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Beyond Threads: Electronics, Pharmaceuticals, and Bangladesh's Bid for Global Value Chain Upgrading

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As Bangladesh approaches scheduled graduation in November 2026 from least developed country (LDC) status, changes in trade preferences, intellectual property structures, and subsidy regimes may reshape the environment for multinational corporations (MNCs). Bangladesh offers a low-cost manufacturing base transitioning toward diversified, global value chain (GVC)-integrated production. Applying the trifecta framework of tasks, linkages, and firms, we show why upgrading requires gradual capability-building in Bangladesh's electronics sector but faster strategic partnership in pharmaceuticals. Our findings have implications for international business managers and researchers by showing how functional specialization, knowledge connectedness, and lead-firm governance can shape GVC upgrading prospects in emerging economies.

INTRODUCTION

Bangladesh is the world's second-largest exporter of ready-made garments (RMG) (Nath, Mustayin, & Eweje, 2025), a position built on cost-efficient production and assembly. However, assembly captures less value than design, branding, and sourcing, limiting value capture and technological development. Similar to countries including Vietnam and Malaysia, which progressed from producing labour-intensive products to higher-value electronics and technology-intensive manufacturing (see [Table 1](#)), Bangladesh could follow a similar trajectory. However, Bangladesh's capacity to move up the GVC value chain will determine if it can successfully diversify from garments. This raises key questions: *How can Bangladesh leverage its industrial base to upgrade in GVCs? What are the implications for managers and IB researchers?*

Drawing on the GVC literature, we assess Bangladesh's upgrading prospects in the electronics and pharmaceutical sectors using the trifecta framework: functional specialization (tasks), knowledge connectedness (linkages), and the governance role of lead firms (Pietrobelli, Rabellotti, & Van Assche, 2021). Electronics is technology-intensive, whereas pharmaceuticals represent a regulated manufacturing sector. We situate Bangladesh's development challenge alongside regional comparators, then map the three dimensions onto both sectors to demonstrate the need for distinct managerial strategies. We analyze the opportunities and challenges for MNCs, following Chand (2024), and connect this approach to GVC upgrading, diaspora networks, infrastructure and governance, and NGO partnerships to offer insights for managers and scholars.

BANGLADESH: THE CHALLENGE

For two decades, Bangladesh's annual GDP has grown by more than 6%, on average. Its population of more than 173 million, low labor costs, and manufacturing base indicate potential for GVC upgrading. Bangladesh performs worse than Vietnam and Malaysia on many development indicators (see [Table 1](#)). Most FDI inflows are reinvested earnings, rather than new foreign capital, and the FDI stock is below 5% of GDP (ADB & OECD, 2025).

This gap may reflect policy incoherence and institutional fragmentation. The investment climate is worsened by overlapping investment agencies and a trading framework that promotes current RMG exports (ADB & OECD, 2025). High levels of perceived corruption also lower outside investors' assessment of institutional quality. Still, Bangladesh has unique assets, such as a strong NGO network and a diaspora of 10 million, which could facilitate GVC integration (Chand, 2024).

Bangladesh's state-led economic plans suggest a sophisticated industrial future. Vision 2041 aims to turn Bangladesh into a high-income country by 2041, building on Digital Bangladesh. Key priorities include increasing exports, investing in digital infrastructure and human capital, and moving to higher-value sectors such as medicines and electronics (UNDP, 2021). Clothing and textiles continue to dominate exports, but officials recognize the need to diversify, e.g., into electronics and medicines, and to develop the RMG value chain.

Foreign electronics multinationals, including Walton, Samsung and Xiaomi, manufacture locally, transferring production know-how. Samsung's Naringin plant (~50 km northeast of Dhaka), run by Fair Electronics, produces

Table 1. Development Indicators for Bangladesh, Vietnam, and Malaysia

Indicator	Bangladesh	Vietnam	Malaysia
GDP per capita (current USD), 2024	2,593	4,717	11,867
Population (total), 2024	173,562,364	100,987,686	35,557,673
FDI inflows (% of GDP), 2024	0.3	4.2	3.7
Trade (% of GDP), 2024	27.0	165.0	137.0
Industry (incl. construction), VA (annual % growth), 2024	3.5	8.2	4.9
Manufacturing, VA (% of GDP), 2024	22.0	24.0	22.0
Wage and salaried workers (% of total employment), 2023	40.6	47.0	72.4
B-Ready infrastructure score, 2024	70.0	50.0	75.0

Source: World Bank (2025).

Table 2. Firms in Selected Electronics and Pharmaceutical Sectors in Bangladesh

Company	Sector	Revenue (USD m) *	Export footprint	Positioning
Walton Hi-Tech Industries	Electronics	717 (2024)	45+ countries	Branded manufacturing; export expansion
Fair Electronics (Samsung)	Electronics	Not publicly available	Domestic + regional	Contract manufacturing, Narsingdi
Beximco Pharmaceuticals	Pharmaceuticals	353 (2023)	50+ countries	First Bangladeshi pharmaceutical company to receive approval from the United States Food and Drug Administration
Square Pharmaceuticals	Pharmaceuticals	613 (2025)	42 countries	Market leader (17.7% domestic share); WHO-cGMP, UK MHRA, TGA, FDA-compliant; first Bangladeshi pharma with overseas plant (Kenya, 2018)
Renata Ltd	Pharmaceuticals	340 (2024)	59 countries (reg.)	IFC supported (\$58M, 2025); UK & Ireland subsidiary; 51% owned by Sajida Foundation (NGO); growing in Latin America and Sub-Saharan Africa.

* Latest available data source: D&B Hoovers (February 2026).

smartphones and contributes to local production capacity (UNDP, 2021). Pharmaceutical companies such as Beximco, Square and Renata export generic drugs to over 150 countries, using WTO TRIPS flexibilities and enhancing quality control and regulatory capabilities (BIDA, 2025). Key companies are listed in [Table 2](#).

While manufacturing captures less firm-level value than pre- and post-production activities, aggregating value creation remains important. Upgrading through GVCs is promising in electronics and pharmaceuticals (Bradley et al., 2024), offering opportunities to integrate production with higher-value activities such as regulatory capability, process engineering, and quality management.

WHAT THE TRIFECTA TELLS US ABOUT ELECTRONICS VERSUS PHARMACEUTICALS

The trifecta framework argues that task localization, deep linkages for learning, and local enterprises' absorptive capacity to co-create are critical for value capture (Pietrobelli et al., 2021). For Bangladesh's RMG sector, Korean FDI was a catalyst when Dosh Garments partnered with Daewoo in 1979 to provide factory-based training. Of 130 Bangladeshi

trainees, 115 later left Dosh to start companies or join other garment firms (UNCTAD, 1992). The RMG sector localized low-value cut-make-trim (CMT) jobs, built initial learning linkages through Daewoo, and enhanced the capabilities of local enterprises.

However, the sector remained stuck at the CMT assembly stage when governance returned to buyer-led transactions with little functional knowledge transfer from the foreign brands, offering Bangladeshi firms scant room for adding value. Foreign firms accepted complementarity-enhancing process improvements, but resisted functional upgrades that threatened their core competencies. Can electronics and pharmaceuticals disrupt this pattern?

ELECTRONICS

Bangladesh's tech industry has shifted from importing to more local production. Fair Electronics manufactures Samsung phones in the greater Dhaka region. Xiaomi has established local manufacturing facilities. Huda et al. (2024) note that Walton has created a branded operation, alongside the growth of national champions and MNC-led assembly. Assemblers have been attracted by tax incentives, infrastructure investment, and tariff differentials (BIDA, 2025)

Still, upgrades are limited, as Bangladeshi operations mainly involve assembly, with limited production or component design. Narrow relationships produce shallow linkages involving prescribed functions. Fair Electronics is a contract manufacturer for Samsung, executing a fixed specification rather than co-development. Foreign-based engineering teams overseas handle design, component sourcing, and R&D. No channel has emerged to seed entrepreneurship as had previously with RMGs. Most local firms also have limited absorptive capacity; an exception is Walton, which signals the kind of firm-level upgrading that otherwise remains elusive. Bangladesh's industrial nodes run the risk of continuing to be isolated enclaves with little economic impact if other businesses don't emulate Walton by bolstering local ties and embeddedness.

In electronics, managers prefer phased localization: localize assembly; then testing, quality assurance, and supplier development; while exploring workforce upskilling over a three- to five-year period. The advantages of early co-investment are difficult for later entrants to reproduce.

PHARMACEUTICALS

The WTO TRIPS waiver has enabled Bangladesh's pharmaceutical industry to meet 98% of the domestic demand while exporting generic medicines to more than 150 countries. Beximco, Square, and Renata have WHO-approved facilities and are gaining exposure in regulated markets, supported by the establishment of government-sponsored pharmaceutical parks and companies' investment in R&D and quality processes (World Bank, 2025). Pharmaceuticals represent a three-pronged case of compliance-intensive work, links to standards-based regulators and financiers, and domestically-driven businesses with developed absorptive capacity. External linkages, rather than the vertical lead-firm relationships of the electronics sector, help build capabilities.

The quality systems of Beximco, Square, and Renata were designed to global standards, to satisfy WHO GMP, US FDA, UK MHRA, and TGA (Table 2). Square's facility in Kenya and Renata's \$58 million IFC financing and subsidiaries in the UK and Ireland demonstrate that such standards-based links build capability, not dependency. Weak IP protection allows companies to reverse-engineer generics. Inward FDI plays no major role in Bangladesh's pharmaceutical industry; FDI in pharmaceuticals is only 1.4% of Bangladesh's total inward FDI (ADB & OECD, 2025). This relative isolation from international markets and strategic partners creates two barriers to upgrading: only 4% of Bangladeshi pharmaceutical companies meet European Union Good Manufacturing Practice (EU GMP) requirements, while some local industry associations resist foreign entry (Asian Development Bank [ADB] & Organisation for Economic Co-operation and Development [OECD], 2025).

Changes are afoot. The Patent Act (2023) increased protection to 20 years, but Bangladesh has no trade-secret law that limits technology transfer (ADB & OECD, 2025). As Bangladesh graduates from LDC status, it will have to take full advantage of intellectual property flexibilities, including compulsory licensing. Beximco, Square and Renata could benefit from the regulated-market quality expertise, co-manufacturing and complex-generics development expertise of MNCs.

Both trajectories are underpinned by contrasting governance. The lead firm still dominates electronics, with Samsung and Xiaomi setting specifications and Bangladeshi assemblers doing the work. The domestically driven pharmaceutical sector is regulated; Beximco, Square, and Renata have exclusive control over production, regulatory strategy, and export decisions, and work with foreign partners on negotiated, not dictated, terms. Therefore, progress calls for patience and capacity building in one sector and speed and teamwork in the other. This is summarized in Table 3.

CHALLENGES AHEAD

As shown in Table 4, Bangladesh's transition to integrated manufacturing is constrained by interrelated factors that condition the trifecta framework. They are not equally challenging to both sectors; they amplify enclave risk in electronics and raise the urgency of pharmaceutical partnerships before the TRIPS window closes for LDCs.

IMPLICATIONS FOR IB MANAGERS AND RESEARCHERS

The trifecta diagnosis gives Bangladeshi managers two sets of recommendations. The electronics industry has limited capacity, few tasks, and weak connections among local companies. This translates into a practical sequence of beginning with assembly-only operations, bringing testing and quality assurance onshore within a year or two, and then certifying and developing local suppliers over a three- to five-year period, supported by sustained investment in technical training to bridge the talent gap identified in Table 4. This is not the same as localizing everything at once. These infrastructure gaps require managers to set local hiring and sourcing targets and to budget up front for backup power so that operations are economically embedded in Bangladesh rather than simply physically located there.

The pharmaceutical industry faces reversed reasoning; foreign collaborations can benefit both parties and build domestic companies' absorptive capacity. The TRIPS window can be used to establish co-manufacturing or structured licensing arrangements to lock in good partners before facing full competition. NGO partnerships can support

Table 3. Electronics and Pharmaceuticals in Bangladesh: An Integrated Framework

Dimension	Electronics	Pharmaceuticals	Managerial implications	IB research questions
Tasks: What functions are localized?	Assembly concentrated; limited component production, testing, or design.	Quality systems, regulatory compliance, and process integrity interwoven throughout production	Electronics: Enter via assembly, localize testing, QA, and process engineering over 3-5 years. Pharmaceuticals: Build entry around compliance, registration, and market access.	How does entrance task complexity indicate upgrade trajectory? When does capability build through market involvement rather than co-investment?
Linkages: How deep is the knowledge transfer?	Shallow: MNCs retain design, branding, and sourcing; supplier spillovers are limited.	Deep: Learning is driven by WHO, FDA and international certification criteria; regulatory needs become a motivation for competency, not merely a compliance cost.	Electronics: Co-invest in supplier and workforce training; use diaspora professionals as knowledge bridges. Pharmaceuticals: Use GMP/FDA expertise as a relationship-specific advantage in partnership negotiations; diaspora talent can reduce institutional distance and speed market registration.	When do MNC linkages spur upgrading and when do they create enclaves? How do diaspora networks replace formal institutional capacity in knowledge-intensive sectors?
Firms: Who has absorptive capacity?	MNC-led (Samsung, Xiaomi); Walton emerging as a national champion; most domestic suppliers lack absorptive capacity.	Domestic-driven (Beximco, Square, Renata). Built absorptive capacity over decades of regulated export competitiveness. Real co-development partners.	Electronics: Invest in local supplier capabilities now: first-mover advantages in workforce training and supplier networks are not easily replicated in a cost-competitive environment. Pharmaceuticals: Lock in co-manufacturing or licensing partnerships before scheduled LDC graduation tightens the IP regime and the strongest domestic partners commit to rivals.	How does firm-level absorptive capacity moderate MNC entry spillover effects? When do institutional voids become opportunities to build capabilities, rather than just constraints on investment?
Verdict: Overall strategic posture	Build from scratch. Enclave risk is real; phased capability co-investment over 3-5 years is required. Early movers set the benchmark that others must match.	Partner rapidly with capable incumbents before the opportunity narrows after LDC graduation.	Same country, different entry logic: electronics require patience and careful capabilities co-investment; pharmaceuticals require haste and strategic cooperation before a probable shift in the IP and preference environment post-LDC graduation.	Do MNCs consider Vision 2041 a credible commitment when making entry decisions? Can LDC graduation be an external shock to test GVC upgrading theory across sectors with diverse governance structures?

commercial access and social legitimacy, and the diaspora can be an entry accelerator for both sectors.

The RMG sector's 2013 Rana Plaza¹ tragedy offers important lessons for all industries, demonstrating that a GVC's reputational and legal risks are attached to the lead firm, rather than the industry. The tragedy showed how supply chain failures can have global reputational impacts, and that social and environmental reforms risk not leading to real improvements without policies that account for GVCs. The growth of electronics assembly and pharmaceuticals manufacturing in Bangladesh poses similar risks for MNCs. Electrical and workplace safety are infrastructure issues that arise in electronics. In pharmaceuticals, one error can put key WHO or FDA approvals at risk.

The reputational and legal challenges that reconfigured RMG governance post-2013 now confront electronics and pharmaceutical MNCs as global due diligence requirements, including the EU's Corporate Sustainability Due Diligence Directive, take center stage. Bangladesh offers a case for researchers to study how LDC graduation affects tasks, linkages, and firms across sectors with divergent governance structures: lead-firm-controlled electronics and domestically controlled pharmaceuticals. The juxtaposition of pharmaceuticals and electronics helps to evaluate when MNC linkages facilitate upgrading and when they create enclaves.

¹ [Bangladesh factory collapse toll passes 1,000 - BBC News](#)

Table 4. Policy Constraints to GVC Upgrading in Bangladesh: Mechanisms and Firm-Level Effects

Constraint	Manifested through:	Firm-level impact
IP & trade secrets	No general trade secret law. Protection is available under four statutes (Contract Act 1872; Competition Act 2012; Penal Code 1860; Patents & Designs Act 1911). The DPDT backlog means patents are still taking 4-6 years to issue. The Patent Act 2023 provides for a 9-stage registration process and 20 years of protection. Bangladesh is not a PCT member, so applicants must file directly with the national office. 57.0/100 B-READY 2024 Regulatory Environment (lower middle income)	The absence of trade secret laws hinders intra-firm transfer of technologies and tacit knowledge diffusion, limiting involvement in high-value production networks. Non-PCT membership creates procedural friction and costs for international candidates.
Infrastructure readiness	High-tech parks face irregular power supply, poor road connectivity, and a lack of transport links to Dhaka. The Kaliakair Hi-Tech Park was first proposed as a "cyber capital" to employ 100,000 workers by 2025. By the end of 2025, only 34 companies were operating, employing around 3,000 workers. Bangladesh's tax-to-GDP ratio dropped to below 8% in 2024, restricting public investment in infrastructure.	This increases transaction and operating costs, and reduces the predictability of output, undermining the locational competitiveness for efficiency-seeking, time-sensitive investment. All electronics assembly processes such as automated lines, precision testing and environmental controls require power without interruption. Any power loss can stop production, increase the chance of defects and delay delivery.
Regulatory fragmentation	Six investment agencies have overlapping mandates. Business Ready (B-READY) 2024 exposes structural weaknesses. Bangladesh scores 42/100 for Dispute Resolution and 40/100 for Business Insolvency, broadly in line with lower-middle-income peers. The proposed 2025 restructuring ordinance to divide the National Board of Revenue (NBR) into two separate bodies has been opposed by tax officials, who say it will create institutional uncertainty. In 2025, numerous business associations complained to the NBR about arbitrary customs valuations and discretionary tax enforcement.	This elevates entry barriers and regulatory risk. Unpredictable tax enforcement contributes to institutional uncertainty that discourages investment and complicates coordination within fragmented value chains. MNCs cite dispute resolution delays as a key concern.
Workforce readiness	Lack of practical, trained engineers for electronics testing, QA, and process engineering. Among the 213 active pharmaceutical companies in Bangladesh, only the top ones have EU GMP, US FDA, or UK MHRA certification. Only 1.2% of firms invest in R&D, less than half the rate in India, and 2.6% use foreign-licensed technologies. The training infrastructure at the Kaliakair Hi-Tech Park is still under construction.	Limits absorptive capacity and slows technological upgrading, increasing reliance on external capabilities and constraining movement into higher value-added activities. Most productivity gains must come from GVC spillovers rather than indigenous innovation.

Sources: Authors' compilation from ADB-OECD, BIDA, DPDT, Legal 500, OECD, World Bank B-READY, The Business Standard, and Rest of World.

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REFERENCES

- ADB & OECD. 2025. *Road map for investment policy reforms and sustainable development in Bangladesh*. Manila: Asian Development Bank. <https://doi.org/10.22617/TCS250111-2>.
- BIDA. 2025. *Sector profiles*. Dhaka: BIDA. <https://investbangladesh.gov.bd/publications/sector-profiles>.
- Bradley, C., Chui, M., Russell, K., Ellingrud, K., Birshan, M., et al. 2024. The next big arenas of competition. *McKinsey Global Institute*. <https://doi.org/10.67419/jyi.v1i1.10>.
- Chand, M. 2024. The emerging Bengal tiger: Opportunities and challenges for MNCs and policymakers. *AIB Insights*, 24(2). <https://doi.org/10.46697/001c.115315>.
- Huda, S. S. M. S., Sayem, W. H., Rahat, N. H., Nazmul, S. B., & Islam, T. 2024. An emerging Bangladeshi Tiger goes global: Innovation, going green, and sustainability in Walton. *Journal of Information Technology Teaching Cases*, 14(1): 134–143.
- Nath, S. D., Mustayin, S. S., & Eweje, G. 2025. Circular economy in a developing country's textile and apparel industry: Managerial perspectives on challenges and motivators. *Business Strategy and the Environment*, 34(3): 3600–3617.
- Pietrobelli, C., Rabellotti, R., & Van Assche, A. 2021. Making sense of global value chain-oriented policies: The trifecta of tasks, linkages, and firms. *Journal of International Business Policy*, 4(3): 327–346.
- UNCTAD. 1992. *World investment report 1992: Transnational corporations as engines of growth*. New York: United Nations.
- UNDP. 2021. Digital Bangladesh to innovative Bangladesh: The road to 2041. *UNDP Bangladesh*. <https://www.undp.org/bangladesh/blog/digital-bangladesh-innovative-bangladesh-road-2041>.
- World Bank. 2025. *World Development Indicators*. Washington, DC: World Bank. <https://databank.worldbank.org/source/world-development-indicators>.