



How Does Digital Technology Help Start-Ups' Financing Development? - Discussion and Analysis Based on Four Kinds of Digital Technology

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Abstract. This study focuses on how digital finance can help startups in financing, and analyzes the advantages of digital technology in improving financing efficiency and reducing costs through an in-depth study of the use of big data, artificial intelligence, cloud computing, blockchain and other technologies in financing. We examine the potential risks of digital finance to start-ups and propose corresponding countermeasures to ensure that digital finance promotes start-up financing without causing new problems. The study found that digital finance provides a fresh financing path for smes and promotes their development. This has positive implications for promoting sustainable growth in the overall economy and creating a better entrepreneurial climate. This study departs from the traditional theoretical framework, expands the range of financing channels, focuses on the mechanism of digital finance on entrepreneurship and the characteristics of providing financing for startups at different stages of development, which is innovative and has practical application value.

Keywords: Digital Finance, Digital Technology, Start-ups, Financing Paths

1 Introduction

Startups play a pivotal role in today's economy, serving as drivers of innovation and entrepreneurship as they breathe fresh life into the marketplace. However, startups frequently face the challenge of a shortage of capital as they flourish, and the need for financing becomes one of the bottlenecks limiting their growth. In this context, the rapid development of digital technology provides modern possibilities for corporate financing. At present, no research has focused on the financing needs of start-ups in the context of digital technology development and the impact and risks of digital finance on start-up financing. This paper focuses on the operation mechanism of digital technology in the financing of startups, analyzes its advantages in improving the financing efficiency and reducing the cost of financing, and at the same time analyzes the potential risks of digital technology for startups and puts forward corresponding countermeasures.

This study is of theoretical significance. Firstly, it enriches the theoretical framework of financing channels by thoroughly studying the relevant theories of digital finance. Second, the introduction of a digital finance perspective highlights the advantages of technology-enabled finance. In addition, it highlights the deep integration of digital technology and the real economy, emphasizing the mutual promotion and mutual development of the two. On the practical level, the significance of this study includes: First of all, the research has opened up a different financing path for tiny and medium-sized enterprises through digital finance, so that they can more easily obtain financial support. Secondly, it helps to promote the comprehensive development of tiny and medium-sized enterprises, improve their technological innovation ability and competitiveness, and promote the sustainable development of the economy. Finally, through the development of digital finance, the atmosphere of entrepreneurship in the whole of society has been promoted, the vitality of innovators and entrepreneurs has been stimulated, and social innovation and economic growth has been promoted. The innovation highlights of this study include breaking away from the existing theoretical framework, expanding the research scope of financing channels, paying attention to the role and mechanism of digital finance in corporate entrepreneurship, and conducting in-depth research on the financing characteristics of start-ups at different stages.

This study focuses on how digital finance can help start-ups raise capital and, in turn, promote their overall development. The study will delve into how digital

technology can provide start-up SMEs with more convenient and secure financing channels, lowering the threshold of financing and improving the efficiency of financing. At the same time, the research will also focus on the impact of digital finance on the development of SMEs to promote their positive development. The purpose of the study is to explore how to adequately utilize the development of technology to promote business entrepreneurship and financing in the current era. Key questions include how digital finance can use digital technologies to help startups raise capital and grow at different stages. At the same time, the research will also explore the problems and risks that these technologies may face in the operation process, as well as the direction of future development.

2 Literature Review

Sources of financing are mainly categorized into endogenous and exogenous financing. The former means that the funds needed by the enterprise originate from internal business activities, such as the enterprise's original funds, retained funds, depreciation funds, etc., which belong to the most basic and traditional financing methods. Endogenous financing plays an essential role in the business development of enterprises, but commonly speaking, it is difficult to meet all the capital needs of enterprises solely relying on internal funds. In most cases, SMEs choose exogenous financing for their financing, that is, they seek financial help from external economic agents, and the main ways are bank borrowing, debt financing and equity financing. Compared with endogenous financing, exogenous financing is broader in terms of channels, larger in financing scale and more efficient, which can quickly solve the problem of enterprise capital demand, but also has greater costs and risks [1]. Financing is an essential source of capital for a business, especially significant for some startups. It is essential to choose the right type of financing for your business venture.

With the rapid development of the economy and technology, financing channels are becoming more and more extensive, and in order to combine with the development of the times, startups have pioneered digital financial channels for financing. Compared with the traditional financial service model, digital finance is dynamic, real-time and diversified. It can meet the various financial service needs of the masses with the help of the Internet and information platform. The future market space and potential are huge [2]. From a macro perspective, combined with empirical

analysis, digital finance can significantly narrow the income gap between urban and rural areas, positively promote the high-quality development of the industry, and improve the quality of China's economic growth [3]. Digital finance has realized the optimization and upgrading of traditional financial services to a certain extent. In addition, scholars take consumption, investment and net export as effective ways to analyze the role of digital inclusive finance on economic growth, and believe that digital finance is conducive to solving financing difficulties, promoting overall economic development and achieving inclusive growth [4]. With its advantages of digitization, networking and credit, digital finance can provide entrepreneurs with more convenient financial services with relatively low loan interest rates, which plays an essential role in solving practical problems such as difficult financing, costly financing and lazy financing.

3 Discussion and Analysis

3.1 The Impact of Different Digital Technologies on Startup Financing

3.1.1. Artificial Intelligence (AI) Technology.

Artificial intelligence is a computer system and technology that simulates human intelligent thinking and behavior. The technology is mainly used in the financial field in intelligent customer service, intelligent investment advice, risk management and alternative scenarios [5].

Startups benefit from the impact of AI technology at different stages. In the initial stage, the technology can analyze the market demand, optimize the business model, help attract angel investment and venture capital investment, and improve the success rate of financing. In the growth phase, artificial intelligence can improve operational efficiency through data analysis, improve product and service quality, and enhance corporate sustainability, thus attracting investor attention. For example, a startup that uses AI to optimize supply chain management and reduce costs has attracted multiple venture capital funding. In the mature period, artificial intelligence technology can realize personalized marketing, risk management and strategic planning, enhance the competitiveness of enterprises, and help listed financing.

3.1.2. Blockchain Technology.

Blockchain technology is a decentralized, non-tamperable distributed ledger technology for recording transaction information. The application of this technology in the financial sector is diverse and extensive. Banks can use blockchain to accelerate cross-border payments, businesses can automate lending and investment transactions with the help of smart contracts, and society can crowdfund and raise equity through blockchain. It enables financial entities to conduct transactions and financing activities more securely and efficiently.

Blockchain technology has a positive impact on the financing of start-ups at different stages. In the Initial stage, blockchain can provide crowdfunding platforms, such as ICO (Initial Coin Offering) or STO (Security Token Offering), to attract funds from around the world and provide support for the rapid development of enterprises. In the growth phase, blockchain can be used to establish transparent supply chains and financial records, enhance trust, and provide investors with additional information, thus attracting more investment. For example, through smart contracts, companies can streamline the equity financing process, ensure the security and transparency of transactions, and increase investor confidence. In the mature period, blockchain technology can continue to optimize internal processes, reduce intermediate links, achieve more efficient capital flows and equity transactions, and promote enterprise expansion.

3.1.3. Cloud Computing Technology.

Cloud computing is a kind of service provided to users in a dynamic on-demand and measurable way by organizing and calling various information resources through the network [6]. Cloud computing is characterized by elastic scaling, on-demand self-service, resource sharing, flexibility, and high reliability. Cloud computing can process financial business data in large quantities quickly and efficiently, and realize financial 'asset-light' operation.

Cloud computing technology has had a profound impact on the financing of startups at various stages. In the initial stage, cloud computing reduces the initial investment cost, and enterprises can flexibly select and pay for computing resources according to demand, so as to focus on core business. For example, startups such as Uber and Airbnb relied on the cloud to rapidly scale their businesses and attract initial investments. As the enterprise grows, the flexible expansion and high availability provided by this technology support the sustainable development of the enterprise. It provides efficient data processing, analysis and customer service for banks and

brokers, and helps to enhance market competitiveness. In the mature period, cloud computing technology provides the possibility for enterprises to realize digital transformation. Investors and venture capital institutions can also use cloud computing for portfolio analysis and asset management.

3.1.4. Big Data Analysis Technology.

Big Data analytics refers to a set of algorithms, tools, and methods that extract, clean, process, analyze, and provide business insights from large-scale, high-dimensional, and diverse data. In financial innovation, the application of big data analysis is mainly reflected in intelligent sealing and control, personalized marketing and new product research and development [7].

The financing of start-ups can also use big data analysis technology. In the initial stage, big data analysis technology can help enterprises identify market opportunities, understand the needs of target users, and optimize product positioning. In the growth period, big data analysis technology can help companies better understand market dynamics, optimize operational strategies, and enhance the sustainability of business models. For example, Square, a fintech start-up, monitors transaction data in real time through big data analysis technology, provides data support for its innovative payment solutions, and enhances investment attractiveness. In the maturity stage, big data analytics can be used to deepen customer insights, improve product and service quality, and enhance an organization's market competitiveness. For example, banks and brokers use big data analysis technology to analyze customer transaction behavior, personalized recommendation of financial products, and enhance customer stickiness.

3.2 Potential Risks and Countermeasures

With the rapid development of digital technology, start-ups are facing different opportunities and challenges in the process of financing. Digital technology provides additional convenience for financing, but it also brings a series of potential risks.

First of all, information security is one of the potential risks brought by digital technology. In the digital financing process, a large amount of sensitive information is transmitted and stored, including corporate financial status, business plans, and so on. This makes startups an easier target for cyberattacks, which can lead to financial data

breaches, theft, and even leakage of corporate secrets. Therefore, it is particularly vital to ensure the security of financing platforms and digital tools.

Second, the issue of data privacy in the application of digital technologies is also a potential risk. Start-ups frequently need to share a large amount of business data and customer information in the financing process. If this information is not appropriately protected, it may lead to the disclosure of corporate intellectual property rights, the loss of customer trust, and may even lead to legal liability. Therefore, in the process of digital financing, it is extremely essential to protect the data privacy of enterprises.

In addition, the rapid development of digital technology has also brought about the intensification of market competition, and start-ups need to face more fierce competition in the digital era. Once the financing plan fails to synchronize with the market development, start-ups may face a loss of market share, a decline in profitability, and may even lead to bankruptcy. The iteration speed of digital technology is rapid, and enterprises need to continuously update technology to adapt to changes in the market, otherwise there is a risk of being eliminated.

In response to these potential risks, start-ups need to take a series of measures to ensure the safety and sustainability of digital technology in the financing process. First of all, strengthen information security measures, adopt advanced encryption technology, multi-level identity verification and additional means to ensure the security of financing platforms and digital tools. Second, formulate a comprehensive data privacy protection policy to clarify the authority for data use and sharing and ensure that sensitive information is appropriately protected. In addition, it pays close attention to market dynamics and continuously optimizes business models and strategies to adapt to competitive pressures in the digital age.

4 Findings and Conclusions

Digital technology has played an active role in the financing process of start-ups. These technologies provide abundant financing opportunities for start-ups at different stages. Artificial intelligence technology improves the financing success rate of start-ups in the initial stage, improves the operational efficiency and product quality in the growth stage, attracts more investment, and enhances the competitiveness of enterprises in the mature stage, which is conducive to listing and financing; Blockchain technology provides a crowdfunding platform for start-ups to attract funds from around the world and support the rapid development of enterprises; cloud

computing technology reduces the initial investment cost, so that enterprises can choose and pay for computing resources according to their needs and focus on core business; Big data analysis technology helps enterprises improve the accuracy of product positioning in the initial stage, helps enterprises optimize operation strategies in the growth stage, and enhance the market competitiveness of enterprises in the mature stage.

However, with the rapid development of digital technology, start-ups also face a series of potential risks in the financing process. Information security, data privacy and market competition are the key issues. For these risks, startups should adopt a series of countermeasures, including strengthening information security assurance, formulating a sound data privacy protection policy, establishing a sound internal control system, and continuously optimizing their business models and strategies.

Taken together, digital technologies offer unprecedented opportunities for startup financing, but they also come with potential risks. Through the scientific and rational use of digital technology and the adoption of effective risk management measures, startups can better cope with the challenges, ensure a smooth financing process and achieve sustainable development.

5 Conclusion

Although the above-mentioned in-depth analysis of the impact of digital technology on start-up financing, there are still some research deficiencies:

First, this paper underutilizes secondary data and models for validation when analyzing the impact of digital technology on startup financing. For the fields of artificial intelligence, blockchain, cloud computing and big data analytics, there exists a large amount of existing research results and empirical data, and the references to these secondary data and the use of models can better support and validate the ideas in this paper.

Second, the content of this paper is relatively lacking in citations of typical cases and samples. When discussing the impact of digital technology on start-up financing, by citing some typical success or failure cases, it can not only enhance the persuasiveness of the article, but also make it easier for readers to link theoretical knowledge with actual situations and form a deeper understanding.

Third, when discussing the financing of start-ups, this paper lacks a comparative analysis with traditional enterprises. Through comparison, the value of digital

technology in start-ups can be more precisely presented, while revealing the implications and impact of digital transformation on traditional enterprises, thus making the research more comprehensive.

In future research, more empirical data and model verification can be used, more typical cases and samples can be introduced, and comparative analysis with traditional enterprises can be strengthened. Through these improvements, we can make the research more convincing and operable, and provide more comprehensive guidance and suggestions for start-ups' financing in the digital age.

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