Original Article

From Ideas to Impact: How the Triple Helix Drives Marketing Innovation in IT in Tanzania

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Abstract - *The study examined how collaboration between universities, industries, and government (the Triple Helix model) fosters marketing innovations in the Information Technology (IT) sector. Utilizing a sample size of 540 respondents from various sectors, the research explored key indicators such as collaboration dynamics, innovation output, knowledge transfer, and the impact of these innovations on marketing performance. The findings revealed that strong partnerships led to significant improvements in competitive advantage, market reach, and sales growth, while challenges in implementation and government support were noted as limiting factors. The study concluded that the success of marketing innovations through the Triple Helix model depends on effective collaboration, tailored knowledge transfer, and strategic implementation. Recommendations include enhancing collaborative networks, improving knowledge transfer, and ensuring government policies facilitate innovation adoption. This research highlights the potential of the Triple Helix model to drive long-term growth and competitiveness in the IT marketing landscape.*

Keywords - Triple helix model, Marketing innovation, Information Technology (IT) Sector, Collaboration dynamics, Knowledge transfer, Competitive advantage, University-industry-government partnerships, Innovation output, Market reach, Customer engagement.

1. Introduction

The concept of the Triple Helix model, which refers to the interaction and collaboration between universities, industries, and governments, has emerged as a powerful driver of innovation. In the Information Technology (IT) sector, this model reshapes how innovation is conceptualized, developed, and commercialized, particularly in marketing practices. Marketing innovation in IT has evolved significantly, driven by technological advancements and changing consumer behaviors. Historically, marketing strategies relied on limited data and intuition [1]. However, the digital revolution necessitated a shift towards more sophisticated approaches. Integrating Big Data analytics revolutionized consumer understanding, enabling businesses to extract valuable insights and anticipate market trends [2]. Digitization emerged as a key driver for marketing innovation, facilitating new communication methods, branding strategies, and transaction settings [3]. The focus shifted from quantifying consumer input through surveys to uncovering qualitative insights by observing and engaging consumers [1]. Marketing innovations increasingly emphasized humanization, digitization, and building new consumer experiences in a hybrid world [4]. This evolution required breaking down organizational silos, fostering cross-functional collaboration, and promoting a culture of experimentation and innovation [2]. In Tanzania's IT sector, marketing innovation evolved from industry-driven advancements to consumer-focused strategies. Telecommunications companies like Vodacom implemented customer-centric approaches to gain market share through promotions and loyalty programs [5]. Compatibility and relative advantage influenced consumer perceptions of mobile marketing, with compatibility being the key driver of acceptance [6, 7]. Integrating Big Data analytics revolutionized marketing strategies, enabling businesses to extract valuable consumer insights and rapidly respond to market trends [2]. Various factors, including business size, strategy, resources, and entrepreneur characteristics, such as age and market innovativeness, influenced the adoption of digital marketing initiatives among SMEs in Tanzania. Technological factors like perceived ease of use and market pressures also played significant roles in adopting social media marketing [8]. These shifts reflect the industry's adaptation to technological complexity and societal changes. The Triple Helix model, integrating university, industry, and government interactions, offered a framework for understanding innovation in knowledge-based societies [9]. This model emphasized the enhanced role of universities transitioning from teaching to research and entrepreneurial institutions, while governments provided regulatory support

and industry engaged in high-level research [9]. The Triple Helix concept evolved from a neo-institutional model of networks to a neo-evolutionary model of interacting selection environments, enabling the study of both organizational integration and functional differentiation [10]. Its explanatory power was strengthened by incorporating various social science concepts and attracting scholars from diverse fields [11]. While the model proved successful as a heuristic for innovation analysis and policy guidance, it also faced criticism regarding its supporting functions and ability to describe complex innovation processes [12] adequately. In Tanzania, Research and Technology Organizations (RTOs) act as "super intermediaries" within the Triple Helix, bridging industrial and research policies [13]. However, challenges remain in implementing this model effectively. TVET institutions in Tanzania must strengthen collaborations between academia, industry, and government to address gaps in curricula development, training delivery, and industrial linkages [14]. Revamping RTOs and acknowledging their role as super intermediaries could spur Tanzania's industrial development [13].

Developing innovative IT marketing strategies has involved academia, industry, and government contributions. Research has explored the relationships between these sectors in IT outsourcing knowledge production [15] and tourism development [16]. Studies have highlighted the importance of collaboration among key stakeholders, including government, private companies, and academia, to address challenges in tourism innovation and marketing [16]. IT professionals from various sectors have discussed the future of service-based computing and its impact on the industry [17]. Information technologies have played a crucial role in product innovation processes by enhancing marketing strategies and facilitating consumer integration. ITs have improved communication and cooperation between different agents and enabled better market data management, contributing to the development of market intelligence for decision-making [18]. These studies emphasize the interconnected roles of academia, industry, and government in advancing IT marketing strategies. The studies examined the roles and contributions of academia, industry, and government in developing innovative IT strategies in Tanzania. Weak linkages between these sectors were identified as a historical challenge, but policy reforms and global trends offered opportunities for revitalization [19]. To accelerate innovation, a bottom-up, market-driven approach was recommended [19]. The ICT industry faced challenges in innovation processes, particularly in public sectors, with funding and capital being major obstacles [20]. The strategic role of IT in enhancing competitive advantage was explored, revealing that IT value depended on both technological and human resources [21]. Industry-specific skills, knowledge, and management's IT expertise were found to be crucial determinants of firm performance [21]. These findings highlighted the need for strengthened collaboration between

academia, industry, and government to foster innovative IT marketing strategies in Tanzania. Triple Helix collaborations between universities, industry, and government have demonstrated significant impacts on economic growth and societal benefits. These partnerships fostered innovation, improved regional competitiveness, and enhanced the economic performance of high-tech firms [22, 23]. University-industry collaborations generated various socioeconomic impacts, including economic, social, and financial benefits [24]. Universities played a crucial role in collective impact initiatives, contributing to job creation, skill development, and knowledge dissemination [25]. Industrial PhD schools based on Triple Helix dynamics benefitted industry and regional universities [23]. The collaboration between academia and industry was vital for economic development in industrialized countries, with more collaborative projects leading to better economic performance for high-tech firms [22]. These findings highlight the importance of Triple Helix collaborations in driving innovation and economic growth in the IT industry and beyond. In Tanzania, the Triple Helix model was applied to retrofit Technical and Vocational Education Training for transitioning to a green economy, emphasizing the need for stronger collaboration between academia, industry, and government [14]. University-industry collaborations generated economic, social, and financial impacts, contributing to regional competitiveness and technology transfer [24]. A study in Sweden demonstrated that industrial PhD schools based on Triple Helix dynamics benefited both industry and regional universities, identifying critical success factors for such collaborations [23]. These partnerships proved crucial for innovation processes in knowledge-based economies, leading to improved living standards and societal transformation [25].

University-industry-government collaborations played a significant role in developing new marketing strategies in the IT sector. These partnerships facilitated knowledge transfer, learning, and innovation [26]. Past collaborative experiences enhanced benefits, with collaborative know-how and trust acting as mediators [26]. Such collaborations became important technology transfer instruments in the USA, necessitating a new mindset among partners [27]. In China, Hong Kong and Shenzhen universities engaged in collaborative innovation activities, spawning startup businesses [28]. These collaborations were driven by competitive advantages specific to each university [28]. Small and Medium-Sized enterprises (SMEs) and university researchers employed various strategies for initiating and optimizing R&D collaborations, with some pursuing short-term goals for immediate results. In contrast, others focused on long-term relationship development and practical learning [29]. The research papers examined the evolving roles of actors in shaping innovative digital marketing approaches. Businesses leveraged personalization, immersive technologies, and omnichannel integration to enhance

customer engagement and experiences [30]. Market actors transitioned from passive recipients to active gatekeepers in the innovation process, while innovation agents adopted a more reflective role [31]. Digital service innovations, such as augmented reality, improved customer engagement and equity [32]. In the telecommunications industry, companies implemented customer brand engagement strategies but needed to be more proactive in customer dialogue [33]. Consumers actively sought information to make informed decisions, compared technical characteristics of products, and desired personalized services. The studies highlighted the importance of privacy, data protection, and standardized measurement frameworks in digital marketing [30]. These findings underscore the transformative potential of innovative digital marketing approaches in shaping customer experiences and brand positioning.

The Triple Helix model of university-industry-government interactions addressed various challenges in innovation and economic development [11]. Implementing data governance frameworks helped tackle data privacy and ethical concerns in marketing analytics [34]. The model also faced managerial challenges in universities, particularly in developing countries, as they sought to strengthen collaborations with industry [35]. During crises, the Triple Helix model demonstrated resilience, with micro-relations between individual actors enabling rapid innovation in medical device development [36]. Integrating ethical theories, such as supererogation, into the Triple Helix framework provided insights into the nature of these micro-relations [36]. As the model evolved, it incorporated various social science concepts and attracted scholars from diverse fields, including artificial intelligence and professional ethics, expanding its explanatory power and research directions [11].

The problem of this study stemmed from the lack of a comprehensive understanding of how the Triple Helix model, which comprises universities, industries, and governments, had effectively driven marketing innovation in the IT sector. Despite the rapid technological advancements and evolving consumer behaviors, there remained a gap in the literature regarding each actor's specific roles and contributions in fostering innovative marketing strategies. The absence of clear insights into how these collaborations translated into practical marketing approaches had hindered industries from fully capitalizing on emerging opportunities in digital marketing, data analytics, and customer engagement. This study sought to address these gaps by investigating the Triple Helix model's impact on IT marketing innovation. The study examined how the Triple Helix model, through the collaboration of universities, industries, and governments, influenced the development of marketing innovations in the IT sector. It aimed to analyze each actor's roles and how their interactions contributed to addressing challenges related to data privacy, cybersecurity,

and the ethical use of technology in marketing strategies. The study's main contribution was providing a detailed analysis of how the Triple Helix model facilitated marketing innovation in the IT sector by examining the interactions between universities, industries, and governments. It highlighted each actor's specific roles and impacts in driving innovative marketing strategies and how their collaboration addressed critical issues like data privacy, cybersecurity, and ethical considerations in emerging technologies. This study offered valuable insights into optimizing these collaborative efforts for more effective and forward-thinking marketing practices. The remaining part of the paper is structured as follows: Part two comprises the study's methodology, part three contains the study's results and discussion, and part four consists of the conclusion and recommendations.

2. Methodology
The study employed a mixed-methods approach to comprehensively analyze the Triple Helix model's impact on IT sector marketing innovation.

2.1. Research Design
2.1.1. Quantitative Analysis
A structured survey was used to collect numerical data on the perceptions and contributions of universities, industries, and governments in marketing innovation. The survey included questions on collaborative practices, impacts on marketing strategies, and addressing key challenges.

2.1.2. Qualitative Analysis
In-depth interviews and focus groups were conducted to gain detailed insights into the collaborative processes and experiences of stakeholders from each sector.

2.2 Sample Size and Selection
The study involved a sample size of 540 participants. This included representatives from universities (180), industry professionals (180), and government officials (180). Participants were selected using stratified random sampling to ensure representation from various sub-sectors within IT, including academia, business, and regulatory bodies.

2.3. Data Collection
2.3.1. Surveys
The structured survey was distributed electronically to the sample population. The survey instrument was designed to capture quantitative data on the effectiveness of collaborations and innovations.

2.3.2. Interviews and Focus Groups
Semi-structured interviews and focus groups were conducted with a subset of 30 participants from each sector to gather qualitative data. These sessions explored themes such as collaborative strategies, challenges faced, and the impact on marketing innovations.

2.4. Data Analysis

2.4.1. Quantitative Data

Statistical analysis used descriptive statistics to identify trends and relationships between collaborative practices and marketing innovations.

2.4.2. Qualitative Data

Thematic analysis was used to interpret interview and focus group data, identifying key themes and insights related to the Triple Helix model's impact on marketing practices.

2.5. Validity and Reliability

The study ensured validity through careful survey design and pilot testing. Reliability was maintained through consistent data collection procedures and data triangulation from different sources. This methodology provided a robust framework for analyzing the impact of the Triple Helix model on marketing innovation, combining both quantitative and qualitative data to offer a comprehensive understanding of the interactions between academia, industry, and government in the IT sector.

3. Results and Discussion

This section presents the study's findings on the Triple Helix model and its role in driving marketing innovation within the IT industry. By analyzing the collaborative interactions between academia, industry, and government, the study aimed to shed light on the factors contributing to successful innovation partnerships and the challenges hindering their effectiveness.

3.1. Demographic Information of the Respondents

The demographic information of the study participants provided essential context for understanding the diversity and scope of the data collected. The 540 respondents, representing universities, industries, and governments, were distributed across various sectors, roles, and regions within the IT industry. By examining their backgrounds, including age, gender, professional experience, and sector affiliation, this section offered insights into the sample composition and helped ensure that the findings were representative. The demographic data also enabled a deeper analysis of how different groups had contributed to and perceived the influence of the Triple Helix model on marketing innovation in the IT sector.

3.1.1. Age of the Respondents

As indicated in Table 1, the respondents' age distribution revealed a diverse range of experiences within the sample. The largest group of participants fell within the 30-39 age range, accounting for 200 respondents, or 37% of the total sample. This group represented professionals with substantial industry experience and academic insight, playing a key role in the collaborative efforts of the Triple Helix model. Respondents aged 18-29 comprised 120 participants (22.2%), reflecting a younger demographic, likely early-career professionals or recent graduates contributing fresh perspectives and innovative ideas to the IT sector. Those in the 40-49 age group made up 150 respondents (27.8%), bringing significant experience and leadership in their respective fields. Finally, the 50 and above group comprised 70 respondents (13%), representing seasoned professionals and policymakers who likely had a deeper understanding of regulatory and strategic aspects within the IT sector. This age distribution allowed for a balanced analysis of how different generations contributed to and perceived marketing innovations driven by the Triple Helix model.

3.1.2. Gender of the Respondents

In analyzing the gender distribution among the respondents, as per Table 1, the study highlighted a notable predominance of male participants, who comprised 320 individuals or 59.3% of the sample. This majority suggested that the male perspective was more heavily represented in the study's findings, which might have influenced the overall insights and interpretations regarding the Triple Helix model's impact on marketing innovation. With their substantial presence, male respondents likely contributed a range of experiences and viewpoints shaped by their professional roles and sectoral engagement. Conversely, female participants totaled 220, accounting for 38.9% of the sample.

This representation indicated a significant female presence in the study, reflecting an important, though less dominant, perception in the analysis. Female respondents were expected to provide varied insights and potentially different approaches to marketing innovation, influenced by their unique professional experiences and gendered perspectives within the IT sector. The gender distribution underlined the necessity of considering both male and female viewpoints when interpreting the study's results. While the male-dominated sample offered more insights, the substantial female representation ensured that the study captured a broader range of views. This balance was important for a comprehensive understanding of how the Triple Helix model influenced marketing practices across different gendered experiences within the industry.

3.1.3 Professional Experience of the Respondents

The professional experience of the respondents, according to Table 1, revealed a varied range of expertise and familiarity with the IT sector, which provided a well-rounded perspective on the impact of the Triple Helix model on marketing innovation. Among the respondents, those with less than 5 years of experience numbered 100, representing 18.5% of the sample. This group, though relatively small, brought fresh insights and an understanding of the latest trends and technologies, reflecting a more recent entry into the industry. The largest segment of respondents, comprising 220 individuals or 40.7%, had between 5 to 10 years of professional experience.

Table 1. Demographic information of the respondents

Demographic Variable	Category	Frequency (n=540)	Percentage (%)
Sector	University	180	33.3%
	Industry	180	33.3%
	Government	180	33.3%
Gender	Male	320	59.2%
	Female	220	40.8%
Age Group	18-29	120	22.2%
	30-39	200	37.0%
	40-49	150	27.8%
	50 and above	70	13.0%
Professional Experience	Less than 5 years	100	18.5%
	5-10 years	220	40.7%
	11-15 years	150	27.8%
	More than 15 years	70	13.0%

This group offered a balance of practical experience and recent knowledge, having navigated significant industry changes while still being relatively current with modern marketing practices and technological advancements. Their perspectives were valuable for understanding how mid-career professionals adapt to and influence marketing strategies. Respondents with 11 to 15 years of experience totaled 150, making up 27.8% of the sample. These individuals were expected to have a deeper understanding of the industry's evolution and a comprehensive view of long-term trends and innovations. Their insights reflected a more seasoned perspective, encompassing both the historical context of marketing practices and their adaptation to new models and technologies. Finally, the group with more than 15 years of experience, totaling 70 respondents or 13.0%, represented a wealth of knowledge and historical perspective.Their extensive experience provided a deep understanding of the sector's long-term developments and the impact of previous innovations on current practices. This segment's input was crucial for evaluating the historical trajectory of marketing strategies and their alignment with emerging trends driven by the Triple Helix model.The respondents' different ranges of professional experience enriched the study, ensuring that a broad range of insights was considered when analyzing how collaborative efforts between universities, industries, and governments influenced marketing innovation.

3.1.4. Sector/Industry of the Respondents

As shown in Table 1, the distribution of respondents across different sectors, universities, industries, and government provided a comprehensive perspective on the impact of the Triple Helix model on marketing innovation. Each sector contributed unique insights that enriched the study's findings. Respondents from universities, totaling 180 individuals, represented one-third of the sample. This group, consisting of academic researchers and faculty members, offered valuable perspectives on how theoretical research and academic collaborations influenced marketing strategies in the IT sector.

Their insights were instrumental in understanding the role of academic research in driving innovation and shaping new marketing practices. The academic respondents highlighted the importance of interdisciplinary research and its application in practical marketing scenarios, providing a foundational understanding of how scholarly work intersects with industry needs. The exact number of respondents, 180, came from the industry sector. These professionals, including marketing executives, IT managers, and industry consultants, provided practical insights into applying innovative marketing strategies. Their contributions were crucial in assessing how industry practices adapted to new technological advancements and collaborative efforts.

The industry respondents shed light on real-world challenges and opportunities in marketing, illustrating how theoretical models from academia and policy frameworks from the government were implemented in practice. Their feedback offered a critical view of these collaborations' effectiveness and impact on marketing innovations. Equally, 180 respondents represented government sectors, encompassing policy makers, regulatory officials, and public sector advisors. Their perspectives were essential in understanding the regulatory and policy aspects influencing marketing practices.

The government respondents detailed how policy decisions, regulatory frameworks, and public initiatives affected the implementation of marketing strategies and the broader impact of technological innovations. Their insights helped contextualize the role of government in facilitating or hindering collaborative efforts between academia and industry. The balanced representation from universities, industries, and governments ensured that the study captured a well-rounded view of how the Triple Helix model contributed to marketing innovation. By integrating insights from each sector, the study provided a nuanced analysis of the collaborative dynamics that drive innovation and address challenges within the IT sector.

3.2. Effectiveness of Triple Helix Collaboration

The study explored the effectiveness of Triple Helix Collaboration by examining key aspects of how academia, industry, and government interacted to drive innovation. It assessed the frequency of collaborative projects to understand how often these sectors worked together. The study also evaluated the project success rate, offering insights into how successful these collaborations were in achieving their objectives. Additionally, the research examined inter-sectoral communication, analyzing the effectiveness of communication channels between these three sectors to foster innovation and address challenges efficiently.

3.2.1. Frequency of Collaborative Projects

As shown in Figure 1, the study revealed a range of engagement levels in collaborative projects within the framework of the Triple Helix model, which involves partnerships between academia, industry, and government. Respondents reported differing collaboration frequencies, reflecting both the strengths and challenges of inter-sectoral cooperation. A substantial portion of 150 respondents indicated a high frequency of collaborative projects, with involvement in four to six initiatives. This high level of engagement suggested that these individuals were frequently involved in cross-sector partnerships, often due to consistent institutional support or a clear alignment of goals. One respondent noted:

"… We have been part of several collaborative projects over the last few years, and the results have been very promising. Working with industry and government has allowed us to access resources we would not have on our own…"

The medium frequency group, representing 200 respondents, participated in two to three collaborative projects. This group reflected a more moderate level of engagement, where partnerships were pursued strategically rather than consistently. Respondents in this category generally worked on targeted projects that required specific expertise or resource-sharing between the sectors. One participant explained:

"…We do not collaborate all the time, but when the right project comes along, something that really benefits from input from different sectors, we get involved. It is a matter of choosing the right opportunities…"

This medium level of collaboration showed that while engagement existed, it was often contingent on the nature and scope of the project rather than routine collaboration. A significant number of respondents, 190, reported low frequency in collaborative projects, engaging in only zero to one initiative. For these individuals, the Triple Helix model seemed less central to their work due to limited collaboration

opportunities or challenges in aligning their objectives with those of other sectors. One respondent remarked:

"… We have only been part of one collaborative project, and even then, it was difficult to coordinate between the sectors. The communication just was not there, and we struggled to keep the project moving…"

The low frequency of collaboration among these respondents highlighted potential barriers such as lack of institutional support, differing priorities between sectors, or insufficient channels for fostering partnerships. Despite the challenges, many of these participants expressed a willingness to engage more frequently in collaborative projects if the conditions for partnership improved. In short, the responses indicated that while the Triple Helix model had been successfully integrated into the practices of some sectors, others faced significant barriers to consistent collaboration. The high frequency group demonstrated the potential for regular and effective partnerships. In contrast, the medium and low frequency groups indicated the need for more structured support systems to encourage greater involvement. The variation in collaborative project frequency highlighted the complexity of inter-sectoral cooperation, with some sectors reaping the full benefits of collaboration while others encountered challenges that limited their engagement.

3.2.2. Project Success Rate

The study revealed varied outcomes in the success rates of collaborative projects between academia, industry, and government, underscoring the achievements and challenges of such partnerships. According to Figure 1, a significant portion of respondents, 180 in total, reported high success in their collaborative efforts, highlighting that their projects not only met but often exceeded their initial goals. For many in this group, combining complementary expertise and efficient communication was crucial for their achievements. One respondent explained:

"...The collaboration worked like a well-oiled machine. Everyone brought their unique strengths to the table—academia provided the research, industry the practical applications, and the government offered support in policy and resources. The synergy was incredible and made all the difference in reaching our goals..."

These respondents experienced success due to well-coordinated efforts, clearly defined objectives, and a shared vision across the sectors, contributing to their projects' overall effectiveness. In contrast, the largest group, 200 respondents, reported moderate project success. While these initiatives achieved many of their intended outcomes, they were not without obstacles. Respondents in this group often cited challenges such as delays, budget constraints, or communication breakdowns between partners. One participant reflected:

"...We had a good project, and for the most part, it worked out. But there were times when we hit roadblocks, especially when trying to align the interests of all parties involved. The industry wanted quick results, while the academic side was focused on thorough research, and government regulations sometimes slowed things down. Still, we managed to pull through, but it required more effort than we expected..."

This moderate success pointed to the complexity of Triple Helix collaborations, where differing priorities could sometimes hinder smooth progress, even though the overall goals were eventually met. A smaller but notable portion of respondents, 120 individuals, reported low success in their collaborative projects. These respondents expressed that while their projects advanced somewhat, they fell short of achieving most of their objectives. Challenges such as poor coordination, inadequate resource allocation, and conflicting agendas between the sectors were common themes among this group. One respondent shared their frustration:

"...We started with high hopes, but things fell apart quickly. There were communication issues, and it seemed no one was in charge. Everyone had their agenda, and we could not agree on the project's direction. As a result, we barely accomplished anything meaningful..."

These low success rates highlighted the fragility of collaborative efforts when key elements such as leadership and communication were lacking, suggesting that structural weaknesses often undermined these projects. Lastly, 40 respondents reported no success in their collaborative projects, indicating that their efforts either failed to take off or collapsed entirely. For these participants, the collaboration never gained enough momentum to produce any tangible results. The reasons behind these failures were varied, but common factors included poor leadership, a lack of shared objectives, and insufficient support from the involved sectors. One respondent remarked:

"...The project never really got off the ground. There was much talk at the beginning, but no one took responsibility when it came time to execute. We did not have the resources we needed, and in the end, it just fizzled out..."

These experiences demonstrated the potential pitfalls of cross-sector collaboration when key stakeholders are not fully committed, or projects lack the structure to sustain progress. In summary, the project success rate in the study varied widely, with a significant number of respondents reporting high or moderate success. In contrast, others faced more challenges, leading to low or no success. The high success cases illustrated the potential for fruitful collaboration when all parties were aligned and committed, while the moderate and low success rates accentuated the difficulties that arose when communication, resources, or leadership faltered. The experiences of those who reported no success highlighted the importance of a strong, unified direction in ensuring that Triple Helix collaborations could deliver meaningful outcomes.
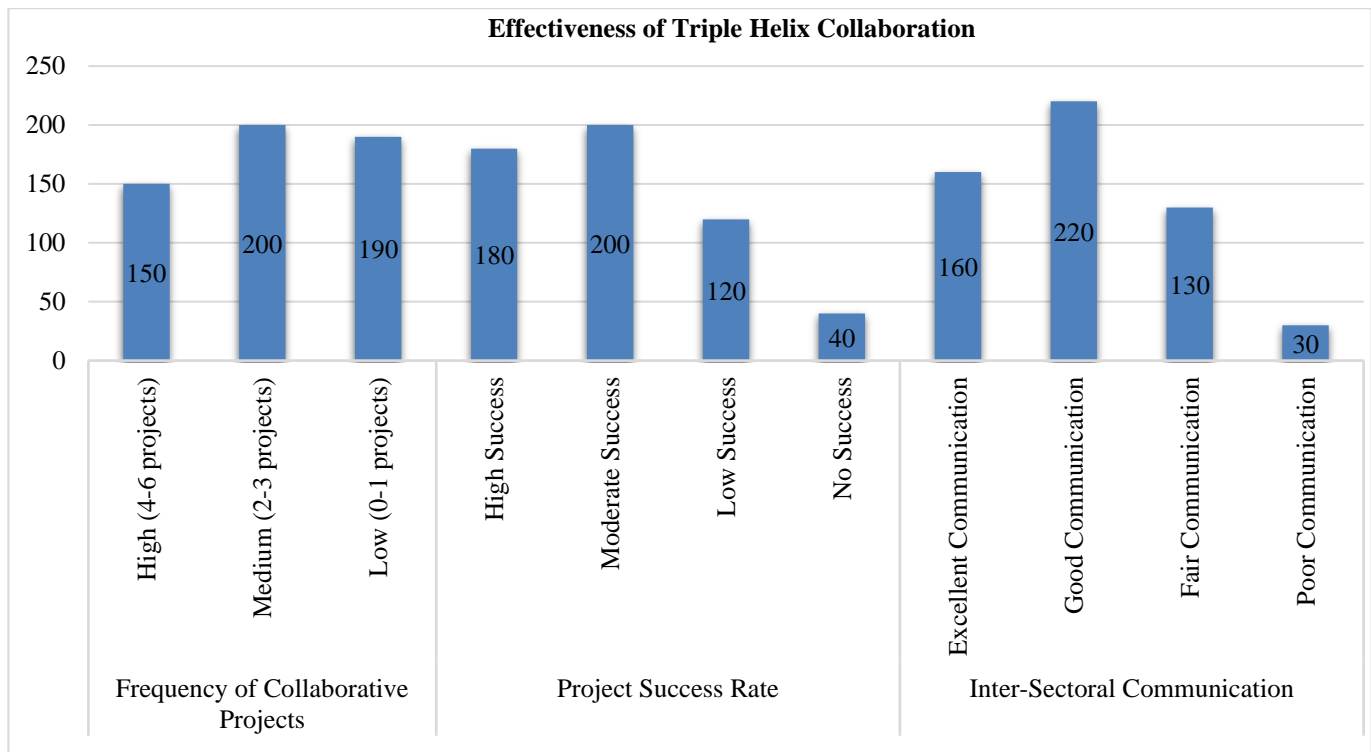

Fig. 1 The effectiveness of Triple Helix collaboration sub indicators

3.2.3. Inter-Sectoral Communication

As per Figure 1, the study revealed inter-sectoral communication's critical role in the success of collaborative projects between academia, industry, and government. Respondents shared varying experiences, with many highlighting the importance of clear and consistent communication across the sectors. A significant portion of participants, 160 in total, reported experiencing excellent communication within their collaborative efforts. This group consistently praised the open channels of dialogue that facilitated effective coordination and problem-solving. One respondent noted:

"...We had regular meetings and clear communication protocols from the start. There was never a moment where we felt disconnected. Whether it was academia sharing the latest research findings, industry providing feedback, or the government clarifying regulations, everyone was on the same page..."

This level of communication allowed for quick resolution of challenges and ensured that all stakeholders were informed and involved in decision-making processes, contributing significantly to the overall success of their projects. The largest group of respondents, 220, described their experience as having good communication between sectors. These respondents expressed satisfaction with the level of communication, though they noted occasional lapses or delays in sharing information. Despite this, they generally felt that communication was functional and allowed the projects to proceed relatively smoothly. One respondent shared:

"...For the most part, communication was good. We had scheduled updates, and there was a real effort to keep everyone informed. However, there were times when messages got delayed, especially when it came to decisions that required higher-up approval. Still, we managed to stay on track because we knew who to reach out to when we needed answers..."

This group acknowledged that while their communication was not flawless, it was strong enough to prevent major disruptions and allowed the projects to move forward steadily. A notable portion of the respondents, 130 individuals, reported fair communication in their collaborative projects. These participants highlighted more significant challenges in maintaining effective communication across sectors. Respondents in this group often pointed out that while there were mechanisms in place for communication, these were not always utilized effectively, leading to confusion or misunderstandings. One participant explained:

"...There was communication, but it was not always clear or timely. Sometimes, we would get updates after decisions had already been made, making it difficult to adjust our approach. We were often left playing catch-up..."

The fair communication group reflected the issues that arise when information is not disseminated promptly, or stakeholders are not fully engaged in the dialogue. This could lead to project timeline delays or objective misalignment as sectors struggle to coordinate. Lastly, a small group of 30 respondents reported poor communication in their collaborative efforts, indicating that communication between sectors was minimal or ineffective. These respondents experienced significant difficulties staying informed about project developments, often leading to stalled progress and unresolved issues. One respondent expressed their frustration:

"...We barely communicated. It felt like everyone was working in their bubble, and by the time we realized there was a problem, it was too late to fix it. The lack of communication made it impossible to move forward, and the project ultimately fell apart..."

The poor communication group underscored the importance of maintaining open and regular channels of dialogue, as the absence of communication led to project breakdowns and a lack of cohesion among the sectors involved. In general, the findings on inter-sectoral communication highlighted the essential role that clear, consistent, and open communication played in ensuring the success of collaborative projects within the Triple Helix framework. The respondents who experienced excellent or good communication demonstrated how effective dialogue could streamline project processes, resolve challenges, and foster strong partnerships across sectors.

However, the experiences of those who reported fair or poor communication showed that when communication broke down or became inconsistent, it led to confusion, delays, and, in some cases, project failures. The study accentuated the need for well-established communication protocols and the active engagement of all stakeholders to ensure that collaborative efforts could reach their full potential.

3.3. Marketing Innovation Generation

The study focused on the Marketing Innovation Generation indicator, examining the Types of Marketing Innovations developed and the Novelty and Uniqueness of these innovations within the context of collaborative efforts between academia, industry, and government.

This analysis aimed to understand the range of innovative marketing strategies that emerged from such partnerships and how distinct or original these innovations were in comparison to traditional approaches. By analyzing these sub-indicators, the study offered insights into how

effectively the Triple Helix model fostered creative and cutting-edge marketing solutions.

3.3.1. Types of Marketing Innovations

As shown in Figure 2, the study explored the types of marketing innovations introduced through collaborations between academia, industry, and government, revealing a broad spectrum of approaches. A significant portion of respondents, 180 in total, indicated that their projects involved the development of new strategies in marketing. These innovations often centered around unique branding techniques, audience targeting, and creative campaign designs that had not been previously used in their sectors. One respondent highlighted the impact of these innovations, stating:

"...We shifted our entire approach to marketing, moving from traditional methods to more data-driven strategies focused on personalization. This allowed us to engage with our customers on a deeper level and significantly increased brand loyalty..."

Introducing new strategies gave these respondents fresh perspectives on how to approach marketing challenges, helping them stay competitive in a rapidly evolving marketplace. Meanwhile, another substantial group of 190 respondents reported innovations through adopting new technologies. These technologies included advanced data analytics, AI-driven customer segmentation, and the use of automated marketing tools. For many of these respondents,

integrating technology into their marketing efforts marked a pivotal shift from conventional approaches. As one respondent explained:

"...We embraced AI tools to analyze customer behavior, which completely changed how we approached our marketing campaigns. It allowed us to predict trends and adjust our strategies in real-time, which was impossible before..."

The use of new technologies not only streamlined marketing processes but also provided more precise insights into customer preferences and behaviors, enabling more targeted and efficient campaigns. These respondents emphasized that integrating technological innovations had enhanced their marketing capabilities, giving them a competitive edge.

Interestingly, 150 respondents reported that their projects involved new strategies and technologies, reflecting a holistic approach to marketing innovation. For these individuals, blending fresh strategic thinking with cutting-edge technological tools created synergies that enhanced their overall marketing efforts. One respondent remarked:

"...It was not just about adopting new technologies; we had to rethink our entire marketing strategy to align with these tools. By combining innovative strategies with AI-driven insights, we were able to launch campaigns that were not only more effective but also more cost-efficient..."
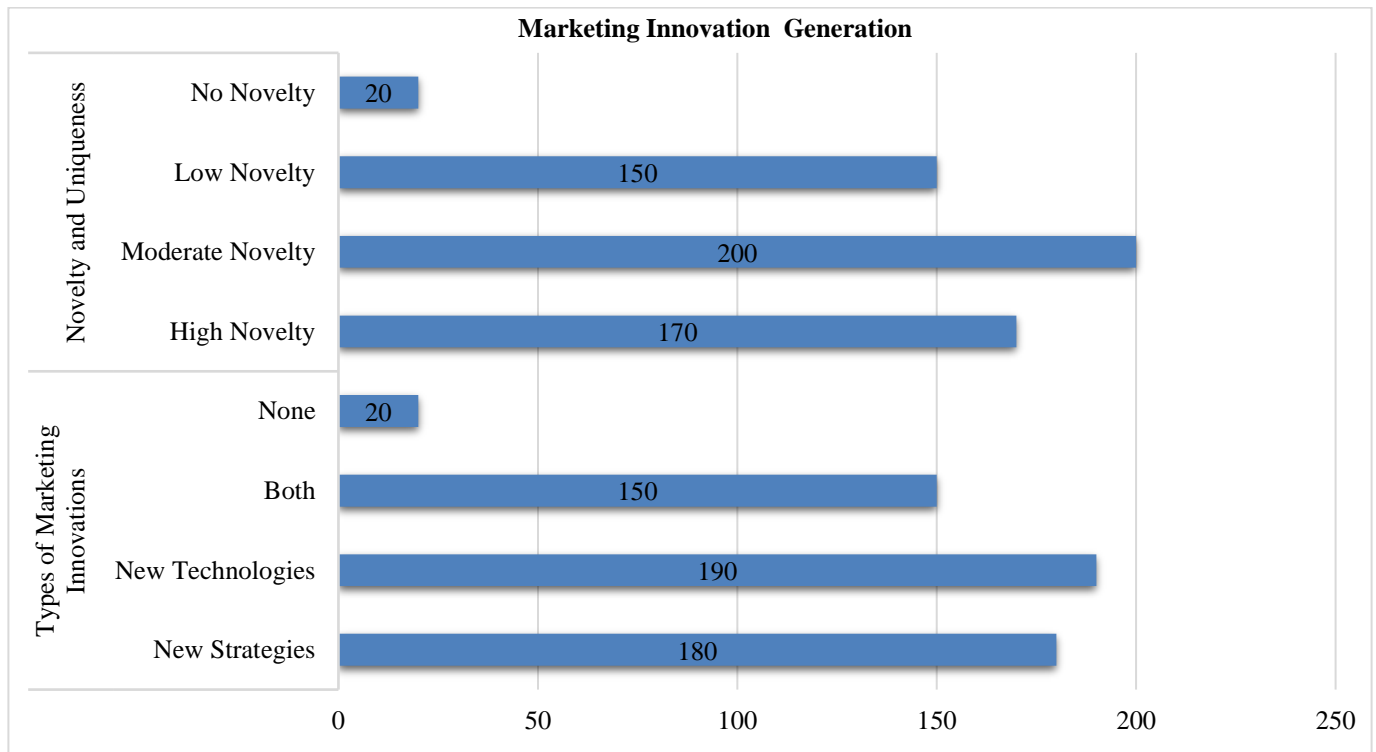

Fig. 2 The marketing innovation generation sub-indicators

This integrated approach allowed these respondents to harness the full potential of both strategic and technological innovations, resulting in more dynamic and responsive marketing initiatives. However, a small group of 20 respondents reported no marketing innovations in their projects. These participants noted that their collaborations did not lead to introducing new strategies or technologies, often due to limited resources, lack of support, or misalignment between the collaborating sectors. One respondent candidly expressed their frustration, saying:

"...We had high hopes for innovation, but the project never materialized as we expected. There was no real push to try anything new, and we relied on the same old marketing tactics that had not worked well in the past..."

This lack of innovation highlighted some projects' challenges in fostering creative approaches, accentuating the importance of strong leadership and clear objectives in driving marketing innovation. Generally, the study revealed a wide range of marketing innovations introduced through Triple Helix collaborations, with most respondents reporting significant developments in either new strategies, new technologies, or a combination of both. These innovations provided tangible benefits, helping organizations to modernize their marketing efforts and stay competitive in an increasingly digital marketplace.

However, the experiences of those who reported no innovations underscored the need for more robust support systems to ensure that all collaborative projects have the opportunity to explore and implement new ideas. The study demonstrated the potential of the Triple Helix model to drive meaningful marketing innovation, particularly when sectors work together to integrate strategic and technological advancements.

3.3.2. Novelty and Uniqueness

The study highlighted the varying levels of novelty and uniqueness in marketing innovations introduced through collaborations between academia, industry, and government. As demonstrated in Figure 2, a significant number of respondents, 170 in total, reported that their projects exhibited high novelty, indicating that the marketing strategies or technologies they developed were cutting-edge and had not been seen before in their sectors. These innovations were seen as transformative, providing a fresh approach to addressing marketing challenges. One respondent passionately described their experience, stating:

"...What we introduced was completely new to the market. No one had ever thought to combine real-time customer data with predictive analytics in this way, and it changed how we understood consumer behavior. The impact was immediate, and we felt like we were breaking new ground..."

For these respondents, the high level of novelty gave their projects a competitive advantage, allowing them to stand out in crowded markets and attract significant attention from customers and stakeholders alike. Meanwhile, the largest group of 200 respondents characterized their innovations as having moderate novelty. While their projects introduced some new elements, these individuals felt that many aspects were built on existing ideas or technologies. Their innovations were seen as improvements or refinements rather than groundbreaking transformations. One respondent elaborated on this, saying:

"...We were not inventing something entirely new but refining it. Our approach took what was already out there, making it more effective for our target market. It was not a complete reinvention, but it worked better than we had before..."

These respondents acknowledged that their innovations contributed to incremental changes within their industries, providing value without necessarily revolutionizing the market. The moderate novelty group often saw their projects as practical enhancements, which, while not completely unique, still offered noticeable improvements over previous methods. A notable portion of respondents, 150 in total, reported that their projects demonstrated low novelty. These individuals acknowledged that while their collaborations introduced some new aspects, much of what they implemented was already used in other sectors or markets. Their innovations lacked originality and, in some cases, felt derivative of existing approaches. One participant expressed their disappointment, explaining:

"...Honestly, there was not much that was new about what we did. We borrowed ideas from other industries, and while it worked, it did not feel innovative. We were following trends rather than setting them..."

For these respondents, the lack of originality was a limiting factor in the impact of their projects. While their efforts may have been functional and effective, they did not stand out as particularly unique or creative, which limited the projects' ability to generate significant buzz or attract attention from outside stakeholders.

Lastly, a small group of 20 respondents reported that their projects had no novelty. These participants felt that their collaborations failed to introduce anything new or innovative to the market, relying instead on outdated strategies or technologies. One respondent described their frustration with the process, stating:

"...The project was supposed to be innovative, but we used the same old tactics everyone else had already tried. There was no fresh thinking, no creativity; it felt like a missed opportunity..."

For these respondents, the absence of novelty was a major drawback, as it limited the potential for the project to make a lasting impact. Without unique or original ideas, these collaborations struggled to differentiate themselves from existing approaches, leading to underwhelming results.The study demonstrated a wide range of novelty and uniqueness in marketing innovations, with many respondents reporting high or moderate levels of originality in their projects. Those who experienced high novelty described their innovations as transformative, giving their collaborations a competitive edge in their industries. The moderate novelty group saw their innovations as valuable improvements, while the low novelty respondents felt that their projects lacked creativity but offered some functional benefits. The small group who reported no novelty highlighted the risks of failing to introduce fresh ideas in collaborative projects. In short, the study emphasized the importance of fostering originality and creativity in marketing innovations, as higher levels of novelty were associated with greater impact and success in the market.

3.4 Application and Implementation Marketing Innovations

The Application and Implementation phase of the study assessed how effectively the innovations derived from Triple Helix collaborations were adopted and integrated within the industry. Data collected revealed the extent of adoption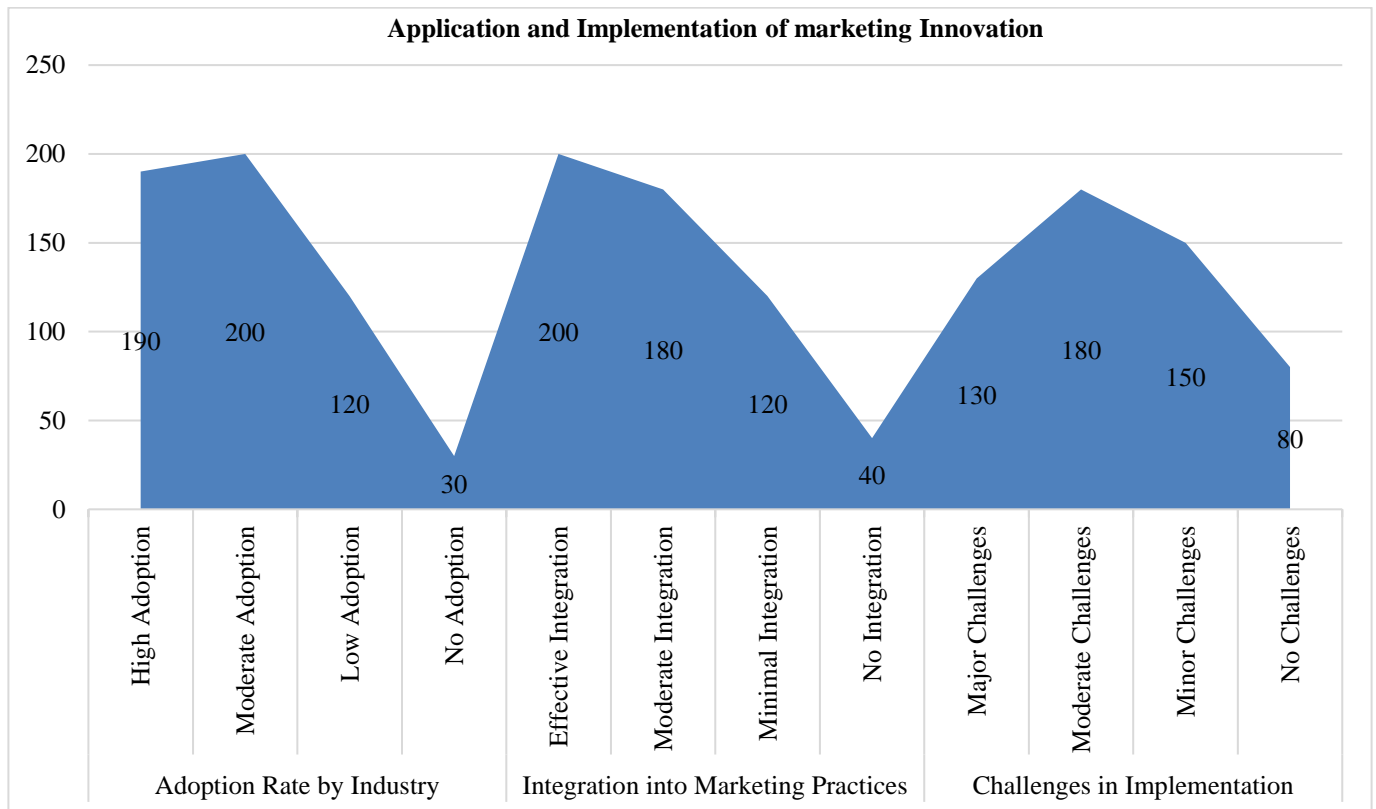 of new marketing innovations by IT companies, highlighting the varying degrees of integration into existing marketing practices. Additionally, the study identified the challenges encountered during implementation, offering insights into how these obstacles were addressed and their impact on the innovations' overall success.

3.4.1. Adoption Rate by Industry

The study's findings on the adoption rate by industry provided a detailed picture of how IT companies embraced new marketing innovations. The data shown in Figure 3 indicated a spectrum of adoption levels, reflecting the varied ways these innovations were integrated into industry practices.

A significant proportion of respondents, numbering 190 or 35.2% of the sample, reported a high adoption rate. These companies were characterized by their proactive engagement with new marketing strategies and technologies developed through collaborative efforts. One respondent, a marketing manager from a leading IT firm, remarked:

"...Our company embraced the new marketing solutions with enthusiasm. We implemented several strategies that directly resulted from our collaboration with academic institutions and government agencies. The high adoption rate was not just a result of the innovative nature of the solutions, but also the comprehensive support and resources provided during the integration process..."

Fig. 3 The application and implementation of marketing innovations sub indicators

In contrast, 200 respondents, or 37.0%, reported moderate adoption of the new innovations. These companies showed a cautious but positive approach, integrating new strategies at a measured pace. A senior executive from a mid-sized IT firm explained:

"...While we did integrate some of the new marketing techniques, the adoption was gradual. We evaluated their impact through pilot programs before full-scale implementation. This approach allowed us to mitigate risks and adjust strategies based on early feedback..."

The adoption rate was low for 120 respondents, representing 22.2% of the sample. These companies faced various barriers to fully embracing the new innovations, including financial constraints, lack of technical expertise, or resistance to change. A respondent from a small IT enterprise shared:

"...Despite recognizing the potential benefits of the new marketing innovations, our company struggled with adoption. We faced significant challenges, such as limited budgets and insufficient technical support, which impeded our ability to integrate these new strategies fully..."

Finally, 30 respondents, or 5.6%, indicated no adoption of the new marketing innovations. This group often included companies that were either highly resistant to change or lacked the necessary infrastructure to support the new technologies. A representative from one such company noted:

"...We chose not to adopt the new marketing solutions because they did not align with our current business model. The implementation seemed too disruptive and resource-intensive for our existing setup..."

In short, the data highlighted a spectrum of adoption rates, illustrating the diverse responses of IT companies to marketing innovations driven by the Triple Helix model. This variability in adoption rates underscores the importance of tailored strategies and support systems to facilitate broader acceptance and integration of new marketing practices across the industry.

3.4.2. Integration into Marketing Practices

The study on Integration into Marketing Practices examined how effectively new marketing strategies were incorporated into existing frameworks within organizations. As per Figure 3, the findings revealed a varied integration landscape across different IT companies, shedding light on the challenges and successes associated with adopting innovative practices. Among the 540 respondents, 200 participants reported that integrating new strategies into their marketing practices was highly effective. These organizations demonstrated a seamless incorporation of

innovative tools and methods, significantly enhancing their marketing efforts. One respondent shared:

"...We successfully integrated the latest marketing strategies into our existing practices. This smooth transition has allowed us to optimize our campaigns and better align with our target audience. The integration was a major boost to our marketing efficiency..."

In contrast, 180 respondents experienced moderate integration. These companies incorporated new strategies to a reasonable extent but faced some obstacles that hindered a smooth implementation. As one interviewee explained:

"...Our integration of new marketing strategies was fairly successful but encountered several hurdles. While we blended the new techniques with our existing practices, the process was challenging, and some areas still require further refinement..."

A smaller group, comprising 120 respondents, reported minimal integration. These organizations made limited progress in incorporating new marketing strategies into their established practices. One participant noted:

"...We made an effort to integrate some of the new strategies, but the impact was minimal. The process was slower than expected, and we struggled with aligning the new methods with our current practices effectively..."

Finally, 40 respondents reported no integration of the new strategies at all. This group faced significant barriers that prevented any meaningful adoption of innovative practices. As one respondent commented:

"...despite recognizing the value of new marketing strategies, we were unable to integrate them into our existing practices. Various internal issues, including lack of resources and resistance to change, were major impediments..."

In general, the data highlighted the varying degrees of effectiveness in integrating new marketing strategies within organizations, reflecting the diverse experiences and challenges IT companies face in adapting to innovation.

3.4.3. Challenges in the Implementation of New Marketing Innovations

The study on Challenges in Implementation probed into the issues that arose while applying new marketing innovations and how organizations addressed these obstacles. As per Figure 3, the analysis revealed a range of challenges faced by IT companies, from major barriers to minor difficulties, and highlighted the strategies employed to overcome them. Of 540 respondents, 130 reported encountering major challenges while implementing new

marketing innovations. These obstacles often included significant resistance to change, technical difficulties, and resource constraints. One respondent elaborated on their experience, stating:

"...We faced substantial difficulties when implementing new marketing strategies. Resistance from staff and technical issues were our biggest hurdles. To address these, we had to invest in extensive training programs and bring in external consultants to help resolve the technical glitches. Despite these efforts, the process was challenging and time-consuming..."

A larger group of 180 respondents experienced moderate challenges. These companies encountered issues such as partial resistance, moderate technical problems, or budget constraints but managed to navigate these difficulties with some success. An interviewee described:

"...We faced various moderate challenges, including occasional resistance from team members and some unexpected costs. We tackled these problems by gradually phasing in the new strategies and providing additional support to our team. Although the integration was not seamless, our proactive approach helped us mitigate the impact of these challenges..."

A total of 150 respondents reported minor challenges during the implementation phase. These challenges were often manageable and included minor adjustments and minor technical issues. One participant noted:

"...Our challenges were relatively minor, mostly related to minor adjustments for the new strategies. We addressed these by making small tweaks and providing quick solutions.

Overall, these issues did not significantly impede our progress..."

Finally, 80 respondents indicated no significant challenges while implementing new marketing innovations. These organizations experienced a smooth transition and faced minimal issues. As one respondent remarked:

"...Our implementation process was notably smooth, with very few challenges. The new strategies were well-received, and we could integrate them without major issues. This success was largely due to our thorough planning and preparation..."

In summary, the study highlighted the varied challenges faced while implementing marketing innovations, ranging from major barriers to minimal issues. The responses accentuated organisations' different approaches to overcome these obstacles and successfully integrate new strategies into their marketing practices.

3.5. Knowledge and Technology Transfer within Triple Helix Collaborations

The Knowledge and Technology Transfer indicator provided insights into how effectively academic research was translated into practical applications and how these innovations were adopted across different sectors. The study explored the extent of academic contributions to marketing strategies, the degree to which the industry embraced and utilized these research findings, and the role of government support in facilitating the transfer process. The data revealed varying levels of success and interaction among these elements, shedding light on how well knowledge and technology were shared and leveraged to drive marketing innovation.
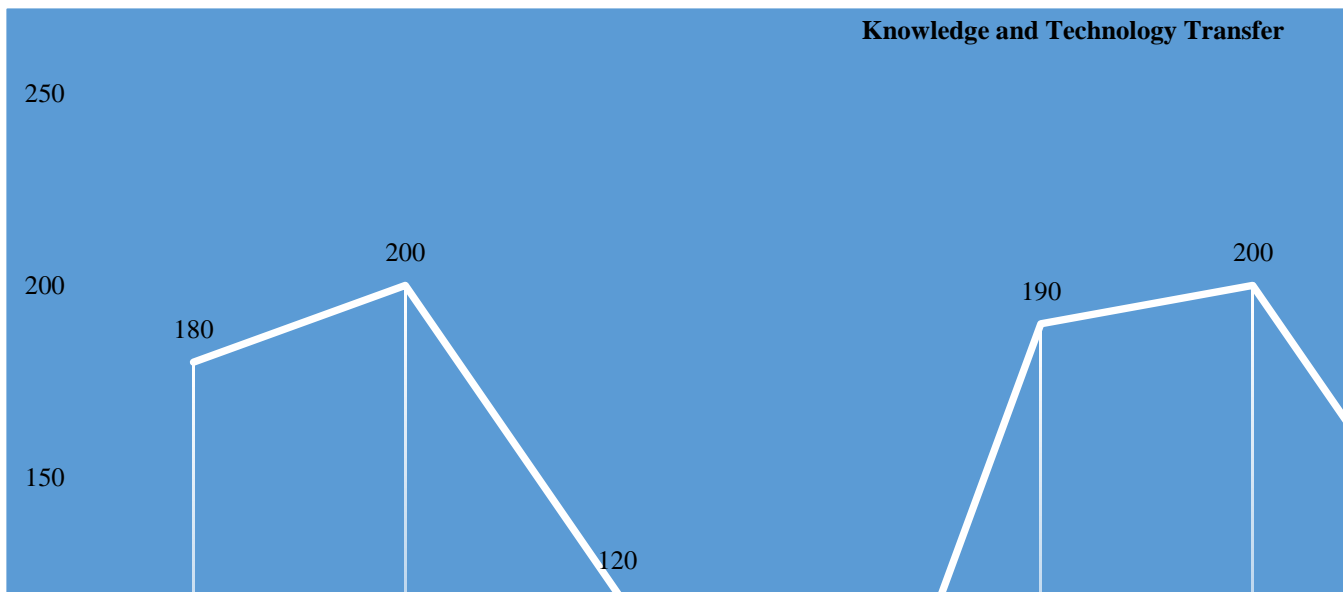

Fig. 4 The knowledge and technology transfer sub indicators

3.5.1. Academic Contributions to Marketing Innovation

The study on academic contributions assessed how academic research was translated into practical marketing tools and strategies, revealing a range of impacts from high to no discernible influence. As exemplified in figure 5, the findings highlighted the varying degrees to which academic work influenced industry practices, reflecting both successes and limitations in the application of research.

Among the 540 respondents, 180 reported that academic contributions greatly impacted their marketing strategies. These organizations successfully translated cutting-edge research into practical tools and methods that significantly enhanced their marketing efforts. One respondent emphasized:

"...The integration of academic research into our marketing strategies was transformative. The insights we gained led to the developing of highly effective marketing tools that markedly improved our campaign performance and market positioning. The research provided a solid foundation for our innovative approaches..."

A larger group of 200 respondents experienced a moderate impact from academic contributions. These organizations applied research findings with some success but noted that the impact was not as profound as hoped. As one interviewee described:

"...We utilized academic research to inform some of our marketing strategies, and while the results were positive, they were not as impactful as we anticipated. The research provided useful guidelines, but we faced challenges fully adapting the findings to our specific needs..."

In contrast, 120 respondents reported a low impact of academic contributions on their marketing practices. These companies incorporated research to a limited extent, and the practical benefits were minimal. One participant noted:

"...We tried to apply academic research to our marketing strategies, but the impact was minimal. The research did not fully align with our practical needs, so the benefits were limited..."

Finally, 40 respondents indicated that academic research did not impact their marketing tools or strategies. This group faced significant barriers in translating research into practical applications or did not find the research relevant to their needs. One respondent explained:

"...Despite being aware of the available academic research, we found it challenging to apply it effectively. The research did not directly address our specific marketing challenges, and as a result, it had no significant impact on our strategies..."

In short, the study highlighted the diverse outcomes of translating academic research into marketing practice, illustrating the successes and limitations experienced by organizations in leveraging academic insights for practical applications.

3.5.2. Industry Adoption of Academic Research

The study on industry adoption of academic research explored how industry practitioners embraced and utilised academic findings effectively. As illustrated in Figure 4, the analysis revealed a range of adoption levels, showcasing the varying degrees to which research insights influenced industry practices. Among the 540 respondents, 190 reported high adoption of academic research within their organizations. These companies actively integrated research findings into their marketing strategies, leading to significant improvements and innovations. One respondent shared:

"...Our organization has proactively incorporated academic research into our marketing practices. The findings have been instrumental in refining our strategies and driving substantial growth. We consider this integration a key factor in our competitive edge..."

A larger group of 200 respondents experienced moderate adoption of research. These companies utilized academic insights to some extent but faced challenges in fully leveraging the findings. An interviewee explained:

"...We have incorporated some of the research into our marketing efforts, but the impact has been moderate. While the insights have been beneficial, we encountered difficulties translating the research into practical applications that perfectly fit our needs..."

In contrast, 120 respondents reported low adoption of academic research. These organizations made limited use of research findings, often due to barriers such as misalignment with industry needs or implementation challenges. One participant noted:

"...We attempted to adopt some academic research, but the integration was minimal. The research did not always align with our practical requirements, so the benefits were not as pronounced as we had hoped..."

Finally, 30 respondents indicated they did not adopt academic research. This group either did not find the research relevant to their needs or faced significant obstacles that prevented adoption. One respondent remarked:

"...Despite being aware of various academic studies, we found little relevance to our industry challenges. We did not pursue further integration due to a lack of applicability and immediate value..."

In general, the study highlighted the varied extent to which industry practitioners adopted and utilized academic research. It demonstrated the challenges and successes experienced by organizations in integrating academic insights into their marketing strategies and the differing levels of impact this integration had on their practices.

3.5.3. Government Support and Facilitation

The study on Government Support and Facilitation examined the role of government in facilitating the transfer of knowledge and technology between universities and industries. As per Figure 4, the findings revealed varying levels of support provided by government entities, significantly influencing the effectiveness of knowledge transfer and the integration of technological advancements.Among the 540 respondents, 170 reported that they received strong support from government institutions. These organizations benefited from substantial initiatives, such as grants, policy incentives, and collaborative programs designed to bridge the gap between academia and industry. One respondent highlighted:

"...The government played a crucial role in supporting our efforts to integrate academic research into our industry practices. Through grants and collaborative projects, we could access cutting-edge technologies and enhance our operations significantly. The government's involvement was instrumental in successfully implementing these innovations..."

A larger group of 200 respondents experienced moderate support from government entities. These organizations received some assistance, but the support was not as comprehensive or impactful as they had hoped. An interviewee explained:

"...We received moderate support from the government, including some funding and policy guidance. While these resources were helpful, they were not always sufficient to address all our challenges in transferring knowledge and technology. The support provided a foundation, but there was room for improvement in consistency and depth..."

In contrast, 120 respondents reported minimal support from the government. These organizations encountered limited assistance, hindering their ability to leverage academic research and technology effectively. One participant noted:

"...Government support was minimal, which posed challenges in accessing and applying new technologies. We made some progress, but the lack of substantial support limited our ability to capitalize on the research and innovations available fully..."

Finally, 50 respondents indicated that they received no support from government entities. This group struggled with a lack of resources and facilitation, which impeded their efforts to integrate academic findings and technological advancements. One respondent commented:

"...Despite our efforts to seek government support, we received no assistance. This lack of support significantly hindered our ability to engage with academic research and incorporate new technologies into our practices. We were left to navigate these challenges independently, which proved quite difficult..."

In summary, the study highlighted the varied levels of government support and facilitation experienced by organizations. It illustrated how varying degrees of assistance influenced the success of knowledge and technology transfer between universities and industries, affecting the overall effectiveness of integrating academic insights into practical applications.

3.6. Impact on Marketing Performance

The *Impact on Marketing Performance* indicator evaluated how new marketing innovations influenced various performance metrics. The analysis focused on the effects of these innovations on market reach and customer engagement, sales and revenue growth, and competitive advantage. The data revealed how well these innovations expanded market presence, improved customer interactions, and contributed to overall business success, providing a comprehensive understanding of their impact on marketing effectiveness.

3.6.1. Market Reach and Customer Engagement

The study on market reach and customer engagement investigated how new marketing strategies impacted the ability of organizations to reach broader audiences and enhance their interactions with customers.

According to Figure 5, the findings revealed a range of improvements, reflecting the varying degrees of success achieved by implementing innovative marketing practices. Among the 540 respondents, 180 reported significant market reach and customer engagement improvements. These organizations successfully expanded their audience base and saw considerable enhancements in engaging with their customers. One respondent explained:

"...The new marketing strategies we adopted had a transformative effect on our market reach and customer engagement. By leveraging advanced targeting techniques and personalized content, we significantly broadened our audience and saw a substantial increase in customer interaction and loyalty. The results exceeded our expectations and played a crucial role in our growth..."

A larger group of 200 respondents experienced moderate improvements. These companies noted positive changes in their market reach and customer engagement, but the impact

was not as profound as in the cases of significant improvement. An interviewee shared:

"...We observed a moderate improvement in our market reach and customer engagement after implementing the new strategies. While there were noticeable gains, such as increased visibility and better customer interactions, the results were more gradual and required ongoing adjustments to maximize their effectiveness..."

In contrast, 130 respondents reported minimal improvement. These organizations achieved only slight gains in their market reach and customer engagement, indicating that the new strategies had a limited impact. One participant noted:

"...Despite adopting new marketing approaches, market reach and customer engagement improvements were minimal. We encountered challenges in effectively implementing and aligning the strategies with our existing practices, which limited the overall impact..."

Finally, 30 respondents indicated no discernible improvement in their market reach or customer engagement.

This group found that the new marketing strategies did not produce the anticipated results. One respondent commented:

"...We implemented the new strategies with high hopes but saw no significant improvement in our market reach or customer engagement. The strategies did not align with our market conditions or customer needs, resulting in no noticeable benefits..."

Generally, the study highlighted the diverse effects of new marketing strategies on market reach and customer engagement. It illustrated how different organizations experienced varying levels of success in expanding their audience and enhancing customer interactions, reflecting the complexity and challenges of implementing effective marketing innovations.

3.6.2. Sales and Revenue Growth

The study on sales and revenue growth assessed how implementing innovative marketing practices influenced sales and overall revenue changes. As per Figure 5, the results demonstrated a range of growth experiences, from significant increases to no observable impact, reflecting the effectiveness of the strategies across different organizations. Out of 540 respondents, 190 reported high growth in sales and revenue following the adoption of new marketing practices. These organizations attributed much of their financial success to the innovations they introduced, which significantly boosted their market performance. One respondent noted:

"...after implementing the new marketing strategies, we experienced a remarkable increase in both sales and revenue. The changes allowed us to tap into previously unreachable markets, and our customer base expanded rapidly. We saw a nearly 30% jump in quarterly revenue, which directly resulted from the innovative approaches we embraced..."

A larger group of 200 respondents experienced moderate growth in sales and revenue. These organizations observed positive, albeit less dramatic, improvements in their financial metrics. An interviewee shared:

"...the new marketing strategies we applied led to steady, moderate growth. Our revenue increased consistently, though not at the pace we had initially hoped. The innovations helped us improve customer acquisition and retention, but the financial impact took time to materialize fully. Nevertheless, it has set us on a more sustainable growth path..."

In contrast, 120 respondents reported low growth in sales and revenue, indicating that while the new marketing strategies had some positive effects, they were not as impactful as anticipated. One participant explained:

"...we did see a slight uptick in our sales after adopting the new marketing strategies, but the growth was minimal. The strategies seemed promising initially, but we encountered implementation challenges, and the results did not meet our expectations. Our revenue grew by only a few percentage points, which was insufficient to justify the investment we made..."

Finally, 30 respondents indicated no growth in their sales or revenue after implementing the new marketing practices.

These organizations did not see any significant financial return from the strategies, often due to poor alignment with their business models or market needs. One respondent remarked:

"...unfortunately, we did not experience any noticeable growth in our sales or revenue. Our innovative strategies did not resonate with our target audience, and we struggled to see any measurable impact. It was disappointing, especially considering the resources we dedicated to the initiative..."

The study revealed the varied outcomes organizations experienced in terms of sales and revenue growth after introducing new marketing practices. It underlined how the effectiveness of these strategies was influenced by factors such as industry alignment, market conditions, and the organizations' ability to implement and adapt to innovation.
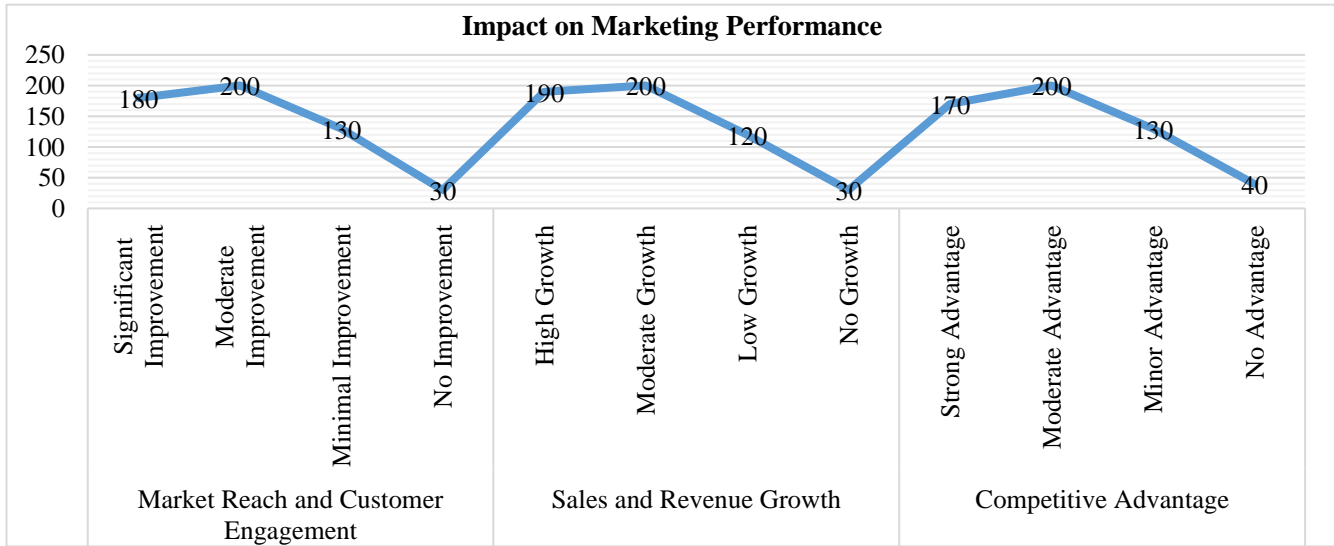
Fig. 5 The impact on marketing performance sun indicators

3.6.3. Competitive Advantage

As per Figure 5, the study on the competitive advantage explored how innovations in marketing provided businesses in the IT sector with a competitive edge. The findings revealed different levels of advantage gained through adopting new marketing strategies, highlighting the extent to which these innovations allowed organizations to differentiate themselves from competitors.

Among the 540 respondents, 170 reported gaining a strong competitive advantage from implementing marketing innovations. These companies experienced significant improvements in market position and brand recognition, attributing their success to their innovative strategies. One respondent explained:

"...the marketing innovations we implemented gave us a clear advantage over our competitors. By utilizing cutting-edge technologies and data-driven approaches, we were able to anticipate market trends and meet customer demands more effectively. This has increased our market share and solidified our reputation as an industry leader..."

A larger group of 200 respondents experienced a moderate competitive advantage. These organizations saw improvements in their competitive positioning, although the impact was not as substantial as those reporting strong advantages. An interviewee shared:

"...we definitely gained a competitive edge after introducing new marketing strategies, but the impact was more moderate. It helped us stay relevant and attract a broader customer base, but we still faced stiff competition from other players in the industry. The innovations have kept us competitive but did not completely transform our market standing..."

In contrast, 130 respondents reported gaining only a minor competitive advantage. These companies found that while the innovations provided some benefits, the advantage they gained was limited. One participant noted:

"...the new marketing strategies gave us a slight edge over our competitors, but it was not enough to make a major difference. We saw some improvements in customer acquisition and brand awareness, but the overall impact on our competitive position was minimal. It helped, but it did not move the needle significantly..."

Finally, 40 respondents indicated they gained no competitive advantage from their marketing innovations.

This group struggled to translate the strategies into tangible market benefits, often due to misalignment with their business models or execution challenges. One respondent remarked:

"...despite implementing what we thought were innovative strategies, we did not see any improvement in our competitive position. The innovations did not resonate with our target market, and we found ourselves in the same competitive landscape. It was frustrating, as we had hoped for a more significant shift..."

In summary, the study highlighted how innovations in marketing contributed to varying degrees of competitive advantage within the IT sector.

The findings heightened the importance of aligning innovation with market demands and execution capabilities, revealing that while some organizations achieved significant gains, others found the benefits more limited or nonexistent.

4. Conclusion and Recommendations

The study thoroughly investigated how the Triple Helix model of cooperation between academic institutions, businesses, and government promoted marketing innovations in the IT industry. The results clarified how important this synergy is for maintaining competitive advantage, expanding market reach, raising customer satisfaction, and increasing sales and revenue. The study revealed that companies with substantial increases in their marketing performance were more likely to benefit from robust collaborative efforts. By utilizing creative approaches that resulted from combining government assistance, business know-how, and scholarly study, these companies could adjust to the changing market conditions more successfully.

The study found, however, that the impact levels varied, with some firms seeing only moderate to minor benefits due to implementation difficulties, a lack of government support, or a mismatch between the needs of the sector and academic research. Though its success mostly rested on the caliber of cooperation, the efficiency of information transmission, and the capacity of firms to strategically apply these discoveries, the Triple Helix model generally proved to be a crucial accelerator for marketing innovation. According to the research, IT companies may further boost their competitive edge and achieve long-term growth and market leadership by fortifying these alliances and resolving implementation-related issues.The study recommends strengthening collaborative networks between universities, industries, and government through more structured platforms, enhancing knowledge transfer mechanisms to align academic research with industry needs better, and improving government facilitation with supportive policies and funding. Companies should focus on effective implementation by investing in training and ensuring innovations are tailored to market needs. Encouraging long-term partnerships and establishing clear evaluation mechanisms for collaborative projects are also crucial to maximizing the impact of marketing innovations in the IT sector.

Conflicts of Interest

The author declares that there is no conflict of interest s the publication of this paper.

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