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DIGITAL START-UP PROJECTS IN MODERN ECONOMY

Abstract

The modern socio-economic system is rapidly changing under the influence of digitalization and innovative technologies. This article is devoted to the analysis of the role of digital startup projects in economic development, their features, functioning mechanisms and impact on market structures. The key criteria defining a digital startup are considered, including the introduction of innovations, the speed of development, a high level of risk and a focus on scalability.

The article explores the process of creating startups, starting with the development of a minimum viable product (MVP) and ending with the stages of growth and attracting investments. Special attention is paid to the financing of startups, including venture capital, investment funds and government support programs. The key success factors of startups are also highlighted, including creativity, adaptability to market changes, the right choice of launch time and the presence of a cohesive team.

An analysis of existing digital startups has shown that high competition and rapid technology development require new projects to be flexible and respond quickly to market challenges. Startups are becoming a powerful driver of economic growth, creating new markets and changing traditional industries. However, a significant number of startups face difficulties in the early stages and do not achieve sustainable development.

The study revealed the main trends in the field of digital startups, their impact on the business environment, as well as promising areas for further development.

Key words: Digitalization, startup projects, innovation, entrepreneurship, venture financing, minimum viable product (MVP), economic growth, technological trends.

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ЗАМАНАУИ ЭКОНОМИКАДАҒЫ ЦИФРЛЫҚ СТАРТАП-ЖОБАЛАР

Аңдатпа

Қазіргі заманғы әлеуметтік-экономикалық жүйе цифрландыру мен инновациялық технологиялардың әсерінен тез өзгеруде. Бұл мақала цифрлық стартап-жобалардың экономикалық дамудағы рөлін, олардың ерекшеліктерін, жұмыс істеу механизмдерін және нарық құрылымдарына әсерін талдауға арналған. Цифрлық стартапты анықтайтын негізгі критерийлер, соның ішінде инновацияларды енгізу, даму жылдамдығы, тәуекелдің жоғары деңгейі және ауқымдылыққа баса назар аудару қарастырылады.

Мақалада ең төменгі өміршең өнімді (MVP) әзірлеуден бастап өсу және инвестиция тарту кезеңдеріне дейінгі стартаптарды құру процесі қарастырылады. Стартаптарды

қаржыландыруға, оның ішінде венчурлық капиталды, инвестициялық қорларды және мемлекеттік қолдау бағдарламаларын қаржыландыруға ерекше көңіл бөлінеді. Сондай-ақ стартаптардың табысқа жетуінің негізгі факторлары, соның ішінде креативтілік, нарықтағы өзгерістерге бейімделу, іске қосу уақытын дұрыс таңдау және біртұтас команданың болуы атап өтіледі.

Қолданыстағы цифрлық стартаптарды талдау жоғары бәсекелестік пен технологияның қарқынды дамуы жаңа жобалардың икемді болуын және нарықтық қиындықтарға тез жауап беруін талап ететінін көрсетті. Стартаптар экономикалық өсудің қуатты драйверіне айналуда, жаңа нарықтар құруда және дәстүрлі салаларды өзгертуде. Алайда, стартаптардың едәуір бөлігі алғашқы кезеңдерде қиындықтарға тап болады және тұрақты дамуға қол жеткізе алмайды. Зерттеу барысында цифрлық стартаптар саласындағы негізгі тенденциялар, олардың бизнес-ортаға әсері, сондай-ақ одан әрі дамудың перспективалық бағыттары анықталды.

Түйін сөздер: цифрландыру, стартап-жобалар, инновациялар, кәсіпкерлік, венчурлық қаржыландыру, ең төменгі өміршең өнім (MVP), экономикалық өсу, технологиялық трендтер.

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ЦИФРОВЫЕ СТАРТАП-ПРОЕКТЫ В СОВРЕМЕННОЙ ЭКОНОМИКЕ

Аннотация

Современная социально-экономическая система стремительно меняется под влиянием цифровизации и инновационных технологий. Данная статья посвящена анализу роли цифровых стартап-проектов в экономическом развитии, их особенностям, механизмам функционирования и влиянию на рыночные структуры. Рассматриваются ключевые критерии, определяющие цифровой стартап, включая внедрение инноваций, скорость разработки, высокий уровень риска и ориентацию на масштабируемость.

В статье исследуется процесс создания стартапов, начиная с разработки минимально жизнеспособного продукта (MVP) и заканчивая этапами роста и привлечения инвестиций. Особое внимание уделяется финансированию стартапов, включая венчурный капитал, инвестиционные фонды и программы государственной поддержки. Также выделяются ключевые факторы успеха стартапов, включая креативность, адаптивность к изменениям рынка, правильный выбор времени запуска и наличие сплоченной команды. Анализ существующих цифровых стартапов показал, что высокая конкуренция и быстрое развитие технологий требуют от новых проектов гибкости и быстрого реагирования на вызовы рынка.

Стартапы становятся мощным двигателем экономического роста, создавая новые рынки и меняя традиционные отрасли. Однако значительное количество стартапов сталкиваются с трудностями на ранних стадиях и не достигают устойчивого развития. Исследование выявило основные тенденции в сфере цифровых стартапов, их влияние на бизнес-среду, а также перспективные направления для дальнейшего развития.

Ключевые слова: цифровизация, стартап-проекты, инновации, предпринимательство, венчурное финансирование, минимально жизнеспособный продукт (MVP), экономический рост, технологические тренды.

INTRODUCTION. The socio-economic system is undergoing rapid transformation be-cause of digital innovations and global digitalization. Established business processes become reshaped and accelerated, at the same time technological innovations become widespread and take different

forms. Typically, digitalization means both transformation on different levels and new technologies, digitalization is a continuous process of improving business efficiency by altering not only technologies but also company culture, principles, and operational models. These advancements in digitalization process reduce the advantage of existing employees while creating opportunities for those skilled in ICT. It leads to increasing competition on a market. Stability in technology tends to benefit existing manufacturers and entrenched market structures. A key component of the digital economy is the concept of the "start-up." Start-ups usually means that it is a brand-new idea, without as-sets, or profits, and only a small percentage of start-ups show real growth potential and become profitable. While investing in start-ups is risky, the potential for high returns and market dominance is a significant draw for investors.

Start-ups are often perceived as a fledgling companies or internet-based projects with innovative or ambitious ideas and zero capital. While many associate start-ups with the IT sector, in reality they can emerge in any industry: healthcare, financial services and products, consumer products, and biopharmaceuticals. Above-mentioned sectors are with the most potential for growth and profit. The core idea of a start-up is to present a groundbreaking solution to an existing problem. Rarely a start-up project can transform into a “unicorn”. The term "unicorn" is used within the venture capital sector to refer to a startup that has achieved a valuation exceeding 1 billion dollars. This concept was first introduced by venture capitalist Aileen Lee in 2013.

Innovation and creativity are at the heart of start-ups, which often are defined by their growth rate. If a new company exhibits rapid growth, it can be considered as a start-up. The concept of "start-up" was first used in Forbes in 1973 and Business Week in 1977.

The term "start-up" originated in the 1970s and has since evolved to describe a temporary organization searching for a scalable business model, as noted by entrepreneur Eric Ries [1].

Start-ups are also defined by their pursuit of turning an idea into a successful business, a concept highlighted by marketer Guy Kawasaki [2]. Bill Gross, founder of the first business incubator, identified the timing of a start-up's launch as a critical factor for success [3]. Researchers also have focused on the importance of creating a minimum viable product (MVP) to demonstrate the start-up's value.

In academic literature, the concept of a start-up as a rapidly growing and scalable organization is extensively discussed, notably in the work of Bill Gross. Along with Larry Gross, Bill Gross founded IdeaLab in 1996, which is regarded as the first business incubator, having facilitated the launch of approximately 150 start-ups [3]. His research into the dynamics of start-up success and failure highlights the importance of selecting the appropriate timing for launching a start-up as a critical factor for success.

The study of start-up terminology reflects current trends and the ever-evolving nature of this field, as evidenced by scholars such as B. Riggo, S. Phelan, P. Boland, R. Seamans, A. Robb, and D. Marron [4]. They support the Lean Start-up methodology, emphasizing the rapid prototyping of products. According to scholars, the central focus of start-up endeavors should be on developing a Minimum Viable Product (MVP), which can ad-equately demonstrate the product’s value to consumers. Innovation is a key driver of economic growth, as scientific articles say, both at the national level and within specific regions. Research in this field advocates for the prioritization of addressing regional market challenges and fostering trans-formative ideas that can meet contemporary global demands. These scholars collectively underscore the significance of start-ups as engines of economic innovation and growth, highlighting their potential to not only contribute to localized development but also to solve critical global issues through creative, scalable solutions.

MATERIALS AND METHODS. Most significant scholars in the fields of marketing for entrepreneurial structures, management, and innovation management (including the business-modeling concept), startup development theory, and marketing communications theory ground the research in the scientific analysis of works. The study employs a systems approach, methods of

induction and deduction, along with modeling techniques, multifactor analysis, and extrapolation. The methodology for empirical research is based on both qualitative and quantitative methods of data collection and processing, utilizing frequency analysis in Microsoft Excel.

Additionally, the research article utilized methods of comprehensive and structural-dynamic analysis, expert evaluations (priority ranking), as well as methods of cross-comparison, along with graphical techniques for visualizing data.

RESULTS AND DISCUSSIONS. Not every new digital company qualifies as a digital start-up. Certain criteria must be met, such as the introduction of an innovative idea or impactful improvement, rapid development, and of course high risk. Typically, start-ups are founded by young entrepreneurs, often college students, and require a tight-knit team and proper funding. High failure rates are common, with only a small percentage of start-ups surviving their first years. Start-ups differ from traditional businesses in several ways. They are not restricted by industry norms and often focus on developing new ideas that do not fit within existing categories. Start-ups aims towards capturing market share quickly, although their growth period can vary from several years up to decade. Important to note that profits are not the immediate goal. Instead, start-ups aim to establish a strong presence in the market by identifying customer needs and values. The success of a start-up depends on the originality of its ideas, a committed team, external investment, and the ability to adapt and innovate.

There are several main signs that allow you to consider a business project as a start-up project:

1) The idea of a start-up project is based on a completely new approach, innovation. New products that solve old problems, unusual approach of infrastructure, service platform, user experience and so on.

2) Rate of development. Usual universal practice is that start-up projects take less than a year to launch. If it is not making profit by that time, start-up project usually closes. In China, due to the specifics of the market and financing routes, implementation may take even less time.

3) Young age of founding members. The age group of teams creating start-up projects is most often college students. Youth without big investors or huge capital with much enthusiasm create “garage business”, renting literal garages, small office rooms or turning their own houses into headquarters.

4) High risk. More than 60 percent of innovative projects close in the first year, 10-15 percent do not make it two years. According to data, only 1 out of 10 start-up projects cross the “valley of death” and become a full-fledged business that can bring in a relatively stable income.

Start-ups can be categorized by their reliance on high technology or by approaches that are more traditional. Securing funding is a critical challenge, with private investment funds and venture capital being common sources of start-up financing. Venture capital, in particular, involves high risk, as there is often no historical data to assess a start-up's viability. However, the costs of launching a start-up have significantly decreased over the years, making it easier for talented individuals to enter the market. 20 years ago, start-up required a 100,000$, now especially digital start-ups can have budget from 300 to 1,000$. This change became possible due to technology development and widespread digitalization in human life. Start-up projects compete with large corporations due to their agility in innovation. While big companies may be slow to develop new ideas, start-ups can quickly adapt and implement groundbreaking solutions, making them a powerful force in the modern economy.

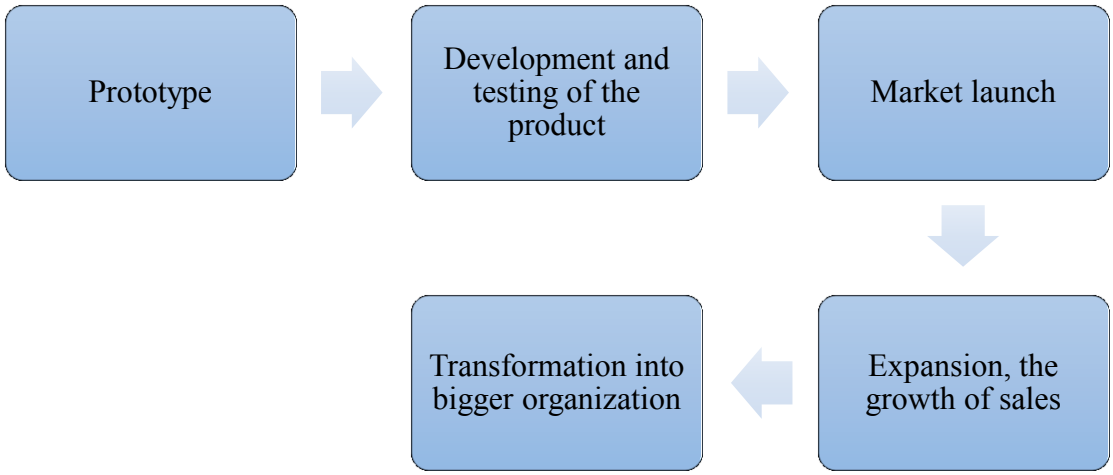

Figure 1 - Successful start-up's life cycle
Source: Compiled by authors based on the data from [2]

The life cycle of a successful start-up above shows that before market launch start-up have two steps of preparation, gathering market data and customers' reviews, also testing the product. In conclusion, every start-up, even if it is not "unicorn" either becomes usual organization, or shuts down. This cycle can equitably be applied to any country or market.

Table 1. Sources of funding a digital start-up

Description	Characteristics
Bootstrapping	This is the predominant method for financing startups during their initial phase of operation. It is characterized by the absence of external investor influence. The capital required to initiate the business is derived from the personal resources of the founders and their families.
Crowdfunding	Crowdfunding involves the support of a particular project through the aggregation of relatively small contributions from a large number of individuals. This is facilitated by platforms that enable public access to the fundraising campaign.
Venture Capital	Venture capital refers to funds typically provided by investors to small or medium-sized enterprises in their early developmental stages. The primary motivation for such investment is the potential for substantial returns on investment over a period of several years.
Business Angels	Business angels are individuals, often former entrepreneurs or executives, who possess capital, experience, and business networks. They seek early-stage ventures where they assume investment risks in exchange for equity stakes in the company.
Accelerators	Accelerators are programs designed to support business development. In return for a modest equity stake, they offer mentorship, workspace, and assistance in securing capital.
Other funding sources	Additional sources of funding include strategic investors, industry-specific investors, seed funds, and bank loans.
Note: Compiled by authors using [5]	

When talking about China and its digital economy, as well as the importance of start-up projects in the Chinese economy, it is worth to pay attention to the growth rate of the Chinese

economy. Despite the fact that everyone has an estimate of how quickly China is developing, GDP data will allow us to take a deeper look at the state of the Chinese economy presented in Table 2.

The digital economy is a key driver of China's economic growth. Between 2012 and 2021, its average annual growth rate was 15.9%, with its share of the country's GDP increasing from 21.6% in 2012 to 41.5% in 2022, reaching 50.2 trillion yuan [4]. Big data analysis suggests that China is aiming for radical transformation across all sectors through the active implementation of digital, communication, and advanced manufacturing technologies. [6]

Table 2. Expected performance of GDP in China

Period	GDP growth rate (%)	End-of-period GDP (trill. RMB)	GDP per capita (RMB)
2001-2010	8,1	19,77	13889
2011-2020	6,4	36,7	24178
2021-2030	5,4	62,33	39657
2031-2040	4,9	100,5	63406
Note: Compiled by authors using [4]			

In addition to the well-known billion dollar huge enterprises, the number of start-up projects in China is estimated to be in the tens of thousands. According to the Ministry of Industry and Information Technology (MIIT), in 2022, an average of 23,800 new companies were established daily [6]. Furthermore, the total number of micro, small, and medium-sized enterprises (MSMEs) surpassed 52 million, reflecting the significant scale and dynamism of entrepreneurial activity. It is important to note that most of so-called “unicorns” were established in healthcare, e-commerce and hardware fields [7]. In recent years, China has experienced a significant acceleration in the growth of such companies, driven by favorable business conditions, substantial investment inflows, and the rapid development of the technology sector.

As of 2023, China ranked second in the world in terms of the number of unicorn startups, surpassed only by the United States. The country had 171 startups with a market valuation exceeding $1 billion. In comparison, the U.S. had around 660 unicorns at the same time. Since 2019, when China had 149 such startups, their number has grown significantly [8]. Between 2015 and 2023, the number of Chinese unicorns nearly doubled, indicating stable growth in this segment of the economy and a high level of interest from venture capital investors [8].

The technology sector is the primary driver of unicorn growth in China. Speaking about digital start-up projects, approximately 52% of companies in “unicorn” category operate in fields such as artificial intelligence, fintech, and software development. The key sectors are as follows:

Financial technology (fintech): Accounting for around 25% of all unicorns, with Ant Group, valued at over $150 billion, being a prime example [9].

E-commerce and online services: Represented by companies like Meituan, which has an estimated value of $100 billion [10].

Artificial intelligence: AI companies make up about 15% of all Chinese unicorns, with notable examples such as SenseTime, valued at $12 billion [11].

The growth in the number of unicorns in technological sectors reflects systemic changes in China's economy and its shift toward an innovation-driven development model, aligning with global trends in this area.

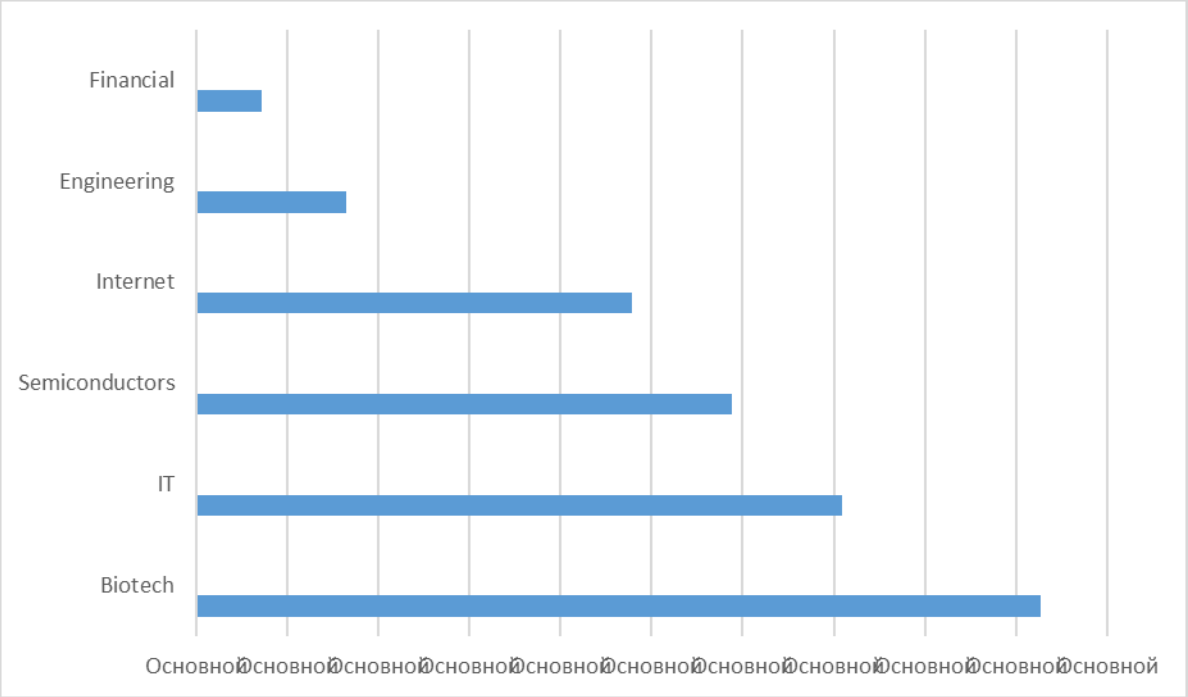

Figure 2 – Volume of Venture Capital Funding by Sector, 2023 (RMB Billion)
Source: Volume of venture capital investments in China 2022, by sector [12].

Chinese economics complexity appears in Figure 2. The diversity of these economic sectors shows that Chinese economics not only high GDP or fast-developing but also covers wide range of economic branches.

Considering the technological trends and venture capital funding in the contemporary Chinese economy, six main areas of development for digital start-up should be highlighted: biological technologies, artificial intelligence, data processing technologies, communication technologies, advanced manufacturing technologies, virtual and augmented reality technologies, and distributed ledger technologies.

Given the overall trend in technological development, it is possible to trace correlations between these trends and existing Chinese digital unicorn startups by aligning their areas of focus with the development and activities of these startups.

CONCLUSION. In conclusion, the start-up ecosystem, while fraught with challenges, plays a critical role in the global economy. Digitalization process and technological innovations has reshaped business processes and industries. Digitalization influences not only technology but also the principles, culture, and operational models of businesses, contributing to increased competition in the market. The rise of the digital economy, which emphasizes innovation and rapid development, has contributed to the growing importance of start-ups in driving economic change. Start-up projects, typically defined by their innovative ideas, are characterized by their potential for high growth, yet also carry significant risks. The rise of digital start-ups, in particular, has lowered the cost of entry, making it more accessible for young entrepreneurs to bring their ideas to market. Furthermore, technological advancements and the global shift toward digitalization have created an environment where start-ups can compete with larger corporations by leveraging their agility and innovative capacities. China's start-up ecosystem, in particular, has experienced rapid expansion. By 2023, the country ranked second globally in the number of unicorns, with sectors such as financial technology, e-commerce, and artificial intelligence leading the way. The growth of unicorns in China reflects the broader trend of an innovation-driven economy, with venture capital

investments focusing on technology-intensive areas. Start-ups not only foster innovation but also contribute to the economic development of their regions and nations. As digitalization continues to accelerate, the role of start-ups in shaping the future of industries will remain significant, especially in areas such as AI, fintech, and biotechnology. The success of these ventures depends on factors such as innovative ideas, a strong team, and external investment. While many start-ups may fail, those that succeed have the potential to revolutionize markets and become integral to the digital economy.

As we can conclude from these article findings, digital start-ups nowadays is a key component in formation a sustainable modern economic. With the Chinese experience, we understand that startups do not appear on their own, in order for the culture of startup projects to appear where it did not exist, feasible assistance and support from the state, legislative preparation for the emergence of startup projects are necessary. Among other things, the country must initially have some assets, be it capital or something else that can increase investment attractiveness and attract capital to its own startup projects.

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