

Value Chain Restructuring And Green Transformation: Building Sovereign Capacity For Commercial Services In Belarus

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KEYWORDS

ABSTRACT

Global Business Services;

Strategic Reorientation;

Labor Arbitrage;

Sovereign Competence

The global business services market has undergone drastic structural changes amid 2022 – 2024 geopolitical shocks, which have completely broken belarus' s traditional dual-engine service export model (ict outsourcing and transport logistics) relying on western european markets and east-west transit advantages. This paper critically reviews a thesis on belarus' s strategic reorientation in the global business services sector. The thesis holds that belarus should transform from a labor-intensive outsourcing hub to a product-centered sovereign competence center serving the eurasian economic union and the global south. This paper affirms the thesis' s accurate diagnosis of belarus' s structural vulnerabilities, including unbalanced service export benefits, high geographical concentration risk, and unique competitive advantages in engineering density. It also analyzes the thesis' s core strategies: Product-based competence model, industrial servicification, sovereign payment infrastructure, and g2g service export agency. Meanwhile, this paper points out prominent implementation challenges such as upfront capital pressure for productization, diplomatic risks of the global south market expansion, potential secondary sanctions, and insufficient talent retention mechanisms. It concludes that the transformation roadmap is difficult but irreplaceable for belarus, requiring coordinated efforts in institution, finance and diplomacy to achieve the goal of service export upgrading.

INTRODUCTION

The global business services market has long maintained a stable labor division pattern where developed economies provide capital, brands and governance, while emerging economies offer cost-effective skilled labor through outsourcing and nearshoring. For nearly two decades, belarus has occupied a favorable position in this system by virtue of soviet-era stem education heritage, geographical location between east and west, and the legal system of the high-tech park (htp), forming a dual-engine service export economy with ict outsourcing for western europe and transport logistics services as the core.

However, the 2022–2024 geopolitical shocks have made this model obsolete. Sanctions, swift disconnection, closure of western logistics corridors and withdrawal of global tech firms have completely undermined the institutional and geographical foundations of belarus's service exports. The reviewed thesis regards this crisis as a historic opportunity for structural transformation, arguing that belarus must shift from a passive labor-centric outsourcing hub to an active product-centric sovereign competence , under pressure from external sanctions, supply chain disruptions, and financial constraints, a country can independently control its technology, standards, payments, markets, and data security, thereby forming a sustainable service export capability that is not dependent on a single external entity.center serving the eaeu and the global south. This paper conducts a critical review of the thesis's core propositions, analytical rigor and implementation feasibility of its

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roadmap.and,in this thesis is going to focus on the change of the transformation direction from rvc to rvc.

Global value chain (gvc) vs. Regional value chain (rvc)

- gvc: Traditional division of labor – western dominance in r&d and branding, with belarus providing low-cost labor (labor arbitrage).
- rvc: Transformation direction – embedding into the eurasian economic union (eaeu) and the global southern blockchain, with sovereign capabilities at its core, independently providing products and solutions, belarus has shifted from low-end embedding in gvc to proactively building its own rvc blockchain, thereby elevating its value chain.

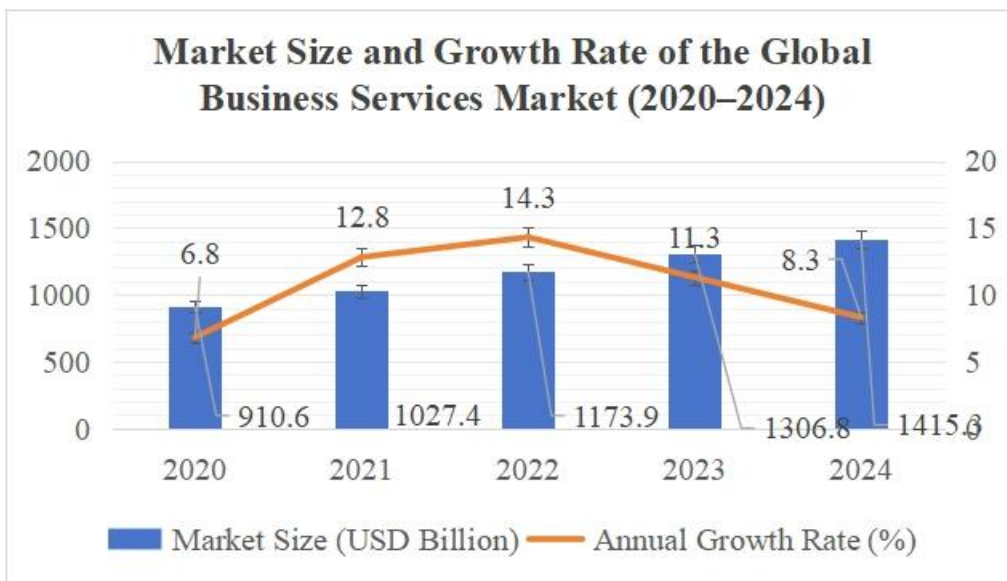


Fig.1.market size and growth rate of the global business services market (2020–2024)

Figure 1 illustrates the expansion of the global business services market from 2020 to 2024 alongside a pronounced growth-rate cycle. Market size rises from usd 910,6 billion (2020) to usd 1,415.3 billion (2024), confirming sustained demand growth, while the annual growth rate accelerates to a peak in 2022 (14,3%) before moderating in 2023 (11,3%) and 2024 (8,3%). This pattern suggests the sector is moving from a rebound-and-scale phase into a more mature stage where incremental growth increasingly depends on higher value-added service models (digitalization, automation, and specialized expertise) rather than pure volume expansion.

1. Literature Review

To existing studies have focused on the restructuring of global service trade networks, transformation of emerging economies’ service export models, and the impact of geopolitical risks on small open economies. Petricevic (2024) analyzed the path of economies from labor-hour exports to high-value sovereign capabilities in regional service value networks, providing a theoretical basis for value upgrading of service exports. The world bank (2024) pointed out the restructuring pressure on belarus’s transport and ict services after 2022, and tracked the short-term changes in its service export structure. Oecd (2023) documented the shift in export geography of eastern european countries under sanctions and trade policy adjustments, revealing the geographical reorientation trend of regional service trade. Everest group (2024) focused on digitalization, cloud and automation in the global services market, emphasizing the transformation from labor-based to product and outcome-based

delivery models. belarus's high-tech park (2024) released an annual report on the competitiveness of export-oriented digital services, reflecting the operational status and policy needs of belarus's core digital service sector. Despite sufficient research on the impact of geopolitical shocks and global service market trends, existing literature lacks a systematic and feasible strategic framework for belarus to break external dependencies, build sovereign service capabilities and expand diversified markets. The reviewed thesis fills this gap by combining structural diagnosis with practical transformation paths.

2. Research Methods

this paper adopts a critical research method based on literature and data analysis, centering on the core thesis of belarus's service export strategic reorientation. First, it uses structural decomposition analysis to disassemble belarus's dual-engine service export system, comparing labor productivity, net value-added and net currency retention of ict and transport sectors to identify structural fragilities. Second, it applies geographical concentration analysis and the herfindahl-hirschman index (hhi) to measure the market concentration risk of belarus's service exports, verifying the rationality of diversifying to the "Distant arc" Markets.

This refers to third-party markets in asia, africa, and latin america, outside of the eu and russia, forming a "Remote arc" For mitigating geopolitical risks and achieving diversification.

It conducts international comparative analysis by comparing belarus with poland, the czech republic, ukraine and india in terms of cost, institutional environment, labor attrition rate and professional expertise, positioning belarus's competitive advantages. Fourth, it uses strategic critical assessment to analyze the logic, feasibility and potential risks of the thesis's transformation strategies, including productization, industrial servicification, financial infrastructure and institutional support. Finally, it combines quantitative projection data of the thesis to evaluate the achievability of the transformation goals.

3. Empirical Results And Discussion

3.1 diagnostic results: structural vulnerabilities of belarus's service exports

the essay accurately identifies the deep-seated fragilities of belarus's service export model. the dual-engine system presents a structural dichotomy: the ict sector has high labor productivity (\$54,500 per employee) and net value-added (about 90%), while the transport sector faces declining net currency retention despite large gross revenue, indicating uneven real economic benefits of service exports. geographically, belarus has completed a dramatic "pivot to the east": russia's share in belarusian service exports rose from 36.5% (2020) to nearly 50% (2024). the rising hhi shows increased concentration risk, proving that replacing eu dependency with single-country dependency is not real diversification. international comparison shows belarus cannot win a price war against india or match the institutional stability of eu members, but has advantages in engineering density—strong analytical skills, low labor attrition rate (11.2% vs. india's 22.4%) and professional expertise in heavy

machinery and industrial software, suitable for positioning as a boutique engineering hub.

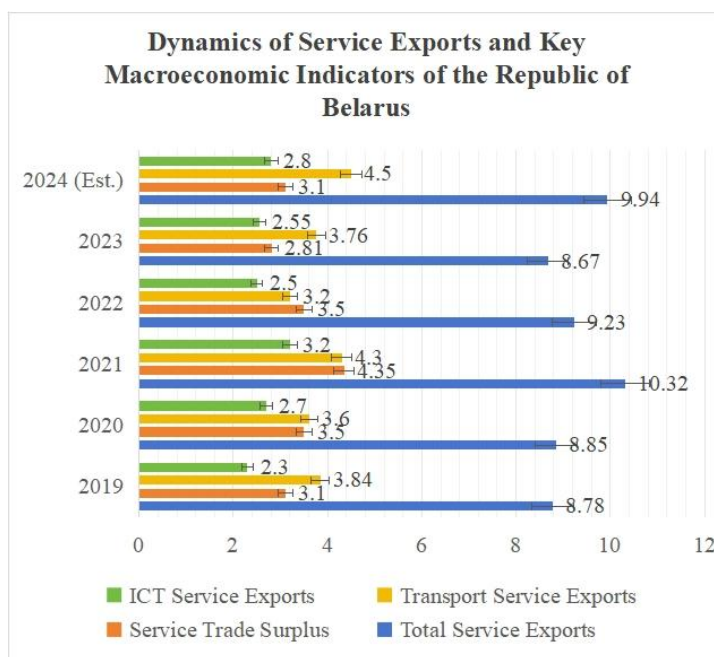


Fig.2. Dynamics of Service Exports and Key Macroeconomic Indicators of the Republic of Belarus

Figure 2 depicts the dynamics of Belarus’s service exports and related macroeconomic indicators over 2019–2024, emphasizing resilience under shock conditions. Total service exports increase to a peak in 2021 (10,32) before dropping in 2022 (9,23) and recovering toward 2024 (9,94, estimate), while the service trade surplus remains positive throughout (roughly 2,8–4,35). ICT service exports are comparatively stable (about 2,3–3,2), whereas transport service exports fluctuate more strongly (about 3,2–4,5), reflecting the higher exposure of transport to corridor disruptions and external constraints. Overall, the figure supports the interpretation of services as a stabilizing export pillar, with composition-driven volatility concentrated in transport rather than ICT.

Table.1. Structural Evolution of Service Exports: Transport vs. ICT (2019–2024)

Indicator / Sector	Unit	2019 (Baseline)	2021 (ICT Peak)	2022 (Shock)	2023 (Pivot)	2024 (Recovery)
Total Service Exports	USD Billion	8,78	10,32	9,23	8,67	9,94
Export Value	USD Billion	3,84	4,3	3,2	3,68	4,4
Share of Total Exports	%	43,8	41,7	34,7	41,2	44,3
Rail Container Transit	TEU (Thousands)	338,5	679,4	421,2	565	880,6
ICT SECTOR (HTP)						
Export Value	USD Billion	2,3	3,19	2,98	2,84	2,95
Share of Total Exports	%	26,2	30,9	32,3	32,7	29,7
Revenue per Employee	USD (Annual)	38,450.20	48,120.60	51,340.80	54,500.50	56,120.30
OTHER SERVICES						
Construction Growth	% (YoY)	4,5	6,2	-14,4	11	12,8
Financial Services Growth	% (YoY)	2,8	5,4	-10,2	-14,3	2,1

Table 1 decomposes service exports by category (transport vs. ICT vs. other services) and illustrates a pronounced structural shock in 2022: transport’s share drops sharply (from 41,7% in 2021 to 34,7% in 2022), while “other services” spikes (to 38,2% in 2022), before transport reasserts dominance in 2023–2024 (43,4% to 45,2%). This volatility suggests that Belarus’s service-export mix is sensitive to corridor disruptions and routing constraints; the partial normalization afterward indicates adaptation (e.g.,

alternative logistics paths), but the longer-run implication is that relying on transport-heavy composition exposes exports to higher exogenous risk, strengthening the rationale for scaling ICT-intensive and productized services that are less dependent on physical flows.

4.2 Strategic Prescriptions: Core Paths Of Strategic Reorientation

The essay proposes a logically coherent multi-layered transformation framework. First, transition to product-based competence model, the thesis proposes a logically coherent multi-layered transformation framework. First, transition to product-based competence model: Replace billable-hour outsourcing with proprietary software products (erp, industrial automation, cybersecurity) for the eaeu market, achieving scalable growth with low marginal cost and easing demographic constraints. Second, industrial servicification (industry 4.0 as a service): Bundle physical exports (heavy machinery, tractors) with digital services (predictive maintenance, iot monitoring, training), forming recurring revenue and enhancing customer stickiness, the company is shifting from "Selling labor hours" To developing independent and controllable software/platforms/solutions, with product licensing, subscriptions, and solution delivery as its core revenue streams, achieving scalable growth with marginal costs approaching zero: Replace billable-hour outsourcing with proprietary software products (erp, industrial automation, cybersecurity) for the eaeu market, achieving scalable growth with low marginal cost and easing demographic constraints. Second, industrial servicification, when exporting physical products such as equipment and machinery, manufacturing enterprises can bundle digital value-added services (predictive maintenance, iot monitoring, simulation training, and full lifecycle management) to form a hybrid revenue model of "Product + service" (industry 4.0 as a service).third, build sovereign payment aggregation infrastructure: A state-backed digital clearinghouse connected to cips, spfs and cbdcs to solve payment frictions caused by swift exclusion, reduce transaction costs through batch settlement. Fourth, establish a g2g service export agency: Act as the prime contractor for global south digitalization projects, breaking trust barriers with state guarantees and referring to the successful models of south korea and china.

4.3 Implementation Risks And Unresolved Challenges

The transformation faces severe practical obstacles. First, the j-curve financial risk: Productization needs high upfront r&d investment, while most belarusian smes rely on stable cash flow from time-and-material contracts, lacking venture capital and retained earnings, with unclear risk prevention mechanisms during the transition. Second, diplomatic uncertainty: G2g cooperation depends on political goodwill of global south countries, and belarus faces fierce competition from china, turkey and gulf states with stronger financial strength.

Third, secondary sanctions risk: The independent payment system may trigger further sanctions, and partner banks may avoid cooperation for fear of losing western market access. Fourth, insufficient talent retention: The brain drain of it professionals is not effectively addressed, and the "Human capital sovereign bond" Is not attractive enough for senior talents without improvements in domestic livelihood, rule of law and stability.

Table.2.Strategic SWOT Analysis of the Proposed Development Model

STRENGTHS (S)	WEAKNESSES (W)
1) Creation of "Sovereign Margin": The shift to a product-centric fiscal tier and IP capitalization insulates the sector from wage inflation and decoupling revenue growth	1) "J-Curve" Financial Vulnerability: The transition to product models requires high upfront CAPEX and R&D spending with delayed returns, creating significant cash flow

STRENGTHS (S)	WEAKNESSES (W)
<p>from headcount constraints.</p> <p>2) Operational Sovereignty: Establishment of independent logistics networks and local subsidiaries creates immunity against border closures and Western payment blockades.</p> <p>3) Scalability of Value: Transition to the “Product-Based Value Model” enables exponential revenue scaling with zero marginal cost of replication, overcoming demographic labor shortages.</p> <p>4) Trust Mitigation via State Guarantees: The G2G Agency mechanism effectively bypasses the “trust barrier” for private firms entering complex markets in the Global South.</p>	<p>risks for SMEs.</p> <p>2) Bureaucratic Inertia: Reliance on a state-run G2G Agency carries the risk of slow decision-making cycles that may be misaligned with the fast-paced global tech market.</p> <p>3) High Fixed-Cost Base (OPEX): Maintaining physical foreign subsidiaries and local compliance teams significantly increases the operational overhead compared to the lean remote-outsourcing model.</p> <p>4) Administrative Complexity: Differentiating between “service” and “product” revenue for tax purposes creates a complex regulatory burden and potential for arbitrage.</p>
OPPORTUNITIES (O)	THREATS (T)
<p>1) Import Substitution Vacuum: The withdrawal of global tech giants from the EAEU creates a protected market niche worth billions for Belarusian “sovereign-grade” ERP and industrial software.</p> <p>2) Digitalization of the “Distant Arc”: Emerging economies in Africa and Asia are actively seeking non-Western partners for national digital infrastructure, offering long-term vendor lock-in potential.</p> <p>3) North-South Corridor Dominance: Early investment in logistics infrastructure allows Belarus to secure a “First-Mover Advantage” as the gatekeeper of new Eurasian trade routes.</p> <p>4) “Data Embassy” Positioning: Belarus can position itself as a neutral, sovereign jurisdiction for data hosting, appealing to partners wary of both Western and Eastern hegemony.</p>	<p>1) Secondary Sanctions Risk: The establishment of new sovereign payment infrastructures (CIPS/SPFS integration) could trigger targeted secondary sanctions, isolating the new rails before they mature.</p> <p>2) Geopolitical Volatility: The success of the G2G strategy is entirely contingent on political relations; a diplomatic shift in a key partner nation could nullify institutional groundwork.</p> <p>3) Weak IP Enforcement: Expansion into the Global South exposes proprietary products to higher risks of software piracy and intellectual property theft, eroding theoretical margins.</p> <p>4) Technological Isolation: Prolonged lack of access to Western hardware and next-gen microchips could hamper the ability to develop competitive high-tech products over the long term.</p>

Table 2 ides a strategic SWOT of the proposed development model and functions as the bridge from diagnosis to design: the strengths emphasize institutional integration advantages and a dual capability base (logistics + ICT), while weaknesses focus on implementation complexity and gaps in technological sovereignty and scaling. Opportunities are framed around multipolar demand and “sanctions-resilient” ecosystem building, but threats (escalation, decoupling, demographic constraints) are systemic, implying that the proposed model must be robust-by-construction (multi-market architecture, modular delivery, redundancy in critical technologies) rather than optimized only for a single favorable scenario.

4.4.projection of transformation effects

The essay’s quantitative model projects that belarus’s total service exports will grow from \$9.94 billion to \$16.85 billion by 2030, and the share of product/licensing revenue will rise from 15% to over 42%. The goal is optimistic but achievable on the premise of completing institutional, financial and diplomatic supporting conditions.

Conclusion

This thesis provides a rigorous, realistic and forward-looking blueprint for belarus’s service export transformation. Its core contribution is shifting the focus from defensive stabilization to offensive structural restructuring, abandoning the nostalgia for western markets and building a new model centered on productization, industrial servicification and sovereign infrastructure. The accurate diagnosis of structural vulnerabilities and targeted strategic prescriptions make the thesis highly theoretical and practical value.

However, the transformation path faces huge challenges in capital investment, market expansion, financial security and talent retention, requiring high-level state-business coordination, long-term capital support and flexible diplomatic strategies that belarus has not fully possessed historically. The traditional labor arbitrage model is no longer viable, and the sovereign competence model is difficult but the only feasible path. For belarusian policymakers and business leaders, this thesis is an

operational manual rather than a comfortable forecast, and the long-term and arduous transformation is the only choice.

This paper establishes a core analytical framework: Dual-engine structural dichotomy, based on global value chain (gvc), regional value chain (rvc), service trade upgrading and economic sovereignty theories. It defines key concepts including labor arbitrage, sovereign competence, product-based competence model, industrial servicification and distant arc, and constructs a quantitative indicator system for measurement. The framework reveals that belarus's service exports consist of a high-value-added ict engine and a low-net-foreign-exchange transport engine, whose structural divergence determines systemic vulnerability and the necessity of strategic reorientation.

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