# Vol. 4 No. 4 (2025): October 2025


**DOI:** https://doi.org/10.55927/ajma.v4i4

**Published:** 2025-10-14

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**Manuntun Sitinjak,** Universitas Tarumanagara, Indonesia
**gustinus Purna Irawan,** Universitas Tarumanagara, Indonesia
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Jl. Sutomo Ujung No.28 D, Durian, Kecamatan Medan Timur, Kota Medan, Sumatera Utara 20235, Indonesia.

Website: http://formosapublisher.org

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Asian Journal of Management Analytics (AJMA)
Vol. 4, No. 4, 2025: 1699-1718

# AI in Mentoring and Duplication for Network Marketing: A Systematic Literature Review using TPACK and ANT

Manuntun Sitinjak[1*], Agustinus Purna Irawan[2], Sarwo Edy Handoyo[3]
Doctor of Management Science, Universitas Tarumanagara, Jakarta, Indonesia
**Corresponding Author:** Manuntun Sitinjak
manuntun.118222001@stu.untar.ac.id

A R T I C L E I N F O

*Keywords:* Actor-Network Theory, Artificial Intelligence, Duplication, Mentoring, TPACK

*Received : 11, September*
*Revised : 28, September*
*Accepted: 29, October*



A B S T R A C T

Mentoring and duplication are key components of member development in multi-level marketing (MLM), yet traditional approaches often struggle with scalability, consistency, and personalization. This study systematically reviews the integration of Artificial Intelligence (AI) into MLM mentoring and duplication using the Technological Pedagogical Content Knowledge (TPACK) and Actor-Network Theory (ANT) frameworks. A Systematic Literature Review (SLR) was conducted following the PRISMA protocol, analyzing 60 peer-reviewed articles published between 2020 and 2025 from Scopus, ScienceDirect, and Google Scholar. Results indicate that AI enhances mentoring through personalized support, real-time feedback, and adaptive learning, while improving duplication via automated training, communication, and workflow replication. The synthesis reveals that combining TPACK and ANT provides a comprehensive lens to understand how digital tools interact with human actors and knowledge networks.

DOI: https://doi.org/10.55927/ajma.v4i4.15640
ISSN-E: 2963-4547
https://journal.formosapublisher.org/index.php/ajma

## INTRODUCTION

The convergence of digital technologies, artificial intelligence (AI), and communication platforms has significantly reshaped the dynamics of multi-level marketing (MLM) in recent years. Traditionally built on face-to-face interaction and relationship-based selling, MLM organizations are increasingly adopting mobile applications, social media, and AI-driven systems to enhance recruitment, coaching, and duplication processes (Patel et al., 2024). This shift reflects a broader and ongoing wave of digital transformation that is influencing business ecosystems across industries and geographies.

According to the World Federation of Direct Selling Associations (WFDSA, 2024), the global direct selling industry generated USD 172.89 billion in revenue in 2022. The Asia-Pacific region emerged as the largest contributor to this total, underscoring the region's strategic importance in the evolving MLM landscape. Within this context, digital tools are not only accelerating the expansion of network structures but also redefining how MLM companies conduct training, deliver personalized mentoring, and maintain consistent engagement with their members. In Indonesia, communication platforms such as WhatsApp, Telegram, and Zoom have become indispensable instruments for enabling recruitment, managing virtual meetings, and facilitating leadership development across distributed teams (Selamet et al., 2023; Sitinjak, 2023).

Artificial intelligence, in particular, has emerged as a transformative force in redefining learning, mentoring, and member development processes within MLM ecosystems. Tools such as ChatGPT and Meta AI are increasingly deployed to automate repetitive tasks, generate tailored training content, and provide real-time coaching assistance. These innovations offer enhanced scalability, consistency, and adaptability in team development strategies (Patel et al., 2024). Nevertheless, the adoption of AI technologies in MLM is not without challenges. It requires thoughtful integration into existing training frameworks and alignment with the pedagogical values of the organization.

To explore this complex interaction between AI, pedagogy, and MLM systems, this study adopts two complementary theoretical frameworks. The Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) provides a lens to analyze how technology, content, and pedagogy converge in digital learning environments. Meanwhile, Actor-Network Theory (ANT) (Latour, 2005) is used to examine the dynamic interplay between human actors (e.g., mentors, leaders, recruits) and non-human entities (e.g., AI tools, templates, bots) in networked MLM structures.

Despite rapid technological advancements, one of the enduring challenges in MLM remains the sustainability and quality of mentoring and duplication. As emphasized by Sitinjak (2023), long-term success in MLM is not achieved through recruitment alone but through the ability to nurture and develop quality leaders. This requires structured training, consistent mentoring, value-based coaching, and scalable duplication models. While digital and AI tools offer promising solutions, their actual impact on member development must be examined systematically and through theoretical perspectives.

This article investigates how artificial intelligence—particularly tools like ChatGPT and Meta AI—is currently applied in MLM systems to support mentoring and duplication. Addressing this gap is particularly urgent given the exponential rise of generative AI tools in informal learning systems like MLM. As generative AI becomes increasingly embedded in communication and training platforms, understanding its pedagogical and relational impact is more critical than ever. The study is guided by the following research questions:
RQ1: How has artificial intelligence been applied to support mentoring practices in network marketing systems?
RQ2: To what extent does AI contribute to enhancing duplication processes in multi-level marketing?
RQ3: How can TPACK and ANT help explain the integration of AI in MLM-based member development?

## LITERATURE REVIEW

### *Artificial Intelligence in Network Marketing*

The adoption of artificial intelligence (AI) in business sectors, including network marketing, has grown rapidly due to its potential to automate processes, enhance personalization, and improve performance tracking. In the context of MLM, AI tools such as ChatGPT and Meta AI are being deployed to support mentoring, customer engagement, and duplication processes. Patel et al. (2024) emphasize that AI enables more scalable and efficient onboarding and coaching practices, making MLM more adaptable in a mobile-first, digitally connected world.

AI's potential in MLM aligns with broader trends in digital transformation, where machine learning and automation augment human decision-making. Rathore et al. (2021) highlight how AI and big data analytics create opportunities for adaptive systems in business settings. Similarly, Di Vaio et al. (2020) explore the business model shifts prompted by AI adoption, which are relevant for MLM systems transitioning from traditional methods to digital ecosystems.

Yet, as Sperling et al. (2022) argues in his ANT-based study on AI in education, technological adoption must be understood as a socio-technical process. AI does not replace human actors but rather coexists with them, forming new constellations of practice. This insight is particularly useful in MLM, where relational trust, mentorship, and interpersonal influence remain core to success.

### *Mentoring and Duplication in MLM*

Mentorship and duplication are foundational principles in MLM business models. Mentorship refers to the continuous guidance provided by senior members to help new recruits succeed. Duplication, meanwhile, denotes the ability of team members to replicate successful behaviors and systems within their own networks (Alzahrani & Alzahrani, 2025; Bahroun et al., 2023; Sitinjak, 2023).

According to Sitinjak (2023), effective duplication is driven by consistent training, a clear system, and tools that are easily replicated. However, digital disruption has redefined how these processes occur. Leaders now use AI-based

scripts, automated responses, and online presentations to support downline development—reducing time but potentially impacting depth and relational quality.

In light of these changes, Donner (2025) highlights that AI-based mentoring can be designed to simulate personalized interactions and structured learning sequences, though still requiring human feedback loops for optimal impact. This blended model of AI + human mentoring is increasingly becoming the norm.

### *Technological Pedagogical Content Knowledge (TPACK)*

Originally developed by Mishra & Koehler (2006), the TPACK framework explains how effective integration of technology into learning processes requires a harmonious blend of content knowledge, pedagogy, and technological expertise. In the MLM context, trainers must not only understand the business content (e.g., product knowledge, compensation plan) but also how to teach it (pedagogy) using digital tools (technology).

Schmid et al. (2024), in their recent systematic review of TPACK, affirm the versatility of this model across digital learning environments. They note that TPACK enables the creation of adaptive and engaging learning experiences, though practical implementation often falls short due to poor integration. In MLM, this suggests the need for deliberate TPACK-informed design of AI-supported training systems.

Moreover, Greene & Jones (2020) emphasizes that contextualization is key—TPACK must be tailored to the unique dynamics of each learning environment. MLM, being both a commercial and educational space, requires careful alignment of technology with mentorship goals.

### *Actor-Network Theory (ANT)*

Actor-Network Theory (ANT), developed by Latour (2005), posits that both human and non-human entities (e.g., technologies, documents, algorithms) play active roles in shaping social processes. Within the MLM ecosystem, this framework enables an understanding of how AI tools (as non-human actors) interact with mentors, trainees, systems, and routines to co-produce learning and duplication outcomes.

Sperling et al. (2022) reinforces this view by analyzing how machine learning systems in education reconfigure relationships between teachers, students, and technologies. Similarly, Aka (2025) applies ANT to sustainability studies, demonstrating its utility in analyzing complex, multi-actor systems involving digital tools. These insights are transferable to MLM, where duplication and mentoring are deeply embedded in evolving networks of actors.

### *Literature Gap*

Although many studies have explored AI in business or digital education, few have examined its role in mentoring and duplication within MLM through the dual lenses of TPACK and ANT. Recent SLRs by Snyder (2019), Paul & Criado (2020) and Page et al. (2021) emphasize the importance of robust methodologies in synthesizing fragmented knowledge across disciplines. However, the

intersection of AI, MLM, mentoring, and theoretical grounding in TPACK and ANT remains under-explored.

This study addresses that gap by conducting a systematic literature review (SLR) of 60 eligible articles that examine how AI tools are being applied to mentoring and duplication in MLM, interpreted through the integrated frameworks of TPACK and ANT.

## METHODOLOGY

This study adopts a Systematic Literature Review (SLR) to investigate how artificial intelligence (AI) supports mentoring and duplication in multi-level marketing (MLM), analyzed through the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) and Actor-Network Theory (ANT) (Latour, 2005). The review follows the PRISMA 2020 guidelines (Page, McKenzie, et al., 2021; Page, Moher, et al., 2021) to ensure transparency, replicability, and methodological rigor in the screening and synthesis process. Systematic literature review is a proven approach for mapping fragmented knowledge across domains (Paul & Criado, 2020; Snyder, 2019).

### *Data Sources and Search Strategy*

The literature was sourced from three major scholarly databases: Scopus, ScienceDirect, and Google Scholar. The search was conducted for publications from January 2020 to March 2025, aligning with the rapid evolution of AI applications in education, business, and informal learning systems such as multi-level marketing (MLM).

To ensure the inclusion of relevant and high-quality studies, a comprehensive set of keyword combinations and Boolean operators was applied. These included terms such as:

- "Artificial Intelligence AND mentoring"
- "AI-supported coaching in MLM"
- "Digital duplication AND network marketing"
- "ChatGPT OR Meta AI AND MLM training"
- "AI automation AND training replication"
- "TPACK AND Artificial Intelligence"
- "Actor-Network Theory AND AI AND learning"
- "TPACK framework AND MLM"
- "ANT AND digital tools AND MLM"

To increase transparency and replicability, Table 1 below provides examples of search strings used in the three databases. These queries were constructed using Boolean operators (AND, OR) and tailored to each database's syntax requirements. Particular attention was given to studies exploring how AI technologies like ChatGPT and Meta AI are applied in real-world MLM contexts to support scalable mentoring, replicable training systems, and human-AI collaboration.

Table 1. Example Search Strings by Database

| Database | Example Search String |
|---|---|
| Scopus | TITLE-ABS-KEY("Artificial Intelligence" AND "mentoring" AND "multi-level marketing") |
| ScienceDirect | ("TPACK" AND "AI mentoring") AND ("network marketing") |
| Google Scholar | "AI mentoring in MLM" OR "TPACK AND ANT AND network marketing" |

These search terms were iteratively refined to capture literature at the intersection of AI adoption, mentoring, duplication processes, and theoretical frameworks such as TPACK and ANT. Because Google Scholar does not provide advanced filtering or reliable total counts, only the first 200 results were screened manually using the inclusion and exclusion criteria to maintain consistency and relevance.

This strategy enabled the identification of articles that not only describe technological implementation but also analyze its pedagogical alignment and socio-technical interactions—ensuring that the resulting dataset supports both practical insights and theoretical synthesis.

### *Inclusion and Exclusion Criteria*

*Inclusion Criteria*

Articles were eligible for inclusion if they met the following conditions:

- Published between January 2020 and March 2025, to ensure alignment with recent developments in AI and digital transformation.
- Peer-reviewed journal articles or book chapters.
- Focused on topics related to artificial intelligence, mentoring, duplication, or multi-level marketing (MLM) systems.
- Demonstrated conceptual or empirical engagement with either the TPACK framework or Actor-Network Theory (ANT), or both.
- Employed qualitative, quantitative, mixed-method, or theoretical approaches with clear relevance to the research questions.

*Exclusion Criteria*

Studies were excluded based on the following criteria:

- Published before 2020, as they fall outside the intended scope of technological developments relevant to this study.
- Lacked relevance to AI in MLM mentoring or duplication, or did not contribute to understanding AI-supported member development.
- Did not incorporate or reference TPACK or ANT frameworks in any theoretical or practical capacity.
- Included only conference abstracts, non-peer-reviewed sources, or grey literature.

These criteria ensured the review remained focused on recent, rigorous, and theory-informed literature, capable of supporting thematic synthesis and answering the study's three research questions.

***Screening and Selection Process***

The search identified 200 articles. After 10 duplicates were removed using Mendeley, 190 records remained for title and abstract screening. At this stage, 70 records were excluded for lacking direct relevance to AI, mentoring, duplication, TPACK, or ANT.

The remaining 120 full-text articles were assessed in depth. Of these, 29 were excluded for being published before 2020, and 31 articles lacked theoretical alignment or thematic relevance. This left a final sample of 60 articles for synthesis and analysis.

To ensure coherence and analytical clarity, the final selection of 60 articles was structured to achieve equal representation across the study's three research questions. Each group of 20 articles was aligned respectively with mentoring (RQ1), duplication (RQ2), and theoretical integration through TPACK and ANT (RQ3). This balanced distribution was designed to support a comparative and comprehensive analysis of AI applications in MLM-based member development

This screening procedure followed the PRISMA 2020 protocol (Page, Moher, et al., 2021) and is summarized in Table 2, with a visual representation in Figure 1 (PRISMA Flow Diagram).

Table 2. Summary of the Screening and Selection Process

| Step | Number of Articles | Description |
|---|---|---|
| Records identified | 200 | Retrieved from Scopus, ScienceDirect, Google Scholar, and Mendeley |
| Duplicates removed | 10 | Removed using Mendeley |
| Records screened | 190 | Title and abstract screening |
| Records excluded | 70 | Not relevant to AI, mentoring, duplication, TPACK, or ANT |
| Full-text articles assessed | 120 | Articles reviewed for eligibility |
| Full-text articles excluded | 60 | 29 = Published before 2020; 31 = Weak relevance to research questions |
| Articles included in synthesis | 60 | Final sample for review and analysis |

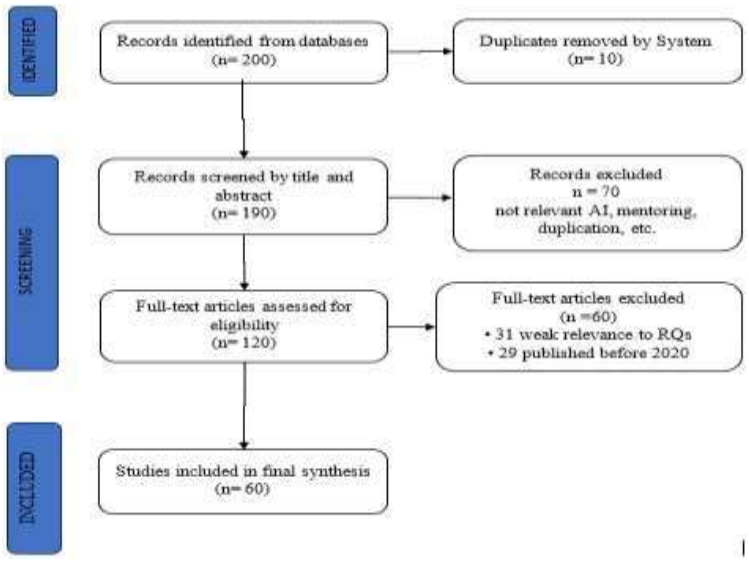


**Figure-1. PRISMA Flow Diagram of Article Selection**

***Data Extraction and Thematic Analysis***

Data extraction was performed using a structured matrix to collect and analyze relevant information from each article. The extracted data included the following fields: article title, authors, year of publication, research focus, methodological approach, relevance to mentoring and/or duplication, theoretical framing (TPACK and/or ANT), and alignment with the study's research questions.

To ensure consistent and rigorous analysis, a thematic analysis was conducted based on Braun and Clarke's six-step method (2006). This approach involved:
(1) familiarization with the data,
(2) generation of initial codes,
(3) identification of themes,
(4) review of themes,
(5) definition and naming of themes, and
(6) production of the final narrative synthesis.

The 60 eligible articles were thematically grouped based on their alignment with the three research questions. The classification was as follows:

- RQ1: Mentoring through AI
  Articles in this category explored how AI tools—such as ChatGPT, Meta AI, and custom MLM apps—are used to guide, coach, and mentor new members within MLM networks. Themes included automated onboarding, personalized feedback, and AI-enhanced relationship-building.
- RQ2: AI for Duplication Enhancement
  This group of articles examined how AI supports standardization, replication of best practices, and scalable communication for team growth. Key subthemes included automated content duplication, AI-based script delivery, and consistent training pipelines.
- RQ3: Theoretical Interpretation Using TPACK and ANT
  Articles in this category applied or referenced theoretical lenses—particularly TPACK and ANT—to explain how AI technologies integrate with pedagogical strategies, human actors, and digital tools in MLM member development. These articles focused on sociotechnical interaction, knowledge transfer, and adaptive learning environments.

Where articles addressed multiple research questions, they were assigned based on the primary thematic emphasis as determined through repeated review. This ensured clarity and balance across the dataset. Table 2 below shows distribution of articles by research questions.

Table 2. Distribution of Articles by Reseach Questions

| Assigned RQ | Number of Articles | Percentage of Total | Dominant Methodology |
|---|---|---|---|
| **RQ1: Mentoring** | 20 | 33.3 % | Empirical (predominantly field-based studies) |
| **RQ2: Duplication** | 20 | 33.3 % | Empirical + Theoretical mix |
| **RQ3: TPACK / ANT** | 20 | 33.4 % | Empirical + Theoretical mix (TPACK & ANT focus) |
| **Total** | **60** | **100 %** | |

### *Researcher Positionality and Methodological Rigor*

The lead author acknowledges a dual role as both an MLM practitioner and a doctoral researcher in digital transformation. This insider perspective enables deep contextual understanding but also requires heightened reflexivity to mitigate potential interpretive bias.

To ensure methodological rigor, the research process incorporated an audit trail, peer debriefing, and collaborative cross-checking with co-authors. Coding reliability was strengthened through iterative team discussions and analytic triangulation. Trustworthiness was addressed through strategies aligned with recent qualitative frameworks emphasizing applicability, theoretical engagement, and resonance (Brown, Megan E. L.; Stalmeijer, Renée E.; O'Brien, 2025).

## RESEARCH RESULT AND DISCUSSION

This section presents the findings of the systematic literature review, organized around the study's three research questions. Each research question is addressed through thematic synthesis and theoretical interpretation, focusing on (1) how AI has been applied to support mentoring practices in multi-level marketing (RQ1), (2) the extent to which AI contributes to duplication processes (RQ2), and (3) how the integration of AI in MLM-based member development can be understood through the Technological Pedagogical Content Knowledge (TPACK) framework and Actor-Network Theory (ANT) (RQ3). The discussion is structured to provide a balanced and comprehensive analysis across the selected literature.

### *Descriptive Overview of Selected Articles*

he final dataset for this study comprises 60 peer-reviewed articles published between 2020 and 2025, carefully selected to ensure balanced representation across the study's three research questions. Of these, 51 are empirical studies and 9 are theoretical works, drawn from a wide range of academic journals in education, technology, management, entrepreneurship, and artificial intelligence.

In terms of publication year, the majority of articles were published in 2023 (21 articles) and 2024 (14 articles), indicating a growing scholarly interest in the topic. The dataset also includes earlier contributions from 2020–2022 and recent entries from 2025, confirming the ongoing relevance of this research area.

Among the AI tools discussed, ChatGPT is the most frequently mentioned, appearing in 10 articles, while Meta AI is noted in 1 article. These tools are primarily explored in the context of training, communication, and personalization, reflecting their emerging use in MLM for scalable mentoring and systematized duplication.

The articles are evenly distributed across the three research questions: 20 articles each explore AI in mentoring practices (RQ1), its contribution to duplication (RQ2), and its integration with TPACK and ANT frameworks (RQ3). This balance supports a comprehensive thematic and theoretical exploration across the key domains.

Finally, the review highlights an increasing interest in applying AI within informal learning environments, a trend that aligns closely with the peer-led and decentralized nature of MLM member development. This descriptive synthesis lays the groundwork for the deeper thematic and theoretical analysis in the following sections.

***Thematic Analysis by Research Questions***

This section presents a comprehensive thematic analysis of the 60 peer-reviewed articles selected through the PRISMA process. The findings are organized around the three main research questions (RQ1–RQ3) to ensure clarity and focus. Each subsection below elaborates on dominant patterns, emerging insights, and recurring themes within the literature related to AI-supported mentoring (RQ1), AI-enabled duplication (RQ2), and the theoretical integration of AI tools using the Technological Pedagogical Content Knowledge (TPACK) framework and Actor-Network Theory (ANT) (RQ3). This structure enables a more holistic understanding of how AI transforms member development processes in network marketing ecosystems

***AI-Supported Mentoring in Multi-Level Marketing (RQ1)***

RQ1: How has AI supported mentoring practices in MLM?

Mentoring is a cornerstone of success in multi-level marketing (MLM), facilitating knowledge transfer, team growth, and leadership development. Drawing from 20 selected articles, this section identifies three major themes that demonstrate how AI enhances mentoring effectiveness in MLM systems.

Theme 1: Personalized Guidance and Adaptive Learning

AI tools provide personalized mentoring by analyzing individual member behavior, progress, and needs. Adaptive learning systems adjust the content and sequence of training based on user responses, offering tailored support for different learning styles and paces (Alzahrani & Alzahrani, 2025; Anantrasirichai & Bull, 2022; Aqib et al., 2025; Borges et al., 2024; K. K.-W. Chan & Tang, 2024).

This personalization is further enhanced by generative AI (e.g., ChatGPT), which delivers real-time advice and motivation adapted to the user's goals. As a result, members experience mentorship that feels customized and relevant, improving engagement and performance (Chakraborty, 2024; B. Chen et al., 2023).

Theme 2: Automated Feedback and Onboarding

AI plays a key role in automating repetitive aspects of the mentoring process—especially during onboarding. Intelligent bots, virtual assistants, and auto-checklists guide new recruits step by step through tasks such as profile setup, product familiarization, and introductory training (Apriandi et al., 2023; Aswir et al., 2025; Bahroun et al., 2023; Beheshti et al., 2023).

Moreover, automated feedback loops allow AI systems to identify member progress, detect gaps, and send tailored recommendations without the need for direct human oversight. This reduces the mentoring burden on leaders while maintaining high-quality delivery.

Theme 3: AI-Enhanced Mentor–Mentee Interaction

AI does not replace human mentors but amplifies their reach and efficiency. Tools like chatbots and AI-assisted messaging systems facilitate consistent, scalable communication between leaders and downlines (Ariyani et al., 2023; Canhoto & Clear, 2020; Z. Chen, 2022; Chiu, 2023; Cooke et al., 2024).

These interactions include automated encouragement messages, performance updates, and interactive Q&A—creating a hybrid mentoring environment where digital systems supplement human insight. Such blended mentoring fosters trust, continuity, and scalability in MLM structures.

### *AI-Enhanced Duplication in Multi-Level Marketing (RQ2)*

RQ2: In what ways has AI contributed to enhancing duplication processes?

Duplication is a fundamental pillar of multi-level marketing (MLM), referring to the ability of members to replicate proven methods, tools, and systems within their own teams. This section synthesizes insights from 20 selected articles categorized under RQ2, revealing three dominant themes that explain how AI has transformed the duplication process in MLM environments.

Theme 1: Standardization of Business Processes

Artificial intelligence enables consistent execution of business processes across the MLM network. AI tools have been integrated into automated onboarding systems, digital task flows, and structured sales routines to ensure every new member follows an identical, optimized path (Baidoo-Anu & Owusu-Ansah, 2023; Khang et al., 2023; Lee et al., 2024; Ng et al., 2021; Sakib, 2022).

These systems reduce reliance on manual supervision and human inconsistency by embedding checklists, reminders, and auto-generated scripts directly into communication platforms such as WhatsApp, CRM systems, or internal MLM apps. This standardization supports faster learning curves and higher success rates for new members (C. K. Y. Chan, 2023; Sanusi et al., 2022).

Theme 2: Replication of Training Materials and Follow-Up Routines

AI is instrumental in replicating high-performing training modules across the organization. Once a set of materials—such as a successful video presentation, script, or training slide—is validated, AI tools allow effortless duplication and deployment to new recruits (Crompton et al., 2024; Fitria, 2021; Kim et al., 2020; Marques et al., 2020; Martins & Von Wangenheim, 2023).

Moreover, AI systems manage follow-up routines through automated scheduling, reminder bots, and tracking systems. These tools help leaders monitor progress at scale and maintain consistent engagement without depending solely on manual effort (Z. Ali, 2020; Eager & Brunton, 2023; Mollick & Mollick, 2023)

Theme 3: Automation of Communication and Delegation

Communication and task delegation—essential for effective duplication—have been significantly optimized through AI. Chatbots and intelligent assistants now deliver daily action reminders, distribute promotional content, and respond to basic queries in real time (C. K. Y. Chan, 2023; Essel et al., 2022; Koraishi, 2023; Ng et al., 2023).

These AI-driven functions not only increase productivity but also ensure every member receives the same level of guidance and motivation, regardless of

their upline's availability. The result is a scalable duplication system that preserves quality while expanding reach.

***AI Integration through Dual Theoretical Lenses (RQ3)***

RQ3: How can TPACK and ANT help explain the integration of AI in MLM-based member development?

Understanding how artificial intelligence (AI) is integrated into member development in multi-level marketing (MLM) systems requires a dual-theoretical approach. This section interprets findings from 20 selected articles under RQ3 through two lenses: the Technological Pedagogical Content Knowledge (TPACK) framework and Actor-Network Theory (ANT). Together, these frameworks offer complementary perspectives—TPACK focuses on instructional design and learning effectiveness, while ANT emphasizes the relational and networked nature of AI implementation in MLM ecosystems.

Theme 1: Instructional Alignment via the TPACK Framework

TPACK explains that effective AI integration in MLM-based learning occurs when technology, pedagogy, and content are cohesively aligned. Several studies demonstrate how leaders use TPACK-informed strategies to design scalable training that balances product knowledge, motivational pedagogy, and AI platforms like chatbots or personalized content systems (Ahmad et al., 2021; Boscardin et al., 2024; Chai et al., 2010).

Moreover, TPACK facilitates adaptive learning environments, allowing trainers to tailor onboarding and coaching experiences to member needs, leveraging AI for personalized feedback and progress tracking (Bhardwaj et al., 2023; Braun & Clarke, 2006; Brown et al., 2024). This adaptability is crucial in MLM contexts where member motivation, digital literacy, and learning pace vary widely (Burström et al., 2021; Chiari et al., 2023; Choi et al., 2018).

Theme 2: Networked Agency via Actor-Network Theory (ANT)

ANT adds a socio-technical layer to the understanding of AI adoption in MLM by recognizing that both human and non-human entities—such as mentors, bots, dashboards, or training videos—act as agents in a network (Aanestad et al., 2024; Callon, 1986; Latour, 2005). In MLM environments, AI tools mediate interactions, influence decision-making, and shape behavior, acting not just as passive instruments but as network participants (Akrich, 2023; M. K. Ali et al., 2024)

The reviewed literature shows that AI tools have begun to restructure MLM routines, from automated responses and onboarding flows to decision support and performance monitoring (Ammade et al., 2020; Aslan et al., 2025; Baashar et al., 2021; Chopra et al., 2023). ANT captures how trust, delegation, and control are distributed across these actors, shedding light on how AI alters team dynamics and learning culture in MLM.

Theme 3: Integrating TPACK and ANT for Holistic Understanding

When combined, TPACK and ANT provide a synergistic framework to analyze AI-enhanced MLM development. TPACK addresses the how of instructional design—what leaders should teach and how AI supports it—while ANT addresses the who and what—the relational shifts that occur as AI systems

become embedded in everyday MLM processes (Akrich, 2023; Andros, 2024; Baninemeh et al., 2023).

This dual approach also has practical implications: MLM businesses seeking to adopt AI for mentoring and duplication must not only build effective digital content but also orchestrate ecosystems where humans and AI tools collaborate fluidly. These insights lay the groundwork for future empirical studies and design-based interventions in informal learning environments like MLM.

### *Thematic Synthesis per Research Question*

To deepen the understanding of the findings presented in Sections 4.2.1 to 4.2.3, a thematic synthesis was conducted. Themes were identified inductively from the included studies and grouped under each research question (RQ). Table 3 below summarizes the main themes, their descriptions, and supporting articles.

Table 3. Thematic Table by Research Questions

| RQ | Theme | Description & Key References |
|---|---|---|
| **RQ1** | Personalized mentoring with AI | How AI micro-tools like ChatGPT, Meta-AI, and MAIWA provide tailored guidance and real-time feedback to mentees (Aswir et al., 2025; Roy et al., 2025) |
| **RQ1** | TPACK-driven mentoring readiness | Faculty readiness frameworks using TPACK to implement AI mentoring effectively (Alzahrani & Alzahrani, 2025; K. K.-W. Chan & Tang, 2024) |
| **RQ1** | Actor-Network dynamics in mentoring | Application of ANT to study networks of mentors, AI tools, and users in mentoring systems (Aswir et al., 2025; Borges et al., 2024) |
| **RQ2** | Generative AI as replication enabler | Use of AI for creating standardized templates and workflows in training and marketing (Baidoo-Anu & Owusu-Ansah, 2023; Sakib, 2022) |
| **RQ2** | AI in assessment duplication | Automated creation and grading of assessments using AI (Fitria, 2021; Lee et al., 2024) |
| **RQ2** | AI literacy for scaling practices | Building AI literacy to support replicability and standardization in training delivery (Marques et al., 2020; Ng et al., 2023) |
| **RQ3** | AI-TPACK integration framework | Conceptual frameworks combining AI capabilities and TPACK principles for member development (Apriandi et al., 2023; Aqib et al., 2025) |
| **RQ3** | ANT perspective on AI adoption | Using ANT to map actors and translations in AI integration across MLM ecosystems (Akrich, 2023; M. K. Ali et al., 2024) |
| **RQ3** | Hybrid TPACK+ANT models | Emerging synthesis of TPACK and ANT to explain AI-driven mentoring and duplication (M. K. Ali et al., 2024; Andros, 2024) |

### *Cross-Cutting Insights and Synthesis*

Beyond individual findings from RQ1 to RQ3, this section highlights overarching insights across mentoring, duplication, and theoretical integration. Three cross-cutting patterns emerge from the reviewed literature.

First, AI tools consistently serve as scalable, replicable, and adaptive agents that support mentoring and duplication. Whether through personalized chatbots or automated onboarding flows, AI technologies amplify leaders' ability to reach broader teams while maintaining structure and consistency (Aanestad et al., 2024; Ammade et al., 2020; Bhardwaj et al., 2023; Boscardin et al., 2024).

Second, the synergy between human leadership and digital tools is crucial. Effective outcomes depend not just on the AI tool itself, but on how it is implemented, contextualized, and reinforced by human actors within the MLM ecosystem. This interdependence reflects insights from both TPACK (on instructional alignment) and ANT (on relational networks) (Akrich, 2023; Andros, 2024; Braun & Clarke, 2006; Choi et al., 2018).

Third, challenges remain around digital literacy, AI readiness, and sustainable adoption. While the promise of automation and standardization is strong, several studies caution that without appropriate onboarding, training, and cultural acceptance, AI tools may underperform or be resisted (Ahmad et al., 2021; M. K. Ali et al., 2024; Aslan et al., 2025; Ng et al., 2023) Thus, strategic alignment between AI capabilities, pedagogical goals, and organizational readiness is key to achieving transformation.

This synthesis underscores that AI in MLM is not a replacement for human mentoring or team-building, but a powerful enhancer—one that must be strategically and ethically embedded into the learning and duplication culture of network marketing businesses, Conceptual diagram is as depicted in Figure 2 below.

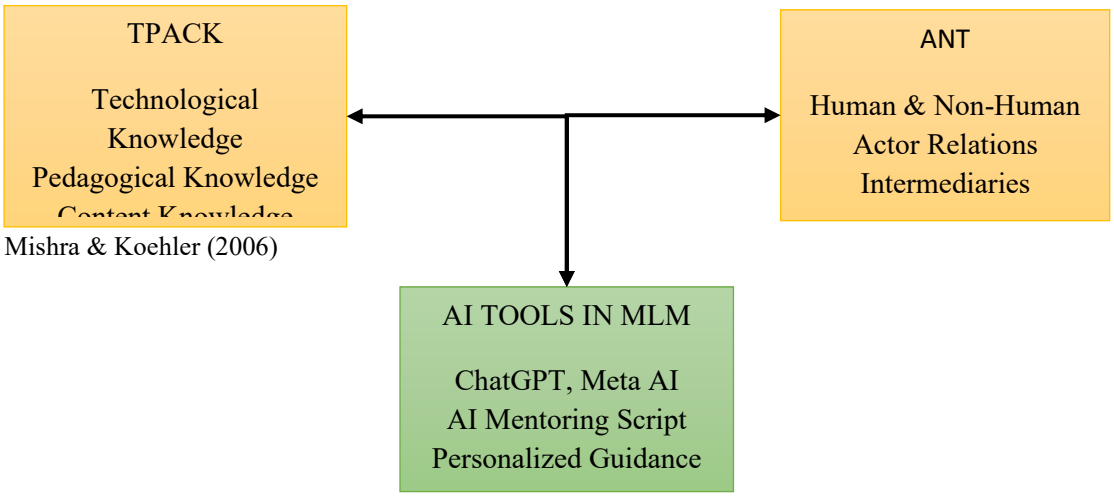


**Figure 2. Synthesized Framework of AI-Supported Member Development in Network Marketing Based on TPACK and ANT**

*Note: Synthesizing pedagogical-technological knowledge (TPACK) and socio-technical interactions (ANT) based on selected studies (e.g., Apriandi, 2023; Aqib, 2025; Ali, 2024; Akrich, 2023).*

***Implications for Practice and Policy in MLM Ecosystems***

The findings and synthesis presented in this study offer several practical implications for MLM practitioners, organizational leaders, and policymakers seeking to harness the power of AI in member development and duplication.

First, implement structured AI-supported mentoring programs. MLM organizations should design AI tools, such as chatbots or intelligent assistants, to support consistent onboarding, training, and follow-up processes. These tools can help bridge the gap between experienced leaders and new members by providing standardized, real-time guidance aligned with the organization's core values and goals (Boscardin et al., 2024).

Second, invest in AI literacy and capacity building. To optimize the use of AI in MLM, companies should equip their members and leaders with essential digital literacy skills. This includes not only technical skills but also a deeper understanding of how AI can support relationship-building, training routines, and performance tracking (Aslan et al., 2025).

Third, integrate TPACK-aligned training models. AI tools are most effective when they align with sound pedagogical strategies. MLM organizations should adopt training programs that integrate technological knowledge with effective teaching techniques and MLM-specific content knowledge, ensuring that leaders use AI tools in ways that enhance—not replace—personal mentorship (Chai et al., 2010).

Fourth, encourage collaborative policymaking that fosters ethical AI adoption. Policymakers and regulatory bodies should engage with MLM stakeholders to ensure the development of ethical AI guidelines that prevent misuse, protect user data, and promote equitable access to AI resources. (C. K. Y. Chan, 2023; Ng et al., 2021)

Lastly, design adaptive systems that reflect ANT principles. Recognizing the dynamic interplay between human actors, AI technologies, and organizational networks, MLM systems should be flexible and adaptive. Policies and technologies must co-evolve to respond to feedback, challenges, and emerging needs from the field (Akrich, 2023; Callon, 1986; Chopra et al., 2023)
By embedding these insights into organizational strategy and policy frameworks, MLM companies can leverage AI not just as a tool, but as a transformational driver of sustainable growth, member empowerment, and scalable success.

To further bridge the gap between theoretical understanding and actionable strategies, Table 4 presents a structured synthesis of practical implications linked to their supporting theoretical insights. Drawing from the dual frameworks of TPACK and ANT, this table guides MLM practitioners, trainers, and policymakers in translating research findings into effective interventions. It reinforces that AI integration in mentoring and duplication must be pedagogically grounded, ethically guided, and socio-technically aligned to ensure sustainable success in network marketing ecosystems.

Table 4. Summary of Practical Implications and Their Linked Theoretical Insights

| **Practical Implications** | **Linked Theoretical Insights (with References)** |
|---|---|
| Implement structured AI-supported mentoring programs for onboarding and team development | **TPACK**: Instructional alignment via AI tools (Boscardin et al., 2024); **ANT**: AI as intermediary in mentoring networks (Ammade et al., 2020) |
| Invest in AI literacy and digital capacity-building for MLM leaders and members | **TPACK**: Pedagogical readiness (Ahmad et al., 2021); **ANT**: Human-tech alignment (Aslan et al., 2025) |
| Align AI tools with TPACK-driven training models for effective learning outcomes | **TPACK**: Technology-content-pedagogy integration (Bhardwaj et al., 2023; Chai et al., 2010) |
| Develop ethical policies and collaborative guidelines for AI adoption in MLM | **ANT**: Ethics and power relations among actors (Akrich, 2023; Baashar et al., 2021) |

| | |
|---|---|
| Design adaptive MLM ecosystems that reflect ANT principles of socio-technical networks | **ANT**: Socio-technical system responsiveness (Aanestad et al., 2024; Chopra et al., 2023; Latour, 2005) |

## CONCLUSIONS AND RECOMMENDATIONS

### *Key Findings*

This study explored the integration of artificial intelligence (AI) in multi-level marketing (MLM), with emphasis on mentoring and duplication. Using a systematic literature review of 60 peer-reviewed articles and guided by the TPACK and ANT frameworks, three main findings emerged. First, AI enhances MLM member development by enabling scalable and consistent mentoring systems. Tools such as chatbots, automation platforms, and recommendation engines support onboarding, real-time coaching, and structured follow-up. For example, ChatGPT has been applied to deliver automated onboarding scripts, while Meta AI supports real-time Q&A during training. Second, AI strengthens duplication by standardizing scripts, resources, and learning pathways, thereby reducing over-reliance on individual leaders. Third, the integration of TPACK and ANT provides a strong theoretical lens to explain how technology, pedagogy, and human–AI networks converge in supporting MLM member development.

### *Theoretical and Practical Contributions*

Theoretically, this study extends the application of TPACK and ANT into the MLM context, showing their explanatory power for understanding how AI reshapes mentoring and duplication processes. Practically, the findings offer actionable strategies for MLM organizations: adopting structured mentoring systems, enhancing AI literacy among members, aligning AI tools with pedagogical best practices, and ensuring ethical and flexible implementation policies. The examples of ChatGPT and Meta AI illustrate how AI can be embedded into daily operations to improve training efficiency, consistency, and member engagement.

## ADVANCED RESEARCH

Several limitations must be acknowledged. First, this review relies on secondary data from published articles, which may exclude undocumented practices or grassroots innovations. Second, the exclusive focus on TPACK and ANT may overlook insights from alternative frameworks that could enrich interpretation. Third, most reviewed studies are conceptual or qualitative, with fewer empirical or longitudinal investigations, limiting the ability to assess long-term impact. Future research should therefore conduct empirical studies, including mixed-method and cross-cultural designs, to evaluate AI interventions in MLM more robustly. Scholars are also encouraged to explore complementary theories such as sociomateriality or innovation diffusion, and to monitor ethical and organizational implications as AI tools become more autonomous. These directions will ensure that AI adoption in MLM remains effective, inclusive, and ethically grounded.

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