The Overseas Expansion of China's Medical Device Industry - Taking Mindray Medical as an Example

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Abstract: The dual forces of sustained expansion in the global medical device market and intensifying domestic competition in China have made going global an inevitable choice for Chinese medical device companies. Using Mindray Medical as a case study, this paper first compares its overseas expansion strategy with those of other representative domestic companies. Then, it focuses on analyzing Mindray's precise differentiation strategies in the United States and Indonesia. Additionally, the paper examines the countermeasures adopted by overseas manufacturers in response to the influx of Chinese companies and the challenges Mindray faces, such as patent and tariff barriers, as well as its competitive advantages in cost-effectiveness and innovative R&D. Addressing potential data privacy concerns related to its patient monitors, the paper proposes technical and compliance-based solutions. Based on this case study, the paper recommends that Chinese medical device companies prioritize policy compliance, adopt localization strategies, strengthen their intellectual property positioning, and pursue digital transformation to build sustainable international competitiveness.

Keywords: Medical Devices; Mindray Medical; Localization Strategy; Differentiation Strategy; Patient Monitors

1. Introduction

Medical devices are a key component of the national medical system. Medical device manufacturing firms not only improve therapeutic efficiency and medical service quality by developing and manufacturing medical device, but also play an essential role in military medicine, public health, and other fields.[1] The global medical device market currently offers vast prospects. However, amid homogenized competition and the pressure of centralized procurement policies in China's domestic market, companies stand to gain significant market scale and higher returns through overseas expansion.[2] Consequently, going global has become an inevitable choice for Chinese medical device enterprises seeking sustainable development. This trend is becoming increasingly evident with the support of policies such as the 14th Five-Year Plan and the Belt and Road Initiative.

Existing literature has examined the overseas expansion of Chinese enterprises from multiple perspectives. In terms of the drivers of internationalization, intense domestic competition and robust overseas demand are the primary catalysts (Tang, 2025; Tang, 2024), while policy support also plays a pivotal role (Zhan et al., 2024). In terms of challenges, incompatible certification systems, the high cost of clinical data and patent risks are major obstacles (Zhan et al., 2024; Qian, 2025). In terms of expansion pathways, both scholars and enterprises consistently emphasize the importance of localization strategies, innovation, patent portfolio development and digital transformation (Zou, 2025; Zou, 2024; Hu et al., 2025).

However, existing research often treats numerous Chinese medical device companies as a homogeneous entity within the broader industry or focuses on individual markets. It lacks systematic comparisons of differentiated strategies among companies within the sector and in-depth case studies examining how a single company flexibly adjusts its strategy for developed versus emerging markets. Furthermore, the countermeasures adopted by overseas competitors and the specific compliance challenges faced by Chinese companies warrant further exploration.

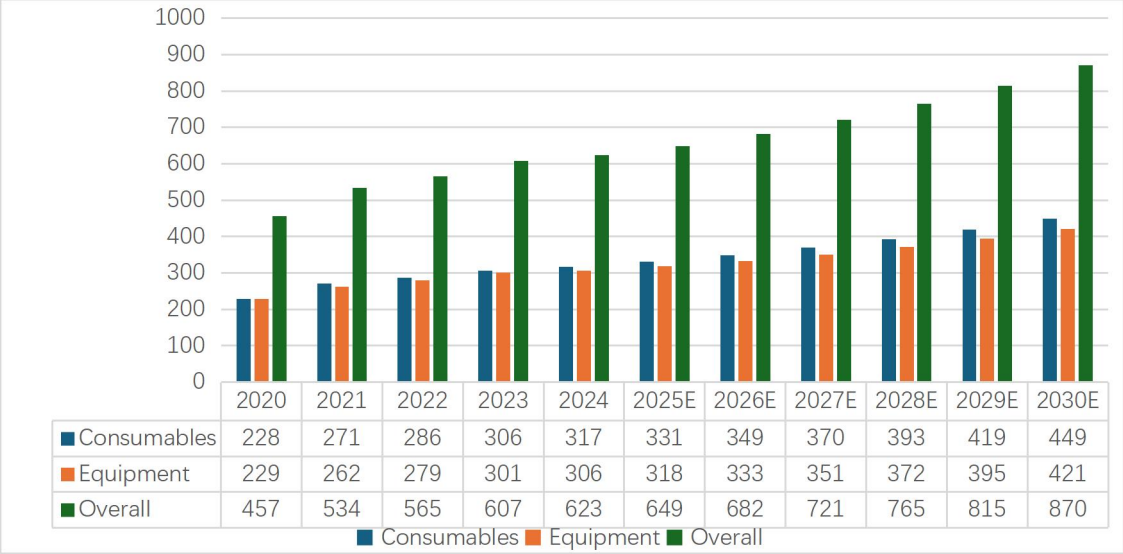
To address the aforementioned research gap, this paper uses case study and comparative analysis methodologies and selects Mindray Medical as the subject of the case study. The study contrasts

Mindray's overseas expansion path with that of representative domestic enterprises and provides an in-depth analysis of its differentiated strategies in the United States and Indonesia. Additionally, the study examines the countermeasures adopted by overseas manufacturers and summarizes the challenges Mindray encountered and the advantages it demonstrated during its internationalization process. Finally, the study proposes solutions to potential data privacy leakage issues associated with Mindray's patient monitors.

This paper aims to summarize Mindray Medical's lessons learned and provide practical recommendations for other Chinese medical device companies.

2. Global Medical Device Market Landscape

The global medical device market is vast and growing steadily. According to data from institutions such as Frost & Sullivan, the global market size is projected to exceed $860 billion by 2030 (As shown in Figure 1).[3]



	2020	2021	2022	2023	2024	2025E	2026E	2027E	2028E	2029E	2030E
Consumables	228	271	286	306	317	331	349	370	393	419	449
Equipment	229	262	279	301	306	318	333	351	372	395	421
Overall	457	534	565	607	623	649	682	721	765	815	870

Figure 1. Global Medical Device Market Size and Forecast, 2020–2030 (Expected)[3]

Markets can be broadly categorized into three regions. The North American and European markets feature developed economies, high technical barriers, and stringent regulations, dominated by international industry-leading enterprises. The Asia-Pacific market, leveraging its massive population base and rapidly advancing healthcare infrastructure, is emerging as one of the world's most promising regions.

The market can be segmented into four tiers based on level of market. The ultra-high-end and high-end markets have long been dominated by international corporations such as GE Healthcare, Medtronic, and Siemens. In recent years, as China's capabilities in innovation have grown, a group of pioneering innovators in the field of medical devices has emerged. These companies have developed numerous original devices and gained significant international influence.[4] For instance, Chinese companies like Mindray Medical and United Imaging Healthcare have become rivals to international giants in certain high-end sectors. Meanwhile, numerous domestic and international small- and medium-sized enterprises are concentrated in the fiercely competitive mid-to-low-end market.

3. Comparative Analysis of Overseas Expansion Pathways for Leading Domestic Enterprises

This paper selected four representative companies for comparative analysis of their overseas expansion strategies, revealing the diversity of such pathways.

3.1 Mindray Medical

Mindray Medical's core overseas expansion strategy involves acquiring market channels and technologies through strategic acquisitions, leveraging its comprehensive product portfolio and "devices + IT + AI" digital healthcare ecosystem to penetrate high-end markets and expand into emerging markets. For instance, the acquisition of U.S.-based Datascope secured sales channels in Europe and North America, while the acquisition of German firm Diasys established a global supply chain platform for IVD. The acquisition of Finnish company Hytest

enabled Mindray to master core raw material technologies for IVD.

To date, Mindray has exported its products to over 190 countries and regions worldwide and has established localized production projects in 13 countries. According to official financial reports, Mindray Medical's overseas revenue has steadily increased (As shown in Figure 2), with international business accounting for 50.6% of total revenue in the first three quarters of 2025 (As shown in Figure 3). This marks a new phase in the company's globalization journey.

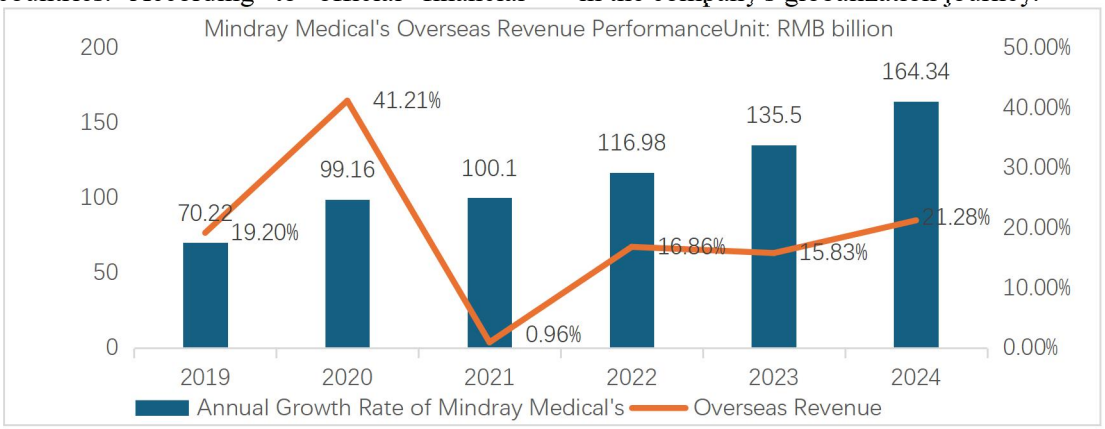


Figure 2. Overseas Revenue Performance of Mindray Medical from 2019 to 2024

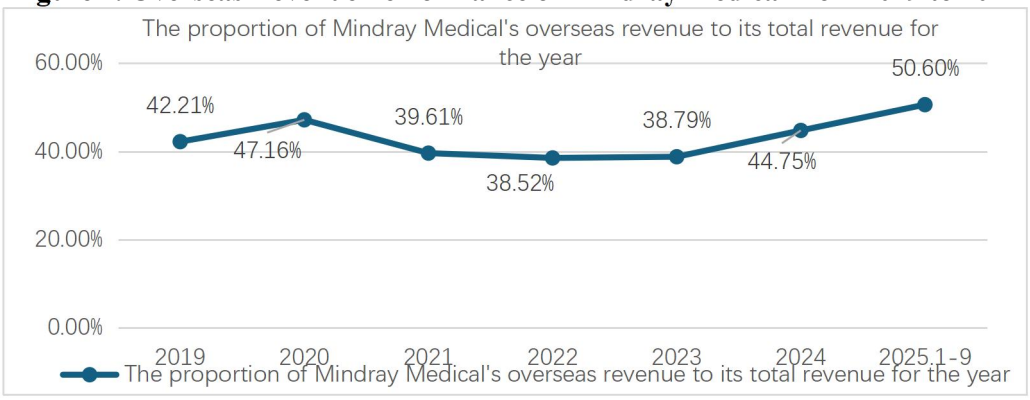


Figure 3. Percentage of Mindray Medical's Overseas Revenue to Total Annual Revenue from 2019 to the First Three Quarters of 2025

3.2 United Imaging Healthcare

United Imaging's core overseas strategy centers on localized production and direct competition in high-end markets. Since its inception, the company has pursued a “localized production” strategy, establishing R&D centers and subsidiaries in premium markets like the U.S. and Europe. For instance, this year's “triple expansion plan” for its Texas factory circumvented high tariffs. Simultaneously, leveraging its independently developed cutting-edge technologies, the company has aggressively entered the high-end medical imaging market in Europe and the United States-a sector long monopolized by international giants. For instance, its 5T MRI system is currently the world's only whole-body clinical ultra-high-field MRI device simultaneously certified by NMPA, FDA, and CE. This achievement fully demonstrates United Imaging Healthcare's capability to compete head-to-head with global industry leaders.

3.3 Yuwell Medical and Haier Biomedical

Yuwell Medical and Haier Biomedical both follow a core overseas expansion strategy of “selling products + building ecosystems + localization.” Yuwell Medical entered international markets with its respiratory therapy and blood glucose monitoring products. To advance localization in Europe, Yuwell Medical established a Scientific Advisory Board for respiratory therapy. The company also adopted a path from "product export to ecosystem co-creation" to open emerging markets and formed deep strategic partnerships with distributors like Inogen to rapidly enter the European and American markets.

Haier Biomedical has successfully transitioned from selling products to building ecosystems, leveraging its robust technological capabilities to

penetrate international markets. For example, its ultracentrifuge technology positioned China as the third country, after the United States and Japan, to master ultracentrifuge preparation techniques. The company delivers comprehensive solutions to local partners through a highly localized "one country, one strategy" approach.

4. Comparative Analysis of Mindray Medical's Differentiated Strategies in High-End and Emerging Markets

The key to Mindray Medical's success lies in its precise implementation of differentiated strategies tailored to distinct market characteristics. I chose to compare the United States and Indonesia because their medical device markets differ significantly in terms of scale, stage of development, and regulatory environment.

4.1 High-End Market-United States

Mindray has adopted an acquisition-based strategy combined with local research and development (R&D) in the United States. Its 2008 acquisition of the U.S.-based company Datascope provided Mindray with sales platforms and service networks in Europe and the Americas. This acquisition helped Mindray become the world's third-largest brand of patient monitors. In 2013, Mindray acquired Zonare, a U.S. high-end medical imaging company. This acquisition secured advanced ultrasound technology and elevated Mindray's medical imaging business from the mid-to-low-end market into the high-end segment. By establishing Mindray North America and three major R&D centers, Mindray attracts top local talent and aligns more closely with cutting-edge clinical needs and technological trends. Simultaneously, Mindray's products have achieved comprehensive compliance with stringent certifications, such as FDA approval, and have successfully entered leading hospitals, including the Mayo Clinic.

4.2 Emerging Markets-Indonesia

Mindray Medical's strategy in Indonesia involves a deep commitment to developing the local healthcare system. The company thoroughly implements its localization strategy by establishing local manufacturing facilities and production bases with a 90% local workforce, forming a comprehensive industrial chain layout. Mindray also collaborates with renowned, top-tier local enterprises to provide digital and intelligent solutions, such as “Mindray Cloud++”, which support the growth of the local healthcare sector. Mindray also collaborates with local governments and domestic universities to establish talent cultivation exchange platforms.

Mindray's solutions benefit 60% of Indonesia's population. By participating in the upgrade of the local healthcare system, the company has secured a stronger market position and gained greater influence.

5. Overseas Manufacturers' Response Plan

In response to the widespread overseas expansion of Chinese companies, foreign manufacturers primarily adopt the following three strategies.

5.1 Strengthen Technical Barriers

Overseas enterprises are focusing their resources on ultra-high-end fields with extremely high technological barriers and investing in next-generation technology platforms. For example, although domestic manufacturers have made breakthroughs in photon-counting CT, only Siemens Healthiness has achieved the commercialization of this product globally. International giants maintain absolute leadership in the most advanced technological domains, creating a gap that will be difficult to bridge in the short term.

5.2 Supply Chain Diversification

Establish manufacturing facilities in Southeast Asia and South America to mitigate supply chain risks and reduce reliance on China-based supply chains, thereby enhancing supply chain resilience.

5.3 Set Up Barriers to Entry

Use stringent regulations, such as FDA certification and the EU Medical Device Regulation (MDR), as well as dense patent landscapes, to increase the barriers to market entry.

6. Challenges Faced by Mindray Medical and Its Competitive Advantages

6.1 Challenges Faced

6.1.1 Patent litigation

Mindray has been sued by its former partner Teratech in the United States for allegedly

infringing on its core patents with its ultrasound products. This lawsuit directly targets the core of Mindray's medical imaging business. More importantly, Mindray has already covered over 80% of IDNs (Integrated Delivery Networks) in the U.S. Such patent disputes could potentially impact customer relationships and brand image.

6.1.2 Tariff pressure

Faced with the pressure of additional tariffs, Mindray adopted a strategy of significant forward-looking inventory stockpiling. While this approach mitigated short-term impacts, it also tied up substantial capital and increased operational costs.

6.1.3 Localized operations

Mindray Medical France SARL was once sued in France for hiring a former employee of a competitor, resulting in unfair competition. Mindray ultimately prevailed in the lawsuit. However, such litigation consumes corporate resources and imposes higher demands on compliant operations in the local market.

6.2 Mindray's Inherent Strengths

Mindray has broken through these challenges by leveraging its inherent strengths. While maintaining high performance standards, the company has captured a portion of the market through its competitive pricing, with products typically priced 10%-40% lower than those of international brands, offering outstanding value for money. The company also dedicates 10% of its annual revenue to R&D and innovation (As shown in Figure 4), ensuring it remains competitive in terms of product innovation (As shown in Figure 5). Mindray has also built a digital and intelligent healthcare ecosystem integrating "devices + IT + AI" to align with evolving trends, further enhancing its competitive edge. With localized production facilities in 13 countries worldwide, Mindray's products and solutions precisely meet the diverse needs of different markets.

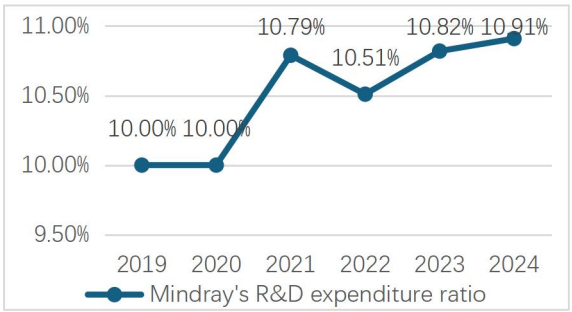


Figure 4. Percentage of R&D Investment by Mindray Medical from 2019 to 2024

Figure 5. Mindray Medical Product Innovation Timeline

7. Solutions for Privacy Protection Issues in Monitoring Devices

Mindray Medical's cutting-edge patient monitors may compromise patient privacy during network connectivity, data transmission and storage, potentially crossing legal boundaries. To address this issue, Mindray has developed technical and compliance solutions.

7.1 Technical Level

Mindray features dedicated encryption chips and a tamper-proof design to prevent physical attacks or unauthorized access. It supports periodic key rotation to mitigate long-term exposure risks. The MR-eGateway complies with international standards such as HL7. For example, the Mobile Viewer product uses SSL encryption protocols to ensure data security. The M-Connect connectivity platform helps healthcare providers to establish comprehensive medical ecosystems while enhancing patient privacy protection.

7.2 Compliance Level

Mindray adheres to the ISO/IEC 27001 Information Security Management System and the ISO/IEC 27701 Privacy Information Management System. Its patient monitors are designed to comply directly with HIPAA security rules. Prior to market launch, products undergo FDA certification and third-party testing. For example, select models in the BeneVision series have obtained UL 2900-2-1 CAP certification. At the same time, Mindray is actively involved in setting domestic industry

data security standards.

8. Conclusions and Recommendations

Mindray Medical's successful global expansion is based on a precise differentiation strategy and in-depth localization operations. This enables simultaneous market development in both developed nations and emerging economies. This approach mitigates single-market risks and generates powerful synergies. Meanwhile, sustained high investment in R&D is the cornerstone of building its long-term competitive edge.

Based on the above analysis, recommendations for Chinese medical device companies include:

(1) Gain an in-depth understanding of the policies, regulations, clinical needs, competitive landscapes, and other factors of target countries to enhance localized operations.

(2) Despite facing overall growth pressures and market capitalization contraction, the international medical device industry has prominent structural opportunities due to divergent development in niche segments.[5] Therefore, small and medium-sized enterprises can focus on their core technologies to achieve breakthroughs in specialized markets.

(3) Before entering high-end markets in Europe and the U.S., companies must proactively establish intellectual property (IP) protection. This includes obtaining relevant certifications in advance or acquiring certified companies to overcome barriers quickly. Simultaneously, both corporate brands and product designs require international registration to prevent future IP disputes.[6]

(4) Companies that dominate domestic markets by imitating overseas products face significant patent infringement risks when expanding abroad. Therefore, it is essential to hire professional intellectual property legal teams for risk assessments before going global to ensure comprehensive protection of core patents from the outset.[7]

(5) New concepts represented by independent innovation and digital intelligence are accelerating the cultivation of new productive forces within China's medical device industry.[8] Thus, driving digital transformation to achieve corporate transformation can expand market reach further.

References

[1] Feng Hu,Huijie Yang,Liping Qiu,Shaobin Wei,Hao Hu & Haiyan Zhou.(2025).Spatial structure and organization of the medical device industry urban network in China: evidence from specialized, refined, distinctive, and innovative firms.Frontiers in Public Health, 13, 1518327-1518327. https://doi.org/10.3389/FPUBH.2025.1518327.

[2] Zou Zhenjie. (2024-11-29). The Growth Story of Innovative Drugs and Medical Devices Going Global: A New Model for Global Expansion is Taking Shape. Yicai Global, A01. https://doi.org/10.28207/n.cnki.ndycj.2024.004334.

[3] Sullivan Analysis. Blue Book on the Current Status and Trends of China's Medical Device Internationalization in 2025

[4] Zhan Hongchun, Zhang Qinghan & Pan Feng. (2024). Innovation as the Core Driving Force for Achieving Self-Reliance and Control in High-End Medical Equipment. Chinese Journal of Medical Science, 14(06), 4-6.

[5] Tang Weike. (2025-04-08). Medical Device Industry Under Pressure in 2024: Performance Differentiation Across Segments, Innovation and “Going Global” Emerge as Key Growth Drivers. 21st Century Business Herald, 011.https://doi.org/10.28723/n.cnki.nsjbd.2025.001102.

[6] Zou Zhenjie. (May 20, 2025). Opportunities and Challenges for China's Medical Devices Going Global with High-End Products. Yicai Global, A06. https://doi.org/10.28207/n.cnki.ndycj.2025.001861.

[7] Qian Tongxin. (2025-06-30). China's Innovative Medical Devices Go Global to Europe and America: Why Venture Despite High Trial-and-Error Costs?, CBN Daily, A09. https://doi.org/10.28207/n.cnki.ndycj.2025.002454.

[8] Tang Li. (2024-08-20). Medical Device Industry Seeks High-Quality Path to Overseas Expansion. International Business Daily, 003. https://doi.org/10.28270/n.cnki.ngjsb.2024.002459.

