

# MARKETING APPROACHES AMID RAPID TECHNOLOGICAL SHIFTS: FORECASTING AND FLEXIBILITY

<sup>a</sup>OXSANA PENKOVA, <sup>b</sup>ANDRII KHARENKO,  
<sup>c</sup>ARTUR STRUNHAR, <sup>d</sup>VALENTYNA LEMENTOVSKA,  
<sup>e</sup>IRYNA KORMAN

<sup>a,b,d,e</sup>Uman National University of Horticulture, Uman, Ukraine.

<sup>c</sup>National Academy of Leadership in Culture and Arts, Kyiv, Ukraine.

email: <sup>a</sup>oxana.penkova@meta.ua, <sup>b</sup>ira2110@ukr.net,  
<sup>c</sup>a19870208@gmail.com, <sup>d</sup>v.lementovskij@gmail.com,  
<sup>e</sup>irynakorman@gmail.com

**Abstract:** In the context of accelerated dynamism in innovative products, marketing strategies play a significant role in developing the global economy. This study aims to summarise the system of forming a business marketing strategy in a transformative economic environment amidst dynamic innovation. It also highlights the main contributions of the scientific community regarding the increasing role of marketing in implementing innovations in the business environment. Furthermore, the key technological trends of the present are identified and characterised. The interdependence between the growth of innovation ratings and the creation of additional value in the national and global economy is established. The main directions of marketing strategy adaptation and anticipation are outlined. The features and principles of marketing for dynamic technological innovations are delineated. An analysis of the principles of adaptation and anticipation marketing strategies is conducted. A comparative analysis of proactive and reactive marketing is carried out.

**Keywords:** technology, artificial intelligence, proactive marketing, reactive marketing, strategy, innovation.

## 1 Introduction

The global economy is undergoing rapid technological development, during which innovations and technologies are emerging on the market at an unprecedented rate. The proliferation of digital technologies is influencing consumer habits and expectations. There is a growing demand for personalised, interactive, and instant solutions, which requires new approaches to marketing. Businesses worldwide are actively investing in digital technologies, increasing competition in the market. Integrating digital technologies across various marketing channels, platforms, and tools presents new opportunities for brand formation, customer communication, and creating a unique market image. In light of the emergence of new digital technologies and the changing regulatory standards and legislative frameworks accompanying them, it is crucial to research and develop marketing strategies that can adapt to the ever-changing technological landscape. It is essential for ensuring companies' resilience, competitiveness, and success in the digital era.

## 2 Literature review

The role of marketing in the context of transformative changes in the global economy resulting from R&D development has been repeatedly explored by scholars from various fields. According to scholars, marketing is a company's cornerstone and crucial for strategic planning and business operations (Mitrega, 2019), while digital transformation becomes a key area of business innovation (Pascucci et al., 2023; Ngo et al., 2023). Strategic marketing researchers are beginning to view marketing potential as an integral part of the overall dynamic ability to facilitate the commercialisation of radical innovations (Ren et al., 2009; Tsai, 2015). The long-term success of a business depends on its ability to create value for its customers, with marketing playing a pivotal role in achieving this goal (Wang et al., 2020; Ali et al., 2023). The formation of marketing strategies in the context of technological dynamic changes is increasingly associated with the circular economy. The circular economy emerged as an alternative to linear systems that have become obsolete. In the transition to a circular economy, companies must rethink and update their business models and ways of delivering value to their customers, considering environmental and social aspects (Suchek et al., 2021). The circular economy represents a significant strategy for corporate sustainability. However, a

recent study by Khan et al. (2020) found that most companies fail to integrate the circular economy concept into their corporate strategies, business models, and operations. Scholars posit that the most pertinent practices for the innovation process of a circular business model include the adoption of a lifecycle perspective, the utilisation of sustainable development-oriented tools, the generation of ideas for sustainable value propositions, the development of strategies and cultures of sustainable development, and the engagement and coordination of stakeholders in the business ecosystem (Edeh et al., 2020; Santa-Maria et al., 2021). To achieve sustainable development, companies are increasingly focused on creating and promoting environmentally friendly innovations (Mousavi et al., 2018). Scholars from different countries have studied the link between environmental strategic investments, technological innovations, dynamic capabilities, and company performance (Chen et al., 2023; Alkaraan et al., 2024; Coffay et al., 2024). Management can utilise this to integrate, coordinate and reconfigure resources to determine how to respond to environmental standards and implement practical and responsible innovations that enhance environmental business strategies. British scholars emphasise the innovative opportunities for businesses to influence environmental innovations in terms of dynamic transformations (Arranz et al., 2020). The research findings indicate that environmental legislation and the dynamics of green business strategies are positively associated (Valdez-Juárez & Castillo-Vergana, 2020; Chen, 2024). The dynamism and innovativeness of market development require the formation of effective strategic marketing to ensure competitive advantages (Klimova et al., 2023). Research conducted by Ukrainian scholars (Aleinikova et al., 2023) has demonstrated the synergistic interaction of innovations, digital technologies, strategic marketing, and business. An analysis of the presented publications indicates the necessity of systematising scientific-theoretical and methodological approaches to forming marketing strategies in the context of dynamic technological innovations.

This study explores and reviews strategic marketing approaches to staying ahead of the curve and adapting to the changing digital environment to ensure competitiveness and sustainable business development.

## 3 Methods

A systematic analysis and synthesis of the results of previous research were employed to identify key concepts, theories, and approaches. The study of specific cases of successful or unsuccessful implementation of marketing strategies in dynamic technological innovation environments was conducted using the case study method. An overview of experts' positions in marketing and innovation was applied to generalise their opinions, beliefs, and forecasts regarding strategies in dynamic technological environments. The utilisation of computer models to analyse the impact of various marketing strategies on business performance in technological innovation environments permitted the assessment of the influence of innovation on value creation and the formulation of forecasts for the near future. These methods, when employed in conjunction, facilitated the formation of a more profound comprehension of the theoretical foundations of marketing strategies in dynamic technological innovation environments.

## 4 Results

The advent of digital technologies has transformed the marketing landscape. Whereas print advertisements, billboards, and TV commercials were previously the dominant forms of communication, digital media has created a vast digital realm of social media, search engines, email campaigns, and mobile apps. This transformation is not merely a shift in platform but a fundamental shift in how companies communicate with their audience.

In order to effectively engage with consumers in the digital age, marketers need to possess a deep understanding of consumer behaviour online. The nature of digital platforms, rooted in data, provides unprecedented insight into what consumers want and how they interact with brands. With this knowledge, marketers can create a personalised experience that resonates more deeply with people. However, with big data comes a significant responsibility. Ethical considerations regarding privacy and consent are of paramount importance.

Adaptation is a critical factor in this rapidly changing environment. Strategies that were effective yesterday may prove inadequate tomorrow. Marketers must be flexible and prepared to adapt to emerging technologies and platforms. Social media algorithms change, search engine optimisation (SEO) rules evolve, and how people interact with content constantly shifts. Monitoring these changes ensures that marketing efforts remain relevant and practical. Table 1 presents an analysis of today's main technological trends.

Table 1. Modern technological trends

Trend	Features
Artificial intelligence (AI) and machine learning	AI is crucial in many industries, including medicine, finance, manufacturing, and transportation. Machine learning is becoming increasingly versatile and is used to solve complex tasks such as pattern recognition, speech, and forecasting.
Internet of Things (IoT)	IoT involves connecting various devices to the Internet to exchange and manage real-time data. It is used in home automation, industry, healthcare, and other fields.
Quantum computing	The development of quantum computers opens up new opportunities in cryptography, chemistry, materials science and other sciences.
Augmented reality (AR) and virtual reality (VR)	AR and VR are gaining popularity in various industries, from gaming and entertainment to education, medicine and design.
Blockchain and cryptocurrencies	Blockchain technology creates decentralised systems and ensures data security and confidentiality. Cryptocurrencies, such as Bitcoin and Ethereum, are gaining widespread use in various industries.

Source: WEF (2024)

These trends reflect rapid technological changes and impact the economy, society, and culture. Outpacing competitors, identifying critical success factors, and innovative leadership are essential for any company striving to remain competitive in a fast-paced world. It is crucial to consider the main approaches and strategies that can be used for this. To outpace competitors, it is essential to thoroughly research the market, identify competitors, and understand their strengths and weaknesses. It may include studying their products, marketing strategies, pricing policies, and other aspects of their business. Innovation is a crucial success factor for many companies. It may involve developing new products, services, or technologies that meet market needs and surpass competitors' products. Collaborating with other companies or forming strategic partnerships can help identify new opportunities and gain access to additional resources, knowledge, and technologies. It is important to assess one's strengths and weaknesses honestly to understand where opportunities for improvement and enhancement lie. Customer focus: understanding customers' needs and requirements of customers and ensuring their satisfaction can be crucial to success. Maintaining constant customer communication, collecting feedback, and implementing changes based on this information can help maintain competitiveness. In today's fast-paced world, it is essential to be flexible and respond quickly to market and competitive environment changes.

These approaches will assist companies in identifying opportunities to outpace their competitors, establishing key success factors, and achieving sustainable development. In rapid technological dynamics, marketing strategies become crucial for maintaining business competitiveness. Proactive and adaptive strategies, in particular, are of great importance, as they enable companies to effectively respond to changes in the technological landscape and adapt their marketing approaches accordingly. The advent of dynamic technological innovations is pivotal in shaping the future landscape. These innovations present both opportunities and challenges, necessitating a capacity for adaptability, strategic thinking, and flexibility to harness their potential effectively. The trend of dynamic changes in the Global Innovation Index (GII, 2023) is accompanied by increased added value to GDP (Figure 1,2).

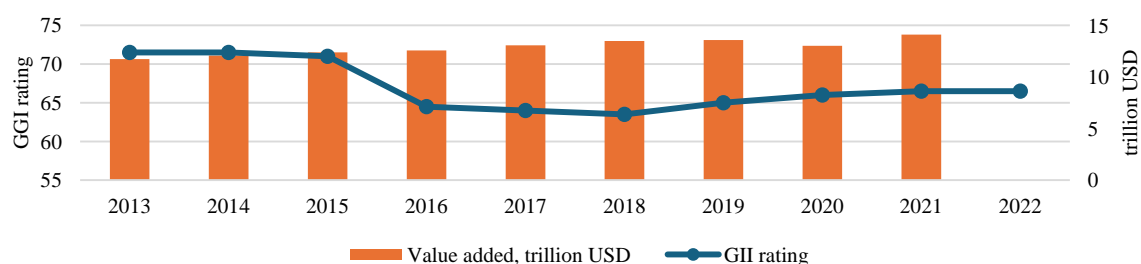


Figure 1. Dynamics of Value Added and Global Innovation Index Ranking in the world  
Source: The World Bank (2023)

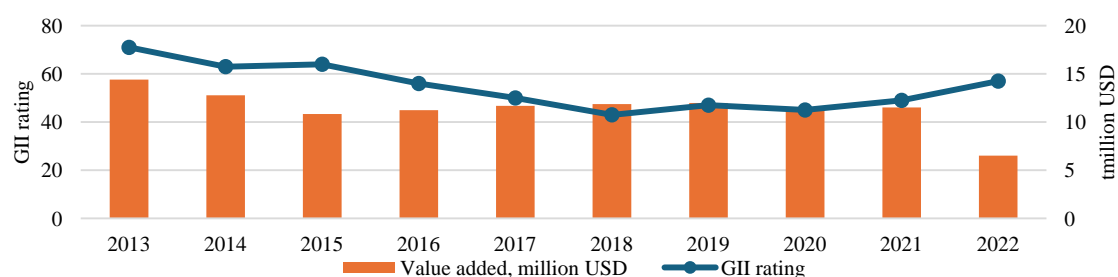


Figure 2. Dynamics of Value added and Global Innovation Index ranking in Ukraine  
Source: The World Bank (2023)

The analysis of trends in the change of added value created globally and in a particular country, including Ukraine, indicates a direct correlation with the Global Innovation Index (GII). This is evidenced by the higher the GII rating, the higher the added

value (manufacturing, value-added). Considering the observed trends in GII changes on a global scale, a forecasted level for 2023-2025 has been determined (Figure 3).

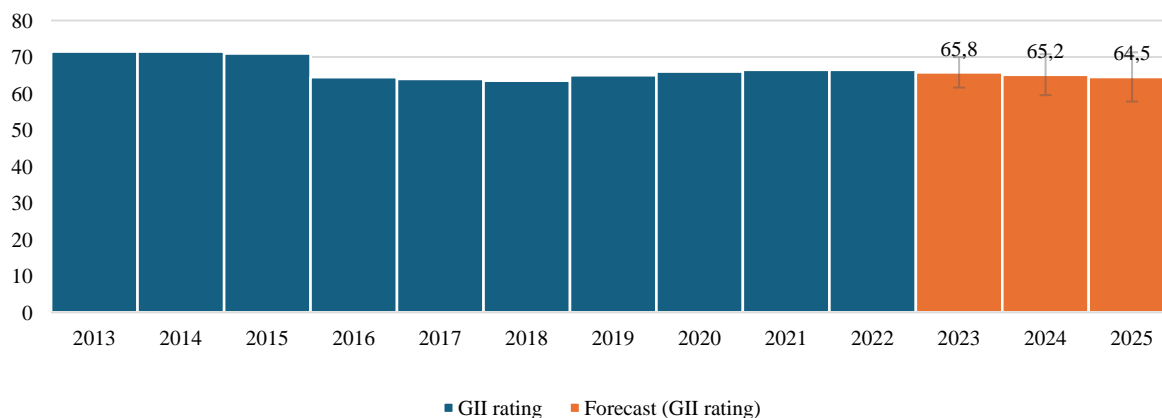


Figure 3. Global Innovation Index Forecast for 2023-2025  
Source: The World Bank (2023)

Consequently, those in managerial positions responsible for technology must ensure they can keep pace with changes and orchestrate the harmonious convergence of cutting-edge advancements. Their mission is to navigate the dynamic landscape of technological advancements and strategically integrate new technologies into business operations. They must understand the organisation's goals, market trends, and technological possibilities to do this. They then develop comprehensive strategies that leverage technology to propel the company forward.

A proactive or anticipatory strategy is focused on:

- systematic monitoring of the latest technologies, trends and innovations, allowing the identify potential opportunities for the development and introduction of new products or services
- focusing resources on research and implementation of new technological solutions that can provide a competitive advantage
- developing innovative products or modifying existing ones to respond to changes in the technology market and consumer demand
- positioning the company as a leader in innovation, helping to attract customers and create a positive brand image.

The adaptation strategy, or reactive strategy, involves:

- the ability to respond quickly to changes in the market environment, modify marketing strategies and adapt to new conditions
- conducting regular market research to analyse changes in consumer demand, customer behaviour and competitive actions
- adapting communication channels and customer engagement strategies to changes in the technological landscape.
- maintaining team competence through training and professional development in the latest technologies and marketing strategies.

In the context of dynamic technological innovations, it is crucial to combine both strategies-anticipation and adaptation-to ensure the stable development of the enterprise and maintain its

competitiveness in the market. Only a comprehensive approach to marketing management allows for effective interaction with technological innovations and their use for the benefit of the business.

Dynamic technological innovations play a crucial role in developing various industries and forming new paradigms in the modern world in business, science, medicine, education, and other fields. It is now appropriate to highlight the key characteristics of contemporary dynamic technological innovations (Figure 4).

To remain abreast of the present, one must maintain a state of constant vigilance, distinguish between trends that have the potential to become established and those that are merely ephemeral, integrate relevant developments into existing systems without disrupting core operations, and navigate the pressures of competition and the complexities of technology. The vast volume and speed of technological advancement can make this task daunting. Identifying the most relevant technologies amidst the noise poses a significant challenge.

In the present era, the application of artificial intelligence (AI) represents a valuable instrument for addressing cognitive limitations and alleviating many significant challenges confronting those engaged in technological management. AI can be of considerable assistance in this regard, as it can significantly reduce the volume of data to be processed by identifying and prioritising vital environmental signals indicative of significant technological advancements. AI can automate real-time monitoring processes through machine learning algorithms, providing curated information and alerts and enabling managers to focus on formulating strategic decisions and mitigating information overload. Artificial intelligence (AI) is poised to provide technological managers with a toolkit to combine human expertise and AI capabilities to ensure automated, dynamic, and rapid monitoring of new technologies. (Croeser, 2024).

Marketing dynamic technological innovations require a unique approach, as these innovations are often revolutionary and can radically change market standards, consumer habits, and business models. Table 2 outlines the characteristic features and principles of marketing dynamic technological innovations.

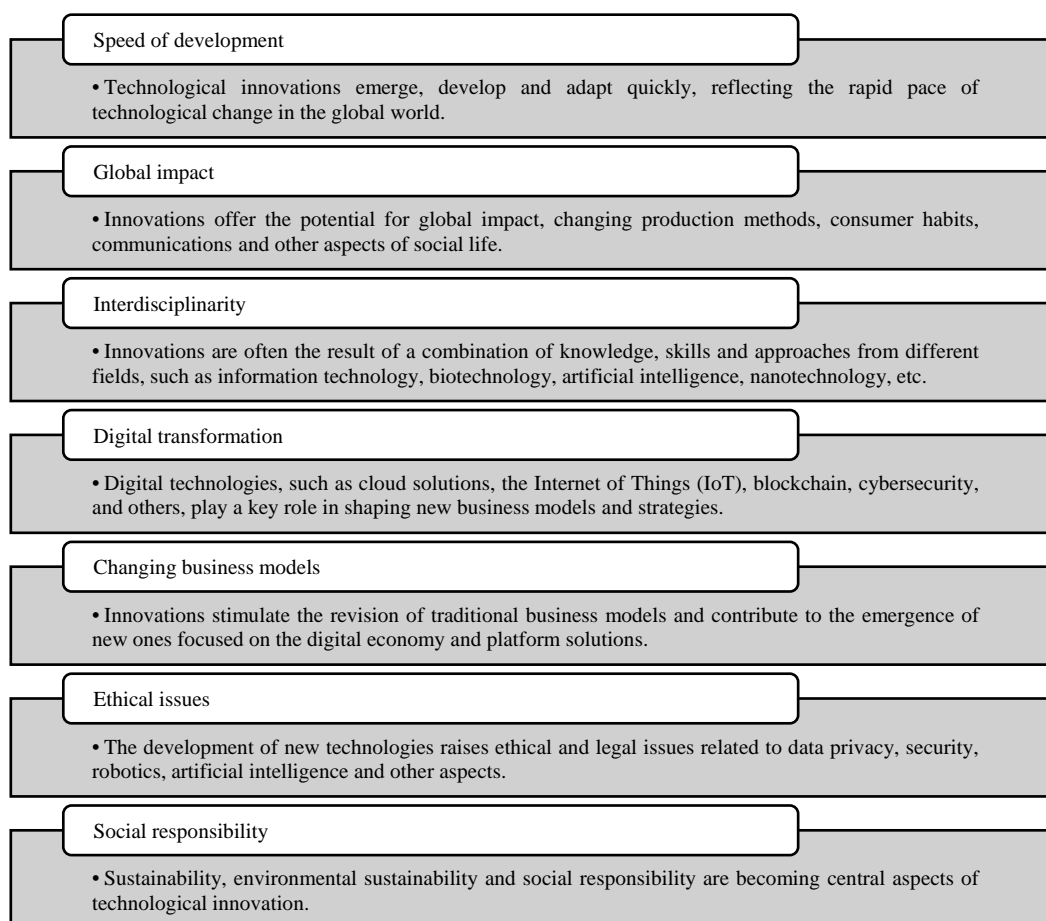


Figure 4. Key features of today's dynamic technological innovations

Source: Compiled by the authors

Table 2. Features and principles of marketing dynamic technological innovation

Principles	Characteristic features
Consciousness-raising	Developing marketing campaigns to raise market awareness of new technologies, their benefits and possible applications
Benefit demonstration	Highlighting the unique functions, properties and competitive advantages of innovations through visuals, videos, testing and demonstrations
Education and training	Organising webinars, seminars, workshops and other educational events to introduce customers to new technologies and methods of their application
Customer experience	Developing interactive and engaging user interfaces, applications and platforms to improve customer experience and engage consumers
Flexibility and adaptability	Responding quickly to changes in market conditions, customer demands and technology trends to adjust marketing strategies and tactics
Partnerships and collaboration	Establishing strategic partnerships with other companies, startups, accelerators and investors to jointly develop, test and commercialise technological innovations
Monitoring and analysis	Continuously monitor the effectiveness of marketing activities, collect customer feedback and analyse data to optimise strategies and improve marketing initiatives
Ethics and trust	Ensuring high standards of ethics, transparency and trust in all marketing activities, communication with customers and the community

Source: Compiled by the authors

Marketing dynamic technological innovations necessitate creativity, strategic thinking, and flexibility to effectively interact with changing market conditions, develop high-tech products, and ensure successful market implementation. The marketing strategy of anticipation is an approach that involves the active utilisation of innovations and the company's advantages over competitors to create a unique value proposition for customers and occupy a leading position in the market. The principles of marketing strategies of adaptation and anticipation (Figure 5) will now be analysed.

The anticipatory marketing strategy involves actively

implementing new technologies, products, services, or approaches that address market needs and differences. It also encompasses the company's ability to quickly adapt to market conditions, technological innovations, or consumer demands. Furthermore, creating personalised and valuable offerings requires a deep understanding of the target audience's needs, interests, and differences. Finally, it necessitates the development of a strong brand and unique market positioning that highlights the company's advantages and differentiators, differentiating the company from its competitors, conducting market research, monitoring market trends, and keeping abreast of technological and innovative developments to identify new opportunities and advantages; developing effective marketing

campaigns, propositions, and loyalty programs to attract and retain customers; conducting ongoing analysis of the market situation, competitive activities, and marketing results to adjust the strategy and action plans; developing strategic partnerships, alliances, and collaborations with other organisations, which can help in implementing innovations and expanding market presence.

Adaptation strategy	Strategy of being ahead of the curve
<ul style="list-style-type: none"> <li>• Innovation</li> <li>• Adaptability</li> <li>• Focus on the target group</li> <li>• Branding and positioning</li> <li>• Constant search for new opportunities</li> <li>• Attracting and retaining customers</li> <li>• Analysis and monitoring</li> <li>• Attracting and retaining customers</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding market features</li> <li>• Personalising the offer</li> <li>• Localisation of prices</li> <li>• Local promotion</li> <li>• Local promotion</li> <li>• Flexibility and responsiveness</li> <li>• Monitoring and feedback</li> <li>• Global coordination</li> </ul>

Figure 5. Principles of adaptation and proactive marketing strategies

Source: Compiled by the authors

The anticipatory marketing strategy enables businesses to not only survive in a competitive environment but also to assume a leading role by implementing innovations and creating high value for their customers. An adaptation marketing strategy involves adapting a company's marketing efforts, products, prices, promotions and distribution to respond to the characteristics and requirements of a particular market, target audience or geographic region.

The main features of an adaptation marketing strategy are:

- in-depth analysis and understanding of the cultural, economic, social and demographic characteristics of the market
- creating products, services and marketing communications meeting the specifics and requirements of the target audience

Table 3. Comparative analysis of proactive and reactive marketing

Direction	Proactive marketing	Reactive marketing
Strategy	The main focus is on planning and pre-activity, which allows the company to manage its marketing initiatives actively and create new opportunities.	Responding to existing market situations and events, such as changes in demand, competitors' activities or internal problems.
Responding to the market	Using market data and trend analysis enables the company to anticipate changes in demand, the competitive situation and other factors and respond to them in advance.	The company reacts to changes and events in the market that have already occurred, looking for quick solutions to solve problems and seize opportunities.
Proactivity	The company actively offers new products, services and market approaches to meet customer needs and differentiate itself from competitors	The company responds to competitors' advertising and marketing initiatives and will try to maintain or improve its offerings.
Searching for new opportunities and minimising risks	A strategy of continuously seeking new market opportunities, developing innovations and expanding the business.	Avoiding significant risks associated with initiatives and investments by monitoring and analysing market trends before making decisions.

Source: Compiled by the authors.

Therefore, the difference between proactive and reactive marketing lies in how a company plans and responds to market conditions: proactive marketing involves strategic planning and proactive initiative, while reactive marketing reacts to changes and events that have already occurred in the market.

## 6 Conclusion

Innovative marketing strategies drive growth and adaptation in the modern business landscape. These strategies enable companies to adjust to digitisation trends, overcome challenges such as global pandemics, and foster collaboration for resilience and profitability. By implementing innovative marketing

- adapting prices to the level of purchasing power, competitive situation and market requirements of each region or country
- developing and implementing marketing campaigns in line with local traditions, culture and consumer behaviour
- selecting the best distribution channels and outlets to ensure the availability of products and services on the market
- ability to quickly adapt marketing efforts to changes in market conditions, competitive situation or consumer demand
- continuously analysing the results of marketing activities and collecting feedback from customers to adjust strategy and action plans; a balanced combination of centralised and decentralised solutions to ensure harmony between global and local marketing initiatives.

A marketing strategy of adaptation allows businesses to effectively interact with diverse market conditions, cultural characteristics and consumer demands, contributing to increased competitiveness and success at the international and local levels.

## 5 Discussion

The primary distinction between proactive and reactive marketing lies in the planning stage. Proactive marketing is characterised by using analytics to determine the optimal direction for the marketing strategy before its implementation. Throughout the campaign, the marketing team analyses its progress and makes appropriate adjustments to ensure its success.

In contrast, the reactive marketing approach is developed without prior analysis and planning, and the campaign's results are determined at the end. This strategy results in inefficiencies in the marketing budget, as time and resources are wasted in vain. When data analytics is not the driving force behind the campaign, companies spend money unlikely to attract potential customers or increase brand awareness.

Proactive and reactive marketing represent two approaches to planning and executing marketing strategies (Table 3).

approaches, enterprises can strengthen their market presence, stimulate demand for new products, and enhance productivity across various aspects such as internal processes, customer relations, and financial outcomes. Furthermore, innovative marketing strategies facilitate establishing effective sales networks, expand market coverage, and support the development of small and medium-sized enterprises. In conclusion, implementing innovative marketing strategies is paramount for companies to remain competitive, drive innovation, and achieve long-term success in the modern, dynamic, complex business environment.

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