

From a Single Tree to a Forest: The Expansion Logic of Huawei's Service-Oriented Supply Chain Transformation

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ABSTRACT

In the era of the digital economy, manufacturing firms worldwide are increasingly shifting from product-centric to service-oriented business models, a transition known as servitization. This paper examines Huawei's service-oriented supply chain transformation, focusing on its strategic evolution from hardware sales to a platform- and ecosystem-driven approach. The study addresses how Huawei leverages platform-based strategies to restructure its supply chain, stimulate multi-sided network effects, and build a sustainable service-based model. Using a case study approach grounded in two-sided market and network effects theories, the research identifies three core mechanisms of Huawei's transformation: platformization, modularization, and digitalization. Huawei has developed a robust digital ecosystem that effectively connects developers and enterprise users, enhancing value co-creation and reinforcing cross-network effects. Theoretically, this study extends the application of two-sided market theory from internet platforms to traditional manufacturing contexts. Practically, it offers strategic insights for manufacturers pursuing servitization, emphasizing the importance of ecosystem development prior to monetization.

KEYWORDS

Service-oriented transformation; Huawei cloud; Bilateral market; Network effects; Supply chain reconfiguration; Digital ecosystem

1 Introduction

The global manufacturing landscape is undergoing a profound transformation driven by digital technologies, marked by the emergence of servitization. However, the path to servitization is fraught with challenges, particularly the "servitization paradox" - the difficulty of enriching value through services while maintaining cost levels (Yan et al., 2022). This paradox highlights the significant investments required in new capabilities and the fundamental organizational culture shift needed from product-focused to customer-centric approaches. Huawei's journey towards service-oriented transformation is a compelling case study, driven by a unique confluence of external pressures and internal strategic imperatives. The company has been forced to navigate a highly challenging geopolitical landscape while simultaneously pursuing an ambitious vision for the future of technology. This dual-driver context has shaped the nature and pace of its transformation, making it a particularly interesting and important subject for academic inquiry.

2 Research gap and significance

While servitization in manufacturing has been widely studied, existing literature predominantly focuses on traditional "product-service" extensions, overlooking the more transformative shift toward platform-based ecosystems in the digital economy. This "platform-ecosystem" paradigm enables multi-actor value co-creation through network effects, representing a significant theoretical departure from linear value-creation models. A key theoretical gap remains in understanding how servitization operates under this new paradigm - particularly in terms of supply chain restructuring, network effect activation, and ecosystem governance.

This study offers significant insights for traditional manufacturers by presenting Huawei's transition from hardware-centric to ecosystem-driven operations as an actionable model. It highlights the role of strategic vision and external pressures in accelerating digital servitization and provides a real-world reference for overcoming common implementation challenges. The findings aim to support manufacturers in designing and executing their own ecosystem-oriented service transformations.

3 Theoretical framework

3.1 Two-sided market theory

Two-sided market theory provides a foundational framework for analyzing platforms that facilitate interactions between two distinct user groups (Rochet & Tirole, 2003). Such platforms face a "chicken-and-egg" problem, requiring a critical mass on both sides to generate value. Strategies like cross-subsidization are often employed to attract participants

- for instance, subsidizing one user group while monetizing the other.

In the context of Huawei's transformation, this theory offers a lens to examine Huawei Cloud as a two-sided platform connecting developers and enterprise customers. The value for developers depends on the volume of enterprise users, while enterprises value the platform based on the quality and variety of available applications. This study will analyze how Huawei has structured its platform, designed pricing mechanisms, and resolved the critical mass challenge to foster a sustainable ecosystem. The application of this theory helps elucidate Huawei's strategic decisions in building a multi-sided service platform.

3.2 Network effects theory

Network effects theory is critical for understanding the growth and sustainability of platform-based business models. It distinguishes between direct network effects - where value increases with more users of the same group - and indirect (cross-side) network effects, wherein the value for one user group grows with the size of another group. The latter is particularly relevant in two-sided markets.

Huawei's HarmonyOS ecosystem exemplifies strong indirect network effects: more users attract more developers, whose applications in turn enhance the platform's value to users. This creates a positive feedback loop that can lead to rapid ecosystem expansion and competitive advantage. This research applies network effects theory to analyze how Huawei stimulated and leveraged these effects to achieve a tipping point in adoption, and how it sustains growth through strategic ecosystem governance. The findings offer insights into the dynamics of platform scaling in manufacturing servitization.

4 Huawei's service-oriented transformation and expansion logic

4.1 Platform development: building the foundation with Huawei cloud

The cornerstone of Huawei's service-oriented transformation is the strategic development and global expansion of Huawei Cloud. This platform serves as the foundational infrastructure that connects a diverse ecosystem of developers, enterprise customers, and partners, facilitating the shift from a linear supply chain to a dynamic, networked ecosystem. The development of Huawei Cloud is characterized by massive global infrastructure investment, a focus on building a large-scale developer and partner community, and the creation of industry-specific solutions that demonstrate the platform's value in real-world applications.

4.1.1 Global infrastructure and ecosystem scale

Huawei has made substantial investments in building a globally distributed and resilient cloud infrastructure. By the end of 2023, Huawei Cloud had established a presence in 30 geographical regions and 84 Availability Zones (AZs), providing services to customers in over 170 countries and regions (Farsad Sudheer, 2024). This extensive global footprint is a critical enabler of its service-oriented strategy, allowing it to offer low-latency, high-availability services to a worldwide customer base. The infrastructure is not merely a collection of data centers, but a strategically planned network designed to support the "Cloud-Pipe-End" integration, where cloud services are seamlessly delivered through Huawei's robust network infrastructure (the "pipe") to a wide array of end-user devices. This global reach is particularly crucial for serving multinational corporations and supporting the digital transformation initiatives of governments and enterprises in emerging markets, where Huawei has focused significant efforts (Jonathan & Maesea, 2021).

The scale of the ecosystem built on this infrastructure is equally impressive. As of late 2024, the HarmonyOS ecosystem had attracted over 7.2 million developers and was installed on more than one billion devices, signaling a critical tipping point in its development (Huawei, 2024). The broader Huawei Cloud ecosystem is also substantial, with its application marketplace, KooGallery, featuring over 12,000 offerings from more than 7,000 ecosystem partners (Huawei, 2024). This large and growing community of developers and partners is a key asset, creating a virtuous cycle where a rich ecosystem attracts more customers, which in turn incentivizes more developers to join the platform. This dynamic is central to the network effects that drive the platform's value and growth, a concept we will explore further in the discussion section.

4.1.2 Connecting developers and enterprise customers

Huawei Cloud functions as a classic two-sided market, connecting two distinct user groups: developers and enterprise customers. The platform's success hinges on its ability to effectively serve the needs of both sides and facilitate valuable interactions between them. For developers, Huawei Cloud provides a comprehensive suite of tools and resources designed to lower the barrier to entry and foster innovation. This includes access to powerful computing resources like

the Ascend AI platform, a wide range of APIs, software development kits (SDKs), and a supportive global startup program that offers cloud credits and technical enablement (Huawei, 2024). The "AI for Startups" program, for instance, provides eligible AI startups with up to CNY 1.2 million worth of Ascend Cloud computing power, directly addressing the high cost of computing resources that often hinders innovation (Huawei, 2024). This strategy of empowering developers is crucial for building a rich and diverse application ecosystem.

On the other side of the market, enterprise customers from various industries, including manufacturing, finance, and government, leverage Huawei Cloud to accelerate their digital transformation. These customers gain access to a wide array of services, from basic Infrastructure-as-a-Service (IaaS) to advanced Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS) solutions, including AI, big data analytics, and the Internet of Things (IoT) (Huawei, 2025). By providing these services, Huawei Cloud enables enterprises to modernize their IT infrastructure, improve operational efficiency, and develop new digital products and services without the need for massive upfront capital investment. The platform acts as a bridge, allowing enterprise customers to tap into the innovations created by the developer community, while providing developers with a large and growing market for their applications and services. This creates a powerful "demand-supply" positive feedback loop that is characteristic of successful two-sided platforms.

4.1.3 Case study: huawei cloud in the automotive industry

The automotive industry exemplifies Huawei Cloud's strategy of delivering industry-specific digital solutions. Huawei's "Intelligent Factory 2.0" framework adopts a "one cloud, one network, one platform, and N applications" architecture to help manufacturers enhance intelligence capabilities across production processes (Huawei, 2023). This solution integrates full-stack AI technologies - including intelligent computing, Kunpeng processors, and the Pangu models - to optimize key areas such as quality inspection and production scheduling. For instance, at Chang'an Automobile, Huawei's platform enabled the convergence of OT and IT systems, facilitating innovations in intelligent scheduling, quality traceability, and digital twin simulation (Huawei, 2023). Moreover, Huawei provides an open industrial AI platform that allows automotive companies to embed their computing power and algorithms directly into their products, accelerating the development of smart vehicle systems. Collaboration with partners such as iFLYTEK further enhances these capabilities, combining Huawei's cloud infrastructure with specialized AI expertise to offer end-to-end solutions from R&D to service (Huawei, 2023). This deep industry integration underscores Huawei's shift from generic cloud services to high-value, tailored solutions.

4.2 Service modularity: enabling flexibility and innovation

A key enabler of Huawei's service-oriented transformation is the principle of modularity, which is applied across its physical infrastructure and its software service offerings. This approach allows for greater flexibility, scalability, and efficiency, both in the construction of its data centers and in the delivery of cloud services to customers. By breaking down complex systems into smaller, standardized, and interchangeable components, Huawei can respond more quickly to changing market demands, reduce operational costs, and accelerate innovation. This modularity is a critical factor in the company's ability to scale its operations globally and provide a diverse range of services to a broad customer base.

4.2.1 Modular data center solutions

Huawei has pioneered the use of prefabricated and modular data center solutions to address the challenges of rapid deployment, scalability, and energy efficiency. Traditional data center construction is a time-consuming and capital-intensive process, often taking years to complete. In contrast, Huawei's modular approach, which integrates power, cooling, and management systems into a single, prefabricated module, can significantly shorten the time-to-market (TTM) (Huawei, 2025). For example, the FusionModule2000 solution has been shown to reduce TTM by as much as 50% compared to traditional construction methods (Huawei, 2021). This speed is crucial for meeting the rapidly growing demand for cloud services and for establishing a competitive presence in new markets.

The modular design also offers significant advantages in terms of scalability and operational efficiency. Data center capacity can be expanded on-demand by simply adding new modules, allowing for a "pay-as-you-grow" model that avoids over-provisioning and reduces initial capital expenditure (Huawei, 2021). This flexibility is particularly beneficial for customers with fluctuating or unpredictable demand. Furthermore, the integrated smart management systems, such as Huawei's NetEco platform, provide a unified view of the entire data center infrastructure, enabling remote monitoring and management, which can reduce operational and maintenance (O&M) costs by up to 35% and improve resource utilization by 20% (Huawei, 2021). The use of advanced cooling technologies, such as indirect evaporative cooling and AI-powered iCooling, also contributes to improved energy efficiency, with Power Usage Effectiveness (PUE) improvements of 8-15% (Huawei, 2025). This focus on green and efficient data centers is not only a cost-saving measure but also a key part

of Huawei's commitment to sustainability.

4.2.2 Modular cloud services (IaaS, PaaS, SaaS)

The principle of modularity extends beyond the physical infrastructure to the services offered on the Huawei Cloud platform. The cloud service portfolio is structured into distinct layers, including Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS), allowing customers to choose the level of abstraction and control that best suits their needs. This modular service architecture provides customers with the flexibility to build and deploy applications in a way that is both efficient and cost-effective. For example, a customer might start with basic IaaS resources like virtual machines and storage, and then gradually adopt PaaS services like databases, AI models, and IoT platforms as their needs evolve.

This modularity is also a key aspect of Huawei's strategy for enhancing service resilience and reliability. The Customer Reliability Engineering (CRE) team at Huawei Cloud has developed a range of technologies and best practices to help customers design and deploy highly available (HA) architectures. These architectures are themselves modular, with different levels of redundancy and failover capabilities. A typical evolutionary path for a tenant's architecture might start with a single-AZ (Availability Zone) cluster and progress to more resilient cross-AZ, dual-cluster, or even multi-region multi-active deployments. This allows customers to balance their requirements for availability and cost, implementing the level of resilience that is appropriate for their specific business-critical applications. The modular nature of these services also simplifies the process of migrating to the cloud and adopting new technologies, as customers can integrate new services into their existing architectures without having to rebuild everything from scratch.

4.2.3 Case study: prefabricated and modular data centers

Huawei's modular data center solutions demonstrate its capability to deliver efficient and scalable digital infrastructure. In South Korea, Dreamline utilized Huawei's Smart Modular Data Center Solution to rapidly expand its data center operations. The FusionModule2000-based deployment significantly reduced physical footprint and cut time-to-market by half, while supporting flexible capacity expansion aligned with business growth (Huawei, 2021). Intelligent management through the NetEco system further enhanced operational efficiency and reduced costs. Huawei also employs these modular and prefabricated technologies in its own data centers to achieve optimal Total Cost of Ownership (TCO) and accelerated deployment (Huawei, 2025). The integration of PowerPOD power supply systems and iCooling AI technology improves energy efficiency and supports predictive maintenance, contributing to the company's vision of low-carbon and sustainable data center operations. These examples highlight modularity as a core strategic enabler for Huawei in building global cloud infrastructure that is both economical and environmentally responsible.

4.3 Digitalization: driving network effects and value co-creation

Digitalization is the engine that powers Huawei's service-oriented transformation, enabling the creation of network effects and facilitating value co-creation within its ecosystem. By digitizing its internal processes, products, and services, Huawei has been able to break down traditional silos, improve operational efficiency, and create new forms of value for its customers. This digital transformation is not limited to the back-end; it is a core component of the customer-facing products and services, most notably through the HarmonyOS operating system. The deep integration of digital technologies across the entire "Cloud-Pipe-End" architecture is what allows Huawei to deliver a seamless and intelligent user experience, which in turn drives user growth and strengthens the ecosystem.

4.3.1 The role of HarmonyOS in creating a "super terminal" experience

HarmonyOS is a cornerstone of Huawei's digitalization strategy, designed to create a "super terminal" experience by seamlessly connecting a wide range of devices, from smartphones and smartwatches to smart home appliances and cars (Xiaoying, 2025). This is achieved through a distributed architecture that allows different devices to share their capabilities and work together as a single, cohesive system. For example, a user can start a task on their smartphone and then seamlessly transfer it to a tablet or a smart TV, with the system intelligently managing the underlying connections and data flow. This deep integration of hardware and software is a key differentiator for Huawei, creating a sticky user experience that is difficult for competitors to replicate (Charles, 2025).

The success of HarmonyOS is critical to Huawei's long-term strategy, as it provides a platform that is not dependent on external technologies like Google's Android. This is particularly important in the context of the U.S. sanctions, which have limited Huawei's access to key technologies and services. By building its own operating system and ecosystem, Huawei is able to maintain control over its destiny and continue to innovate. The development of HarmonyOS is a massive

undertaking, requiring significant investment in R&D and a concerted effort to attract developers and partners to the platform (Shanghai, 2024). However, the potential rewards are equally significant, as a successful operating system can become a powerful platform for delivering a wide range of digital services and creating a self-sustaining ecosystem.

4.3.2 Cross-network effects and user retention

The value of the HarmonyOS ecosystem is amplified by strong network effects. As more devices are connected to the platform, the value of the ecosystem increases for all users, creating a powerful incentive for both consumers and developers to join. This is a classic example of a two-sided market, where the platform's value is derived from the interactions between its user groups. For consumers, a larger ecosystem means more compatible devices and a richer set of applications and services. For developers, a larger user base represents a bigger market for their applications, making the platform more attractive to develop for.

These network effects are further strengthened by the cross-platform nature of HarmonyOS. The operating system is designed to run on a wide range of devices, from low-power IoT sensors to high-performance smartphones and tablets. This allows Huawei to create a unified ecosystem that spans multiple product categories, creating a seamless experience for users and a large, diverse market for developers. The more devices a user has within the HarmonyOS ecosystem, the more valuable the ecosystem becomes to them, which in turn increases user retention and loyalty. This creates a virtuous cycle where user growth drives developer interest, which leads to more and better applications, which in turn attracts more users.

4.3.3 Case study: the tipping point for HarmonyOS adoption

The concept of a "tipping point" is critical for understanding platform adoption dynamics. For an operating system to achieve sustainable growth, it must attain a critical mass of both users and developers. Huawei has identified a 16% market share as this crucial threshold for HarmonyOS, a milestone believed essential for attracting sufficient developer interest and fostering a vibrant app ecosystem (Erchi et al, 2024). According to data from Counterpoint Research, Huawei's smartphone sales in China surged by 64% year-on-year during the first six weeks of 2024, capturing 16.5% market share and ranking as the country's second-largest smartphone brand (Shanghai, 2024). This growth was primarily driven by the successful launch of the Mate 60 series and increasing consumer adoption of HarmonyOS.

Reaching this 16% benchmark signals that HarmonyOS is approaching its tipping point, creating a positive feedback loop where a growing user base attracts more developers, thereby enriching the app ecosystem and enhancing user experience. Huawei has set ambitious targets for app integration to further accelerate this momentum (Shanghai, 2024). The successful navigation of this critical phase will be a key determinant of HarmonyOS's long-term viability and its capacity to compete with established mobile operating systems.

4.4 Key revenue cases: monetizing the service ecosystem

The success of Huawei's service-oriented transformation hinges on its ability to monetize its ecosystem through diverse, high-value services that reduce reliance on hardware sales. Key revenue streams include enterprise digital transformation, government cloud projects, and AI-powered solutions - each leveraging Huawei's ICT expertise and industry-specific insights.

In enterprise services, Huawei Cloud has supported over 6,000 enterprises in Europe alone by the end of 2024, helping modernize IT infrastructure and improve operational efficiency (Huawei, 2024). For example, Turkish e-commerce firm OFactor used Huawei Cloud to manage traffic surges during Black Friday, handling up to five times its usual load (Huawei, 2024). In China, Huawei serves 90% of the top 50 e-commerce and gaming companies, along with over 800 e-Government cloud projects (Farsad, 2024).

Government cloud and smart city initiatives form another major revenue pillar. Huawei held a 32.2% share of China's government cloud market in 2020, supported by a network of over 1,000 ISV partners and 2,000 joint solutions (Sally & Fuller, 2022). Globally, the company has secured 70 cloud and e-government deals across 41 countries, often combining infrastructure with services like digital ID systems and tax platforms (Jonathan & Maesea, 2021).

AI and big data solutions also drive monetization. Huawei's Pangu AI models and full-stack industrial platform enable intelligent innovations across sectors. In telecommunications, an AI system identified sales opportunities in a contact center, generating over \$10 million in new revenue in 2024 (John, 2025). The company is also developing subscriber-based AI services, such as a 5G video call platform with real-time translation, targeting 100 million users in China (Tara, 2022).

These cases illustrate Huawei's strategic shift toward scalable, high-margin service revenue derived from deep industry integration and technological innovation.

5 Theoretical implications and practical insights

5.1 Theoretical implications

While two-sided market theory has been widely applied in digital sectors such as finance and software, its relevance in manufacturing has remained underexplored. Huawei's development of Huawei Cloud - a platform connecting enterprise customers, developers, and solution partners - demonstrates how traditional supply chain actors can be reconfigured into a multi-sided ecosystem. Crucially, Huawei's strategic use of cross-subsidization (e.g., offering developers free tools and resources) and its focused strategy to solve the "chicken-and-egg" problem illustrate that industrial firms can harness platform economics to foster non-linear value creation. This expands two-sided market theory into manufacturing contexts, emphasizing that platform logic can transform linear supply chains into networked, value-co-creating systems.

Huawei's growth exemplifies the orchestration of both direct and indirect network effects. The "super device" interoperability of HarmonyOS fuels direct network effects: as users adopt more Huawei devices, the utility of the ecosystem increases. Simultaneously, indirect effects are evident in Huawei Cloud - more enterprise customers attract more developers, whose applications in turn enhance platform value. Huawei's ability to surpass the critical 16% market share threshold for HarmonyOS - a tipping point beyond which growth becomes self-sustaining - offers a concrete example of how manufacturing firms can leverage network dynamics for scalable, organic expansion. This underscores the need to incorporate network effect theory into servitization research, particularly in understanding how digital ecosystems achieve momentum.

This study empirically validates the concept of "platform-based servitization" (Yan, et al., 2022), which posits that digital platforms help manufacturers overcome the classic "servitization paradox" - where adding services increases value but also cost and complexity. Huawei's three-pillar approach - platform development (Huawei Cloud), service modularity (flexible, composable services), and ecosystem digitalization (HarmonyOS) - directly aligns with Yan et al.'s framework. More importantly, it demonstrates how these elements interact systemically: the platform supports modular services, while digitalization enhances connectivity and feedback loops. This provides a more holistic model for servitization, one that is recursive, adaptive, and capable of sustaining large-scale industrial ecosystems.

5.2 Practical insights for traditional manufacturers

One of the most important practical insights from Huawei's experience is the "First Water, Then Fish" strategy. This metaphor describes the approach of first investing heavily in building a rich and supportive ecosystem (the "water") before focusing on aggressive monetization (the "fish"). In the early stages of its transformation, Huawei prioritized attracting developers and partners to its platform by offering them free or heavily subsidized access to development tools, resources, and training. For example, the Huawei Developer Space provides developers with free access to foundational technologies, toolchains, and resources to encourage innovation (Huawei, 2024). Similarly, the company has launched initiatives like the "HarmonyOS Starlight Program", which provides cash and resource support to developers (Huawei, 2024). This strategy is designed to lower the barrier to entry, encourage experimentation, and rapidly build a critical mass of applications and services on the platform. Only after the ecosystem has reached a certain level of maturity and vibrancy does the company begin to focus more heavily on monetization through revenue-sharing models and premium services. This patient, long-term approach to ecosystem building is a key lesson for other firms, as it recognizes that the value of a platform is ultimately derived from the strength and diversity of its ecosystem.

Another key practical insight is the "Plant Trees to Attract Birds" strategy. This refers to the idea of focusing on attracting a specific set of key users or "anchor tenants" who can act as catalysts for broader ecosystem growth. In Huawei's case, this involved targeting specific industries and user groups that could benefit most from its platform and whose adoption would, in turn, attract other users. For example, by focusing on the automotive industry and partnering with leading manufacturers like BYD, Huawei was able to demonstrate the value of its platform in a high-profile, high-growth sector, which in turn attracted other players in the automotive ecosystem. Similarly, by targeting enterprise customers in sectors like finance, healthcare, and energy, Huawei was able to build a strong base of high-value customers, which made the platform more attractive for developers creating industry-specific solutions. This strategy of targeting key users is a practical way to overcome the "chicken-and-egg" problem and kick-start the network effects that are essential for platform growth. For other manufacturers, this means identifying the key customer segments or industry verticals where their platform can offer the most compelling value proposition and focusing their initial efforts on winning over these "anchor tenants."

Huawei's transformation was not an overnight event but a phased process that unfolded over several years. This phased approach is another important practical insight for other firms. The transformation began with the development of the foundational platform (Huawei Cloud), followed by the creation of the unifying operating system (HarmonyOS), and then the gradual expansion of the ecosystem through the addition of new services, partners, and device categories. This step-by-step approach allowed the company to manage the complexity of the transformation, learn from its

experiences, and build momentum over time. It also allowed the company to align its internal resources and capabilities with the evolving needs of the market. For other manufacturers, this suggests that a "big bang" approach to transformation is likely to be too risky and disruptive. Instead, a more prudent strategy would be to adopt a phased approach, starting with a clear vision and a foundational platform, and then gradually building out the ecosystem in a series of manageable steps. This allows for a more controlled and sustainable transformation, reducing the risk of failure and increasing the chances of long-term success.

5.3 Limitations and future research directions

While this study has provided a comprehensive analysis of Huawei's transformation, it is not without its limitations. As a single-case study, the findings are inherently context-specific and may not be directly generalizable to all other firms. The unique circumstances of Huawei, including its size, its technological capabilities, and the specific external pressures it faced, mean that its model may not be directly replicable by other companies. Future research could address these limitations by conducting comparative case studies of other manufacturing firms undergoing a similar transformation, or by using primary data collection methods, such as interviews with key stakeholders, to gain a deeper, more nuanced understanding of the transformation process. Future research could also explore the long-term sustainability of Huawei's ecosystem and its ability to compete with other global technology platforms. Additionally, a more quantitative analysis of the network effects and their impact on the company's financial performance could provide further insights into the value creation mechanisms of the ecosystem.

6 Conclusion

This study analyzes Huawei's strategic transformation from a hardware manufacturer to a service-oriented, platform-based ecosystem orchestrator. The findings reveal that this shift was driven by a clear expansion logic centered on three core initiatives: platformization (exemplified by Huawei Cloud as the scalable infrastructure), service modularity (enabling flexible service delivery), and digitalization (through HarmonyOS to foster network effects and multi-stakeholder value co-creation). The results include rapid ecosystem growth and resilient revenue streams. Theoretically, this research extends servitization literature by introducing a platform-ecosystem perspective, applying two-sided market and network effect theories to traditional manufacturing. Practically, it offers actionable strategies - such as phased transformation and ecosystem-first development - for manufacturers pursuing digital servitization.

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