

Development Strategies for Science and Technology-based Small and Medium-sized Enterprises

Junxi Piao *

News Private School, Qingdao, Shandong, 266071, China

* Corresponding author: Junxi Piao (Email: piaojunxi88@icloud.com)

Abstract: Against the background of globalization of the economy and quickened mechanical advancement, the high-quality advancement of science and technology-based SMEs (small and medium endeavor), as an vital drive driving quick financial improvement and modern innovative propels, plays an imperative part in improving national competitiveness. Be that as it may, in reaction to the progressively furious showcase competition and ever-changing technological environment, these ventures for the most part confront issues such as need of capital, deficiently development capacity, and equivocal showcase situating, which genuinely oblige their development and feasible advancement. In reaction to these challenges, this paper receives a combination of case ponder and observational inquire about to investigate in profundity the viable techniques for the high-quality advancement of science and technology-based little and medium-sized ventures SMEs. Beginning from the inner and outside measurements of ventures, the think about investigates the center variables influencing the high-quality advancement of endeavors by comparing and analyzing the improvement cases of science and technology-based SMEs completely different districts and at diverse stages of advancement, and on this premise proposes a arrangement of focused on advancement techniques.

Keywords: Science and technology-based SMEs, High-quality development, Innovation capacity, Management optimization, Policy environment, Innovation resources.

1. Introduction

With the fast improvement of the worldwide economy, science and technology-based little and medium-sized ventures SMEs play an imperative part in advancing financial development, progressing technological development and improving the competitive preferences of businesses. China is in a significant period of financial change and updating, and the State has put forward an innovation-driven improvement procedure pointed at technological innovation to boost higher-quality financial advancement. In any case, science and technology-based little and medium-sized undertakings still confront numerous challenges in high-quality advancement, and these endeavors are regularly constrained by issues such as tight capital chain and unsteady development capacity within the prepare of advancement, which genuinely obstruct the pace of high-quality advancement of endeavors. Sensible vital arranging for science and technology-based SMEs not as it were making a difference to illuminate the down to earth issues confronted by undertakings and advance their solid and fast improvement, but too has vital hypothetical and down to earth esteem and centrality for advancing the optimization and updating of China's financial structure and upgrading the country's competitive focal points. The reason of this paper is to propose a arrangement of commonsense and doable high-quality advancement procedures through an in-depth investigation of the current circumstance of the improvement of science and technology-based SMEs, combined with fruitful cases at domestic and abroad, in arrange to supply reference data and reference for the high-quality improvement of science and technology-based SMEs.

2. Comparison of Domestic and International Environments for Science and Technology-Based SMEs

When investigating the high-quality advancement techniques of SMEs in science and innovation, it is to begin with fundamental to form an in-depth comparison of the improvement environment at domestic and overseas. At show, the worldwide science and innovation development environment presents exceptional complexity and inconstancy, and SMEs of science and innovation are confronting the twofold challenges of furious competition from the worldwide showcase and the household approach environment. Universally, the advancement of science and technology-based SMEs has profited from the optimization of asset assignment and help of innovation trade brought approximately by globalization. These variables constitute a critical impact on the universal format and showcase development of S&T SMEs. In differentiate, the household environment gives more favorable conditions for S&T-based SMEs in terms of arrangement bolster. The Chinese government has enormously invigorated the advancement imperativeness and advancement potential of SMEs in science and innovation through a arrangement of arrangement measures, such as money related back, financial and charge motivating forces, and the development of development platforms. 2022 China's State Board issued the "Actualizing Suppositions on Advancing the High-quality Advancement of National Hi-tech Mechanical Improvement Zones," which proposes to encourage extend the application of non-tendering strategies, such as first-buy and membership, and increment the acquirement of major imaginative innovations, items, and administrations for science and technology-based SMEs. obtainment extend of major imaginative innovations,

items and administrations, and proactively and emphatically develop science and technology-based SMEs. To summarize, in spite of the fact that S&T SMEs are facing challenges universally, the contrasts within the household and universal situations give a premise for the detailing of distinctive techniques. S&T SMEs ought to completely utilize the focal points of residential approaches whereas proactively addressing the challenges of the worldwide advertise in arrange to realize high-quality improvement

2.1. Major Challenges Facing S&T SMEs

The main challenges of science and technology-based SMEs are not only complex and diverse, but also intertwined, constituting a major obstacle to the realization of high-quality development of these enterprises. First of all, science and technology-based SMEs generally face a shortage of funds, such as high-cost non-bank financing, difficulties in bank lending, difficulties in listing and financing, etc. [1]. Despite a certain amount of support provided by the government and financial institutions, these enterprises are often due to their small size, high risk and thus difficult to obtain sufficient financing. This financing difficulty seriously limits the R&D investment and market expansion capability of enterprises. Secondly, SMEs in science and technology also face major challenges in technological innovation. Some academics points out that technology-based SMEs may encounter technological bottlenecks in the process of technological research and development, and they need sustained innovation capabilities to promote the advancement of products and technologies [2]. Although these firms usually possess a strong willingness to innovate, they often find it difficult to transform innovative ideas into actual products or services due to the lack of sufficient R&D resources and specialized talents. In addition, the rapidity of technological upgrading also requires that enterprises must continue to make intense R&D investments, which is a huge burden for SMEs with limited resources. Furthermore, the unsoundness of the enterprise's own operation mechanism is also one of the challenges that science and technology-based SMEs have to face, which is specifically reflected in the unclear organizational structure of the enterprise, unclear departmental responsibilities and tasks, the lack of effective communication and coordination of the operation mechanism, the enterprise does not have a perfect management system, including decision-making mechanism, performance evaluation mechanism, salary system, etc., the financial system is not sound, the lack of effective budget and cost control mechanism, resulting in increased financial risks. mechanism, leading to increased financial risks. Therefore, enterprises should optimize the organizational structure, clarify the responsibilities of employees, once again sort out the basic structure of the enterprise's organization, clarify the responsibilities and authority of each department, and ensure smooth communication and coordination between departments. Through flat management, reduce the division of management levels, improve the speed and efficiency of decision-making, and promote the timely transmission of information.

2.2. The Necessity and Urgency of High-Quality Development

Because of their small scale and limited resources, smes face many challenges in R&D and technological innovation. Although the national policy has given some support, the

fierce market competition and limited financing channels are still the main factors restricting its rapid development. In order to better explore the necessity and urgency of achieving high-quality development of science and technology smes, we can analyze from the following aspects: First, science and technology smes are an important force of innovation, and their development is directly related to national science and technology progress and industrial structure optimization. Innovation is not only the core driving force for the survival and development of enterprises, but also the key factor to enhance the comprehensive competitiveness of the country. In addition, in the context of globalization, science and technology smes have to cope with strong competitive pressure from large domestic and foreign enterprises. This competition is not only reflected in products and technology, but also in brand influence and market share. In addition, capital is the blood of enterprise development. However, due to the high potential risks and lack of adequate guarantees, smes often find it difficult to obtain adequate financing support from traditional financial institutions, which limits their investment in research and development and market expansion. The high-quality development of smes is not only the demand of the enterprises themselves, but also an important part of the national strategy. In the face of these challenges, smes need to adopt effective strategies such as strengthening internal management, optimizing product structure, broadening financing channels, and actively responding to policy guidance to achieve sustainable development.

3. Path to Improve the Innovation Capacity of Enterprises

The upgrade way of endeavor advancement capacity is particularly significant to the high-quality improvement of undertakings, and the improvement of undertaking development capacity includes not as it were innovative breakthroughs, but too the development of administration mode and the optimization of advertise methodology. The taking after is an in-depth investigation of the way of venture advancement capacity upgrade. To begin with of all, mechanical development is the center driving calculate for the advancement of SMEs. Undertakings ought to increment R&D speculation by building up a productive R&D framework in arrange to realize innovative breakthroughs and advancements. For case, ventures can pull in and develop high-level R&D groups by setting up uncommon R&D reserves, and set up agreeable connections with colleges and investigate establishing to mutually advance the method of innovative investigate and advancement. Secondly, management concept development is additionally an critical way to make strides the advancement awareness of undertakings. Ventures ought to present progressed administration concepts and strategies, such as incline administration and dexterous administration, in order to progress administration effectiveness and the capacity to reply to showcase changes. By setting up a adaptable administration instrument, endeavors can adjust to showcase changes quicker and seize advancement openings. At long last, showcase development is the outside appearance of endeavor advancement capacity. Ventures ought to utilize showcase investigate to get it the different needs of buyers and create modern items and administrations that meet showcase requests.

3.1. Management Mechanism Optimization Strategy

The optimization of enterprise management mechanism plays a key role in the internal strategy of enterprises. The optimization of management mechanism not only involves the adjustment of organizational structure, but also includes the streamlining of decision-making process and the improvement of incentive mechanism. Through these measures, enterprises can mobilize internal resources more effectively and enhance operational efficiency, thus promoting the overall development of enterprises [3]. First of all, the optimization of organizational structure is the basis for improving management efficiency. The traditional hierarchical management structure often leads to slow decision-making and poor information transfer. Therefore, using a more flexible matrix or flat management structure can effectively improve these issues, for instance, in the face of rapidly changing social needs, project-based enterprises must reform and innovate their organizational structure. The implementation of matrix management significantly improves the responsiveness and decision-making efficiency of enterprises [4]. By coming cross-departmental project management teams, enterprises are able to break down barriers between departments and promote resource sharing and collaborative work, thus further enhancing overall operational efficiency. For example, through the establishment of cross-departmental project management for example, the establishment of cross-departmental project teams can break down departmental barriers and promote resource sharing and collaborative work. Second, streamlining the decision-making process is also an important aspect of management optimization. Overly complex decision-making processes are not only time-consuming, but may also lead to lagging decisions. By introducing a data-driven decision support system, decision-making can be accelerated and its accuracy improved. By optimizing the organizational structure and streamlining the decision-making process, science and technology-based SMEs can build a more efficient and flexible management system, thus standing out in the fierce market competition and achieving high-quality development. The implementation of this strategy requires not only active exploration and practice within the enterprise, but also cooperation and support from the external environment.

3.2. Recommendations for Improving the Policy Environment

When examining the methodology of high-quality improvement of science and technology-based SMEs, the enhancement of the approach environment is especially pivotal. The arrangement environment not as it were giving the soil for the advancement of science and technology-based SMEs, but too is one of the definitive components for whether they can realize high-quality improvement. In this respect, this paper puts forward the taking after proposals to progress the approach environment: to begin with, neighborhood governments ought to increment the budgetary bolster for science and technology-based SMEs. Through the foundation of a uncommon support, to supply money related bolster for the enterprise's R & D exercises, to decrease the in general fetched of its R & D, and invigorate the vigor of development. Particularly, a multi-level financing framework can be set up, as appeared in Table 1. to meet desires of undertakings at

diverse stages of advancement.

Table 1. Levels of Funding System for SMEs in Science and Technology

Level	Funding	Objects	Range of Funding Amount
Primary	Start-up enterprises	R&D start-up capital	10-50 million yuan
Intermediate	Growing enterprises	Technology upgrading capital	50-200 million yuan
Senior	Mature Enterprises	Funding for Innovation Projects	200-500 million yuan

Furthermore, assess motivations ought to be made strides to decrease the burden on endeavors. By decreasing or exempting venture wage charge, value-added charge and other charges, the working costs of undertakings are decreased and their advertise competitiveness is upgraded. For illustration, for endeavors with a certain rate of R&D venture, they can appreciate the next rate of assess lessening, as appeared in Condition. (1)

$$T = B \times (1 - R) \quad (1)$$

Where T denotes the actual amount of tax paid, B denotes the base tax amount, and R denotes the proportion of tax relief. Once again, establish a sound intellectual property protection system to safeguard the innovation achievements of enterprises. By strengthening the enforcement of intellectual property laws and regulations, cracking down on infringement, protecting the technical secrets and patent rights of enterprises, and incentivizing enterprises to make more technological innovations. Finally, optimize the service system and improve the efficiency of government services. By establishing one-stop service windows, simplifying the administrative examination and approval process, shortening the time for enterprises to do business, and improving the convenience and efficiency of government services. Through the implementation of the above measures, a more favorable policy environment for innovation and development can be created for science and technology-based SMEs, thus promoting their high-quality development.

3.3. Facilitating Access to Innovative Resources

When investigating techniques for the high-quality improvement of science and technology-based SMEs, the help of get to development assets is especially basic. In arrange to attain this objective, in-depth investigation and methodology advancement must be carried out from numerous measurements. To begin with of all, the government ought to play the part of a direct and lower the passage limit for SMEs to get to different assets for development by defining particular approaches and giving money related bolster. For case, the government can give R&D endowments to SMEs by setting up special funds, or incentivize ventures to extend R&D speculation through charge help policies. Second, setting up and progressing development asset sharing stages is additionally an compelling way to upgrade the openness of assets. Through these stages, SMEs can helpfully get to a wide run of development assets, counting innovation, ability and data. For

case, a web innovation exchanging advertise can be set up to empower SMEs to straightforwardly coordinate with logical inquire about educate or universities in innovation, in this way quickening the change of mechanical accomplishments. At last, optimizing the mental property assurance framework is additionally a vital portion. By reinforcing the assurance of mental property rights, endeavors can be propelled to carry out more inventive exercises, and at the same time, SMEs are given with more financing channels. To summarize, through government direction, asset sharing stage development, mental property assurance and other endeavors, the comfort of SMEs in science and innovation in getting to development assets can be altogether moved forward, hence advancing their high-quality improvement.

4. Conclusion

Within the ponder investigating the high-quality improvement technological of SMEs in science and innovation, this paper analyzes in profundity the current challenges and openings confronted by SMEs in science and innovation, and proposes an arrangement of focused on methodologies. It is found that variables such as government policy, market request and competition, and innovation willingness significantly influence enterprise growth.

Implementing the proposed strategies can enhance market competitiveness and promote sustainable economic and social development. Future research should explore the application of these strategies in different industries and regions and investigate how international cooperation can further support the globalization of science and technology-based SMEs.

References

- [1] Mao, Q. (2019) Research on Countermeasures of Venture Capital to Promote High-Quality Development of Science and Technology-based Small and Medium-sized Enterprises. *Technology and Market*, 26 (11): 162-164.
- [2] Xing, R. (2021) Dilemma and Way Out of High-Quality Development of Science and Technology-based Small and Medium-sized Enterprises. *China Small and Medium Enterprises*, 10: 155-156.
- [3] Tan, J., Huang, Y. (2023) Research on the importance and realization path of management innovation in science and technology-based enterprises. *National Circulation Economy*, 16: 65-68.
- [4] Fang, J. (2019) Research on Main Problems and Countermeasures of Matrix Management System in Project-based Enterprises. Thesis of Southeast University.