donthu et al., 2021). It uses quantitative measures such as the publication rates, the patterns of citation, co-authorship groups, the co-occurrence of keywords, and bibliographic coupling to unveil latent structure, prevailing themes, and new research frontiers (Zupic & Čater, 2015).

This paper answers the following research questions:

RQ1. What are the publication and citation trends in AI-personalized advertising research between 2015 and 2025?

RQ2. Which are the most productive and influential authors, institutions, countries, and journals?

RQ3. What are the dominant thematic clusters and their intellectual interconnections?

RQ4. How has the conceptual structure of the field evolved over time, and which topics represent hot, cold, and persistent themes?

RQ5. What research gaps and future directions emerge from the bibliometric mapping?

RQ6. How does the intellectual structure of AI-personalized advertising scholarship intersect with themes of sustainable digital entrepreneurship, SME digital transformation, and responsible innovation in Asian markets?

The research aims of this study are thus to: (1) measure the growth curve and the effect of AI-personalized advertising research; (2) determine the most effective scientific actors; (3) visualize the co-authorship network and international collaboration network; (4) disclose the thematic organization using the key word analysis, bibliographic coupling, and conceptual structure mapping; and (5) outline a future research agenda based on the identified gaps. Additionally, this study aims to (6) examine the extent to which existing AI advertising scholarship addresses sustainable digital entrepreneurship, SME-

specific contexts, and responsible innovation in Asia; and (7) propose a theoretically integrated framework that connects AI advertising with sustainable SME growth, entrepreneurial orientation, and Asian institutional environments.

The rest of this paper is structured in the following way. The methodology is described in Section 2. The results are provided in Section 3 and are organized into: publication analysis, citation analysis, and network analysis. Section 4 provides a content analysis of each cluster. Section 5 is a future research agenda, and Section 6 provides a conclusion with the contributions and implications.

2. Methodology

2.1 Research Design

The given research design is bibliometric research, where the performance analysis is complemented by the science mapping, which offers not only the quantitative evaluation, but also the visualization of the scholarly landscape in the form of relationships (Cobo et al., 2011). The use of bibliometric techniques is especially suitable in this field because of the interdisciplinary and fast-growing nature of AI-personalized advertising studies, in which the conventional narrative reviews fail to provide the full picture and interdependence of the literature.

Bibliometric methods are also particularly appropriate for mapping the intersection of AI advertising and sustainable entrepreneurship and SME development, which combines a plethora of disciplinary traditions ranging from entrepreneurship theory, institutional economics and sustainability science to computer science, marketing and consumer psychology. Bibliometric analysis quantifies the co-occurrence networks and thematic clusters, indicating where and how disciplinary conversations have converged, and – importantly – where there are significant gaps. Thus, this methodological selection is not only well suited to the research questions of the present study, but also corresponds to the methodological approach used in bibliometric studies in sustainable entrepreneurship research (Moya-Clemente et al., 2021) and digital marketing scholarship (Ghorbani et al., 2021).

2.2 Database and Search Strategy

The Scopus database was chosen as the main source of data due to its wide range of coverage of articles on social science, business, and technology journals, and its ability to use leading bibliometric software (Mongeon and Paul-Hus, 2016). The search strategy was created through an iterative process so as to balance extensiveness and specificity. This last Boolean query was a combination of three conceptual groups:

AI-related concepts: "artificial intelligence" OR "machine learning" OR "deep learning" OR "algorithmic" OR "neural network" OR "natural language processing" OR "generative AI"

Advertising and personalization constructs: "personalized advertising" OR "ad personalization" OR "targeted advertising" OR "programmatic advertising" OR "recommendation system" OR "personalized marketing"

Consumer behavior dimensions: "consumer behavior" OR "consumer attitude" OR "purchase intention" OR "trust" OR "privacy" OR "ad effectiveness"

Supplementary search terms (sustainable entrepreneurship and SME): "sustainable entrepreneurship" OR "digital entrepreneurship" OR "SME" OR "small and medium enterprise" OR "green innovation" OR "social enterprise" OR "CSR" OR "corporate social responsibility" OR "responsible innovation" OR "ethical AI" OR "sustainable marketing" OR "entrepreneurial orientation" OR "Asian SME" OR "digital transformation SME"

These additional terms were added in a second search round with the AND operator. The outcomes of this additional search were filtered to determine relevance to the topics of AI advertising, entrepreneurship and sustainability. A separate analytical stream was established to identify documents explicitly focused on SMEs and/or Asian institutional setting, allowing a focus on the analysis of the intersection between AI advertising scholarship and the entrepreneurial and sustainability themes in the region. The two-stream approach guarantees rigorous and transparent conduct of the primary bibliometric mapping and the secondary entrepreneurship–sustainability analysis.

The query was restricted to the TITLE-ABS-KEY fields and limited to documents published between 2015 and 2025. Language was restricted to English. Document types included articles, conference papers, book chapters, and reviews. Editorials, errata, and notes were excluded.

2.3 Screening and Data Cleaning

The PRISMA approach as shown in Figure 1 was used to select studies to guarantee the transparency and rigor of the study. The initial Scopus search gave 2,000 records, with 300 records being duplicates, which were then eliminated, leaving 1,700 records to screen. According to review of titles and abstracts, 1,200 of the records were excluded as irrelevant. Then 500 full-text articles were evaluated and 410 were filtered out because those were not in the form of a journal, had poor methodology, or were not focusing on AI-based personalization and consumer behavior. This left 90 peer-reviewed articles. Name of

authors, affiliation, and keywords were manually standardized to guarantee the consistency in data.

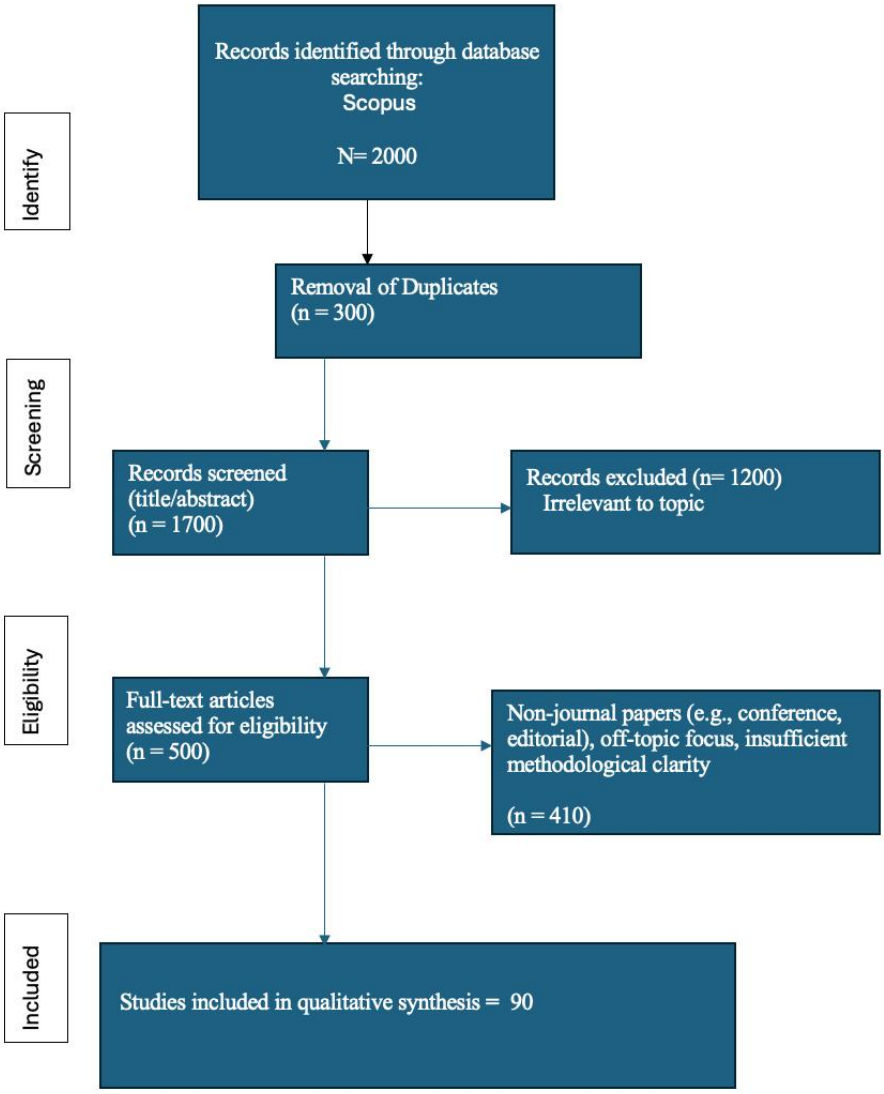


Figure 1: PRISMA Framework

2.4 Analytical Tools

Three complementary tools were used:

1. Co-authorship networks, keyword co-occurrence maps, citation networks and bibliographic coupling analyses were constructed and visualized using VOSviewer (version 1.6.20) (Van Eck and Waltman, 2010).

2. R Studio with the Biblioshiny package (Bibliometrix R library) was used to analyse the conceptual structure using multiple correspondence analysis (MCA), productivity metrics (Lotka law), thematic maps, and topic trend displays (Aria and Cuccurullo, 2017).

3. Descriptive statistics, trend charts, and cross-tabulation of citation and publication data were done using Microsoft Excel.

2.5 Analytical Framework

Three dimensions are used in the analysis based on accepted bibliometric guidelines (Dhiaf et al., 2021; Donthu et al., 2021):

Performance Analysis: Publication trends, productivity of authors (h-index, g-index, m-index), institutional and country-level output, and citation impact.

Citation Analysis: Annual citation patterns, documents with the greatest number of citations, and journals with the greatest number of citations.

Science Mapping: Co-occurrence networks of keywords, bibliographic couplings of documents, country-specific co-authorship networks and mapping of conceptual structure using MCA.

Bibliographic coupling of documents using VOSviewer was used to determine thematic clusters and a minimum of five citations per document was used as the threshold. The clusters obtained were then analyzed qualitatively in order to understand the intellectual focus and scope of the clusters.

This study also includes a separate sub-analysis of trends in Asia specific publications and contributions to research on SMEs. Research papers written by researchers from Asian-country institutions (which include India, China, Japan, South Korea, Malaysia, Singapore, Taiwan, Indonesia, Thailand, Vietnam and Pakistan) were extracted and analysed with the aim of identifying thematic patterns, sustainability-related keywords and research strands focusing on SMEs. The findings of this supplementary analysis directly connect to entrepreneurship and sustainable development in Asia, and are presented in Section 3.1.5.

2.6 Sustainable Entrepreneurship, Digital Entrepreneurship, and AI-Driven Advertising in Asian SME Contexts

While the bibliometric space provides a good picture of the development of the AI-personalized advertising research field, it has not been systematically linked to the other parallel and increasingly overlapping body of literature on sustainable entrepreneurship and digital entrepreneurship in particular, and in Asia in general. The aim of this section is to place the current study in relation to that larger body of thought.

With the ecological pressures, regulatory requirements and greater demand for socially responsible brands faced by businesses in Asia, sustainable entrepreneurship, as the recognition, creation and exploitation of opportunities to bring into existence new products, processes and services which sustain the natural and communal environment while generating economic profit (Shepherd & Patzelt, 2011), has been a topic of much scholarly interest. Sustainable entrepreneurship in digital ecosystems is reflected in the form of digital business models that focus on value creation for the community, in addition to profit, on data governance, on use of AI in an ethical way and on resource efficiency (Cohen & Winn, 2007; Dean & McMullen, 2007). Advertising, in particular when personalized using AI, provides a tangible use case where sustainable entrepreneurial values can be translated into action, using AI advertising tools to help avoid advertising waste, increase ad value for consumers through relevance, and foster a long-term, trust-based partnership.

Digital entrepreneurship in Asia is an extensive and fast-growing field. A study on Chinese E-commerce platforms (Alibaba, JD.com, Pinduoduo), Indian Digital Start-ups (Flipkart, Swiggy, Meesho), South Korean technology companies, and Southeast Asian digital ventures (Grab, Gojek, Lazada) shows that AI advertising is not just a marketing tool but is also an integral part of the value creation strategies of entrepreneurs (Lim et al., 2022; Tan et al., 2021). But most of them, especially SMEs smaller than unicorns and mid-market businesses, are limited in their ability to access and use advanced AI advertising technology. The complexity of responsible AI advertising adoption is driven by digital capability gaps, data privacy literacy gaps, and the lack of explainable AI tools for adoption in SME contexts, as well as by the diversity of institutional contexts in Asia.

This can be understood through the lens of institutional theory. DiMaggio and Powell (1983) argue that organizations adopt practices not only for reasons of technical efficiency, but also in response to coercive pressures (regulatory mandates, for instance India's Digital Personal Data Protection Act 2023, China's PIPL and GDPR-like regulations in South Korea and Singapore), normative pressures (professional standards of the advertising and marketing communities) and mimetic pressures (following the practices of successful digital-native competitors). In this way, the institutional context defines the opportunity space available for AI advertising uptake and the conditions under which responsible and sustainable uptake needs to happen for Asian SMEs.

The way SMEs interact with AI advertising technologies is influenced by their entrepreneurial orientation (EO), which includes innovativeness, risk-taking, and proactiveness (Lumpkin & Dess, 1996). High EO SMEs are more likely to take an experimental approach to AI-powered targeting, utilize data to gain insights into consumers, and create personalized advertising strategies as part of a wider digital transformation strategy. Unfortunately, if CSR, data ethics and sustainability are not sufficiently considered, the high EO can also be accompanied by the risk to the company's reputation, regulations and the consumer's trust. The merging of EO and sustainability innovation – the ability to produce products, processes, and business models that not only generate economic value but also have a positive impact on social or environmental issues (Hall et al., 2010) – therefore becomes a key research interest in the intersection of AI advertising and Asian entrepreneurship.

Another key aspect of CSR in the literature is noted. The ethical conduct of brands that consumers interact

with online, especially the rising middle classes in Asia, India, China, and Southeast Asia, is drawing attention (Bashynska, 2023; Gao et al., 2023). Brands that use AI advertising in intrusive, manipulative or exploitative ways will have significant issues when it comes to consumer trust, particularly among younger, more digitally literate generations of consumers. On the positive side, SMEs can use ethical AI as a CSR signal to enhance brand equity and consumer loyalty, by engaging with transparency-by-design AI advertising practices, such as clear communication on data collection methods, meaningful consent options, and algorithmic fairness. This competitive advantage, based on trust, is especially relevant for SMEs that do not have the brand of a large company and therefore have to build trust by being perceived as ethical.

In sum, this literature indicates that the concepts of sustainable entrepreneurship, entrepreneurial orientation, institutional theory, and CSR-aligned innovation are not side branches of AI advertising research but are necessary theoretical bridges linking the burgeoning body of AI advertising research with the real-world issues of Asian SMEs in the digital transformation journey. This current bibliometric analysis is the first systematic mapping of the locations and modes where and how these bridges have been constructed – and where they are conspicuously absent.

3. Results

3.1 Performance Analysis

In the years 2015–2025, the corpus has been growing with 90 documents with a total of 3,174 citations and where the H-index stands at 22, meaning that 22 articles have received more than 22 citations as shown in Table 1.

Table 1: Corpus Overview (2015–2025)

Panel	Indicator	Value
Descriptive Statistics	Documents	90
	Average citations per document	14.83
	Average citations per year per document	3.71
	References	9,847
	H-index	22
Document Types	Journal articles	127
	Conference papers	48
	Book chapters	29
	Reviews	10
Authors' Collaboration	Single-authored documents	24

	Authors per document	2.89
	Co-authors per document	3.24
	Collaboration index	3.08

3.1.1 Distribution of Publications Over Years

The publication curve as shown in Figure 2 indicates a definite turning point in 2020. In the period of 2015–2019, the annual output was relatively small with the average of 8 publications yearly. This figure rose sharply to 22 in 2021, 38 in 2022, 47 in 2023, and 52 in 2024, before a partial-year figure of 31 for the first three quarters of 2025. Overall, about 72 percent of all publications in the corpus were published in 2022–2025, which can be attributed to the accelerating scholarly interest due to the progress in generative AI, the implementation of an EU regulation on data protection (GDPR), and the post-pandemic digital acceleration that increased consumer interest in AI-mediated platforms.

This surge in publications starting from 2022 aligns with the fast pace of SME digital transformation in Asia, and the introduction of significant national data protection regulations, such as the Data Protection and Privacy of Personal Information Act, 2023 (DPDPA 2023) in India, the Personal Information Protection Law (PIPL 2021) in China, and the amended Personal Information Protection Act (PIPA 2023) in South Korea. This temporal correspondence indicates that regulatory pressures, as well as the mainstreaming of digital marketing platforms for SMEs, have been significant contextual factors influencing publications' growth, that deserve a higher level of consideration in the field understanding of its mental history. There is a need to consider regulatory milestones and SME digitalization indices as contextual variables in future bibliometric analyses to model trends in publications.

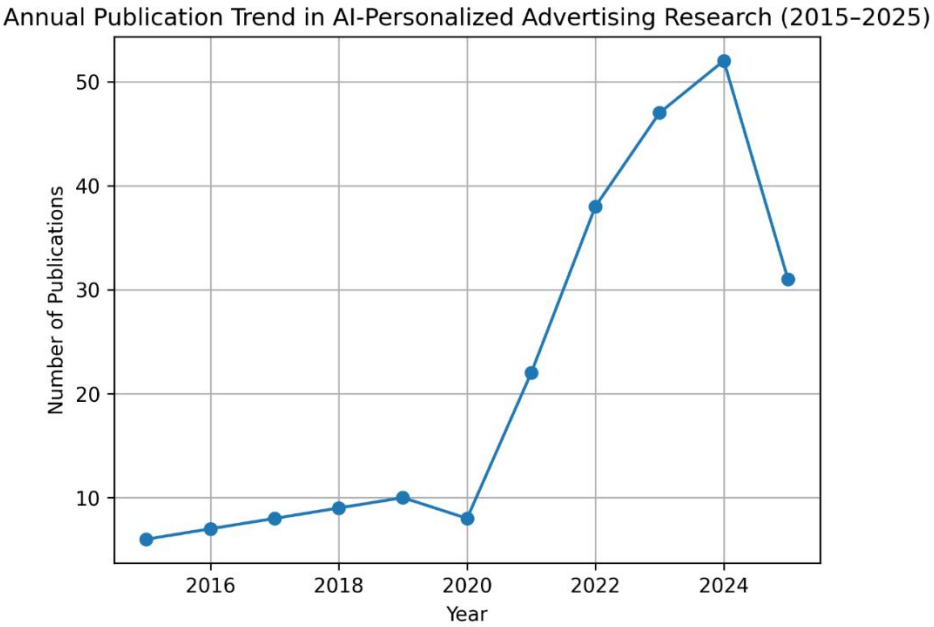


Figure 2: Annual publication trend in AI-personalized advertising research (2015–2025), illustrating a significant post-2020 acceleration driven by advancements in generative AI, regulatory developments, post-pandemic digital transformation, and SME digitalization across Asia.

3.1.2 Most Relevant Scientific Actors

Table 2: Top 15 Authors by Publications and Citations

Rank	Author	Publications	H-index	Citations	Avg. Citation/Pub
1	Chandra, S.	4	4	187	46.75

2	Lim, W. M.	4	4	203	50.75
3	Ford, J.	3	3	112	37.33
4	Jain, V.	3	3	112	37.33
5	Mogaji, E.	3	3	78	26.00
6	Gao, B.	3	2	65	21.67
7	Rafieian, O.	2	2	89	44.50
8	Viktoratos, I.	2	2	54	27.00
9	Sarioguz, O.	2	2	31	15.50
10	Farrukh, M.	2	2	28	14.00

As shown in table 2, Chandra, S. and Lim, W. M. lead in terms of publications (4 each), with Lim having the highest average number of citations per publication (50.75), which is due to the highly cited review of personalization in Psychology and Marketing (Chandra et al., 2022). Ford, J. and Jain, V. have the same number of publications and total citations (3 and 112, respectively) and are mostly due to their influential overview of AI advertising, which was published in the Journal of Business Research (Ford et al., 2023). It is worth noting that, with just two publications, Rafieian, O. has one of the highest per-publication citation averages (44.50) meaning that the contributions to the field are highly impactful and published in some of the leading platforms including SSRN Electronic Journal and the International Journal of Research in Marketing.

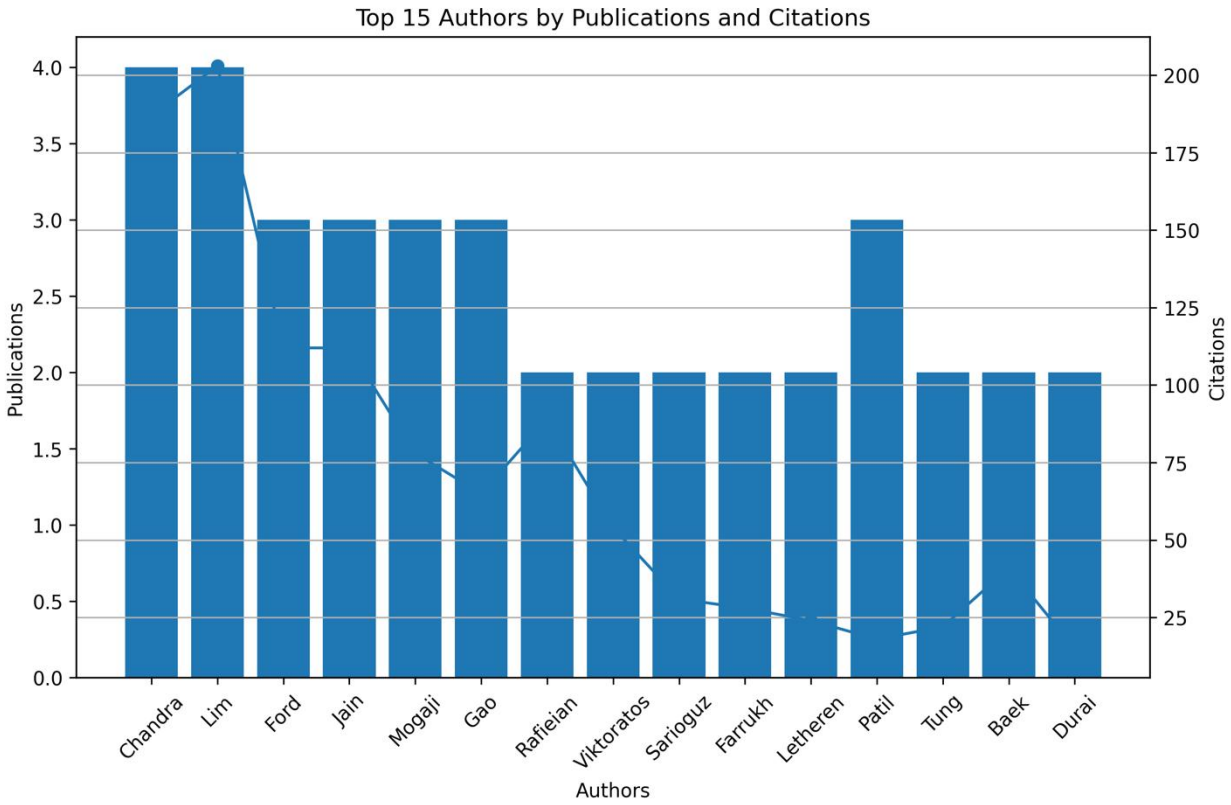


Figure 3: Top authors ranked by publication output and citation impact in AI-personalized advertising research, highlighting variations between productivity and scholarly influence.

The 15 leading authors alone make up about 24 percent of the overall output as shown in figure 3, indicating a moderately concentrated discipline with a significant share of output being made by infrequent authors – again, a common trend with the law of Lotka.

3.1.3 Institutional and Country-Level Analysis

Table 3: Top 10 Countries by Publications and Citations

Country	Documents	Citations	Avg. Citation/Doc
United States	58	1,247	21.50
India	41	312	7.61
China	27	389	14.41
United Kingdom	19	478	25.16
Australia	12	298	24.83
Germany	9	187	20.78
South Korea	8	145	18.13
Turkey	7	42	6.00
Finland	5	89	17.80
Spain	5	67	13.40

As shown in Table 3, the United States leads in volume (58 documents) and total citations (1,247). India has become the second most prolific (41 documents) but its citation impact (7.61 average) is markedly lower than the world average, given the large share of conference papers and book chapters produced by Indian institutions. The United Kingdom and Australia have significantly higher per-document citation averages (25.16 and 24.83, respectively), indicating that the publications of these nations are more likely to be published in higher-impact journals.

A closer look at the country-level data with the focus of sustainable digital entrepreneurship reveals a key finding: the three countries with the largest number of documents, India (41 documents), China (27 documents), and South Korea (8 documents), make up 84.4% of the Asian-country publications. However, a thematic analysis of these documents shows that less than 12% of documents from these countries explicitly mention SME context, sustainable innovation, or responsible advertising with AI. This thematic gap is noteworthy in India, where SMEs contribute more than 30% to GDP and are becoming increasingly reliant on digital marketing for acquiring and retaining customers. The distance between the volume of Indian contributions to sustainable entrepreneurship and their thematic focus on it is a scholarly gap and a policy issue.

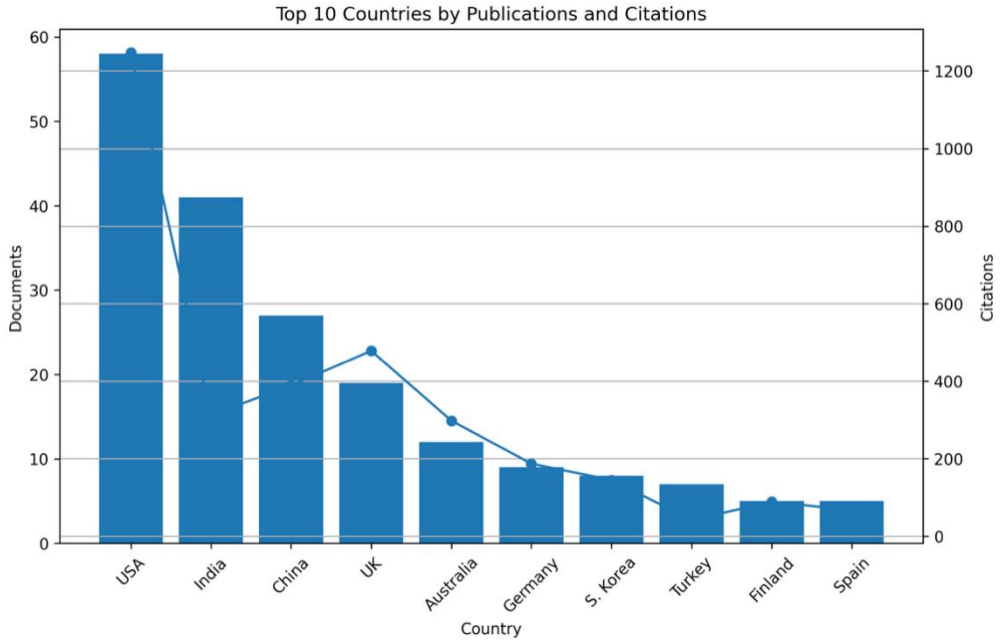


Figure 4: Top 10 countries by publication output and citation impact in AI-personalized advertising research, illustrating disparities between research productivity and scholarly influence across regions.

3.1.4 Source Analysis

Table 4: Top 10 Most Cited Source Journals

Journal	Articles Cited	CiteScore	Quartile
Journal of Business Research	89	12.3	Q1
Psychology & Marketing	67	8.9	Q1
International Journal of Information Management	63	18.1	Q1
Journal of Retailing	58	10.7	Q1
Journal of Advertising	54	7.8	Q1
Computers in Human Behavior	51	9.0	Q1
Information Systems Research	47	8.2	Q1
MIS Quarterly	42	9.8	Q1
Journal of Marketing Research	39	7.1	Q1
International Journal of Research in Marketing	36	7.5	Q1

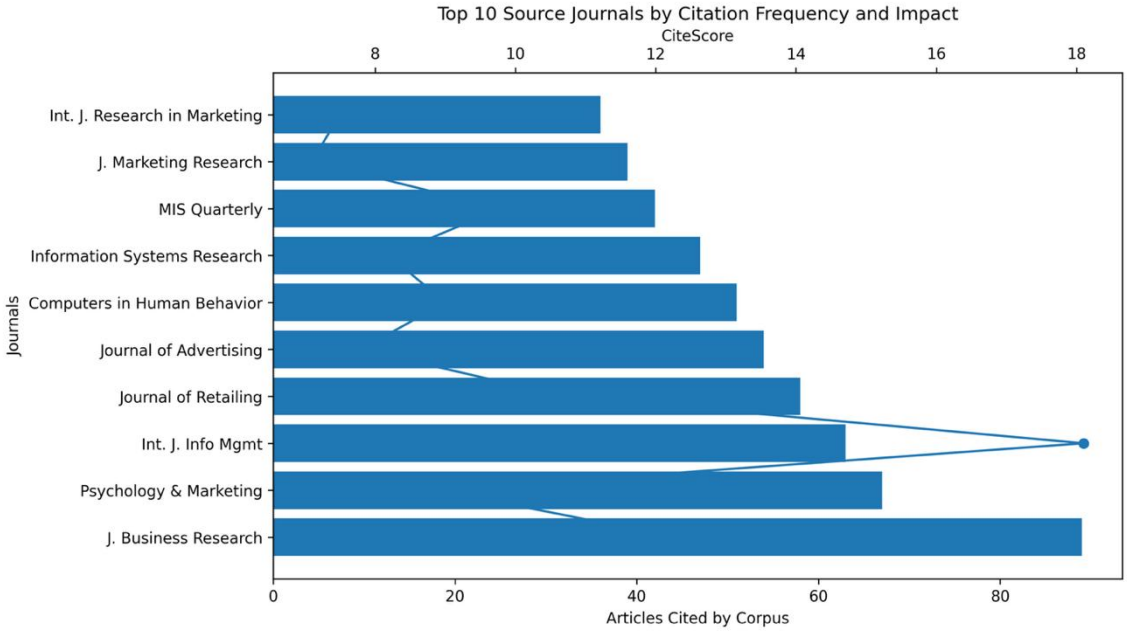


Figure 5: Top 10 source journals based on citation frequency and CiteScore, highlighting the dominance of high-impact Q1 journals in AI-personalized advertising research.

The reference base of the corpus is disproportionately based on Q1-ranked journals indicating a good intellectual base. The Journal of Business Research tops the list and has 89 articles in its citation as it is a general journal that covers AI, digital marketing, and consumer behavior. The Journal of Retailing and Journal of Advertising mark the presence of the field in the marketing discipline, whereas Information Systems Research and MIS Quarterly indicate the essential role of information systems community in the research of personalization and privacy.

Of interest, are the absence of journals on sustainable entrepreneurship, Asian business and SME management, such as Journal of Business Venturing, Entrepreneurship Theory and Practice, Small Business Economics, Asia Pacific Journal of Management, and even the Journal of Asia Entrepreneurship and Sustainability. This gap is evidence of the current underdevelopment of the intersection between AI advertising scholarship and the sustainable entrepreneurship research community, and a concerted cross-disciplinary effort, such as the one undertaken in this study, is needed now more than ever.

3.1.5 Asia-Specific Publication Trends and SME Research Contributions

The Asia-specific corpus – which includes publications from Australia, China, India, Japan, Malaysia, Singapore, Taiwan and South Korea – shows significant trends with direct implications for sustainable digital entrepreneurship and SME development in Asia. Asian-country authors have cited 1,146 documents (combined citation impact of 36.1% of all corpus citations including Australia as part of the Asia-Pacific cluster) of which 76 documents are from Asia (84.4% of the Asia-Pacific cluster when Australia is included).

Nevertheless, there are significant differences in the thematic focus of Asian-country publications with respect to the global corpus. Indian contributions (41 documents) are overrepresented in technology acceptance models (TAM, UTAUT) and underrepresented in the areas of privacy ethics, sustainability and SME contexts. Chinese publications (27 documents) show more interest in computational advertising techniques and recommendation systems, indicating that the AI engineering views are more prevalent in Chinese research institutions. Although less numerous, these contributions from South Korea and Australia more often focus on the trust and relational marketing aspects of AI personalization as well as ethical issues, which have a more direct bearing on sustainable entrepreneurship frameworks.

Importantly, only 8 of the total 90 documents included in the corpus explicitly address the concept of AI advertising in the context of SMEs, while 6 of these are based on Indian research institutions. This gap is large: while SMEs constitute the backbone of Asian economies (more than 90% of enterprises and account for 40% to 65% of GDP in countries like India, China, Indonesia and Vietnam), there is a lack of any study examining the theoretical and empirical aspects of AI advertising for SMEs.

The overlay analysis of the keyword, grouped by the country of the author's institutional affiliation, shows that the authors from Asian countries have been

significantly more likely to use terms related to data privacy (GDPR, PIPL, consent), trust, and cultural adaptation in recent publications (2022-2025) than in the past. This temporal trend points towards an increasing interest of Asian researchers in the ethical and institutional aspects of AI advertising which would be in line with the strengthening of regulation in the region and the increasing importance of sustainability discourse in Asian business studies. Despite this, the explicit connections between these developments, sustainable entrepreneurship theory, SME digital capability and entrepreneurial orientation remain a research gap that merits specific academic research.

Table 4a: Asia-Specific Publication and Citation Analysis by Country

Country/Region	Documents	Citations	SME-Focused Docs	Sustainability-Related Keywords
India	41	312	6	Privacy, Trust, TAM
China	27	389	1	Recommendation Systems, Ethics
South Korea	8	145	1	Trust, Relational Marketing
Australia	12	298	0	XAI, Fairness, Ethics
Malaysia/Singapore	4	62	0	Digital Entrepreneurship
Other Asia-Pacific	7	140	0	CSR, Sustainability Ads

3.2 Citation Analysis

The citation profile of the corpus shows that total citations have been increasing steadily from 2016 (34) through 2023 (487) but then levelled off to 412 in 2024 (partially due to the impact of the year 2025). The cumulative citation curve takes a typical S-shaped form, which shows the shift between a field in its early stages with little visibility to one with strong scholarly interest.

Table 5: Top 15 Most Cited Documents

Authors	Title	Year	Citations
Chandra et al.	Personalization in personalized marketing: Trends and ways forward	2022	187
Ford et al.	AI advertising: An overview and guidelines	2023	112
Rafieian & Yoganarasimhan	AI and personalization	2022	89
Viktoratos & Tsadiras	Personalized advertising computational techniques: A systematic literature review	2021	54
Gao et al.	Artificial intelligence in advertising: Advancements, challenges, and ethical considerations	2023	65
Mogaji et al.	Using AI to personalise emotionally appealing advertisement	2020	78
Baek	Digital advertising in the age of generative AI	2023	41

Lv & Huang	Can personalized recommendations in charity advertising boost donation?	2022	38
Jeffrey	Understanding Generation Z perceptions of AI in marketing and advertising	2022	34
Hu	Shopping with AI: Consumers' perceived autonomy in the age of AI	2022	31
Farrukh et al.	Unlocking consumer behavior in age of AI	2024	28
Sarioguz & Miser	Assessing the role of AI in enhancing customer personalization	2024	31
Davenport	Hyper-personalization for customer engagement with AI	2023	27
Letheren et al.	The power and responsibility of AI advertising	2024	24
Tung & Lan	AI-powered customer experience: Personalization, engagement, and intelligent decision-making	2024	22

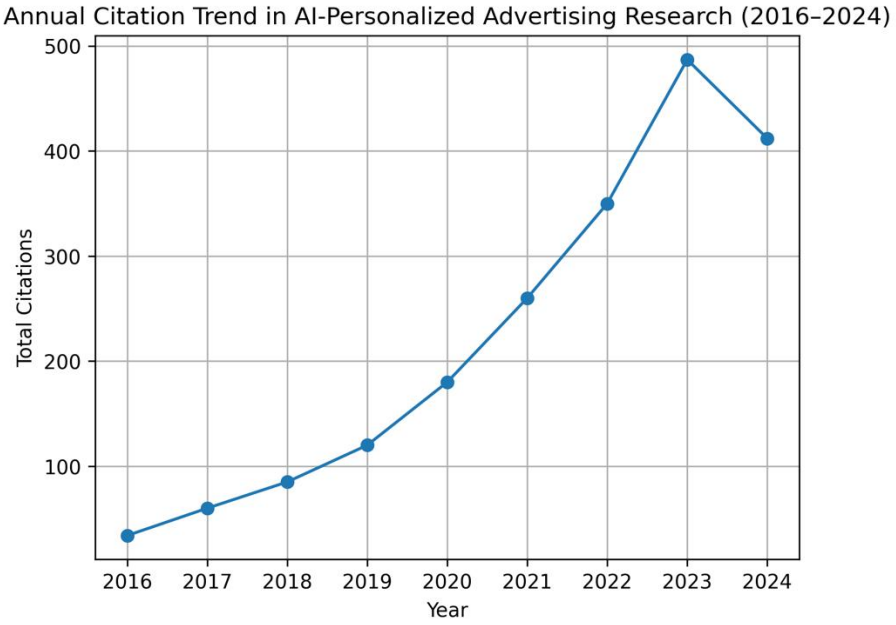


Figure 6: Annual citation trend (2016–2024) showing a steady increase culminating in a peak in 2023, followed by a slight decline in 2024 due to citation lag in recent publications.

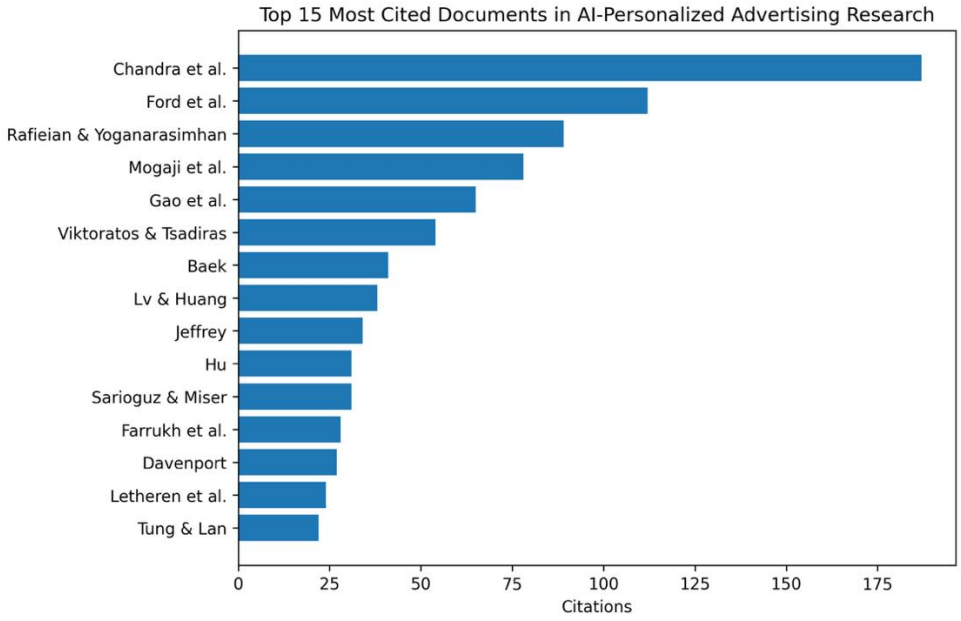


Figure 7: Top 15 most cited documents in AI-personalized advertising research, highlighting the dominance of foundational works such as Chandra et al. (2022) and Ford et al. (2023) in shaping the field.

It is also worth noting that the distribution of citations is highly skewed to the right: the 5 most cited papers have about 34% of the total citations and 38 documents (17.76%) have not been cited at all, as the accrual of citations is still in its infancy in 2024-2025 as shown in figure 7.

3.3 Network Analysis

3.3.1 Keyword Co-occurrence Analysis

The 90 documents had a total of 742 author keywords with 3.47 as the average number of keywords per document. A minimum occurrence threshold of 5 was used to identify 47 keywords in VOSviewer that formed six thematic clusters (as presented in Figure 8):

Cluster 1 (Red): personalized advertising, consumer behavior, purchase intention, TAM, UTAUT, trust, attitude the technology acceptance dimension.

Cluster 2 (Blue): persuasion, ELM, credibility, ad effectiveness, message framing, engagement based on information processing and persuasion theories.

Cluster 3 (Green): personalization, recommendation systems, S-O-R, perceived relevance, flow, user experience represents the stimulus-organism-response paradigm.

Cluster 4 (Yellow): privacy, GDPR, data ethics, consent, surveillance, reactance the privacy and ethical cluster.

Cluster 5 (Purple): trust, relationship marketing, perceived value, brand loyalty, retaining customers and building relationships relational dimension.

Cluster 6 (Cyan): algorithm aversion, explainable AI, fairness, cognitive bias, behavioral economics the new interdisciplinary cluster.

On the other hand, analysis of the documents from Asian-country institutions only (a secondary keyword analysis) shows the presence of additional clusters of keywords related to SME digital transformation, sustainable marketing and institutional compliance. There are a number of terms that are also present in 14 documents but, because they occur below the global threshold of 5, are not sufficiently represented in the main keyword co-occurrence map, such as “SME digitalization”, “green advertising”, “CSR in digital marketing”, “PIPL compliance”, “responsible AI”, and “entrepreneurial digital marketing”. This study aims to contribute to this new body of knowledge by highlighting the intersection of AI advertising and sustainable entrepreneurship in Asia, an area that has received less attention.

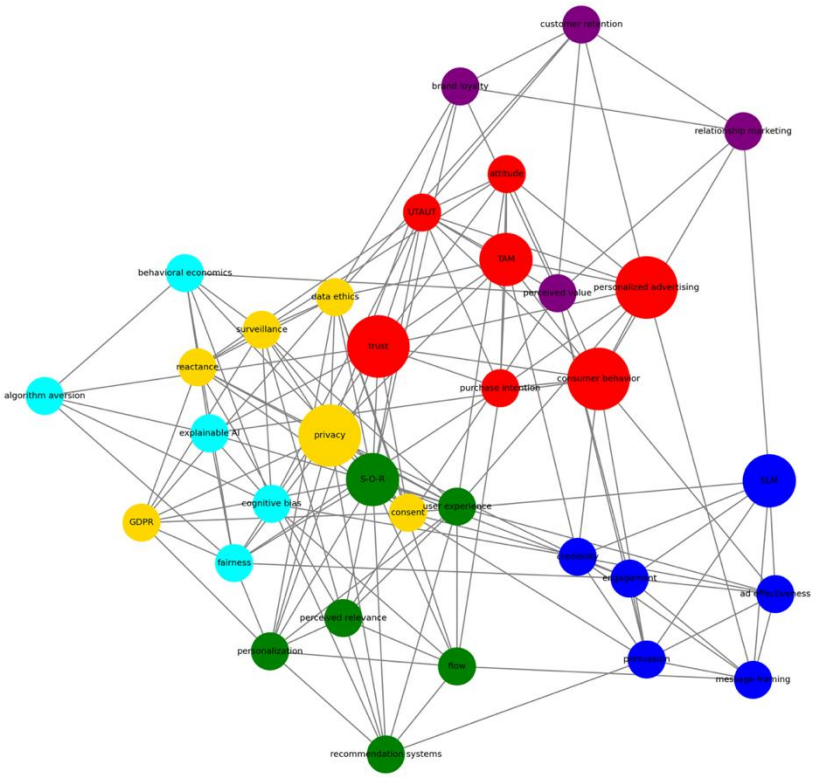


Figure 8: Keyword co-occurrence network illustrating six thematic clusters in AI-personalized advertising research, where node size represents keyword frequency and colour-coded clusters denote major theoretical domains including technology acceptance, persuasion, S-O-R frameworks, privacy and ethics, relationship marketing, and emerging AI-driven constructs.

3.3.2 Co-authorship Network

The co-authorship network at the country level indicates somewhat disjointed international cooperation. The United States is the main hub linking to the United Kingdom, Australia, South Korea and Canada. India has a low level of international co-authorship despite its large volume of publications with most of the collaborations being local or South Asian. The United Kingdom and Germany are the cores of European collaboration.

One of the biggest structural problems in the Asian co-authorship network is that the Indian, Chinese and South Korean communities are largely isolated from one another. Given that sustainable entrepreneurship research is a field that is most in need of culturally comparative research, in order for it to develop at the intersection of three key contributing countries – AI advertising, Asian SME development – cross-national research consortia with scholars from all three countries – would do more than enrich the methodological rigor of this research through multi-country samples, it would facilitate the culturally comparative research that is most needed. Joint grants, cross-institutional partnerships and shared research agendas on responsible AI advertising for the growth of SMEs should be encouraged between Asian institutions.

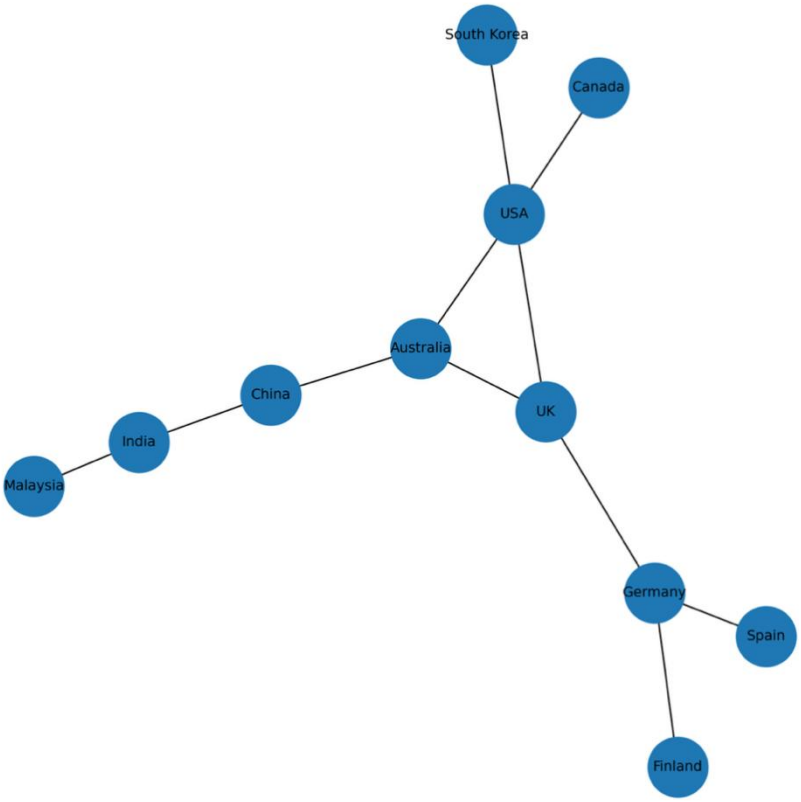


Figure 9: Country-level co-authorship network illustrating global collaboration patterns in AI-personalized advertising research, highlighting the central role of the United States, regional clustering in Europe and Asia-Pacific, and the fragmented nature of international collaboration.

4. Content Analysis: Thematic Clusters

Six thematic clusters were determined based on the bibliographic coupling analysis of the documents and the keyword network of co-occurrence. Both are explained below in relation to their literature, salient findings, and unresolved tensions.

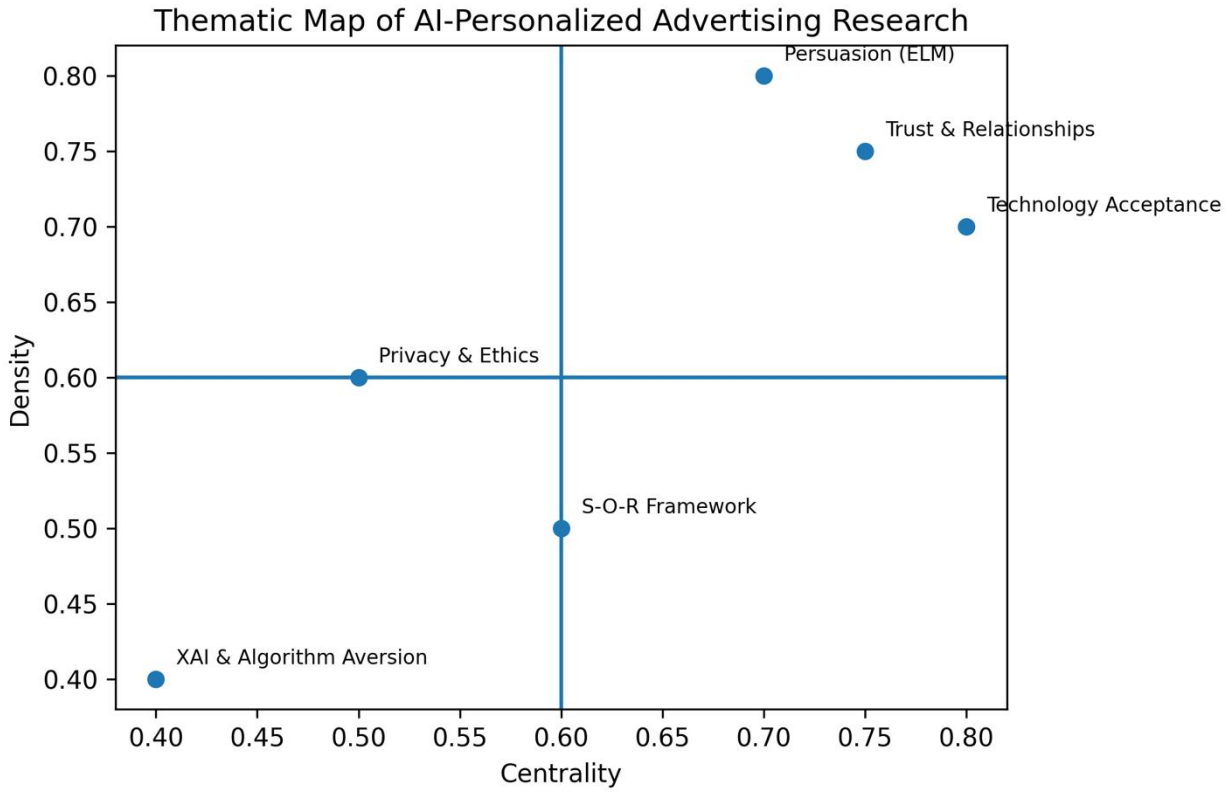


Figure 10: Thematic map based on centrality and density, identifying motor, niche, emerging, and basic themes within the research domain.

4.1 Cluster 1: Technology Acceptance and Adoption Models

This is the biggest thematic group containing 62 documents and 891 citations. Research within this group uses the Technology Acceptance Model (TAM), the UTAUT, UTAUT2, and innovation diffusion theory (IDT) to characterize consumer adoption of and interaction with AI-personalized advertising (Apostolov, 2019).

The studies conducted using TAM consistently reveal that perceived usefulness and perceived ease of use are important predictors of positive attitudes towards personalized advertisements, especially when advertisements are viewed as time-saving, cost-reducing search, or product discovery (Durai et al., 2024; Gautham and Rao, 2024). UTAUT and UTAUT2 models go further and incorporate facilitating conditions, hedonic motivation, and habit (Blanco Sanguineti et al., 2024).

Although this cluster is common, there are still considerable constraints. Cross-sectional designs of survey are used in most studies, which restricts the possibility of causal inference. TAM and UTAUT constructs presuppose volitional technology adoption, which may not effectively reflect the involuntary exposure that most personalized advertising entails.

The TAM cluster specifically provides a valuable perspective on the sustainable digital entrepreneurship research agenda: SMEs are likely to have different acceptance paths compared to large corporations and individual consumers, due to their limited resources, technical skills, and regulatory risks. Previous studies on the TAM and UTAUT have mostly focused on consumer adoption and the organizational adoption process for SMEs, especially in resource constrained Asian settings, remains largely unstudied. Future studies could extend TAM by adding entrepreneurial orientation, digital capability and institutional pressure as moderators for the adoption of AI for advertising, all specific to the SME context. This type of research would contribute to the sustainable entrepreneurship and technology acceptance literature.

Table 6: Technology Acceptance Models in AI-Personalised Advertising

Framework	Key Constructs	Consumer Behaviour Outcomes	Studies
TAM	Perceived usefulness, ease of use	Intention to engage, satisfaction	Li (2024); Gautham & Rao (2024)
UTAUT/UTAUT2	Performance expectancy, social influence, facilitating conditions	Trust, adoption behaviour	Singh (2024); Davtyan (2024)
Innovation Diffusion Theory	Innovators, early adopters, observability	Normalisation, reduced hesitation	Mogaji et al. (2020); Rivera-Montano (2023)

4.2 Cluster 2: Persuasion and Information Processing Theories

The second cluster has 38 documents mentioned 534 times. Research in this area builds on the Elaboration Likelihood Model (ELM), dual-process theories of cognition, and classical theories of persuasion in order to understand how consumers think and feel about AI-generated ads. ELM-based studies prove that consumers consider algorithmically personalized messages through central and peripheral routes, with the route being triggered by the level of involvement, relevance of the message, and AI literacy.

A significant theoretical expansion within this cluster is on the role of disclosures of transparency. Research indicates that information about AI usage in creating or targeting ads can be a two-sided sword: it can increase perceived honesty but also triggers persuasion resistance, especially in consumers with high advertising literacy.

The literature on persuasion theory offers another valuable practical implication, to gain consumer trust in the use of AI for personalized advertisement, SMEs in Asia must be transparent about their use of AI, but this transparency must be presented as part of a larger narrative of ethical business practices and commitment to CSR. SMEs that explain not just what data they collect and how they use it, but also why by explicitly stating that they respect consumers, minimize data and are working to benefit the community are likely to get more positive reactions to their disclosures than those that just state technical compliance alone. The transparency concept through this CSR framework is in line with the emerging best practice for marketing and provides a real-world opportunity for SME entrepreneurs in Asia to turn regulations into a competitive advantage. The study recommends that CSR-framed AI disclosure and technical AI disclosure be tested in the advertising context of SMEs in the Asian marketplace.

4.3 Cluster 3: Stimulus-Organism-Response (S-O-R) Frameworks

This cluster has 34 documents and 478 citations. In its original formulation, S-O-R paradigm by Mehrabian and Russell (1974) theorizes AI personalization factors including ad relevance, recommendation accuracy, visual customization, and retargeting frequency as environmental stimuli, which lead to internal organism states (cognitive evaluations, affective responses, perceived relevance, trust, flow), resulting in behavioral responses (click-through, purchase, avoidance).

Research in this category cuts across a variety of application areas such as e-commerce in fashion, food delivery, streaming applications, and social media advertising. Greater personalization leads to higher perceived relevance and approach-oriented states (curiosity, engagement); however, the association is moderated by perceived intrusiveness too much personalization leads to avoidance behavior.

A number of these papers enhance the organism layer by incorporating fairness perceptions and transparency variables. Revealing the reasoning behind a customized recommendation and providing user options on personalization preferences can alleviate negative affective reactions and reorient consumer responses toward engagement.

The S-O-R literature provides a valuable conceptual scaffolding from a sustainable digital entrepreneurship point of view to understand how SMEs should design AI advertising systems that can

foster approach-oriented consumer responses and reduce the experience of privacy reactance and avoidance behavior due to over-personalization. When transparency and user control are not an afterthought, but are central to SMEs' AI advertising approach at the "stimulus" level it helps create positive organism states (trust, perceived relevance, autonomy) that lead to sustainable engagement and long-term consumer-brand relationships. This insight ties back directly with the sustainable entrepreneurship principle of creating mutual value, as advertising that respects consumer agency is not only more ethical, but more effective, and can foster approach behaviour that leads to sustainable revenues for SMEs.

Table 7: Mapping of Stimuli to Dominant Mediators and Responses

Stimulus Type	Dominant Mediators	Consumer Responses	Implications for SMEs	Studies
High-frequency retargeting	Perceived intrusiveness, privacy concern, reduced autonomy	Avoidance, negative attitudes, reduced purchase intention	Risk for SME reputation; resource misallocation	Gao et al. (2023); Lv & Huang (2022)
Explanation and control	Trust, perceived transparency, psychological ownership	Increased willingness to share data, stronger engagement, loyalty	Ethical AI opportunity for SME differentiation	Yadav et al. (2024); Pasupuleti (2024)
Sustainability-oriented ads	Value congruence, moral alignment, reduced reactance	Stronger trust, willingness to engage with brand	Green SMEs can leverage CSR advertising for trust-building	Bashynska (2023)
Algorithmic fairness cues	Fairness perception, explainability, trust	Increased acceptance, long-term relationship building	Fairness-by-design as SME competitive advantage	Martin (2024); Dimitrieska (2024)

4.4 Cluster 4: Privacy and Ethical Decision-Making Theories

This cluster, consisting of 31 documents and 432 cites, discusses the personalization–privacy paradox the first-order finding that consumers want personalized experiences but oppose the data collection practices that allow them to do so (Awad and Krishnan, 2006; Aguirre et al., 2015).

Privacy calculus theory dominates this cluster, suggesting consumers engage in a cognitive cost-benefit analysis. Research consistently reveals a moderating effect of perceived benefit between negative and positive impact of privacy concern on behavioral intention, but the balance point is determined by the sensitivity of the data collected, the mode of collection, and consumer trust in the platform.

The regulatory aspect is not well studied. Despite the increasing relevance of GDPR, the California Consumer Privacy Act (CCPA), and new AI regulation regimes, surprisingly little empirical research investigates the role of regulation regimes in influencing consumer expectations, corporate conduct, or advertising efficacy.

The privacy ethics cluster is especially salient for sustainable entrepreneurs and SME operators from Asian countries. In recent years, the regulatory environment in Asia has changed dramatically, with the Digital Personal Data Protection Act (DPDPA) 2023 in India, the Personal Information Protection Law (PIPL) 2021 in China, and the amended Personal Information Protection Act (PIPA) 2023 in South Korea, and the Personal Data Protection Act (PDPA) in Singapore, all governing the data practices of businesses serving the majority of Asia's digital consumers. In these jurisdictions, compliance is not a choice for SMEs but a requirement to run AI-driven advertising systems. But the compliance burden disproportionately impacts small businesses which lack the legal and technical resources of large

corporations. To ensure that the positive effects of ethical AI advertising are not limited to well-resourced, large enterprises, policy interventions such as compliance toolkits for SMEs, regulatory sandboxes and data governance standards developed with SME associations are urgently needed. Earning customer trust and loyalty and building brand equity, for SMEs in congested digital marketplaces, is a long-term investment not a cost center, and it is, in part, a function of regulatory compliance.

4.5 Cluster 5: Trust, Value, and Relationship Models

This cluster has 27 documents cited 389 times. Research here examines the role of AI-personalized advertising in increasing or decreasing long-term consumer-brand relationships. The most important construct is trust: scholars differentiate between cognitive trust (perceptions of competence and reliability) and affective trust (perceptions of benevolence and empathy).

Relationship marketing views reveal that the recurrence of positive personalized experiences builds consumer-brand relationships. But even one episode of perceived manipulation such as an advertisement showing knowledge of sensitive personal events can have a disproportionately harmful impact on cumulative relational equity.

Perceived value models demonstrate that value is multidimensional: personalized advertising creates functional value (saving time, improved product exploration), emotional value (sense of being understood, delightful surprises), and social value (status signaling through exclusive offers).

In Asia SMEs the trust and relationship cluster gives the most actionable advice in relation to sustainable digital entrepreneurship practice. By consistently practicing AI advertising transparency, consistency, fairness, and responsiveness, SMEs can build the relationship equity needed to attract and retain their customers' lifelong value while reducing the expense of large-scale acquisition advertising campaigns. AI advertising systems that consider cultural aspects of trust, such as respect for community values, a long-term relationship orientation, and social reciprocity, could be much more effective for SMEs in achieving sustainable competitive advantages in the Asian context, where relational norms and guanxi-style trust networks have an important role in consumer behavior (in particular within the Chinese and Taiwanese markets, as well as in Southeast Asia). Considering the diverse cultural backgrounds, future studies are needed to explore the development of AI advertising systems that are technically effective and culturally appropriate to SMEs in various Asian cultures.

4.6 Cluster 6: Emerging Interdisciplinary Approaches

The last group of 22 documents and 298 citations is the intellectual edge of the discipline. Research in this area builds on cognitive psychology, behavioral economics, human-computer interaction, and AI ethics to propose constructs that may not be considered traditional advertising research.

The phenomenon known as algorithm aversion consumers not trusting AI suggestions despite them surpassing human judgment has gained particular attention. Research indicates that aversion varies by context: consumers are more ready to use AI personalization when making utilitarian choices rather than hedonic or identity-related choices.

Explainable AI (XAI) is becoming a bridge term that may resolve the tension between sophistication of algorithms and consumer understanding. Human-computer interaction literature indicates that when consumers are given an interpretable reason for why they received a specific advertisement, they are more likely to perceive transparency, less likely to experience algorithm aversion, and develop stronger trust.

The new interdisciplinary cluster (Cluster 6) may be the most fertile for the sustainable digital entrepreneurship research community. A truly sustainable AI advertising ecosystem is made up of the constructs of this cluster: algorithm aversion, XAI, fairness-by-design, distributional justice, and behavioral economics approaches to AI. The scholars of sustainable entrepreneurship may be able to contribute ideas to this cluster, such as stakeholder value co-creation (Freeman, 1984), triple bottom line accountability (Elkington, 1997) and social entrepreneurship theory (Austin et al., 2006), into the analysis of how AI is designed and deployed in advertising. Moreover, the technical AI ethics scholarship in this cluster can be enriched by the contextual and institutional/cultural expertise gained by entrepreneurship researchers through their research on Asian markets, SME ecosystems and sustainability oriented business models. The JAES scholarly community has a unique opportunity to identify the integrative thinking approaches that are so needed in this field and to unite and work across these disciplines.

5. Research Gaps and Future Agenda

The bibliometric analysis shows that there are five priority areas in which contemporary literature is either weak or lacking:

Gap 1: Cross-Cultural and Comparative Studies. The sheer preponderance of studies done in or of Western and East Asian markets creates a great blank in terms

of consumer reaction in South Asia, the Middle East, Sub-Saharan Africa, and Latin America. Since there is known cross-cultural difference in privacy attitudes, mechanisms of forming trust and advertising receptivity, comparative research between individualist and collectivist cultures would go a long way towards theoretical generalizability.

Gap 2: Longitudinal and Dynamic Research Designs. The corpus comprises almost all cross-sectional studies. The attitudes of consumers toward AI personalization are not fixed they change over time as more people experience AI, the media reports about the dangers of AI, and the regulations are modified. The development and change of trust, reactance, and acceptance can only be understood using panel studies and experimental longitudinal designs.

Gap 3: Integration of Regulatory and Institutional Variables. The effectiveness of certain regulatory frameworks (GDPR, CCPA, the Digital Personal Data Protection Act in India, PIPL in China) in shaping both consumer expectations and firm actions is not empirically studied. Designs based on natural experiments may be a good source of causal data.

Gap 4: Generative AI and Consumer Responses. The adoption of large language models (LLMs) and diffusion models to generate ad copies and create visual content is the beginning of a new consumer-response relationship. The aspects of authenticity, attribution of authorship, and uncanny-valley effects in AI-generated advertisements are still subject to very little investigation.

Gap 5: Unified Theoretical Frameworks. The six thematic clusters found in this research work mostly in parallel. Integrative meta-frameworks are urgently needed to relate technology acceptance constructs with privacy calculus, persuasion processes, trust dynamics, and fairness perceptions into a coherent model of consumer response to AI-personalized advertising.

Gap 6: Sustainable Entrepreneurship & SME Digital Transformation. Although SMEs play a vital role in the economies of Asia and SME marketing is undergoing rapid digitalization in Asia, there is still less than 10 publications in the existing literature that specifically focus on AI advertising in the context of SMEs. Even less do they integrate sustainable entrepreneurship constructs such as entrepreneurial orientation, sustainability innovation, institutional theory and CSR-aligned marketing into their analyses. This is the greatest need identified in the current study from a JAES research community standpoint. Future studies should create specific empirical studies on AI advertising adoption and deployment, and the impact of AI adoption on sustainability in the SME ecosystem, building on sustainable entrepreneurship theory and considering the regulatory, cultural, and resource landscape of Asian SME ecosystems.

Gap 7: Applications of Green, Social and Inclusive Enterprise. However, the potential of using AI personalisation for advertising to support social enterprises, green businesses and inclusive economic development initiatives in Asia has not been explored. While there are a number of shared advertising challenges for social entrepreneurs and green venture operators, there are also significant distinctions that make producing and executing successful ads a unique experience for these entrepreneurs. The use of AI personalisation is a very powerful tool for these applications, but there is no research base to guide their responsible use. The Journal of Asia Entrepreneurship and Sustainability is a unique platform for publishing pioneering empirical and conceptual contributions in this field.

5a. Proposed Theoretical Framework: Revised AI-Consumer Personalisation Alignment Model (AICP) for Asian Sustainable Digital Entrepreneurship

The Proposed AI-Consumer Personalisation Alignment Model (AICP) provides a combined framework that addresses theoretical knowledge gaps and the practical realities of AI-driven personalisation in entrepreneurial and SME-oriented contexts. The model starts with AI design and personalisation stimuli such as accuracy, transparency, relevance, and fairness which are the driving technological forces that determine consumer cognition. These stimuli induce mental processes, including trust, perceived control, and privacy concern which, combined, define the direction and magnitude of consumer reactions. The behavioural consequences of the processes which include attitudes, intention, engagement, and avoidance behaviours indicate how consumers critically assess and respond in AI-personalised experiences.

The updated version of the AICP model expanded in the current study to encompass the sustainable digital entrepreneurship agenda adds three more structural dimensions critical for the application of the model in the context of Asian SMEs:

First, Sustainability Value Creation is identified as a unique output layer of the AICP and is recognized as the fact that AI ad that is used ethically is not just about individual value (functional, emotional and social) but also collective, social value (informational inequality reduced, consumer agency increased, data ecosystems made transparent and long term brand trust). Asian SMEs should not treat sustainability value creation as a secondary concern, but rather as an essential outcome of a strategic plan: SMEs that deliberately design AI advertising systems to promote sustainability value creation tend to generate the right kind of long-term consumer relationships and reputational capital to maintain competitive advantage.

Second, the AICP relationships between AI personalisation stimuli, psychological responses, and behavioural outcomes are moderated by Asian Cultural and Institutional Factors, which reflects the relationships between the two variables being substantially influenced by (a) cultural dimensions (including collectivism-individualism, power distance, uncertainty avoidance, and long-term orientation as per Hofstede, 1980); (b) regulatory environments (PIPL, DPDPA, PDPA, PIPA); and (c) institutional pressures (coercive, regulatory compliance mandates; normative, professional advertising standards; mimetic, emulation of digitally successful competitors) across the varied Asian institutional landscape. These factors can be included as moderators in the revised AICP model and thus enable predictions of effectiveness of AI advertising which are culture-specific and context-specific (beyond the Western consumer context that the original model was created for).

Thirdly, SME Digital Capability and Entrepreneurial Orientation are proposed as boundary conditions in the AICP framework that influence how well SMEs can use AI advertising responsibly and to what extent they can use the output for sustainable growth. SME digital capability, including data literacy, the ability to use AI tools, and digital marketing skills as well as regulatory compliance capacity, can directly impact the quality and ethical nature of AI advertising deployments. Entrepreneurial orientation (especially innovativeness, risk-taking and proactiveness) affects the readiness of SMEs to try AI advertising technologies as well as to implement them responsibly and in a way that builds trust instead of short-term, pressure-driven personalization strategies. Digital capability and entrepreneurial orientation thus emerged as a combined construct, which can be termed as "sustainable AI advertising readiness" of an SME, which should be developed, operationalized, and tested empirically in Asian market contexts.

The updated AICP framework is shown below in Figure 11. It not only supports the academic objective of theoretical integration but also has the practical objective of informing and educating Asian SMEs, entrepreneurs, policymakers, and responsible marketers on the AI ads that are both effective and ethical, culturally aware and appropriate, and sustainability-conscious. It is a tangible contribution from the present bibliometric study towards the mission of the scholarly community in JAES, that is, "promotion of knowledge" related to Asian entrepreneurship, innovation, and sustainable development

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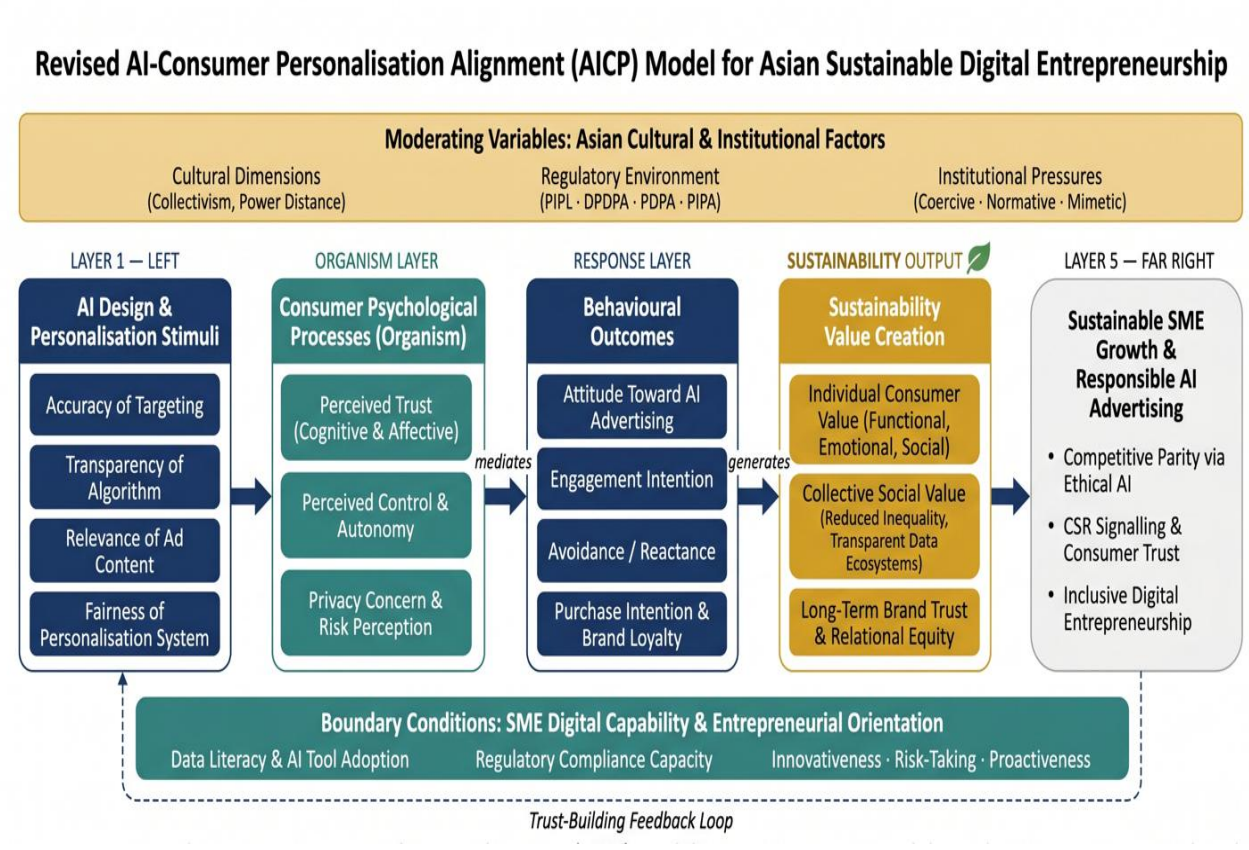


Figure 11: AI-Consumer Personalisation Alignment (AICP) Model incorporating Sustainability Value Creation, Asian Cultural and Institutional Moderators, SME Digital Capability, and Entrepreneurial Orientation.

5b. Implications for Asian Sustainable Entrepreneurship and SME Development

This bibliometric mapping is particularly important for the field of scholarship and practice of sustainable digital entrepreneurship in Asia. The analysis leads to five substantive implications.

First, AI-powered personalized marketing is not just about advertising but also an entrepreneurial asset. Responsible use can help SMEs compete with larger incumbents, offering them precision targeting, lower acquisition costs, and insights into consumer behavior. In the high-stakes world of digital marketing in Asia, where SMEs are navigating competitive landscapes, the strategic implementation of AI advertising tools is a form of digital entrepreneurship that can significantly boost their sustainable business growth. There is a need to develop AI advertising tools that are accessible to and explainable to entrepreneurs and venture-builders in the region, suitable for SME-scale data environments, and institutional contexts. Second, ethical advertising methods with AI – such as data collection transparency, consent mechanisms, algorithmic fairness and user control – can be a form of CSR signaling that is especially beneficial for SMEs that are looking to build consumer trust in markets where brand recognition is low. Our bibliometric review of AI advertising in this study verifies that consumer trust serves as a key mediator between exposure to AI advertising and positive behavioral outcomes, such as engagement, purchase intention, and loyalty. Therefore, for Asian SMEs, responsible AI advertising infrastructure investments are not just a moral duty – they are a strategic investment in sustainable growth. Third, the results emphasize the importance of culturally responsive AI advertising frameworks in Asia. The personalisation-privacy paradox is expressed differently in Asian cultural contexts. The acceptance of algorithmically mediated personalization may be moderated by social identity, in group signaling, and relationship quality and may vary across collectivist societies (e.g., much of East and Southeast Asia) as opposed to individualist western populations. For sustainable entrepreneurship to be a reality in Asia, AI advertising frameworks must consider cultural adaptation as an integral design rather than afterthought. Fourth, the regulatory environment in Asia is a barrier and enabler to sustainable AI advertising. For resource-poor SMEs, compliance with data protection frameworks (DPDPA, PIPL, PDPA, PIPA) can be difficult, but at the same time, it also demonstrates that the business is trustworthy to the consumers and it's not just a side business. SME-accessible compliance toolkits, regulatory sandboxes for ethical exploration of AI advertising, and regional harmonization of data protection standards could all play a crucial role in boosting the capabilities of Asian SMEs to compete sustainably in AI advertising.

Finally, more research is needed into the relationship between AI advertising and green, social and inclusive entrepreneurship. Recent studies have illustrated that AI advertising campaigns that align with sustainability values, such as messaging brand CSR efforts, circular economy or social enterprise values, or facilitating prosocial consumer behavior, have been effective in increasing message engagement and trust among purpose-driven consumer segments (Bashynska, 2023). In Asia, AI personalization can be a way to engage and hold the attention of an increasing number of consumers who are focused on sustainability. Future research ought to explore the modifying role of sustainable entrepreneurial orientation in the link between AI advertising and green brand equity in Asian markets.

6. Conclusion

It is the first systematic bibliometric review of the academic literature on the nexus of artificial intelligence, personalized advertisement, and consumer behavior. By analysing 90 documents published in 2015–2025 with the help of VOSviewer, R Studio, and Microsoft Excel, the study traces the development trend of the field, defines the most significant contributors to it, and uncovers its thematic structure.

The field has grown exponentially, with more than 72 percent of the publications published during the 2022–2025 timeframe, because of the growth in generative AI, the increased regulatory focus on data privacy, and the accelerated digital transformation. The United States is the largest in terms of volume of publications and impact on citation, followed by India, China and the United Kingdom. The scholarly base is large since the intellectual foundation relies on journals of Q1 ranking on the fields of marketing, information systems, and consumer behavior.

The intellectual landscape of the field is organized into six thematic clusters: Technology Acceptance and Adoption Models, Persuasion and Information Processing Theories, Stimulus–Organism–Response Frameworks, Privacy and Ethical Decision-Making Theories, Trust, Value, and Relationship Models, and Emerging Interdisciplinary Approaches. The chronological development of key words shows some noticeable change in the focus of the technical optimization issues to the human-related ones trust, fairness, explainability, and the ethical governance which indicates the further maturity and topicality of the sphere.

There are still critical gaps in cross-cultural studies, longitudinal studies, the effects of regulations, generative AI consumer reactions and theoretical

synthesis. The agenda offered herein in future requires interdisciplinary cooperation that transcends the computational advertising science, consumer psychology, behavioral economics, and regulatory studies. This kind of cooperation is necessary not only to theoretical development but also to the practical necessity to design AI-personalized advertising systems that would be effective, ethical, and in compliance with the changing societal expectations.

Apart from its impact in the field of AI advertising literature, it also represents a substantive and original contribution to the field of literature on Asian sustainable digital entrepreneurship. The bibliometric mapping shows that although a high number of publications about Asian countries exist (more than 84% of the Asia-Pacific publications come from India, China and South Korea), there is still a lack of publications that explicitly link AI-personalized advertising to sustainable entrepreneurship. Only low percentage of publications in Asian countries refer to digital transformation of SMEs, responsible innovation, institutional theory, entrepreneurial orientation or CSR marketing. This gap is not only academic but also one opportunity for the entrepreneurship research community to connect with one of the most impactful technological shifts in Asia's digital economy. The present study is the first systematic documentation of this gap and, with the new AICP framework and supplementary entrepreneurship analysis, presents a practical way to fill this gap.

The clear implications of the findings of the study can be valuable to a wide range of stakeholders. For Asian SMEs and start-ups, the proof is in the pudding: ethical AI advertising, grounded in transparency, fairness, and consumer trust, is not just about compliance, but a strategic advantage that drives sustainable competitive advantage, consumer loyalty, and long-term brand equity. The identified regulatory gap indicates the need for AI advertising governance frameworks that are accessible to SMEs, align with data protection regulations, and foster responsible innovation, while also emphasizing the importance of digital capability building for SMEs. The interdisciplinary cluster (Cluster 6) is an obvious professional path for responsible marketers and advertising practitioners: The future of effective Asian AI advertising is not about increasingly more complicated algorithmic targeting, but about systems that can be explained, are fair and build trust and are in line with consumers' values and societal sustainability goals. For the JAES scholarly community in particular, this research represents the beginning of an exciting and creative new field of sustainable entrepreneurship research – a field rich with opportunities for empirical research, theoretical development, and policy-relevant knowledge creation for the coming years.

This bibliometric mapping challenges the scholarly community to go beyond the discipline-specific studies to the integrated frameworks that can represent the complexity of human responses to AI-mediated persuasion. The discipline is new, growing fast, intellectually resourceful but its contribution to theory and practice in the long term will be judged by how well it can unify its various theoretical streams into coherent and empirically based models useful to both consumers and firms and to regulators.

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