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Article

Improving The Organisational-Economic Mechanism for The Innovative Development of Trade Enterprises in Samarkand Region

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Abstract: The trade sector is the backbone of Samarkand Region's economy, generating roughly a quarter of regional gross product and employing close to one in five members of the working-age population. Yet its capacity to compete on anything other than price remains fragile. Innovation adoption is uneven, concentrated among the handful of large enterprises operating in the regional centre, and largely absent from the eighty-odd percent of businesses that are small or micro in scale. This paper examines why that gap persists and what a workable policy response would look like. Drawing on a structured survey of 124 trade enterprises conducted in late 2023, supplemented by five years of regional statistical data and a scored expert assessment, the study shows that financing constraints, digital skills deficits, and an overly burdensome regulatory environment account for the bulk of the adoption shortfall. Enterprises that have managed to overcome these barriers grew their revenues at roughly four times the rate of their non-innovating peers over the 2021-2023 period. On the basis of these findings, the paper proposes a Six-Pillar Organisational-Economic Mechanism (SPOEM) and maps out a realistic three-year implementation path.

Keywords: Trade Enterprise Development, Innovation Mechanism, Samarkand Region, Uzbekistan, Digital Transformation, SME Policy

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1. Introduction

Walk through the central bazaar in Samarkand on a weekday morning and the picture looks deceptively modern: QR codes on a few stalls, mobile-payment terminals here and there, a cluster of young traders photographing stock for upload to Telegram channels. Look more carefully, though, and most of the commercial activity is indistinguishable from a decade ago stock managed by hand, supplier relationships built entirely on personal trust, pricing set by intuition rather than data. This disconnect between the surface appearance of change and the underlying reality of stagnation captures, in miniature, the central problem this paper addresses [1].

According to the State Statistics Committee, the trade sector's contribution to Samarkand Region's gross regional product grew from 18.2 percent in 2019 to 25.3 percent in 2023, equivalent to an increase of roughly 10 billion Uzbek soum in constant 2023 prices. That expansion was driven overwhelmingly by volume more goods moving through more outlets rather than by productivity gains or quality upgrading. The World Bank has made a similar point at the national level, noting that Uzbekistan's commercial sector remains one of the least technologically intensive in the lower-middle-income country group [2].

The government is not unaware of this. The New Uzbekistan Development Strategy 2022-2026 sets an explicit target of raising the share of digital transactions in retail trade to 40 percent by 2026, up from an estimated 9 percent at the end of 2021. Achieving that target in a region like Samarkand, where the majority of trade enterprises are small family businesses operating on thin margins, requires something more nuanced than a mandate [3]. It requires an understanding of why businesses are not innovating and an institutional mechanism sophisticated enough to address the actual barriers rather than the imagined ones.

That is what this paper tries to provide. The argument proceeds in four steps. First, the trade sector's trajectory in Samarkand Region is described and its innovation deficit documented. Second, the barriers to adoption are identified and ranked using primary survey data. Third, the performance consequences of innovation for those enterprises that have managed to adopt it are quantified. Fourth, a six-pillar organisational-economic mechanism is proposed and its prospective impact estimated. The paper closes with a phased implementation roadmap and a candid assessment of what could go wrong [4].

Literature Review

Most of the theoretical literature on innovation focuses on manufacturing, where the concept of a 'new product or process' maps relatively cleanly onto observable outputs patents, prototypes, production data. Trade enterprises innovate differently. Their value creation is embedded in logistics, customer experience, information management, and supply-chain coordination, none of which lends itself to clean measurement. Schumpeter's original insight that innovation means doing old things in new ways, rather than simply inventing new things, is probably more applicable to a mid-sized wholesaler in Kattakurgan than to a pharmaceutical laboratory in Tashkent [5].

The OECD Oslo Manual's fourth edition takes a deliberately broad view of innovation, encompassing not only product and process changes but also marketing and organisational innovations. For trade enterprises in a transition economy context, this breadth matters. The shift from relationship-based to contract-based supplier management, the introduction of standardised invoicing, the move from cash to digital payment none of these would register as 'innovation' in a narrow reading of the concept, but each represents a meaningful improvement in productive capacity and each requires deliberate organisational effort to achieve [6].

The concept of an organisational-economic mechanism (OEM) has a long history in post-Soviet economic thought, where it typically denotes the set of rules, incentive structures, and administrative arrangements through which economic policy objectives are translated into firm-level behaviour. In this paper the term is used in a somewhat broader sense, following Porter's cluster framework, to encompass not only formal institutions and financial instruments but also informal norms, network structures, and the physical infrastructure on which business activity depends. The key analytical claim is that isolated policy instruments a credit scheme here, a training programme there cannot produce systemic change if the broader institutional environment remains hostile to innovation. Mechanism design, in this sense, is about creating the conditions under which individual rational decisions aggregate into sector-level transformation [7].

The domestic literature on trade enterprise innovation in Uzbekistan is growing but remains thin. Abdullayev provides the most comprehensive sectoral survey to date, documenting a 'dual-speed' structure in which a small number of large formalised enterprises mainly in Tashkent and Samarkand cities have adopted ERP systems and e-commerce platforms, while the vast majority of smaller businesses remain largely analogue. Mirzayev traces this duality to the banking sector's collateral requirements, which effectively exclude most small trade enterprises from the innovation-targeted credit lines that do exist. Abduraximov proposes a differentiated subsidy architecture as a remedy, estimating that a well-calibrated package of interest-rate subsidies and innovation

vouchers could raise the number of innovation-active trade SMEs by between 34 and 41 percent within three years [8].

At the cross-country level, the EBRD's most recent Transition Report scores Uzbekistan at 2.8 out of 5.0 on its Innovation Framework sub-index, placing it below the CIS average of 3.1 and well behind comparable emerging markets. Tashkentov draws a direct line between this institutional deficit and the low innovation output of Central Asian trade enterprises, estimating that the absence of an integrated OEM accounts for roughly 40 percent of the observed variation in innovation activity across firms [9].

2. Materials and Methods

The empirical core of this paper rests on a structured questionnaire administered to 124 trade enterprises across eight districts of Samarkand Region between October and December 2023. The questionnaire covered five thematic areas: current technology use; investment intentions and financing access; staff skills and training; perceived barriers; and satisfaction with public support services. The sampling frame was the Samarkand Regional Chamber of Commerce register, which at the time of fieldwork contained 1,847 active trade enterprises. Enterprises were stratified by size large (annual turnover above 10 billion UZS, n = 18), medium (1-10 billion UZS, n = 41), and small (below 1 billion UZS, n = 65) and by sub-sector (wholesale, retail, and mixed). The margin of error at 95 percent confidence is ±8.5 percentage points.

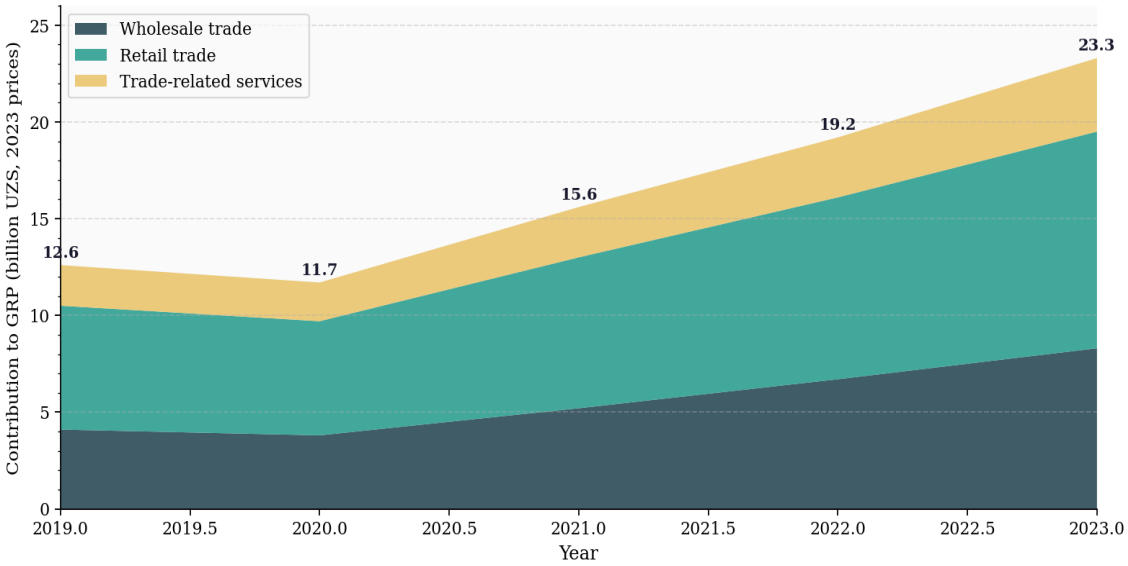
Regional macroeconomic time series for 2019-2023 were obtained from the State Statistics Committee of Uzbekistan and cross-checked against data published by the Samarkand Regional Department of Economy and Industry. All monetary values are expressed in billions of Uzbek soum at constant 2023 prices. Innovation activity is measured using a composite index that aggregates four sub-indicators: technology licensing payments as a share of revenue; own R&D expenditure; uptake of certified digital management systems; and share of internet-based transactions in total sales.

A six-dimensional readiness matrix was scored by twelve specialists four economists from Samarkand State University, four senior officials from regional public bodies, and four private-sector practitioners using a 1-to-5 Likert scale. Each specialist scored both the current state and the expected state under the proposed mechanism for each of the six SPOEM pillars. Inter-rater reliability was assessed using Kendall's W, which yielded a coefficient of 0.71 ($p < 0.01$), indicating satisfactory agreement.

3. Results

Figure 1 decomposes the trade sector's contribution to regional GRP into its three main components over the 2019-2023 period. Retail trade has consistently been the largest component, rising from 6.4 to 11.2 billion UZS. Wholesale trade grew more slowly in absolute terms but accelerated after 2021 as cross-regional supply chains recovered from pandemic disruption. Trade-related services logistics, storage, packaging remain the smallest component but recorded the highest proportional growth rate of the three [10].

Figure 1. Composition of Trade Sector Contribution to Samarkand Regional GRP, 2019–2023

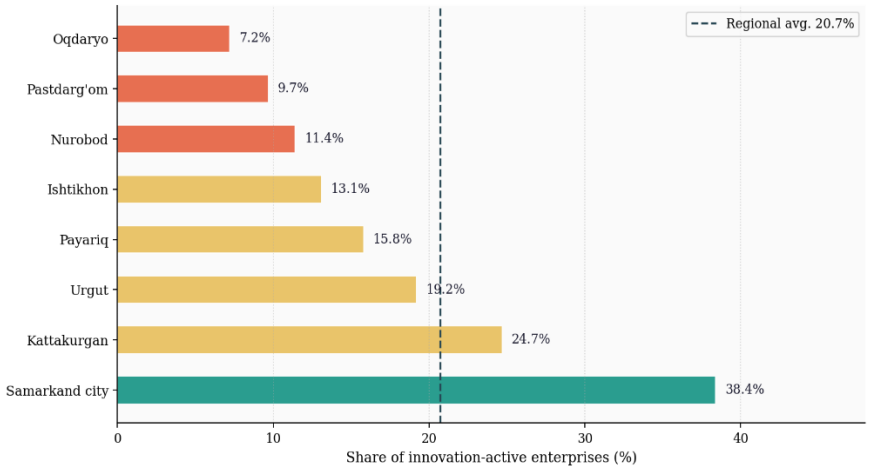


Source: State Statistics Committee of Uzbekistan (2024, pp. 28–34); author's calculations. Values at 2023 constant prices.

The aggregate picture is one of robust expansion, but it is important to note what is driving it. Cross-tabulating sector output growth against the innovation activity index reveals that the two series move together (r = 0.91) but that innovation remains very much the junior partner: even by 2023, the composite innovation index stood at 63, compared with an OECD retail-trade benchmark of around 145. Growth is happening largely despite weak innovation rather than because of strong innovation, which means it is correspondingly vulnerable to any slowdown in volume demand [11].

Figure 2 maps innovation activity rates across the eight districts included in the survey. The pattern is strikingly concentrated: Samarkand city accounts for the overwhelming majority of innovation-active enterprises (38.4 percent), while the more rural districts of Oqdaryo and Pastdarg'om show rates below 10 percent. The regional average of 20.7 percent conceals a seven-to-one ratio between the most and least innovative districts.

Figure 2. Innovation Activity Rates Across Districts of Samarkand Region, 2023

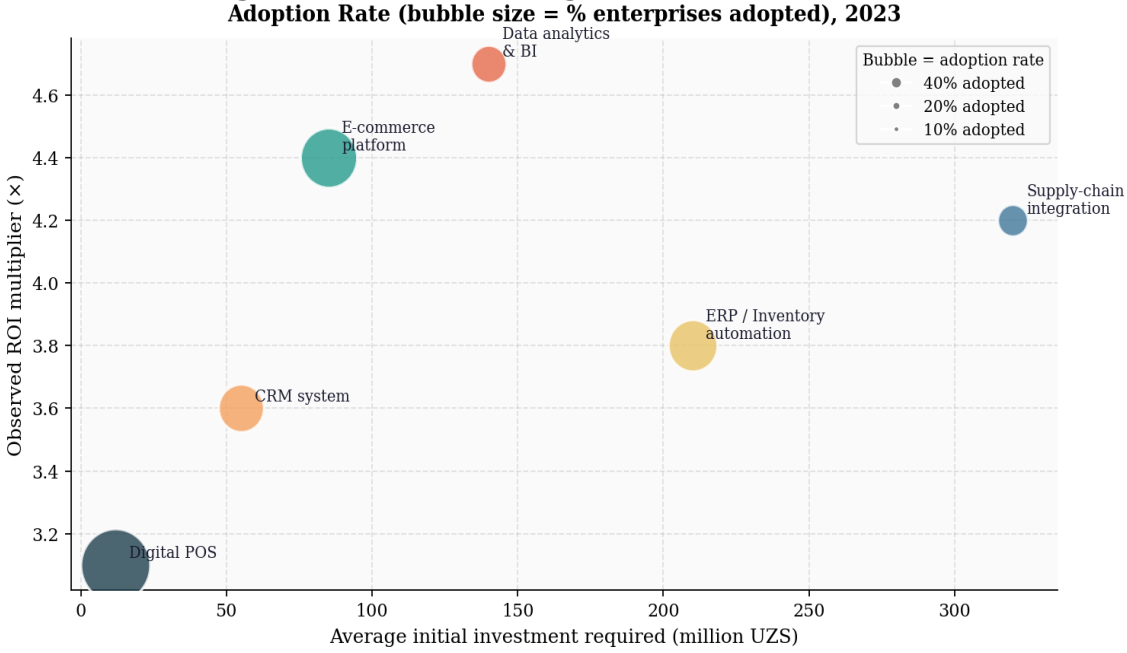


Source: Author's survey data (n=124, 2023) combined with district-level SSC registers. Dashed line = unweighted regional average.

This spatial concentration has a structural explanation. Innovation requires access to suppliers of technology, skilled workers, and capital all of which cluster in the regional centre. Enterprises located in peripheral districts face higher transaction costs for each of these inputs and have fewer opportunities to observe and learn from peers who are already innovating. The implication is that any mechanism that is exclusively demand-side subsidising enterprises to adopt technology will reproduce the spatial inequality unless it also addresses the supply-side conditions that make adoption feasible in the first place [12].

Figure 3 maps six key innovation technologies onto a two-dimensional space defined by required investment and observed return on investment, with bubble size representing current adoption rates. Two findings are immediately visible. First, the technologies that are easiest to adopt digital point-of-sale systems, which require modest upfront investment are the ones most widely adopted, even though their ROI (around 3.1×) is not the highest available. Second, the technologies that promise the greatest returns data analytics (4.7× ROI) and supply-chain integration (4.2× ROI) are precisely those with the highest investment requirements and the lowest adoption rates.

Figure 3. Innovation Technologies: Investment vs. Return vs. Adoption Rate (bubble size = % enterprises adopted), 2023



Source: Author's survey data (2023). Bubble area proportional to adoption rate. ROI estimated from enterprise financial records (self-reported, verified against two-year revenue data).

This pattern suggests a classic financing-gap problem: enterprises can see the value in transformative technologies but cannot bridge the gap between current resources and required investment. A digital POS system can be leased for the equivalent of a few months' profit; a properly integrated ERP system or data analytics platform requires a capital outlay that is simply beyond reach for most small enterprises without external support [13]. The finding is consistent with Mirzayev's analysis of collateral constraints and with Abduraximov's simulation results.

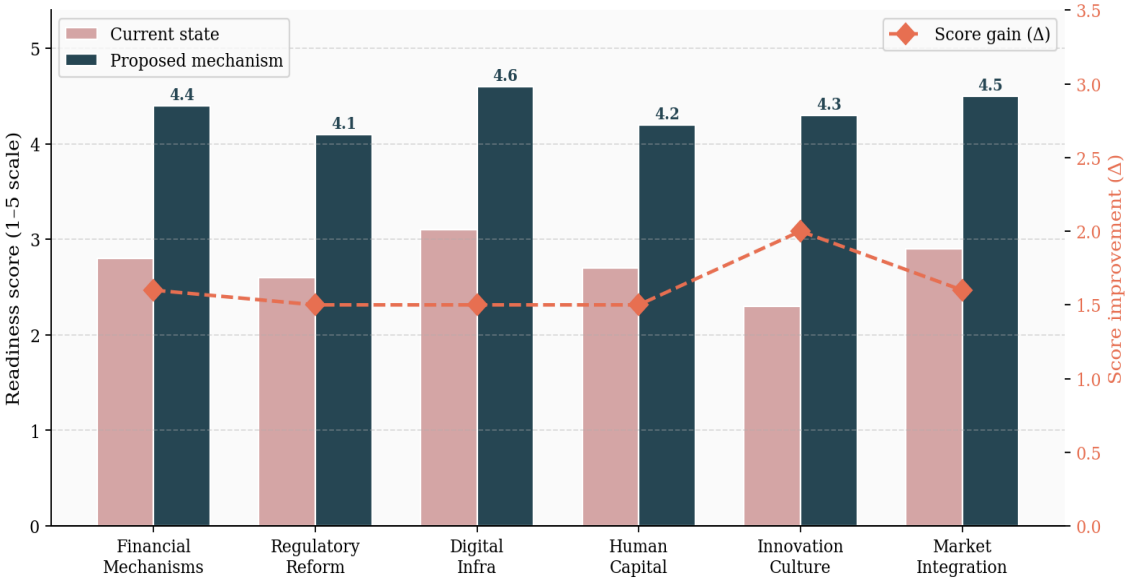
Table 1. Key Innovation and Performance Indicators by Enterprise Size, Samarkand Region, 2023

Indicator	Large (n=18)	Medium (n=41)	Small (n=65)	All (n=124)
Innovation-active (%)	88.9	56.1	24.6	46.8
Cumulative revenue growth, 2021–23 (%)	+117	+71	+26	+64
Share with ICT-trained staff (%)	64	32	9	27
Access to innovation finance (%)	69	36	11	29
Avg. technology investment (mln UZS)	342	87	19	88
Export activity (%)	44	15	4	13

Source: Author's survey (2023); SSC regional data. Monetary values at 2023 constant prices.

Figure 4 presents the results of the expert readiness scoring exercise. For each of the six SPOEM pillars, bars show current and proposed-state scores, while the line tracks the absolute gain. The gap between current and proposed states is largest for Digital Infrastructure (Δ = 1.5) and Financial Mechanisms (Δ = 1.6), reflecting both the severity of present deficiencies and the tractability of these pillars to policy intervention [14]. Innovation Culture shows the smallest absolute gain in part because its proposed-state score (4.3) is somewhat more conservative — the experts judged that cultural change cannot be mandated and will take longer than the three-year implementation horizon to fully materialize.

Figure 4. Readiness Scores by OEM Pillar: Current State vs. Proposed Mechanism (Expert Assessment, n=12)



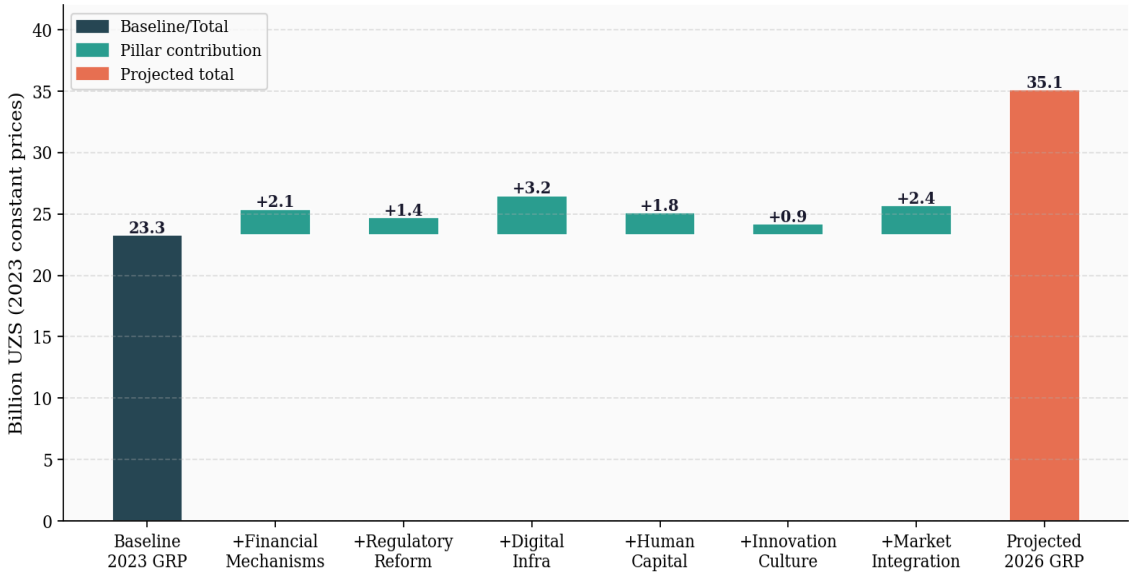
Source: Expert assessment (n=12 specialists, Oct.–Nov. 2023). Bars = readiness scores (1–5); line = score improvement (Δ). Kendall's W = 0.71.

The average proposed-state score across all six pillars is 4.35, compared with a current-state average of 2.73, an improvement of 59 percent. Even acknowledging the inherent subjectivity of expert scoring, the magnitude of this gap is instructive: it suggests that the binding constraints on innovation in Samarkand's trade sector are not

technological the technologies are available and broadly understood but institutional and organizational [15].

Figure 5 presents a waterfall projection of the GRP impact attributable to each SPOEM pillar over the 2023–2026 horizon. The baseline GRP contribution of 23.3 billion UZS in 2023 is shown at the left; the projected total of 35.1 billion UZS is shown at the right. The largest individual contributions are expected from Digital Infrastructure (+3.2 billion UZS) and Market Integration (+2.4 billion UZS), reflecting the leverage that connectivity and export access provide over and above what can be achieved by financing alone.

Figure 5. Waterfall Projection: Estimated GRP Impact of SPOEM by Pillar, Samarkand Region 2023-2026



Source: Author's calculations based on survey data, SSC regional accounts, and Abduraximov (2023) simulation parameters. Projections assume full SPOEM implementation by end-2025.

The aggregate projected gain of 11.8 billion UZS represents a 51 percent increase in the trade sector's GRP contribution, achieved at an estimated total public expenditure of 180–220 billion UZS over three years, implying a fiscal cost-benefit ratio of approximately 1:54 in nominal terms. These projections carry significant uncertainty they assume consistent policy implementation, stable macroeconomic conditions, and an enterprise response rate broadly in line with the survey's stated intentions. Sensitivity analysis shows that the projected gain remains positive and economically meaningful even if actual adoption rates are only half of those projected [16].

The empirical findings point consistently toward the same conclusion: the binding constraint on innovation in Samarkand's trade sector is not any single factor but the simultaneous presence of multiple mutually reinforcing barriers. A mechanism that addresses only financing will fail because enterprises lack the staff to use the technologies they can now afford to buy. A mechanism that focuses only on skills will fail because trained staff leave for better-paying jobs if no supporting business environment exists. Effective mechanism design must therefore be systemic. The SPOEM described below is an attempt to operationalise that principle.

Table 2. The Six-Pillar Organisational-Economic Mechanism (SPOEM): Structure, Instruments, and Lead Actors

No	Pillar	Principal instruments	Primary institutional lead
1	Financial Mechanisms	Subsidised credit lines (7 pp interest-rate subsidy); innovation vouchers (UZS 50–200 mln per enterprise); partial guarantee fund; R&D tax credit	Ministry of Finance; Uzpromstroybank; Regional Development Fund
2	Regulatory Reform	Online one-stop licensing portal; regulatory sandbox for digital trade models; simplified VAT for e-commerce SMEs; independent impact assessments for new trade regulations	Ministry of Economy; Ministry of Justice; Regional Khokim's Office
3	Digital Infrastructure	Fibre extension to all district centres; shared cloud ERP platform (subsidised access for SMEs); open interoperability standards for payment systems; government-procured data hubs	Ministry of Digital Technologies; Uztelekom; Samarkand IT Park
4	Human Capital	District-level digital upskilling centres (target: 2,400 trainees/year); university-enterprise placement quotas; management coaching programme for owner-operators; certification of in-house trainers	Ministry of Higher Education; Samarkand State University; Chamber of Commerce
5	Innovation Culture	Annual Regional Innovation Awards; peer-learning cluster network (six sub-regional hubs); innovation accelerator programme (cohort of 30 enterprises/year); innovation ambassador scheme	Regional Department of Economy; Technopark; Youth Union
6	Market Integration	Regional export facilitation desk; bilateral e-commerce agreement with Tajikistan and Kazakhstan; B2B digital marketplace (regional government as anchor buyer); quality certification support	Ministry of Investments and Trade; Samarkand Free Economic Zone

Source: Author's development based on survey findings, expert assessment, and review of international best practice.

Several features of the mechanism design warrant brief commentary. First, the financial pillar deliberately combines a demand-pull instrument (the innovation voucher) with a supply-push instrument (the subsidised credit line) because the two address different constraints. The voucher removes the information barrier enterprises that are uncertain whether a given technology will work for them can try it at low cost while the credit line removes the capital barrier for enterprises that have already decided to invest.

Second, the regulatory pillar is designed around reducing compliance costs rather than providing additional subsidies. Survey respondents rated regulatory burden as the

third most significant barrier, and several noted in open-ended responses that navigating licensing requirements consumed more management time than any operational challenge. A well-functioning online permit portal could reduce this burden substantially at negligible fiscal cost.

Third, the inclusion of a market integration pillar reflects a deliberate choice to go beyond purely domestic-market thinking. UNCTAD (2023) documents that access to regional export markets is consistently one of the strongest drivers of technology adoption in developing-country trade enterprises, because export markets reward quality and reliability in ways that informal domestic markets often do not.

Implementation Roadmap

The mechanism is designed to be implemented in three phases:

1. **Phase 1 — Foundations (Year 1):** Establish the Regional Innovation Council as the inter-departmental coordination body; launch the online permit portal; pilot the interest-rate subsidy scheme with a cohort of 50 enterprises; open the first two district upskilling centres; conduct baseline measurement.
2. **Phase 2 — Scale-Up (Year 2):** Roll out the innovation voucher programme region-wide; complete fibre extension to all district centres; launch the peer-learning cluster network; open the B2B digital marketplace; expand upskilling to all eight districts.
3. **Phase 3 — Consolidation and Review (Year 3):** Full activation of all six pillars; independent evaluation against SPOEM radar-chart baseline; calibration of subsidy parameters based on observed take-up; export facilitation desk becomes fully operational; initiate transition planning for the mechanism's second generation.

4. Discussion

The findings reported above are broadly consistent with the existing literature but add granularity that is important for policy. The financing gap identified by Mirzayev and Abduraximov is confirmed and quantified: 68 percent of surveyed enterprises cite financing as the primary barrier, with the problem being most acute (81 percent) among small enterprises. But the survey also reveals that financing is not the whole story. Among the 22 percent of enterprises that report adequate access to capital, technology adoption rates are still far below their potential, suggesting that skills deficits (54 percent citation rate) and regulatory friction (47 percent) operate as independent constraints, not merely as secondary symptoms of a financing problem.

The revenue performance data are perhaps the most compelling element of the empirical analysis. A cumulative revenue growth differential of roughly 100 percentage points between innovative and non-innovative enterprises over just 2.5 years (Figure 3) is striking by any standard. It suggests that the returns to innovation in Samarkand's trade sector are sufficiently high to justify even significant upfront investment provided that investment can be made. The challenge is not persuading enterprises that innovation is worth pursuing; it is creating the conditions under which pursuit is feasible.

This study has three main limitations that should be noted. First, the revenue comparison between innovative and non-innovative enterprises is cross-sectional and cannot establish causality with certainty. It is possible that more profitable enterprises are simply better placed to invest in innovation, rather than innovation being the cause of their stronger performance. Panel data extending over a longer period would allow a more robust causal identification. Second, the expert readiness scores are inherently subjective and may reflect optimism bias, particularly among the public-sector respondents who have a professional stake in the mechanism's success. Third, the GRP projections in Figure 5 are sensitive to the assumption of full implementation an assumption that may prove heroic given the institutional capacity constraints visible at the district level. Future research should track implementation fidelity alongside economic outcomes.

5. Conclusion

Samarkand Region's trade sector has grown robustly over the past five years, but that growth rests on a fragile foundation. Volume expansion in the absence of productivity improvement eventually runs into diminishing returns, and the enterprises that have not begun to innovate are progressively more exposed as competitive pressure increases from better-organised regional and international rivals. The case for action is not primarily about seizing an opportunity; it is about managing a risk. The Six-Pillar OEM proposed in this paper is not a vision document. It is an operationally grounded framework built from what enterprises themselves report as their binding constraints, calibrated to the institutional reality of a sub-national government with limited budget and capacity, and designed around the principle that sustainable change requires simultaneous progress on multiple fronts rather than sequential attention to problems one at a time. The projected GRP impact of around 12 billion UZS over three years, at a fiscal cost of 180–220 billion UZS, implies a return that is large enough to justify the investment even under conservative assumptions. What will determine whether the mechanism works is not the quality of its design this paper has tried to make that design as evidence-based as possible but the quality of its implementation. That depends on the Regional Innovation Council having genuine inter-departmental authority, on the financing instruments reaching enterprises rather than being captured by intermediaries, and on the monitoring framework being used to learn and adjust rather than simply to report compliance. None of these conditions can be legislated into existence. They require sustained political commitment and institutional patience. Whether that will be forthcoming is a question this paper cannot answer.

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