

Research On The Mechanism Of Influence Of New Quality Productivity On Consumer Innovation

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Abstract:

New quality productivity represents a Chinese innovation and practical application of Marxist productivity theory, embodying the essential outcomes produced by the integrated breakthroughs in technological innovation. This novel productivity concept, endowed with distinctive Chinese characteristics, is being extensively disseminated within the academic community, with scholars continually probing into its historical evolution, conceptual definition, and the mechanism of its formation. The principal contribution of this study is to analyze the mechanism by which new quality productivity influences consumer innovation. We posit that new quality productivity is a form of production that possesses greater efficiency and quality than traditional forms. Unlike its predecessors, new quality productivity is propelled by technological innovation, which in turn advances the layout and upgrade of China's strategic emerging industries as well as future industries. This also necessitates that enterprises consider technological innovation as a principal approach to proactively develop innovative products or services. Equally, new quality productivity necessitates consumers to be a cohort with an active innovative cognition; only when consumers are innovative will they pay more attention to enterprises' innovative products or services, thus stimulating innovation across the entire production and service value chain. Consequently, new quality productivity will create a self-sustaining cycle of innovation that encompasses national innovation, corporate innovation, and consumer innovation.

Keywords: *New Quality Productivity; Consumer Innovation; Consumer Behavior; Mechanism*

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I. Introduction

The term “new quality productivity” was first introduced by General Secretary Xi Jinping during his inspection tour in Heilongjiang in September 2023, underscoring the imperative to integrate technological innovation resources to guide the development of strategic emerging industries and future industries, thereby accelerating the formation of this new kind of productivity . New quality productivity is a contemporary advanced productive force forged through revolutionary technological breakthroughs, innovative allocation of production factors, and the profound transformation and upgrading of industries. It fundamentally encapsulates a qualitative transformation in the combination of labor, means of labor, and objects of labor, with a rise in total factor productivity as its central hallmark. Symbolizing the concrete manifestation of modernized productivity, new quality productivity signifies a novel, high-level modern productivity. This is a new type, structure, high-technology level, high-quality, high-efficiency, and sustainable productive force. Compared with traditional productivity, it boasts a higher technical level, superior quality, greater efficiency, and more sustainable practices. Distinct from traditional productive forces with new areas of application and a high level of technological content, innovation is the critical driver. New quality productivity represents a leap in

productive forces, predominantly led by the facilitation of technological innovation. The introduction of new quality productivity signifies not only that industrial innovation is propelled by technological advancement but also embodies the ideal of securing a competitive edge through industrial upgrading to seize proactive developmental opportunities.

II. Conceptual Definition

Concept and Characteristics of New Quality Productivity

A thorough and lucid exposition of the essence and traits of new quality productivity is an objective necessity for theoretical comprehension and development. One must contemplate this from the strategic panorama of the great rejuvenation of the Chinese nation and amidst profound global changes not seen in a century, deeply implementing General Secretary Xi Jinping's significant expositions on new quality productivity. The current technological revolution and industrial transformation are fundamentally reshaping the global innovation landscape and restructuring the world economic framework (Xi Jinping, 2021). The conventional development paradigm, driven primarily by physical and human capital, is ill-equipped to confront the severe international challenges facing China, insufficient for meeting the needs of the new development pattern in the country's new developmental phase, and inadequate to sustain businesses' growth under the new development concepts. The new dynamic for development must acknowledge the depletion of natural capital and promote economic, social, and environmental advancement in sustainable, resilient, and inclusive ways (Zhu Min, et al., 2023). Therefore, new quality productivity represents an escape from the traditional growth paradigm, which highly relies on material resource inputs and high carbon emissions. It embraces the new-generation information technology and advanced manufacturing technology as fresh engines of growth, cultivating a sustainable, competitive, and inclusive new production paradigm, an endogenous force in accelerating the construction of a modern industrial system, a novel impetus driving high-quality development, and a fresh development paradigm that enables the country to gain strategic initiative in the fierce international competition that awaits it in the future.

Specifically, the evolution of the new quality productivity paradigm will transform the developmental concepts, content, and modalities formed under the traditional productive forces model, and is characterized by three prominent features.

Firstly, from the perspective of development concepts, new quality productivity adapts to new international protocols and transforms production patterns. General Secretary Xi Jinping noted that “the global governance system must adapt to the new economic pattern to effectively safeguard the global economy”. The accelerated advancement of the global governance framework and shifts in the international order have deepened interdependence among countries, causing setbacks in economic globalization and reflecting inherent imperfections in the contemporary global governance system. To refine the global governance structure and devise new growth modalities, it is crucial to seize the opportunities that a new industrial revolution and the digital economy present and, during the nurturing of new industries and business models, ensure the creation of new employment opportunities (Xi Jinping, 2020). Within this context, the policy significance of introducing ‘new quality productivity’ lies in the fact that, should China propel the transformation of the international economic system with a new productivity paradigm and aid in building a harmonious and beautiful community with a shared future for humanity, its experience will undoubtedly become an essential catalyst for global sustainable development.

Secondly, regarding development content, new quality productivity is inherently competitive. Rooted in Marxist production theory and premised on the current stage of productivity development under China's high-quality development, new quality productivity emerges from the context of industry stage elevation

brought forth by scientific innovation and disruptive technological breakthroughs. Productivity is the combined capability of laborers and the means of production to utilize and transform nature and is the determinant force in human societal progression. As Marx and Engels elucidated, a certain mode of production or industrial stage is always connected with a specific kind of communal activity or social class, which in itself epitomizes 'productivity' (Marx, Engels, 2009). Traditional productivity theory highlighted the roles of labor and capital, however, with the advance of technology and the acceleration of globalization, there has been an evolution in production factors. The transformation of productivity denotes a leap in productivity levels, generally prompted by technological innovation (Ma Wenbao, Liu Xi, 2021). Key technological breakthroughs inevitably lead to a transformation in the core elements of productivity, henceforth generating new quality productivity.

Finally, in terms of development methods, innovation is the foundation of new quality productivity, and technology is the instrument of new quality productivity. As a new technological revolution and industrial change emerge and evolve, the latest generation of information technology is rapidly breaking through, propelling productivity toward a higher stage of evolution. The proposition of new quality productivity introduces developmental and reformative themes, emphasizing the significance of knowledge, innovation, and information technologies. Chen Xian elucidates that new quality productivity refers to production elements or their aggregate capable of representing emerging technologies, creating new value, and forming burgeoning industries. Additionally, in contemporary China, the evolution of productivity spurs adjustments in production relations, triggering profound transformations in the modern economic system. It signifies a shift from scaling up markets driven by factors toward high-quality development led by innovation, rendering innovation the core driving force for constructing a modern economic system. Current literature also suggests that new quality productivity should be a higher quality type of productivity led by scientific innovation (Zhang Lin, Pu Qingping, 2023).

The relationship between new quality productivity and innovation

Innovation encompasses not only technological refinement but also managerial and institutional advancements, essential across three dimensions for businesses and nations to sustain development and competitive superiority through perpetual innovation (Qian Yingyi, 2015). These innovative spheres complement each other, jointly propelling societal progress. While technological innovation establishes the foundation for novel products and services, managerial innovation skillfully integrates and employs these advancements, and institutional innovation forges an enabling environment for innovation. Organizations and even states often consider these facets in unison to foster continual growth and maintain a competitive stance.

Emergent productive forces, inherently innovative, are profoundly linked to these innovation aspects, signifying substantial shifts in scientific knowledge, management practices, and production tools that consistently elevate productivity levels. Technological, managerial, and institutional innovations are the essential components fueling this developmental dynamism. Primarily, technological innovation is the driving force behind the ascent of emergent productive forces, with ongoing scientific progress introducing a steady stream of new technologies and products that invigorate productivity. This innovation does more than just enhance efficiency and curtail costs—it sparks the creation of new industries and business frameworks, thus fostering the continual development of the socio-economic milieu. Secondly, managerial innovation safeguards this development. Expanding business operations and intensifying market competition render obsolete traditional management approaches, necessitating innovative management practices brimming with advanced concepts that bolster organizational efficiency and competitiveness. Such innovation aids not only in-house management but also catalyzes interaction and collaboration with external entities, expediting the advancement of emergent productive forces. Lastly, institutional innovation offers critical backing for the

evolution of emergent productive forces, involving transformative changes in production and societal relations, inclusive of policy and regulatory reforms. Institutional innovation equips companies with a better systemic climate and policy support that activates innovative spirit and promotes the refinement of emergent productive forces. Further, it encourages comprehensive societal innovation and development, creating an improved societal atmosphere for the enhancement of emergent productive forces.

In conclusion, a symbiotic relationship exists between emergent productive forces and the triad of technological, managerial, and institutional innovations—each propelling and influencing the other. Sustained encouragement of these innovations is crucial to hasten the generation and progression of emergent productive forces, thereby steering the uninterrupted advancement of society and its economy.

Concept of consumer innovation, and consumer perception of innovation

Consumer innovation refers to the acts where consumers utilize their creativity during product and service usage to devise or create new offerings, applications, or solutions. Divergent from the traditional company-driven product development, consumer innovation springs from the consumers' own needs, thoughts, and experiences. Often geared towards personal satisfaction rather than commercial objectives, this innovation occasionally triggers business innovation or influences the current market. Characteristics of consumer innovation encompass five aspects: (1) Individualism—innovations are personalized, reflecting the unique needs and backgrounds of the innovators, who may possess specific knowledge, skills, or hobbies enabling them to conceive singular solutions or enhancements, operating either solo or within small communities. (2) User-Driven—these innovations are sparked by actual needs and challenges faced by users, not driven by market research or internal decisions of companies. Innovations target existing product limitations with the aim to fulfill individual necessities better. (3) Informality—innovations arise in unstructured environments without adherence to formal R&D protocols, fostering flexible and unbounded creative thinking, usually initiated by individuals in domestic, leisure, or informal community settings. (4) Practicability and Novelty—emphasizing the creation of practical solutions, innovators pursue tangible and functional improvements rather than abstract ideas, with each solution often presenting a unique amendment or reconceptualization. (5) Diffusion and Sharing—innovations are freely shared through various channels, including forums, social media, and blogs, enabling others to draw inspiration, refine innovations, or adopt new ideas, facilitating a culture that nurtures the innovation ecosystem for broader community adoption and enhancement.

The paper also encompasses a similar term to consumer innovation, consumer innovation cognition, often defined as consumer innovation perception—the level of understanding and acceptance that consumers have towards novel products, technologies, or services. This includes knowledge and perception of the innovation's value, function, usage, and benefits. The innovation cognition of consumers determines their acceptance rate and willingness, influencing the market's overall response. While consumer innovation and innovation perception are differentiated, they are interrelated. A higher level of innovation perception may enable consumers to better identify market gaps and engage in personal innovation, and those with greater appreciation and acceptance are more likely to be early adopters and participate in innovative activities. Furthermore, feedback and iterative relations between consumer innovation perception and innovation exist; consumer insights can provide invaluable feedback, inspiring businesses to improve existing offerings or generate new innovation. Globally, the mature view of consumer innovation suggests that businesses should acknowledge and encourage it, as this can lead to breakthrough products and bolster brand loyalty and market responsiveness. Scholar Eric von Hippel's user innovation theory emphasizes that in certain sectors, especially in highly specialized markets, users are often the initial developers of innovations (Huang Jiang, 2016). Businesses should consider consumer feedback and innovative capacity, expanding interaction and collaboration with users,

integrating their wisdom through co-creation, thus fostering continual product and service enhancements and innovation.

III. The impact of new quality productivity on consumer demand

The advent of new productive forces has profoundly transformed both production methods and business models, exerting a meaningful impact on consumer innovation demands. These impacts can be analyzed from several core dimensions. Firstly, consumer demand for novel products and services has evolved. The progression of new productive forces has accelerated both technological innovation and product development, engendering a more dynamic market where product life cycles are abbreviated and innovation cycles hastened. Additionally, the amalgamation of technologies has birthed novel product categories such as the Internet of Things (IoT), wearable devices, and smart home systems, which not only alter everyday life minutiae but also cultivate previously inconceivable consumer needs. Secondly, there is an increasing prerequisite to cater to individualized and customized consumer demands. Personalization and customization constitute integral aspects of modern consumption trends. Enhanced productive forces enable manufacturers to effectively create products tailored to individual consumer requirements, ranging from personalized foods and beverages like customized coffees or supplements to bespoke clothing, furniture, or even automobiles. Advancements in machine learning, big data analytics, and customer relationship management systems empower companies to predict and comprehend consumer needs, thus embedding these demands within product design from inception. Thirdly, the catalyst for consumer participation and collaboration in innovation. New productive forces have also reshaped the collaborative dynamic between consumers and businesses. The rise of crowdfunding, social media, and open innovation platforms has enabled consumers to directly engage in the creation and development of products. This sense of involvement, ownership, and the pursuit of personalization subsequently intensifies consumer demand for innovative offerings. Fourthly, these forces drive service innovation and the experience economy. A significant impetus behind the new productive forces is the provision of added-value services and enhanced experiences. In an era where the internet, cloud computing, and mobile technologies are ubiquitous, consumers seek more than tangible goods; they covet the affiliated services and experiences. Modern consumers aspire to instantaneous, personalized, and seamless experiences—be it online shopping, streaming video services, or personalized travel services ordered via apps. Fifthly, the promotion of sustainable and social innovation needs. Overall, the rise of new productive forces, particularly in environmental technology and green production, is equally propelling consumer demand for sustainable goods and practices. Consumers are increasingly cognizant of a product's origins, manufacturing process, and its environmental and social impact, translating to a robust demand for sustainable products.

In summation, through innovative application of cutting-edge technology and revolutionary production processes, new productive forces have not only generated a demand for entirely new products and services but also significantly influenced consumers' desires for personalization, customization, and the holistic experience. With practices such as open innovation, customer interaction, and sustainable manufacturing, businesses are better poised to satisfy and inspire consumer innovative demands, devising products and services that meet existing needs while probing potential ones. As new productive forces continuously evolve across industries, future consumer demands are likely to seek higher echelons of autonomy, sustainability, and experiential satisfaction.

IV. The incentive and impact of new quality productivity on consumer innovation

The incentivization of consumer participation in corporate innovation through new productive forces is primarily manifested in economic, psychological, and social rewards. Hippel (1986) highlighted the consumer's

vital role as a resource in the innovation process, providing crucial market insights and product development guidance, a fact that is particularly evident in current technological advancements. Consumers engaged in product development through digital platforms not only reap economic benefits such as discounts, incentives, and opportunities to trial new products for free but also gain a sense of recognition, fulfillment, and self-actualization. This psychological reward motivates consumers to actively participate, offering their creativity and feedback (Prahalad, 2004). On the social front, consumer involvement can amplify an individual's status and cultivate connections and a sense of community with like-minded individuals. The social significance of participating in the innovation process allows individuals to revel in the pride of contributing to society and to attain expert status within a specific domain.

The new productive force's impact on consumer involvement in corporate innovation takes diverse forms, principally including the following: firstly, crowdsourcing, a pattern where businesses use online platforms to collect innovative ideas and solutions from the consumer populace, entrusting tasks to the masses instead of designated employees or suppliers. Social media and internet collaboration tools have furthered the development of this pattern, enriching the methods of consumer participation and allowing the sharing of perspectives and ideas over online platforms. Secondly, user-led innovation involves consumers improving and innovating products based on their needs during actual use, with companies then upgrading products through this feedback. Hippel (2005) elucidated the central role of users in the innovation process, highlighting the concept of "user innovation," a pattern especially prevalent in software development and digital services sectors. Thirdly, social media interaction permits consumers to directly provide feedback on a company's social media pages, becoming part of the innovation process. Through such channels, businesses gather consumer opinions, identify potential needs, and obtain early market test feedback (Kozinets, Robert 2002). Fourthly, open innovation competitions and challenges, whereby companies stimulate and collect consumer creativity through organized contests. These events often involve reward mechanisms geared toward broad consumer participation (Boudreau & Lakhani, 2009). Lastly, customer feedback systems and co-creation workshops allow consumers to directly collaborate and test new products or services with businesses, becoming integral to product development. Nambisan (2008) posited that building a conducive virtual customer environment to harness consumer insights is invaluable.

The catalyst for consumer engagement in innovation primarily leverages digital technologies, user experience (UX) design principles, collaborative platforms and tools, and incentive schemes. Digital technology plays a pivotal role in stimulating consumer participation in innovation. With the widespread adoption of smartphones and high-speed internet, an increasing number of consumers have hassle-free access to online platforms, facilitating seamless interaction with businesses. Kleemann et al. (2008) observed that the evolution of digital technology has significantly lowered the barriers for consumer involvement in innovation activities. Nowadays, consumers can contribute ideas and feedback from anywhere at any time, irrespective of their socioeconomic backgrounds. Moreover, the interactive nature of social media and online communities has sparked consumers' desire to share, discuss, and enhance products (Bagozzi & Dholakia, 2002). Digital tools such as data analytics, artificial intelligence, and virtual reality have broadened the horizons for consumer-led innovation, empowering them to engage more intuitively in the product design and experience process. The practice of UX design principles increasingly supports consumer innovation. Norman (1986) stressed the importance of centering product design around user needs and experiences. When businesses focus on creating designs that align with user demands and expectations, they naturally encourage consumers to present their unique perspectives. Positive user experiences foster emotional connections, prompting consumers to engage with brands on a deeper level. Additionally, the motivation for consumer involvement in innovation is propelled by collaborative platforms and tools. Online collaboration spaces like GitHub, Instructables, and Hackster.io

provide venues for sharing resources, tools, and expertise, fostering collaboration between consumers and businesses, and even among consumers themselves. Incentives such as rewards, recognition, and competitions serve as additional motivators for consumer involvement in corporate innovation. Incentives like financial remuneration, reputation enhancement, or opportunities to be the first to experience new products can heighten consumer enthusiasm. Füller (2010) underscored the role of incentive mechanisms in sustaining consumer engagement and high-quality contributions.

Drawing from the research and perspectives of the above scholars, it is apparent that new productive forces stimulate consumer motivation for innovation through digital technology, UX design, collaborative platforms, and incentive schemes, as delineated in Figure 1. These elements collectively foster an environment where consumers not only feel their contributions are valued and needed but also can witness their ideas being transformed into tangible products and services, thereby fueling their passion for ongoing innovation. As these trends continue to evolve, it is expected that consumer participation will play an increasingly vital role in the innovation process.

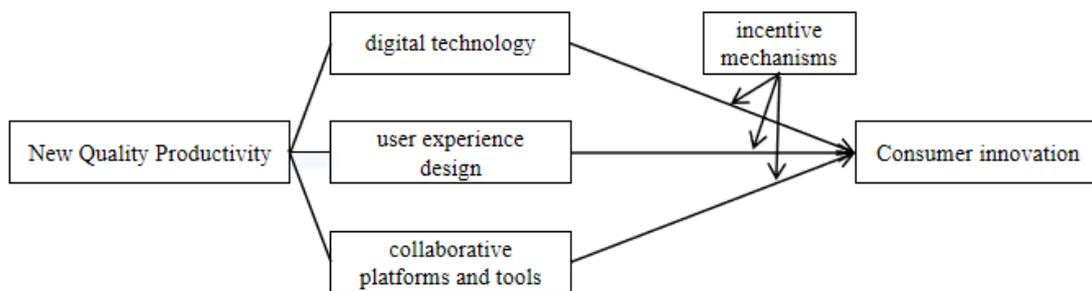


Figure 1 The impact mechanism of new quality productivity on consumer innovation

V. The role of digital technology, user experience design, collaborative platforms and tools, and incentive mechanisms in consumer innovation

Digital technologies, user experience design, and collaborative platforms and tools have played a pivotal role in both consumer innovation and the perception thereof. These technologies have opened new avenues and channels for consumers to partake in innovation. Research by Afuah and Tucci (2012) suggests that the internet and other digital channels have significantly lowered the barriers to innovation, allowing a broader spectrum of consumers to engage with the innovation process. Social media and online forums, for example, have become prolific spaces for the exchange of opinions and ideas. Exceptional user experience design stimulates the desire for innovation among consumers. As Verganti (2016) posits, companies can embolden consumers to propose original and imaginative solutions by refining the experience of products or services. User experience design also equips enterprises with a profound comprehension of consumer needs, thereby directing the trajectory of innovation. Collaborative platforms and tools, by fostering cooperation and sharing, have catalyzed the evolution of consumer-led innovation. Howe's (2006) findings indicate that these platforms and tools facilitate the aggregation and exchange of knowledge, expertise, and resources, which in turn fosters crowd-sourced innovation. Open development environments and shared code repositories have especially incentivized collaboration and knowledge sharing between consumers and developers.

Incentive mechanisms are instrumental in propelling consumer innovation. They foster active participation in innovative endeavors through positive feedback and rewards, encompassing cognitive, economic, social, developmental, and self-expression incentives. These mechanisms often interact synergistically with digital technologies, user experience design, and collaborative platforms and tools. For instance, collaborative

platforms provide social and cognitive incentives through community recognition, gamified elements, and reward systems. In the realm of user experience design, mechanisms that ensure feedback and recognition can enhance user satisfaction and loyalty. Meanwhile, digital technologies serve to monitor consumer contributions, offering corresponding rewards.

These factors also positively influence consumer perception of innovation. The evolution of digital technology has helped consumers recognize the significance of their participation and feedback in the innovation process. As explored in the research by Lüthje, Herstatt, and Von Hippel (2005), consumer involvement in product and service innovation via digital means deepens their understanding and cognition of the innovation process. Exceptional user experience design enlightens consumers on how their feedback and engagement can impact product and service innovation. Oskamp and Schroeder's (2017) article suggests that through positive user experiences, consumers are more aware of their impact on product enhancements, thus reinforcing their recognition of the innovation process. The rise of collaborative platforms and tools has promoted cooperation and knowledge sharing among consumers, further expanding their awareness of the innovation process. Brabham's (2013) study highlights that consumers, through collaborative platforms, collectively create and share knowledge, fostering greater comprehension and participation in innovative activities.

In summary, digital technologies, user experience design, and collaborative platforms and tools have exerted a positive influence on both consumer innovation and the consumers' perception of it. They not only offer consumers new opportunities and tools to engage in innovation but also bolster their cognition and understanding of the innovation process. Moreover, incentive mechanisms provide the drive for consumer participation in innovation, ensuring engagement and activity levels. When combined with digital technologies, user experience design, and collaborative platforms, these incentive schemes significantly enhance the quality and quantity of consumer innovation.

VI. Summary and Future Outlook:

Summary

This analysis postulates that the impact mechanism of new productive forces on consumer innovation is the influence wielded by the novel elements of productivity based on digital technology, user experience design, and collaborative platforms and tools. These modalities are playing an increasingly pivotal role in today's economic and societal sectors, notably in advancing consumer innovation. The study synthesizes the palpable manifestations of new productive forces and their perceptual impact on consumer innovation. Firstly, digital technology influences consumer innovation by lowering the barriers to innovating. It renders tools and resources more accessible, thus enabling wider consumer participation in the innovation process. Enhancing the efficiency of information dissemination, digital technology empowers consumers to swiftly acquire new knowledge, learn new skills, and consolidate their innovative capacities. Furthermore, big data analytics provide consumers with innovative insights, assisting them in identifying market trends and consumer demands. Secondly, user experience design broadens the scope of consumer innovation. By fostering experience-oriented enhancement and iterative product optimization, consumers' willingness to engage in innovation is also sparked. User-centric innovation, guided through user experience design, commits to elevating product and service quality. Designers can rapidly fine-tune products based on user feedback, making the innovation process more refined and demand-driven. Moreover, users' direct participation during the design phase can trigger fresh innovative impulses and ideas. Thirdly, collaborative platforms and tools intensify consumer innovation. Collaborative platforms allow consumers to exchange ideas and co-develop new projects, diminishing the resource barriers inherent in the innovation process through the sharing of knowledge and tools. Companies can

also absorb external innovative concepts and solutions through these platforms, enhancing product and service standards.

In essence, new productive forces, by integrating digital technology, user experience design, and collaborative platforms and tools, construct a diverse, open, and interconnected innovation ecosystem. Digital technology increases transparency and consumer engagement; user experience design prioritizes user needs and preferences at the heart of development; and collaborative platforms and tools make co-creation and crowdsourced innovation feasible. Working in tandem, these elements not only further the development of consumer innovation but also significantly augment consumer engagement and satisfaction within the innovation process. As technology continues to advance, it is anticipated that these components will persist as core drivers, propelling consumer innovation into a new stage.

Future Outlook

With the continuous development of new quality productivity in China, frontier technologies like Artificial Intelligence (AI), Virtual Reality (VR), and Augmented Reality (AR) are set to further broaden the scope and depth of consumer innovation. The further advancement of AI not only provides data-driven insights, hastening the creation of customized products and services, but also participates directly in the design and creative process through algorithmic innovation. Technologies such as deep learning and natural language processing enable machines to better comprehend human demands, forecast, and guide emerging innovation trends. Within the VR and AR domains, these technologies promise a revolutionary transformation in consumer innovation. VR and AR can be utilized in the iterative processes of product design and prototyping, allowing real-time visualization of product evolution, and can test consumer reactions within a fully immersive environment to offer extremely authentic feedback on the user experience. Additionally, these technologies have carved out novel markets and business models, like virtual try-ons, remote collaboration, and entertainment experiences, thus driving a relentless surge of innovation.

In conclusion, the impact of new productive forces on consumer innovation is becoming ever more profound and will continue to bear fruit driven by technological progress. Future consumer innovation will increasingly depend on sophisticated technology and an in-depth comprehension of user experiences and personalization, introducing to the market a wealth of consumer-focused innovative products and services.

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