Digital innovations as a driver of inclusive youth entrepreneurship in Kazakhstan

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I. ABSTRACT

This paper of digital innovation and its contribution to inclusive young entrepreneurship in Kazakhstan are examined in this essay. It examines how government regulations, digitization trends, and the changing startup landscape impact young people's entrepreneurial endeavors. Youth entrepreneurship is a very serious structural problem, even with all the state's support for young entrepreneurs in the form of state entities (Digital Kazakhstan, Astana Hub, technoparks, incubators, accelerators). The latest Tax Code amendments, which raised VAT from 20% to 16%, the lack of funding and internet infrastructure, and regional variations have limited the development of inclusive youth-led startups. The research focuses on the identification of opportunities and barriers as well as an analysis of the current state of the Kazakh Startup ecosystem, Kazakh labour market, and institutional mechanisms of support. The role of higher education institutions (Astana Hub, KBTU, IITU, Nazarbayev University) and the imbalance in resources distribution between urban areas (Astana, Almaty) and rural/regional areas are of particular attention. To guarantee higher adolescent engagement from a variety of socioeconomic and geographic groups, the study suggests creating more targeted regulations as well as better possibilities for digital literacy, funding, mentoring, and infrastructure.

The findings demonstrate that while digital technologies open up new avenues for economic innovation and diversification, struct ural disparities in geography, gender, and socioeconomic position need to be addressed if young entrepreneurship is to become tru ly inclusive.

The article offers doable suggestions for enhancing the entrepreneurial climate and building capacity for inclusive and sustainable entrepreneurship.

Keywords:
digital transformation, inclusive innovation, startup ecosystem, digital entrepreneurship, young entrepreneurship, Kazakhstan, an d entrepreneurial ecosystem.

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II. INTRODUCTION:

The world of entrepreneurship has evolved due to the digital revolution, which has also created new avenues for diversification and innovation-driven business. As they become important contributors to their nation's competitiveness, employment, and sustainable economic development, start-up companies, especially those that depend on digital platforms and technological innovation, are becoming more acknowledged and accepted [1]. The government is now more interested in youth entrepreneurship as a way to foster innovation and lessen dependency on conventional industries due to the changes that have taken place in emerging countries like Kazakhstan. The elements that influence young people's entrepreneurial goals and involvement in startups are not well understood, despite government initiatives to encourage digitalization and the expansion of startups. The significance of this is

particularly emphasised in the context of university students and young graduates, because the existing literature on regional innovation is still relatively scarce in terms of studies on their involvement in innovation entrepreneurship (Ishola & Heyes, 2025).

Each successful startup project contributes to the development of the state's economy, national wealth, and various spheres of trade, education, and medicine (Talib et al., 2024). These areas constitute critical dimensions of national development of the country because the population should develop technologies to use them and move ahead with new innovations. And, Kazakhstan is not an exception, actively embracing these developments in order to be developed country (Baki, Jaradat, & Haider, 2024). These new aspects of economic and technological development have not spared our domestic development and labour market. It is imperative to understand that without reliance on science and technology, it will be impossible to achieve this goal [2]. The current landscape of entrepreneurial activity in our nation has been marked by the emergence of numerous state-sponsored startup enterprises that prioritise the utilisation of technological innovations to cater to the requirements of the market. Local Banks of Kazakhstan try to maintain young entrepreneurs by giving credits for beginning startups (Ahmad, Haque, Kumar, & Abdeljaber, 2025). There are many ambitious young entrepreneurs who are attempting to establish their own businesses. The niche of the businesses which are popular at the present time are IT engineers, IT specialists, and the sphere of services (Habeeb et al., 2025).

With the establishment of technoparks, incubators, and accelerator programs to foster creative endeavors, Kazakhstan's startup sector has been flourishing in recent years. It is projected that these institutions will fund around 1,000 start-ups by the end of 2022, up from roughly 300 in 2019 [3]. The increase is ascribed to both the growing number of young entrepreneurs choosing tech-based business ventures and the growing number of state investments in digital transformation. But it isn't always the case that the more stars the better, particularly for sustainability. From the international experience, although the failure rate among startups is still high, it is estimated that in the early stages of their development, about 89% of startups fail due to limited funding, insufficient market validation, inadequate managerial skills, and poor technology adaptation [4]. These figures are particularly significant in terms of youth-led digital entrepreneurship, where young entrepreneurs are in the early stages of their digital business with innovative concepts and digital competence, but lack the experience of the institutions, networks, and financial resources needed to develop new businesses in a competitive market. The study of the obstacles faced by young entrepreneurs in business survival has become quite relevant in the study of entrepreneurship and national economic policy in Kazakhstan.

The aim of the current paper is to examine the aspects that influence inclusive youth entrepreneurship within the digital start-up market of Kazakhstan. Attention will be paid specifically to the opportunities and challenges that young entrepreneurs face in the market of innovation-based entrepreneurship. In this connection, the study is designed to enrich the academic discussion concerning the impact of institutional support, digital transformation, entrepreneurial competencies, and resources on youth involvement in start-up activities. In order to investigate the present situation regarding the digital start-up landscape and the role that it plays in encouraging youth entrepreneurship in Kazakhstan, the following research objectives will be addressed: To identify the key economic, technological, educational, and institutional issues faced by young entrepreneurs in developing and launching innovative business projects. To evaluate current support provided for inclusive youth entrepreneurship (incubators, accelerators, government initiatives). Kazakhstan has been successfully working on improving the economic environment of the country in terms of diversifying the economy, modernizing technology, and paying greater attention to supporting innovation potential through initiatives for youth entrepreneurship [5].

The Kazakh authorities have made every effort to develop their national innovation system by creating initiatives such as the Astana International Financial Centre (AIFC) and launching the Digital Kazakhstan initiative. These initiatives are focused on improving the investment environment via legislation, tax breaks, development in IT infrastructure, creation of special economic zones, and encouraging ventures and technology-oriented business projects. Besides these economic benefits, there is another important reason why these mechanisms create youth opportunities for entrepreneurial activities.

For instance, digitalisation initiatives could contribute to improving young people’s access to entrepreneurship training, digital markets, and technology skills, which become more important in the startup economy. Likewise, mentoring programs, mentorship networks, and business assistance provided by the AIFC could benefit from incubators, accelerators, and investment opportunities offered by the AIFC. Yet, the efficiency of such initiatives has not always been guaranteed, especially concerning young entrepreneurs living in other cities, including Astana and Almaty. The transition to the startup industry remains less systematic and widespread among young individuals because of uneven access to financing, entrepreneurial training, and weak university–innovation ecosystem ties.

This ecosystem is thriving because of governmental aid and venture capital funds' investments; nevertheless, there is no way to make it available to entrepreneurs across various social and regional segments. Investors are finding themselves in an attractive position due to the emergence of significant sectors such as EdTech, MedTech, AgriTech, and Artificial Intelligence (AI), which can be considered potential areas for economic diversification. The emphasis placed on these industries is a reflection of the shift made by the state from relying on conventional industries to embracing technology advancements globally [5]. In addition, foreign collaboration has been gaining momentum, providing startups with new avenues to enter foreign markets.

III. Methodology

For the purpose of this study, a qualitative research design was chosen as it is aimed at discovering opportunities and problems of youth entrepreneurship within the innovation and startup environment in Kazakhstan. The research design included a systematic narrative review of cases on university innovation hubs by means of contextual analysis. Such an approach was chosen in order to provide an integral analysis of the influence of institutions, education, and digital environments on youth entrepreneurship and technology-based startups. It is a systematic process associated with the multi-component nature of youth entrepreneurship in Kazakhstan that cannot be quantified.

A. Research Design

The study adopts a qualitative interpretivist approach, which is related to meaning-making processes and contextual interpretation of entrepreneurship development. The research aims to explore patterns, themes, and relationships in the body of the literature and institutional evidence, rather than testing hypotheses. Academic research, policy documents, and institutional documents are brought together using a thematic synthesis approach. This enables a multi-layered insight into youth entrepreneurship, including digital innovation, ecosystem building, and higher education involvement.

Furthermore, there is a descriptive case-oriented part, where attention is paid to the innovation hubs based at universities (at Kazakh-British Technical University (KBTU), L.N. Gumilyov Eurasian National University (ENU), national innovation initiatives in the field of technology parks and start-up incubators). Rather than being read as an independent empirical case study, these cases are presented as "ecosystem nodes" that illustrate how youth entrepreneurship in the ecosystem can be enacted in practice.

B. Data Sources

The study is based on a secondary data source only. These include peer-reviewed academic journal articles, conference papers, books on entrepreneurship theory, government policy documents, and reports from national and international organisations. Key institutional sources are the documents of higher education institutions about entrepreneurship programmes and documents from innovation agencies and startup ecosystem reports.

Besides, policy documents like national digitalisation policies, entrepreneurship development policies, and innovation ecosystem reports are also added for the contextual background. Innovation hubs on campus (e.g., IT-oriented labs, incubators, and start-up acceleration centres) are also reviewed to grasp the role of education institutions in supporting students and graduates to develop entrepreneurial skills and to create startups.

It is possible to triangulate the findings using these various data sources, so that they are not reliant on one source of evidence. Theoretical supports come from academic literature, structural supports from policy documents, and applied supports from institutional literature reporting entrepreneurship developments.

C. Selection Criteria

Relevant and reliable literature was selected utilizing a structured set of inclusion/exclusion criteria (Alkhateeb, Ismail, Massadeh, & Almansour, 2024). The following criteria were used to determine that sources should be included:

Sources Relevance to Topic - The sources must be relevant to either youth entrepreneurship, digital entrepreneurship, entrepreneurial ecosystems, or innovation systems. Sources Geographical Relevance - The sources were preferred if they had relevance to either Kazakhstan or any similar ET economy. Sources Publication Time Frame - Most of the sources were selected because of their recentness, i.e., within the time frame from 2015 to 2025. Academic Credibility of Sources – The most important criterion was the peer-reviewed journals and conference proceedings. Empirical or theoretical contribution – Studies required to supply either empirical information, theoretical frameworks, or policy-relevant information.

Sources that were not academic, did not have methodological transparency, or that did not directly contribute to understanding youth entrepreneurship or digital start-up ecosystems were excluded. Any material that lacked analytical content was also not included unless it provided context for the material.

*D. **Analytical Procedure***

Thematic analysis was done by applying the multi-stage process. All the selected literature and documents were first read thoroughly to get familiar with the content. Secondly, initial codes were created based on recurring concepts like access to finance, digital skills, institutional support, regional inequality, innovation infrastructure, and entrepreneurial intention among youth.

In the third phase, these codes were subsequently grouped into larger thematic structures. The major themes that emerged from this research include: structures of the entrepreneurial ecosystem; barriers to inclusive entrepreneurship; dynamics of digital entrepreneurship; youth skills training; and institutional mechanisms of support. These themes underwent gradual fine-tuning so that they would remain conceptually clear and mutually exclusive.

Finally, the themes were combined into an integrative analytical framework. This helped the research transcend the limits of simply describing entrepreneurial outcomes by providing a critical analysis of how ecosystem factors influence these outcomes.

*E. **Analytical Use of University Innovation Hubs***

Higher-education related innovation ecosystems such as university incubators, startup labs, and collaboration centres were specifically analysed. These hubs were examined as an intermediary structure between students and intermediaries like industry actors, investors, and government innovation programmes. Special focus was placed on the opportunities offered to entrepreneurial learning through hackathons, start-up competitions, mentorship programmes, and collaborations with technology companies, such as KBTU and ENU.

These hubs are not considered to be stand-alone successes, but are examined as components of a larger ecosystem that may affect the processes of skill formation, opportunity identification, and venture formation among youth. This approach allows for a more complex picture of the role of education institutions in the process of entrepreneurial capacity-building in Kazakhstan. In the analysis of Student Writing Outcomes, validity and reliability considerations were included in the analysis.

Triangulation of multiple sources of information, such as academic literature, policy documents, and institutional reports, was used to increase the validity of the findings. Furthermore, coding and theming were consistent throughout the analysis to minimize the possibility of interpretive bias. The study is not a primary data study, but the methodological rigor is secured due to the systematic selection of sources and a clear analytical process used.

*F. **Limitations of the Methodology***

This study, however, is subject to certain limitations since all the information obtained in the study is secondary data that may not completely represent the real experience of being an entrepreneur in practice. Besides, owing to the unavailability of information in some regions of Kazakhstan, the findings may be biased in favour of the urban setting, considering that a majority of the publicly available information is generated in key innovation hubs. Overall, however, the approach provided a robust method for studying the literature. On the whole, such an approach to methodology offers the possibility of systematically and critically assessing the issues of youth entrepreneurship in Kazakhstan through the application of ecological theories, institutional approaches, and thematic synthesis of existing literature (Fahmy et al., 2026). This helps form a logical basis for studying the influence of digitalization, education systems, and policies on youth entrepreneurship.

*G. **An assessment of the Kazakh labour market.***

The figures related to the number of unemployed population in 2020 in the fourth quarter are given by the assessment of the labour market carried out according to the official employment statistics of the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan [9] and equal about 453 thousand people at the unemployment rate of 4.9% compared to 4.8% in 2019. These statistics were collected during the period of economic recovery from the pandemic, but their relevance can be considered the same since they reveal the features of the structure of the labour market that stimulated the need for other ways of making money, such as being self-employed in various ways, including starting one's own business or becoming a freelancer or technologist (Kubam, Duggirala, et al., 2025).

These economic disruptions resulting from the COVID-19 era have made the problems related to youth employment even more severe, thereby highlighting the need for digital literacy, innovation, and entrepreneurship within this changing job market. In addition, the stability within the unemployment rates recorded in all regions (between 4.6% and 5.2%) reveals that there were issues

regarding unemployment that were evenly distributed across all regions and not just concentrated within a single region. However, these statistics only give a general overview that fails to reveal any disparities among the regions. The questions are even more pertinent in light of Kazakhstan's state policy on the digital transformation of the economy and the development of start-ups in a nation that will be subject to decisions regarding digital transformation for the next six years (2024–2026).

It should be noted that two regions have a minimum unemployment rate - the city of Astana and the Karaganda region. And the two regions with the highest unemployment rate are Almaty and the Turkestan region. Seven regions have unemployment rates of 4.9%. This indicator is the mode (Mo) for this series of observations. This platform has become the first digital platform in the Republic to create a complete database of vacancies and resumes. It is connected to 200 state employment centres, 48 individual private employment agencies, 4 mass media, and 6 online platforms. There are more than 48,000 vacancies and 77,000 resumes posted on the electronic labour exchange.

The electronic labour exchange platform reportedly enabled the employment of over 280,000 citizens, with a growth in the digitalisation of labour-market institutions and employment services [10]. This electronic system is still being developed, with the recent introduction of digital employment contracts and online professional training programs, highlighting the government's ongoing initiative to modernize workforce management and enhance the efficiency of the labor market. Furthermore, the platform allows employers to recognize skills in demand and helps education institutions match education training programs to the changing labor market needs [11].

The main goal of the Digital Kazakhstan state program is the progressive development of the digital ecosystem to achieve sustainable economic growth, increase the competitiveness of the economy and the nation, and improve the quality of life of the population. Digital technologies have provided a number of advantages: simplification of public and business access to public services, acceleration of information exchange, emergence of new business opportunities, and creation of new digital products. The expected digital dividends for Kazakhstan are determined and designated in accordance with the strategic goals of the state. In Western countries, robotics is entering a new phase. Currently, after the completion of the robotisation of material production, the robotisation of the service sector begins. Everyone knows that most of the population here is employed in the service sector. This process will manifest itself in the banking, transport, and trade sectors. Over time, people will be replaced by machines and robots [2].

These developments are also closely linked to youth entrepreneurship and the creation of start-ups. Beyond matching people and jobs, digital labour platforms can play a role in building entrepreneurial skills and knowledge, digital literacy, and professional networking opportunities that are increasingly present in the ecosystems of startups focused on technology. Internet access, flexible employment, and digitally mediated employment markets for youth can be expected to reinforce their readiness to work independently and in innovative business activity (Альшурман, Батаинех, & Альхмуд, 2025). Moreover, linking the labour market to education and technology systems could facilitate the identification of sectors with a growing need for labour that might respond to the demand from youth-led startups.

Macroeconomic indicators should not be ignored as irrelevant, but rather, it is more appropriate to state that macroeconomic trends are not enough to understand entrepreneurship outcomes at the micro level (Darwish, Darwish, & Haider, 2025). National employment indicators can give an indication of the overall state of the economy and employment situation, while various aspects of the operations of the business, including labour costs, productivity, quality of the workforce, technological efficiency, and market competitiveness, can have a more direct impact on employers and entrepreneurs (Tarawneh & Issa, 2024). Therefore, quantitative and qualitative methods are needed to analyse the effects of digitalisation on youth entrepreneurship. While quantitative analysis can reveal trends in employment, growth of startups, and the labour market, qualitative analysis is required for identifying the barriers that young entrepreneurs face in terms of skills, access to funding, digital access, and adaptation to the labour market in Kazakhstan's developing digital economy.

However, in the context of inclusive youth entrepreneurship, inclusion should be understood as the capacity of young people from all geographic locations, genders, income levels, and educational backgrounds to have access to networks for innovation, infrastructure, and skill development so they can use them meaningfully and build their entrepreneurial ecosystem. In Kazakhstan, socioeconomic and digital disparities continue to have an impact on this inclusion gap. For example, compared to large cities like Astana and Almaty, young people in rural areas have less access to the Internet, co-working spaces, incubators, and innovation hubs.

The differences have a direct effect on the level of skills possessed by rural youth in order to scale their digital start-ups. The differences have a direct effect on the level of skills possessed by rural youth in order to scale their digital start-ups. In addition, disparities in the field of digital literacy and education act as hindrances to participation in an inclusive manner. Rural youth from poorer families do not have access to high-tech gadgets or programming and entrepreneurship education to allow them to venture into tech-enabled business models (Wiafe & Mensah). Moreover, gender is another variable in exclusion, in which young female entrepreneurs encounter additional challenges in accessing resources, networks, and sectors that are dominated by lower capital digital enterprises. Similarly, young people who fall in the category of unemployment and underemployment are very vulnerable since they have the spirit of being entrepreneurs but lack resources and guidance.

From the disparities above, one can infer that the challenge is not merely about the availability of digital technologies, but also about the imbalanced possession of competencies that would allow young people to use these technologies. It implies that in order to encourage entrepreneurship amongst the youth in Kazakhstan, policymakers need to focus not merely on the goals of digitalization, but also on specific steps that would address the problem of regional infrastructure inadequacy, develop digital competency trainings, provide more financial inclusivity mechanisms, and create mentorship programs. Otherwise, digitalization risks widening rather than reducing inequality (Kubam, Maddipatla, & Kakaraparthi, 2025).

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Kazakhstan's digital transformation is one of the key factors for effective management of the national economy as a whole. In a global market where technological progress determines the competitiveness of countries, the introduction of digital solutions and strategies serves as the basis for increasing productivity, improving public administration, and accelerating the development of socio-economic infrastructure. The development of the digital economy infrastructure plays an important role in the digital transformation of the country. Modern digital infrastructure is the basis for the development of new technologies with the potential to accelerate economic growth, improve the quality of life of citizens, and ensure the availability of public and private services.

The strategic introduction of digital technologies, such as broadband Internet access, the development of fifth-generation digital networks (5G), and data centres, contributes to creating conditions for the digitalisation of economic sectors and accelerated innovation. The growing attention to youth entrepreneurship can be explained by two factors: the ever-growing number of unemployed youth and the desire for competitiveness, combined with the need to develop skills.

IV. Literature review.

The thematic strands—such as entrepreneurial ecosystems, inclusive entrepreneurship, digital entrepreneurship, youth entrepreneurship, and context-specific evidence from emerging economies like Kazakhstan—all contribute to a better understanding of the current body of research on entrepreneurship. Researchers like Audretsch and Fiedler (2023) have emphasized in the literature on EE that entrepreneurship is an act rooted in a network of interacting actors and institutions rather than an entrepreneurial act of a single individual and organisations. In this view, entrepreneurs may take on a number of roles, and a range of stakeholders engage in opportunity creation and resource mobilisation in the ecosystem, such as universities, investors, and policymakers (Wiafe, 2026). This framework is especially applicable to studying the effects of structural support systems on startup formation and viability. On this, the inclusive entrepreneurship literature builds on the EE approach by concentrating on the unequal access to entrepreneurial opportunities among various social groups. It emphasizes that access to ecosystem resources is not equal and that access to ecosystem resources influences the capacity of a person to enter entrepreneurship in a meaningful way, based on gender, income, education, geographic location, etc. However, this is particularly relevant for the analysis of youth entrepreneurship because youth entrepreneurs may be subject to a variety of structural constraints, such as limited financial capital, lack of professional networks, and restricted institutional access. The digital entrepreneurship strand delves deeper into the topic and explores the impact of digital technologies on business creation, scalability, and innovation processes. Digital platforms lower the barriers to entry and can facilitate new types of business startups, but also new requirements for infrastructure, digital skills, and algorithmic markets. This topic is

closely related to the field of youth entrepreneurship due to the significant correlation between youth entrepreneurs' qualities and their usage of digital technology, in such a way that youth entrepreneurs are usually the first users of digital technologies as well as the most susceptible to market volatility, skills shortage, and resource availability issues in rapidly evolving digital environments. As for Kazakhstan, some studies show that government initiatives towards the creation of a favorable entrepreneurial ecosystem have been very influential in this regard, especially the creation of innovation centers, incubators in universities, and strategies for digitalization. Nevertheless, there was some evidence that the current situation in Kazakhstan regarding the availability of resources, infrastructure, funding, and entrepreneurial education in urban areas (Astana, Almaty) versus rural/underdeveloped areas is somewhat imbalanced. This means that, while Kazakhstan has come very far in creating a fertile entrepreneurial environment, the existing research lacks an adequate analysis of mapping and structuring the ecosystem and youth entrepreneurship opportunities in different social, economic, or geographic communities (Kubam, Budaraju, et al., 2025).

Entrepreneurship development in Kazakhstan still shows a certain imbalance in the structure of its economy between policy intentions for diversified and innovation-based development and the current focus on a few sectors and regions. While government programmes have focused on developing SMEs and diversifying the economy through innovation, entrepreneurial activity has been unevenly distributed, with better results in resource-based industries and urban areas, and less in underdeveloped and rural areas, including those with agricultural-based economies, which still have weaker startup formation, limited inflow of investments, and access to innovation infrastructure. The policy-oriented evidence shows that the state provides more support mechanisms and financial resources to SMEs and large corporations from high-revenue sectors (oil and gas, banking, extractive industries) while small-scale and early-stage entrepreneurial ventures and young entrepreneurs are less likely to have access to these resources and/or suffer from policy barriers to accessing them. This disequilibrium poses constraints on the ability of entrepreneurship to be a broad-based development strategy and hampers its contribution to inclusive economic transformation. In addition, existing Kazakhstani scholarship tends to focus more on macro-level investment trends, agricultural modernisation, and industrial development policies rather than on micro-level dynamics of youth entrepreneurship and digital startup ecosystems (Sultanova, 2020; Nimanov and Varavin, 2021; Imanbayeva et al., 2024). There is, therefore, a conceptual and empirical void in the understanding of the interplay between regional disparities, sectoral concentration, policy implementation structures, and outcomes of inclusive youth participation in entrepreneurship. This need is crucial for consolidating Kazakhstan's innovation ambitions with the realities of building a startup, especially in less competitive geographical areas and among the next generations of young entrepreneurs.

Audretsch and Fiedler (2023b) show that in the case of Singapore, the core entrepreneurial functions of opportunity discovery are overtaken by the state, potentially crowding out bottom-up entrepreneurship. Hence, the role of entrepreneurship differs across EEs, which suggests that certain types of entrepreneurs activate existing EE playbooks more effectively than others do. Entrepreneurial role identities in EEs are evolving and increasingly incorporate a sustainability dimension (Mirza et al., 2025).
To date, research has focused primarily on the connection between the founder and the firm (O'Neil, Ucbasaran, and York 2022). Recent empirical contributions demonstrate that role identities are far from fixed.

Cesinger, Vallaster, and Müller (2021) show how sustainable entrepreneurs shift between different identities to cope with tensions between economic, social, and ecological logics. However, commercial logics and narratives often prevail (Terveen 2020). Mentors, advisors, and other EE actors transmit norms and expectations that guide the development of entrepreneurial role identity, as well as routines to assemble resources (Yitshaki 2025), as does entrepreneurship education (Entrialgo and Iglesias 2018). Klyver, Schenkel, and Nielsen (2020) show that entrepreneurs' reactions to support depend on the alignment between what they expect from role relations (family, friends, or businesspersons) and what they receive.

The story of entrepreneurship in Kazakhstan brings a paradox of national policy goals that aim at diversifying the economy through innovation, and the uneven regional abilities to sustain entrepreneurship development. The country has put in place various institutional tools to support SMEs and promote start-up activity, such as start-up incubators, accelerators, and co-working spaces, but such supports are more likely to be found in urban innovation centres than in less developed areas, which are mostly based on agriculture. Consequently, the availability of entrepreneurial resources is not uniform, and this affects how entrepreneurial activity is an inclusive engine of regional development.

The persistent presence of established industries like banking, oil and gas, and other capital-intensive sectors that have benefited from a steadier flow of institutional support and investments has impacted Kazakhstan's sectoral concentration. Small and

medium-sized businesses, particularly those in their early stages, frequently face difficulties with funding, market access, and scalability. The disparity shows that there are still fundamental differences between high-value industries and new businesses that rely on innovation, even in the absence of official initiatives that encourage diversification.

The current scholarship on Kazakhstan also notes that the state-led investment approaches and regional development policies have been overwhelmingly oriented towards industrial and agricultural modernization with less emphasis on the micro-level dynamics in which startups are created, and young entrepreneurs engage in their enterprises (Sultanova, 2020; Nimanov and Varavin, 2021; Imanbayeva et al., 2024). This suggests the disparity between macroeconomic development planning and the reality of young entrepreneurs trying to access the digital economy continues.

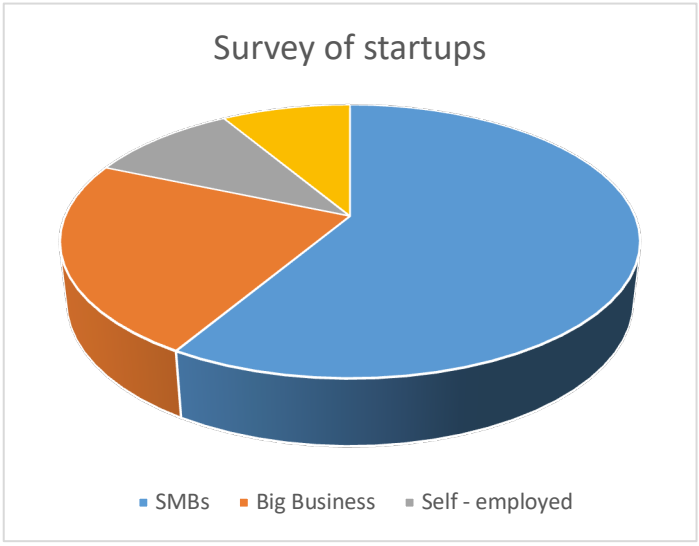
In the larger picture, the establishment of innovation hubs and digital startup platforms has contributed greatly to the growth of entrepreneurial infrastructure. One of the most significant examples is Astana Hub, which has helped over 1,000 IT startups settle in its region and has helped create jobs and attract investments to the digital sector. The results of such successes reflect the development of the start-up ecosystem in Kazakhstan, but must be evaluated using an analytical approach. In particular, the advantages of such institutions are likely to accrue to the urban, highly-skilled, and more digitally savvy entrepreneurs; youth in rural or lower-income settings may still face barriers. Thus, the growth of the entrepreneurial ecosystem in Kazakhstan is not only possible to consider in the context of overall growth statistics, but also from the point of view of inclusiveness, regional fairness, and the availability of innovation tools.

The formation and development of a multifunctional system of entrepreneurship, including small and medium businesses, in the regions of Kazakhstan, especially in the underdeveloped predominantly agricultural areas of the country, still does not meet the real needs and opportunities of the national market economy, the principles and directions of innovative development of the state, set out in the state programme and project official documents. Development of business entities, in particular, representatives of small and

medium enterprises (SME), and also large corporations engaged in the most relevant and profitable areas of the market economy (oil and gas complex, banking and credit activities etc.) in the Republic of Kazakhstan with the necessary public support, especially the financial plan, in the difficult conditions of the current world situation, can be a significant and decisive factor of national and regional, social and economic progress in the country.

Each scientist tries to discuss the topic concerning entrepreneurship, thanks to the experiences of other countries, as they indicate the articles that were used by them during the writing of the articles. Each country presents distinct advantages and disadvantages, contingent upon the prevailing legislative frameworks, tax codes, and regulatory environments.

Figure 1: Survey of Startups



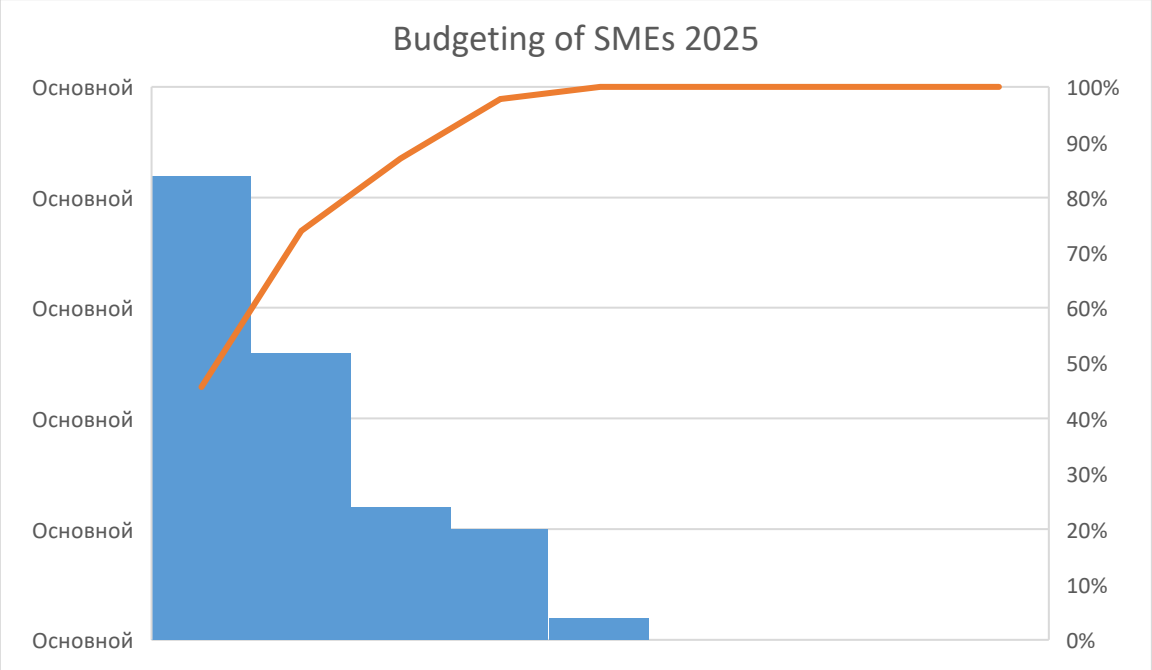
The picture was created by the authors.

The pie chart shows: Blue – SMBs (compile 60%), Orange – Big Business (BB) (consists of 18%), Grey – Self-employed (compile 15%), Yellow- Unemployed (7%).

The government was offering different types of credits for businesses to establish businesses where they would like to develop. According to the statistics of the country, this area has been surveyed, and SMBs are increasing from year to year. In comparison with Big Business (BB), the numbers show that SMBs are increasing due to favourable conditions to begin something in business. The local government gives all opportunities to businesses to develop and create new jobs. Any businessman is able to get free consultations in accounting, carry out a business plan, and get extra free knowledge if it needs to somebody, even the tax department assists them, giving advice on how to set up a business. All startups are developing on the HUB of IT Astana University, MIIT, KBTU in Almaty, NU in Astana.

The main part in the development of Kazakhstani business plays Samruk Kazyna, which is the biggest holding that was founded in 2008. The holding manages the biggest strategic assets, including oil, transport, and nuclear sectors. They are investing in various projects supports ideas of young entrepreneurs.

Figure 2:SMEs Budgeting



The picture was created by the authors.

It doesn't matter the age of entrepreneurs if they are ready to establish the business, the local authorities are ready to assist them. And the main role is played by all local banks, which are providing all young entrepreneurs with the subsidiaries for buying techniques, business tools, etc. Anyway, the average age of young business people varies between 22 and 40 years. The business people at the age of more than 41 years old are skilled, and they don't need any advice (Viswanathan et al., 2025).

Figure 2 illustrates the financing of SMEs by commercial banks of the Republic of Kazakhstan from 2021 to 2025. People can rely on local Banks as they provide all of them with subsidiaries to work or expand the business. The leading Bank in Kazakhstan is Kaspi Bank, which is also creating new applications to make business easier. The latest achievement, which was developed by Alaqan Payment, Kaspi Business, and Kaspi account for self-employed businessmen. The percentage of budgeting was slightly increased from year to year, which means the government creates all favourable conditions for the youth.

That is why the young generation prefers to work for themselves, not to be employed by a company. In this section we examine the variables that characterise the incubators, encompassing annual budget; annual frequency of entrepreneurial events; training courses (transversal topics or support); monthly frequency of training courses (transversal topics or support); pre-incubator projects and workshops; pre-incubator or co-working spaces; whether the incubator offers free services, consulting sessions with experts or monitors the of pre-incubator projects' activities; the proportion of companies that are currently continuing business activities; the percentage of graduated projects that obtained public financing; and which projects obtained private funding. Support

through access to investors, access to peers, help with team formation, and direct funding from the programme could have a positive impact, which we link with our variables covering entrepreneurial events, training courses, co-working spaces, and consulting sessions with experts. Some variables are quantitative in nature, such as the impact of events and learning, mentorship, access to funding, and the collaborative network provided by the Circular Jumpstart acceleration programme for startups.

V. Conclusion.

The study has proved that digital innovation plays an important role in the development of youth entrepreneurship in Kazakhstan, but also has some potential for inclusiveness, which is not realized completely. The country has made a lot of efforts in the Digital Kazakhstan programme, development of Astana Hub, university incubators, financial subsidies, free consultations, and other governmental efforts and programmes, for example, the accelerator programmes. All these efforts have helped to build up the startup ecosystem, job market in IT and service industries, and to diversify the economy towards non-resource sectors gradually. However, there is much work to be done still. In recent years, the Tax Code has been tightened for small and medium-sized enterprises; moreover, entrepreneurial education, mentorship, access to finance, market validation, and digital organization infrastructure are still problems for young entrepreneurs. Since there is no inclusiveness in the entrepreneurial ecosystem, some inequalities exist in terms of the differences between the big cities and peripheral regions, as well as socio-economic and gender differences. Moreover, the start-up sector experiences extremely high levels of failure rates, confirming the need for better support strategies than simply focusing on infrastructure development. To have an inclusive approach towards helping young entrepreneurs to thrive in the country, Kazakhstan should take into account a number of important factors. These include the incorporation of IT and entrepreneurship skills in school curricula; the development of programs for financially disadvantaged children; establishing connections between education, industry, and investment sectors; and the establishment of regional centers of innovation. It will also be important to implement these programs in the context of the unification of digitalization of the macroeconomic environment and the support of young entrepreneurs on the micro level. Overall, the country must invest in digital innovations that empower young people and contribute to its economic diversification, competitiveness, and prospects of providing an equitable and innovative society that is also sustainable. Structural obstacles must be removed, and new entrepreneurial ecosystems must be fostered in order to truly unleash the nation's youth on the future of the nation. Future research is warranted using empirical data and implementing longitudinal studies that evaluate the effects of policies in place and capture the long-term consequences of digital entrepreneurship for youth inclusion and economic outcomes.

VI. References

1. Audretsch, D. B., M. Belitski, G. M. Eichler, and E. Schwarz. 2024. "Entrepreneurial Ecosystems, Institutional Quality, and the Unexpected Role of the Sustainability Orientation of Entrepreneurs." *Small Business Economics* 62 (2): 503–522. https://doi.org/10.1007/s11187-023-00763-5.

2. Audretsch, B.: D. B. Audretsch, M. Belitski, G. M. Eichler, & E. Schwarz, et al. 2024. "Entrepreneurial Ecosystems, Institutional Quality, and the Unexpected Role of the Sustainability Orientation of Entrepreneurs." *Small Business Economics* 62 (2): 503–522. https://doi.org/10.1007/s11187-023-00763-5.

3. Astana Hub. (2024, December 29). Astana Hub подводит итоги 2024 года: рекордные достижения и перспективы для будущего. Retrieved February 26, 2025, fromhttps://astanahub.com/ru/article/astana-hub-podvodit-itogi-2024-goda-rekordnye-dostizheniia-i-perspektivy-dlia-budushchego.

4. Bakker, R. M., and J. S. McMullen. 2023. "Inclusive Entrepreneurship: A Call for a Shared Theoretical Conversation About Unconventional Entrepreneurs." *Journal of Business Venturing* 38 (1): 106268. https://doi.org/10.1016/j.jbusvent.2022.106268.

5. Becker, M. C. 2005. "The Concept of Routines: Some Clarifications." *Cambridge Journal of Economics* 29 (2): 249–262. http://www.jstor.org/stable/23602185(open in a new window).

6. Civera, A., and M. Meoli. 2025. "Sustainability Orientation of Academic Spinoffs: Does It Pay?" *Small Business Economics* 65 (3): 1727–1753. https://doi.org/10.1007/s11187-025-01070-x.

7. Cloitre, A., C. Theodoraki, and V. Dos Santos Paulino. 2024. "Entrepreneurial Support Organizations in Sustainable Knowledge-Driven Ecosystems." *The Journal of Technology Transfer* 51 (1): 319–343. https://doi.org/10.1007/s10961-024-10117-2.

8. Fenters, V. W., R. M. Balven, B. E. Ashforth, D. A. Waldman, and D. S. Siegel. 2025. "How Identity Structure Influences Identity Adoption: The Case of Hybrid Entrepreneurs." *Academy of Management Journal* 68 (3): 567–597. https://doi.org/10.5465/amj.2023.0520.
9. Fiedler, A., M. Belitski, B. Fath, and M.-L. Verreynne. 2026. "Triple Helix Twins and University Impact Spillovers for Achieving the United Nations Sustainable Development Goals." *The Journal of Technology Transfer*. https://doi.org/10.1007/s10961-025-10313-8.
10. Fischer, B. B., A. C. Alves, N. S. Vonortas, and R. Brown. 2024. "Foundations of Entrepreneurial Ecosystems Configurations." *The Journal of Technology Transfer* 51 (1): 199–225. https://doi.org/10.1007/s10961-024-10147-w.
11. Gaidos, A., C. Gurău, and F. Palpacuer. 2024. "Exploring the Impact of Regional Characteristics on Social Incubators' Mission, Structure and Activity: A Contingency Perspective." *Entrepreneurship and Regional Development* 36 (3–4): 436–459. https://doi.org/10.1080/08985626.2023.2277788.
12 Gregori, P., P. Holzmann, and D. B. Audretsch. 2024. "Sustainable Entrepreneurship on Digital Platforms and the Enactment of Digital Connectivity Through Business Models." *Business Strategy and the Environment* 33 (2): 1173–1190. https://doi.org/10.1002/bse.3551.
13. Hossnofsky, V., P. P. Herold, F. Schlichte, and S. Junge. 2025. "Green Signals of New Ventures: Investigating the Impact of Environmental Orientation on Funding and the Moderating Role of Lead Venture Capitalists." *Small Business Economics* 65 (3): 1791–1810. https://doi.org/10.1007/s11187-025-01072-9.
14. Karahan, M. 2024. "Advancing Sustainable Entrepreneurial Universities: Sustainability Transformations of University Business Incubators in Germany." *Small Business Economics* 63 (2): 575–609. https://doi.org/10.1007/s11187-023-00860-5.
15. Kuzhabekova, A. (2024). From importing to exporting world-class: Can Kazakhstan scale up its successful center of excellence project to a regional education hub? International Journal of Educational Development, 106, 103016;
16. Kunz, R., Platt, K. F. (2024). Startup Ecosystem Around Digital Life Sciences. In: Schönbohm, A., von Horsten, H.H., Plugmann, P., von Stosch, M. (eds) Innovation in Life Sciences. Management for Professionals. Springer, Cham. https://doi.org/10.1007/978-3-031-47768-3 10.
17. Lähteenkorva, M. 2024. "Institutionalizing Sustainability: The Role of Multiple Logics in B Corp Course Integration." *Journal of Business Ethics* 199 (3): 481–494. https://doi.org/10.1007/s10551-024-05851-4.
18. Li, P. 2025. "Cluster-Based Routines and Paradigm-Bound Innovation." *Research Policy* 54 (3): 105192. https://doi.org/10.1016/j.respol.2025.105192.
19. Lindlar, C., E. A. Jakob, J. M. Dinh, and M. C. Wehner. 2025. "Failure Signals in Sustainable Crowdfunding: Distinct Reactions Driven by Crowd Investors' Experience." *Small Business Economics* 65 (3): 1877–1907. https://doi.org/10.1007/s11187-025-01075-6.
20. Morris, A. K., A. Fiedler, and D. B. Audretsch. 2024. "Enablers of Knowledge Spillover Entrepreneurship in Entrepreneurial Ecosystems: Synthesis and Future Directions." *The Journal of Technology Transfer* 49 (5): 1737–1761. https://doi.org/10.1007/s10961-023-10056-4.
21. Pelegrini, G. C., G. H. S. M. de Moraes, N. B. do Prado, B. B. Fischer, and R. Anholon. 2025. "Dynamic Configurations of Entrepreneurial Ecosystem Elements for Blended Value Cr Poblete, C., and C. Acuña. 2025. "When Two Worlds Collide" Conflicting Logics in Indigenous Community-Based Enterprises." *Small Business Economics* 65 (3): 1931–1951. https://doi.org/10.1007/s11187-025-01077-4.
22. Smagulova, G., & Goncalves, M. (2024). Fostering Innovation through Venture Capital in Kazakhstan. Journal of International Business and Management, 7(2), 01-27;
23. Schäfer, S., B. B. Fischer, P. Rücker Schaeffer, and A. Balestrin. 2024. "Beyond Local Boundaries: Unraveling the Spatiality of Entrepreneurial Ecosystems." *Journal of Business Venturing Insights* 22:e00478. https://doi.org/10.1016/j.jbvi.2024.e00478.
24. Toshmatova, S.A. (2024). Exploring the role of motivation in language education.International scientific journal "Interpretation and researches", Volume 2, Issue 4 (26).
25. Teece, D. J. 2024. "Evolutionary economics, routines, and dynamic capabilities." In *Routledge Handbook of evolutionary economics*, edited by K. Dopfer, R. R. Nelson, J. Potts, and A. Pyka, 197–214. 1st ed. Routledge. https://doi.org/10.4324/9780429398971.
26. Vu, V., and B. Fath. 2024. "Friends and Foes: Embracing Coopetition for Sustainability in the New Zealand Alternative Protein Industry." *Business Strategy and the Environment* 33 (6): 5232–5246. https://doi.org/10.1002/bse.3758.

27. Van Burgh E., Cornelissen J., Stem W., Jack S. (2022). Promoting qualitative research in the field of entrepreneurship: using methodological pluralism to achieve scientific returns. Theory and practice of entrepreneurship, 46 (1), 3-20.
28. Zellweger T. M., Sanger T. R. (2022). Entrepreneurs as scientists: a pragmatic approach to creating value in the face of uncertainty. Review of the Academy of Management. Preliminary online publication. https://doi.org/10.5465/amr.2020.0503.
29. Zhang S. H., Wang Burg E. (2020). Development of entrepreneurship as a design science: development of additional design principles for effective implementation. Economics of small business, 55 (3), 607-626.
30. Zankl J., Grimes M. (2024). Taming Unicorns: Towards a New Norm of Responsible Entrepreneurship. Review of the Academy of Management, 49 (4), 879-904.
31. Zott K., Amit R. (2024). Business models and lean startup. Journal of Management, 50 (8), 3183-3201.
32. Qolday Entrepreneurship Center: official website. - Text: electronic. -URL: https://edu.qolday.kz / (date of access: 05/14/2021).
33. https://stat.gov.kz/ru / Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan.

Abbreviation:

BB Big Business
KBTU Kazakh-British Technical University
IITU International University of Information Technology
NU Nazarbayev University
SME Small and Medium-sized Enterprise
STI Science, Technology, and Innovation

Ahmad, S., Haque, M. A., Kumar, D., & Abdeljaber, H. A. (2025). USING MACHINE LEARNING ALGORITHMS TO ANALYZE FACTORS INFLUENCING ACCEPTANCE OF E-LEARNING. *Proceedings on Engineering, 7*(2), 1211-1218.

Alkhateeb, J., Ismail, M., Massadeh, F., & Almansour, H. (2024). *Legal Characterization of Digital Copyrights in Non-fungible Tokens (NFTs) Form.* Paper presented at the International Conference on Technology and Innovation Management.

Baki, H., Jaradat, A., & Haider, A. S. (2024). *Reaching Arab Consumers Through Dubbing English Advertisements into Arabic.* Paper presented at the International Conference on Technology and Innovation Management.

Darwish, N., Darwish, T., & Haider, A. S. (2025). Family relations in the age of social media: How Jordanians view the influence of Facebook and WhatsApp. *Humanities, 6*(3).

Fahmy, M. A., Alwutayd, K. M., Ashkan, M. F., Mojally, M., Alqahtani, A. M., Alsulami, R. N., . . . AbuQamar, S. F. (2026). Bioremediation potential of bacterial isolates for diamide pesticides: Enzymatic activity, tolerance, biofilm formation, and degradation efficiency. *Ecotoxicology and environmental safety, 311*, 119745.

Habeeb, A. M., Ademola Adeleye, A., Oluwadamilola, Y. A., Oladoja, I. O., Darkoh, G. O., Aderibigbe, V., . . . Chinonyerem, C. A. (2025). Advanced Nanocomposite Polymer-Biomaterial Catalysts for Integrated Biodiesel and Battery Systems in Sustainable Energy Applications. *Asian Journal of Advanced Research and Reports, 19*(12), 13-31.

Ishola, B., & Heyes, C. (2025). Scientific generative AI and materials science: From prediction to physical intelligence. In: Springer.

Kubam, C. S., Budaraju, A., Dua, S., SinghJatav, D., Kaur, H., & Lakhina, U. (2025). *AI-Driven Security Model for Continuous Threat Detection Using Optimal Feature Analysis in Enterprise Cloud Finance Platform.* Paper presented at the 2025 International Conference on Computational Intelligence and Knowledge Economy (ICCIKE).

Kubam, C. S., Duggirala, J., VishnubhaiSheta, S., Mogali, S. K., Lakhina, U., & Kaur, H. (2025). *AI-Driven Credit Risk Assessment in Digital Finance Using Feature Optimization Deep Q Learning.* Paper presented at the 2025 International Conference on Computational Intelligence and Knowledge Economy (ICCIKE).

Kubam, C. S., Maddipatla, G. N., & Kakaraparthi, G. C. (2025). Blockchain-Integrated Machine Learning Models for Secured FinTech Applications. *Available at SSRN 6003474*.

Mirza, M. H., Polagani, S. S., Kubam, C. S., Patel, R. B., Gandhi, A., & Goyal, L. (2025). *Smart Risk Prediction for Medical IoT A Dynamic and Privacy-Preserving Cybersecurity Model.* Paper presented at the 2025 IEEE International Conference on Computing (ICOCO).

Talib, W. H., Atawneh, S., Shakhatreh, A. N., Shakhatreh, G. a. N., Hamed, R. A., & Al-Yasari, I. H. (2024). Anticancer potential of garlic bioactive constituents: Allicin, Z-ajoene, and organosulfur compounds. *Pharmacia, 71*, 1-23.

Tarawneh, H. A., & Issa, H. A. (2024). *Character Assassination via Information Technology Media: A New Crime.* Paper presented at the International Conference on Technology and Innovation Management.

Viswanathan, V., Shah, A. K., Kubam, C. S., Dontu, S., Gandhi, A., & Singla, P. (2025). *Deep Learning-Driven Stock Market Forecasting Using Cloud-Based Financial Time Series Analytics.* Paper presented at the 2025 International Conference on Emerging Trends in Networks and Computer Communications (ETNCC).

Wiafe, B. (2026). FORMALIZATION OF ARTISANAL AND SMALL-SCALE GOLD MINING IN GHANA: WHY HAS IT FAILED?

Wiafe, B., & Mensah, A. A. Slope Stability Assessment of the Aburi Mountain Road-Cut, Eastern Ghana.

Альшурман, А. С., Батаинех, А. М., & Альхмуд, С. Х. (2025). The interior of the Umayyad era in a contemporary context. *проект байкал*(83), 80-85.