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Structural and Financial Dimensions of University Incubators in Uzbekistan: A Baseline Analysis (2019–2024)

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ABSTRACT

This study explores the structural and resource characteristics of university-based incubation centers in Uzbekistan, with a focus on funding, allocated space, staffing, and startup program engagement. While recent government policy has encouraged the proliferation of incubation centers within higher education institutions, limited empirical research exists on the physical and financial resources available at the time of establishment. This gap is addressed through an analysis of official institutional data from 11 higher education institutions operating incubation centers.

The dataset includes internal order numbers, floor area (m²) allocated for incubation activities, names of center directors, initial funding amounts (in million UZS), number of jobs created within the center, number of incubation programs, and the number of startup projects supported. A descriptive analytical approach was employed to assess variations in infrastructure and operational scope across institutions.

Findings show a combined allocation of 2,126.15 m² of space and total funding of 4,221.4435 million UZS for the 11 centers. The number of jobs created ranged from zero to five, while incubation programs varied between two and seven per institution. The number of supported startup projects ranged from one to twenty-five, indicating considerable diversity in institutional capacity and engagement levels.

These results have practical implications for resource planning and performance benchmarking in higher education-based incubation ecosystems. Future research should examine the relationship between initial infrastructure and programmatic variables with long-term startup performance and regional innovation outcomes to inform more equitable and effective incubation policies.

Keywords: Uzbekistan, incubation centers, higher education, funding, infrastructure, startup programs.

Introduction

In Uzbekistan, the integration of innovation and entrepreneurship support structures into higher education has become a strategic priority[1]. University-based incubation centers are at the forefront of this effort, serving as platforms for fostering student and faculty entrepreneurship, promoting technology transfer[2], and supporting early-stage startup development. These centers

typically combine physical infrastructure, mentorship programs, and networking opportunities to transform academic ideas into viable business ventures[3]. In 2025, multiple higher education institutions expanded or formalized their incubation facilities, creating a more structured and resource-backed environment for innovation within the academic sector[4].

Theoretically, the establishment of such centers aligns with the Triple Helix model, which emphasizes the interaction between universities, industry, and government in driving innovation. Within the Resource-Based View (RBV), physical space, financial capital, and human expertise are key institutional assets that can enhance entrepreneurial outcomes. Moreover, incubation theory suggests that adequate infrastructure and programmatic support can significantly increase startup survival rates and innovation outputs[4][5]. However, while the literature is rich with studies on incubation systems in developed economies, there is relatively little analysis of the infrastructure, funding, and operational capacity of university-based incubators in emerging markets, especially in Central Asia.

Existing studies on Uzbekistan's innovation ecosystem have primarily concentrated on policy frameworks or on high-level program statistics[6]. Few have provided granular data on the resource endowments of incubation centers at the institutional level, particularly during their formative stages. This knowledge gap limits policymakers' and administrators' ability to benchmark performance, allocate resources effectively, and design targeted interventions for capacity building[7].

To address this gap, the present study analyzes data from 11 higher education institutions hosting incubation centers, focusing on floor space, initial funding, staffing, program counts, and startup participation[8]. The data, sourced from official institutional records, allow for a comparative assessment of how resource availability and operational scope vary between institutions. This descriptive approach also provides a baseline for evaluating the potential influence of these variables on future entrepreneurial outcomes[9][10].

The expectation is that institutions with greater physical space, higher initial funding, and more extensive program offerings will be better positioned to support a larger number of startup projects and achieve stronger commercialization results. The findings of this study highlight significant variations in resource allocation and program scope, suggesting uneven capacity within the network of university-based incubators. These insights have implications for national innovation policy, particularly in ensuring more equitable distribution of resources and aligning institutional capabilities with strategic innovation goals.

Methodology

This study adopts a descriptive research design to examine the resource characteristics and operational parameters of incubation centers located within higher education institutions in Uzbekistan. The analysis is based on official institutional records from 11 universities, which provide detailed information on administrative authorization, physical space allocation, leadership, funding, staffing, program implementation, and startup engagement. The data include the specific internal order or agreement numbers establishing each center, the square meters of space designated for incubation activities, the full names of center directors, the amount of funding allocated in million Uzbek soums, the number of jobs created within the incubation framework, the number of incubation programs conducted or planned, and the number of startup projects supported.

The dataset was reviewed for completeness and internal consistency, with aggregate totals of funding and space cross-checked against reported figures. No primary data collection through interviews or surveys was undertaken; instead, the study relied entirely on secondary documentary evidence to ensure accuracy and comparability across institutions. Once compiled, the data were organized into a structured table to facilitate the identification of variation patterns. Descriptive statistics, including totals, ranges, and averages, were calculated to summarize the distribution of resources and activity levels.

This methodological approach enables a clear baseline assessment of the current state of university-based incubation centers in Uzbekistan. By systematically documenting and comparing these variables, the study provides insights into the diversity of institutional capacities and establishes a foundation for further research on the link between resource allocation and entrepreneurial outcomes.

Results and Discussion

The examination of institutional records from 11 higher education institutions reveals notable diversity in the resources and operational scope of Uzbekistan’s university-based incubation centers. The total physical space allocated to these centers amounts to 2,126.15 m², with individual allocations ranging from as little as 15 m² at Termiz State University of Engineering and Agrotechnologies to 1,249.15 m² at the Denov Entrepreneurship and Pedagogical Institute of Samarkand State University. This wide disparity reflects varying infrastructure readiness and strategic prioritization within institutions. Funding allocations display similar variation, with the lowest at 10 million UZS for Termiz State University of Engineering and Agrotechnologies and the highest exceeding 1,000 million UZS at the Denov Institute.

From a theoretical standpoint, these disparities can be analyzed through the Resource-Based View (RBV), which posits that unique resource endowments—such as physical space, financial capital, and managerial expertise—shape the competitive advantage of institutions in nurturing startups. The Triple Helix model also provides a useful lens, emphasizing that the degree to which these centers can act as innovation hubs depends on the depth of collaboration between universities, industry, and government. Institutions with more substantial resources are likely to develop broader program portfolios, including multiple incubation cohorts, advanced mentoring services, and prototyping facilities.

Operational indicators further reveal significant heterogeneity: the number of jobs created ranges from zero to five, the number of incubation programs spans from two to seven, and the number of startups supported varies between one and twenty-five. Such differences suggest that while some centers are already functioning as dynamic entrepreneurial platforms, others are at an early developmental stage. The variation in program and startup counts may stem from differences in funding, leadership experience, or existing regional innovation ecosystems.

The knowledge gap identified here is the absence of longitudinal performance tracking. While current data capture initial conditions, they do not measure how these resources translate into sustainable entrepreneurial outcomes such as startup survival rates, investment attraction, or technology commercialization. This absence limits the ability to design evidence-based interventions and to compare the efficiency of different institutional models (Table 1).

Table 1. Resource Allocation and Program Scope of University-Based Incubation Centers in Uzbekistan (2024)

| No. | Higher Education Institution | Allocated Space (m ²) | Funding (million UZS) | Jobs Created | Programs Conducted | Startups Supported |
|-----|-------------------------------------------------------|-----------------------------------|-----------------------|--------------|--------------------|--------------------|
| 1 | Andijan Institute of Agriculture and Agrotechnologies | 30 | 55.0 | 2 | – | 3 |
| 2 | Andijan State Technical Institute | 35 | 120.0 | 5 | 7 | 5 |
| 3 | Berdaq Karakalpak State University | 138 | 369.0 | 3 | – | – |
| 4 | Denov Entrepreneurship | 1,249.15 | 1,000.6435 | 5 | 20 | 7 |

| | | | | | | |
|----|-------------------------------------------------------------|-----|-------|---|---|----|
| | and Pedagogical Institute | | | | | |
| 5 | Fergana Polytechnic Institute | 48 | 218.0 | 4 | 2 | 1 |
| 6 | Jizzakh Polytechnic Institute | 135 | 598.3 | 0 | 5 | 5 |
| 7 | Karshi State Technical University | 160 | 758.0 | 2 | 7 | 6 |
| 8 | Karshi State University | 280 | 900.0 | 3 | 3 | 25 |
| 9 | Tashkent State Dental Institute | – | – | 3 | 1 | – |
| 10 | Termiz State University of Engineering and Agrotechnologies | 15 | 10.0 | 1 | 2 | 7 |
| 11 | Termiz State Pedagogical Institute | 36 | 192.5 | 0 | – | – |

Further research should therefore adopt a longitudinal, mixed-methods approach, combining quantitative tracking of key performance indicators with qualitative assessments of institutional processes, leadership strategies, and stakeholder engagement. Comparative studies with similar emerging economies could enrich the analysis, providing a broader context for understanding the relationship between initial conditions and long-term success. Additionally, in-depth case studies of high- and low-resource centers would offer practical insights into how resource constraints or abundance affect strategic decision-making and program design.

In practice, the observed disparities in space, funding, and program activity point to the need for targeted capacity-building initiatives and more balanced resource distribution. If addressed, these measures could strengthen the national incubation network’s ability to produce commercially viable startups and contribute to regional economic development. Without such adjustments, the unevenness observed at the outset may lead to structural gaps in Uzbekistan’s higher education-based innovation ecosystem.

Conclusion

The analysis of 11 higher education-based incubation centers in Uzbekistan demonstrates substantial variation in initial resource allocation, with total space amounting to 2,126.15 m² and funding totaling 4,221.4435 million UZS, alongside marked differences in staffing levels, program numbers, and startup engagement. Institutions such as the Denov Entrepreneurship and Pedagogical Institute, with over 1,000 m² of dedicated space and more than 1,000 million UZS in funding, exhibit far greater initial capacity than centers operating with minimal space and budgets, such as those at Termiz State University of Engineering and Agrotechnologies. These disparities have important implications for the consistency and scalability of entrepreneurial support in the higher education sector, as well-resourced centers are more likely to sustain diverse programs and provide comprehensive startup services. The findings point to a pressing need for targeted policy measures to reduce capacity gaps and promote equitable development across the national incubation network. Future research should undertake longitudinal and comparative analyses to examine how variations in funding, infrastructure, and human capital influence long-term startup performance, commercialization success, and contributions to regional innovation systems,

thereby informing evidence-based strategies for strengthening Uzbekistan's academic entrepreneurship ecosystem.

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