

The Innovation Management Mechanism for Performance Improvement of Small Hi-Tech Enterprises in Greater Bay Area

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Abstract

The objective of this research is to explore to study (1) the factors affecting the improvement of business performance of small technology-based enterprises (2) analyze the role and effect of mediating variables affecting the improvement of business performance of technology-based and (3) develop the effects of independent variables and intermediate variables on the performance improvement of technology-based. The research methodology integrates mixed methods. For the quantitative aspect, a questionnaire was designed based on existing scales to measure variables, including long-term goals and innovation capacity, and administered to a sample of 440 entrepreneurs. The qualitative component involved semi-structured interviews with 24 industry experts to gain deeper insights into innovation mechanisms. Data were analyzed using SPSS and AMOS.

Results were analyzed using structural equation modeling, confirming that long-term strategic goals, resource utilization, and innovative ability significantly impact firm agility and innovation capacity. These, in turn, directly affect business performance improvement. The study highlights the importance of aligning internal capabilities with external collaboration for effective innovation in the competitive landscape of the Greater Bay Area.

Keywords: Innovation Management; Mechanism; Performance Improvement; Small Hi-Tech Enterprises; Greater Bay Area

Introduction

China boasts a vast and comprehensive industrial economy, encompassing all 39 industrial categories, 191 intermediate categories, and 525 subcategories recognized by the United Nations. This makes China unique as the only country with a full representation of the UN's industrial classifications. However, China's economic strategy has evolved from high-speed growth to high-quality development. This shift is essential due to rising costs, environmental pressures, and the challenges of overcapacity. Traditional industries face increased competition from both late-developing and reindustrializing developed countries, making the previous model of factor-driven, low-cost competition unsustainable. (Du, 2021).

The Guangdong-Hong Kong-Macao Greater Bay Area. This region is significant, contributing over 10% of China's GDP. However, its per capita GDP lags behind other major global bay areas. Key cities in this region like Guangzhou, Shenzhen, and Zhuhai lead in per capita GDP but still fall short compared to Hong Kong and Macao. The "Double Innovation" Initiative, Premier Li Keqiang's call for "mass entrepreneurship" and "mass innovation" has fostered a vibrant ecosystem of innovative enterprises. (Cai et al., 2016). This initiative has stimulated widespread enthusiasm for innovation and entrepreneurship, crucial for high-quality

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development and economic vitality. And additional The core research explores the innovation management mechanisms of small technology-based enterprises. It emphasizes the shift in value creation from traditional labor and material resources to information and knowledge, which are now primary sources of added value and societal wealth. This transformation influences production processes and societal communication structures, heralding a new era. (Huang & Shi, 2018).

Table 1 Distribution of small technology-based enterprises in the Greater Bay Area

	Specialized and special new " little Giant" (home)	Listed company (home)	Manufacturing "individual champion" (home)
Shenzhen	442	405	67
Guangzhou	123	145	24
Dongguan	110	78	1
Foshan	47	50	16
Huizhou	36	17	2
Zhuhai	33	37	9
Zhongshan	18	24	0
Jiangmen	15	15	1
Zhaoqing	11	9	1

Distribution and Role of Technology-Based Enterprises. The Greater Bay Area hosts numerous specialized small technology-based enterprises, pivotal for regional innovation. These enterprises are instrumental in adapting to the new economic landscape, integrating advanced information processing technologies, and participating in global telecommunications networks. Internal and External Influences on Enterprises. Enterprises must adapt their internal management mechanisms to external changes. Effective resource integration, driven by organizational flexibility and systematization, is critical for maintaining competitiveness. This involves optimizing resource allocation to enhance customer service and improve overall efficiency. (Lan & Su, 2019).

Problem Statement and Goals, the innovation behavior of small technology companies is examined from two dimensions: capacity building within the organization and optimization of the internal environment in response to external factors. The ultimate goal is to align organizational objectives with the common interests of all members, fostering passion, dedication, and creativity and Enterprise innovation mechanisms encompass system, technology, market, organization, and management innovations. These mechanisms, driven by innovation awareness and capability, are crucial for organizational competitiveness. The sense of innovation is cultivated, reflecting the proactive and creative expression of human consciousness. (Lee & Chung, 2020).

China's industrial economy, although vast and comprehensive, faces a critical shift from high-speed to high-quality development due to rising costs, environmental concerns, and overcapacity challenges. Traditional industries, once reliant on low-cost competition, now encounter increased pressure from both emerging and reindustrializing countries. In the

Guangdong-Hong Kong-Macao Greater Bay Area, a region contributing significantly to China's GDP, key cities like Guangzhou and Shenzhen still lag in per capita GDP compared to global bay areas, such as Hong Kong. To counter these challenges, the "Double Innovation" Initiative has encouraged mass entrepreneurship and innovation, essential for economic vitality. The core issue lies in how small technology-based enterprises in this region can adapt by integrating advanced technologies, optimizing resource management, and aligning internal capacities with external demands. The research focuses on innovation management mechanisms, emphasizing the transition from traditional resource-based value creation to knowledge and information-based wealth. Effective innovation in systems, technologies, and management will be pivotal for enhancing organizational competitiveness and sustaining long-term development in this evolving economic landscape.

In conclusion, for small and medium-sized enterprises to thrive, it is essential to establish robust innovation mechanisms, optimize internal management, and effectively integrate resources. The government's role in creating a conducive environment for these enterprises is also emphasized, highlighting the importance of a supportive ecosystem for sustained innovation and development. This summary encapsulates the key points of the original document, emphasizing the importance of innovation and adaptation in the evolving economic landscape of China, particularly within the Guangdong-Hong Kong-Macao Greater Bay Area.

Research Objectives

1. To study the factors affecting the improvement of business performance of small technology-based enterprises in the Greater Bay Area.
2. To analyze the role and effect of mediating variables affecting the improvement of business performance of technology-based SMEs in the Greater Bay Area.
3. To develop the effects of independent variables and intermediate variables on the performance improvement of technology-based SMEs in the Guangdong-Hong Kong-Macao Greater Bay Area.

Research Methodology

Simple and data collection

1. For quantitative method, on the basis of literature search, the list of interview questions was collected and sorted out. Preliminary data, interview opinions, evaluation indicators, etc. After IOC design, measurement questions, standards and evaluation indicators have been determined, and through preliminary testing and improvement of expert opinions, formal questionnaires have been formed, and relevant research data have been obtained through investigation.

IBM-SPSS 26.0 analysis software and sociological survey statistical software package were used to analyze the collected data. The analysis methods include reliability analysis and exploratory factor analysis. AMOS 26.0 software tools will also be used in this paper, including confirmatory factor analysis, structural equation modeling, etc.

2. For qualitative method, through literature search, the definition and concept of enterprise performance improvement are clarified, and key issues (independent variables) affecting performance improvement are identified. Text is the technical processing of speech and text information obtained from expert interviews and the transcription of materials such as

live recordings and live notes into readable text through electronic processing (speech to text). The transcribing process is a time-consuming process in which we cannot only deepen our understanding of the case (issue), but even supplement the information we observe in the field that cannot be reflected in the record is (1) On the basis of literature review, the theoretical concepts of enterprise performance improvement and related variables are defined and clarified. (2) Construct theoretical conceptual framework and propose research hypotheses. (3) Construct an interview form based on the theoretical framework and research hypothesis. (4) Integrate and statistically analyze the collected large sample data and discuss the analysis results. And (5) Comprehensive theoretical derivation to form the final research conclusion.

Instrument

In this research, according to the existing mature scale, and each variable, design the questionnaire, collect a certain amount of empirical data to test the reliability and validity of the scale, and determine the measurement scale of each variable.

At the same time, a small-scale pre-test was conducted, and then the order of the questions and expressions were adjusted according to the results of the test to ensure that the interviewees could correctly understand the contents of the questions and answer them conscientiously by

1. For quantitative methods

This study will use a questionnaire to collect relevant data, combined with the background of this study is a small hi-tech enterprise in greater bay area, the research object is enterprises in greater bay area, the content of the questionnaire is based on the variables of the scale for the questionnaire design, which can be divided into a total of five parts. Selected sample group by 440 people who are entrepreneurs under the concept of Yamane (1973)

The first part of the questionnaire is the introduction, indicating the purpose of the survey, the use and the survey background description, to ensure that no personal privacy, to obtain the first step of the trust of the respondents, while giving a certain amount of background information, and to guide the respondents on how to fill out this questionnaire, in order to reduce their vigilance, and fill out the questionnaire seriously.

The second part of the questionnaire is the basic information, asking about their gender, age, area, experience in business field, education, industry of your company, and place of incorporation.

The third part is the variables which are measured in four aspects: long term strategic goal, internal cooperation environment, effective resource utilization, and innovative ability.

The fourth part is the mediating variables of enterprise performance improvement. This part mainly examines the innovation capacity and firm agility.

The fifth part is enterprise performance improvement rate, which asks the entrepreneurs about their performance in their small hi-tech in greater bay area.

All variables in this questionnaire are scored on a 5-point Likert scale, where 5 stands for "Strongly Agree", 4 stands for "Somewhat Agree", 3 stands for "Unsure", 2 stands for "don't really agree", and 1 "don't agree at all".

2. For Qualitative Method

Semi-structured interviews are widely used in academia for survey research. In general, Semi-structured interviews were mostly face-to-face exchanges between the researcher and the interviewee on the main content of the study. To explore the understanding, attitude, and motivation of research subjects towards issues related to education in practice.

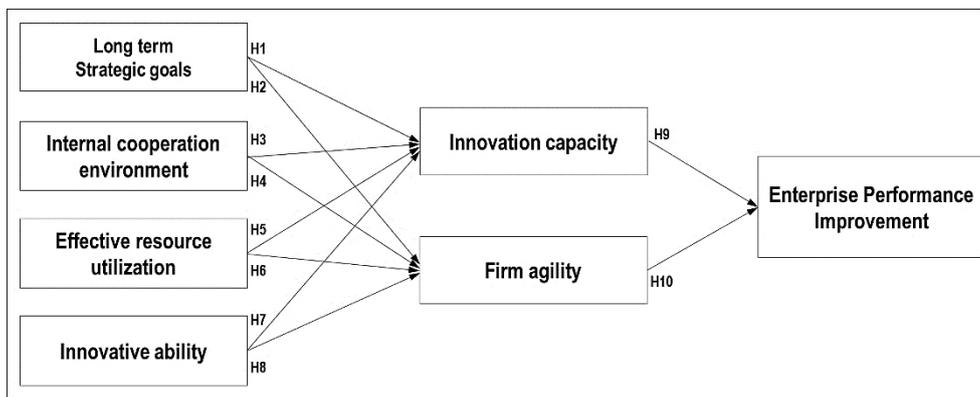
A relevant aspect of this study is the survey of entrepreneurs in the greater bay area. Selecting 4 experts from each of the six different industries were selected for in-depth interviews, for a total of about 24 interviews. The interview was open-ended so that the interviewer could explain the message that was on their minds through their small hi-tech in greater bay area.

Data Analysis

The data analysis software used in this study was SPSS and AMOS, with the help of which the reliability and validity of the scales, the basic descriptive statistics of the samples, and the regression model for hypothesis testing were statistically analyzed.

Research Conceptual Framework

Following a review of relevant literature, the researcher has developed and constructed the conceptual framework for this study, as follows: picture 1



Picture 1 Conceptual Framework

The research framework described is a theoretical framework that discusses the relationship between various independent variables (long term strategic goals, internal cooperation environment, effective resource utilization, innovative ability), mediating variable (Innovation capacity, firm agility), and the outcome variable (enterprise performance improvement). Following:

1. Long term strategic goals (LSG) It refers to the results that an enterprise organization expects to achieve through innovation activities within a certain period of time. Based on the theory of decision management, this paper takes innovation goal as a variable that affects the internal atmosphere of innovation and then acts on the improvement of enterprise performance (Chen, 2020).

2. Internal cooperation environment (ICE) refers to the internal and external psychological and cultural environment in which a business organization (collective or individual) exists. In this paper, the innovation environment is a variable of consciousness acting on innovation management mechanisms by the combined formation of individual and collective cognition (Da et al., 2024).

3. Effective resource utilization (ERU) It refers to the investment required for enterprise management innovation, including human, material and financial input factors. In this paper, the correct and effective allocation of innovation resources is the basic variable affecting the innovation management mechanism (Zhang et al., 2023).

4. Innovative Ability (IA) It refers to the behavior that is different from the conventional or ordinary thinking with the existing mode of thinking and can obtain certain beneficial effects. In this paper, innovation capacity is a decisive variable affecting innovation management mechanisms as a determining factor for improving the competitiveness of enterprises (Rod & Rod, 2020).

5. Innovation capability (IC) Innovation ability is the ability to constantly provide new ideas, new theories, new methods and new inventions with economic, social and ecological value in technology and various practical activities.

6. Firm Agility (FA) It refers to the combination of enterprise characteristics created and formed in the management activities of innovation, promotion and improvement of enterprise performance with the spiritual wealth of innovation and the material form of innovation, which contains the values, norms, systems and norms of innovation within the enterprise organization, and must be integrated with the external atmosphere of innovation. It includes material environment and cultural environment which are not suitable for external innovation. It plays a moderating role in all the variables in this study. (Chen, 2018).

7. Enterprise Performance Improvement (EPI) Enterprise performance refers to the enterprise operating efficiency and manager performance during a certain period of operation. The operating efficiency level of enterprises is mainly manifested in the aspects of profitability, asset operation level, debt paying ability and subsequent development ability. (Clayton, 2021). In this study, innovation activities of small science and technology enterprises are the driving force for enterprises to achieve long-term strategic development goals and the reason for improving corporate performance (dependent variable).

Research Results

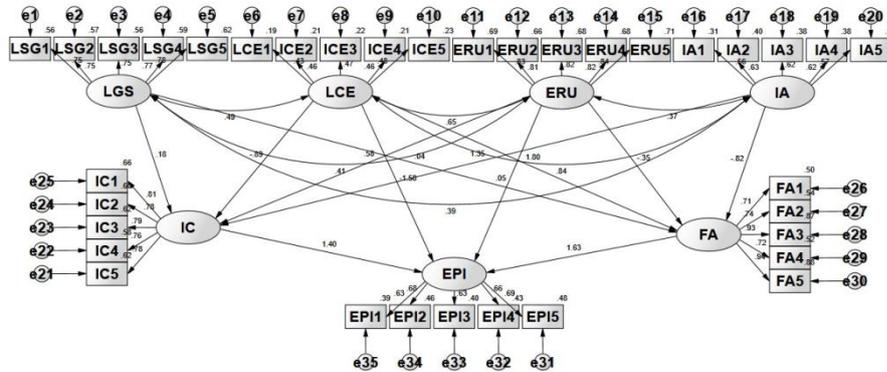
For Quantitative Method

Doing research by objectives:

1. To study the factors affecting the improvement of business performance of small technology-based enterprises in the Greater Bay Area.

2. To analyze the role and effect of mediating variables affecting the improvement of business performance of technology-based SMEs in the Greater Bay Area.

Structural Equation Modeling, using AMOS 26.0, a structural equation model was constructed with long term strategic goals, internal customer retention cooperation environment, effective resource utilization, and innovative ability as an independent variable, and Innovation capacity and firm agility as a mediating variables, and enterprise performance improvement as the dependent variable for model testing.



Picture 2 Structural equation modeling (unstandardized coefficients)

In order to achieve the final research goal, AMOS26.0 software was used to establish a structural equation analysis model to test the causal relationship between variables. Among them, the model fit degree is calculated. It can be seen from the data in the table that each fitting index of the structural model meets the requirements of the analysis standard, the model has a good fitting degree and a high overall fit degree, and the model also has a strong structural validity.

Table 2 Degree of model fit

	Result	Reference
χ^2/df	1.377	<3 Excellent;< 5 Acceptable
RMSEA	0.033	<0.05 Excellent;< 0.08 Good
SRMR	0.044	<0.05 Excellent;< 0.08 Good
NFI	0.920	>0.9 Excellent;> 0.8 Acceptable
RFI	0.909	>0.9 Excellent;> 0.8 Acceptable
IFI	0.967	>0.9
TLI	0.972	>0.9
CFI	0.971	>0.9
GFI	0.903	>0.9 Excellent;> 0.8 Acceptable
AGFI	0.901	>0.9 Excellent;> 0.8 Acceptable

Table 3 Variable regression relationship test

	Path	b	β	SE	t	p
LSG	→ IC	0.212	0.191	0.056	3.724	<0.001
LSG	→ FA	0.200	0.214	0.049	4.147	<0.001
ICE	→ IC	0.160	0.136	0.060	2.676	<0.007
LCE	→ FA	0.305	0.306	0.053	5.736	<0.001
EUR	→ IC	0.265	0.273	0.050	5.383	<0.001
EUR	→ FA	0.206	0.257	0.042	5.028	<0.001
IA	→ IC	0.407	0.349	0.062	6.645	<0.001
IA	→ FA	0.170	0.174	0.048	3.501	<0.001

ICE	→	EPI	0.209	0.242	0.048	4.355	<0.001
FA	→	EPI	0.180	0.176	0.052	3.364	<0.001
LSG	→	EPI	0.182	0.190	0.046	3.969	<0.001
ICE	→	EPI	0.154	0.149	0.054	3.038	<0.002
ERU	→	EPI	0.145	0.155	0.044	3.178	<0.001
IA	→	EPI	0.189	0.189	0.051	3.813	<0.001

Table 4 Mediation Effect Test

Path	effect	SE	95% Lower	95% Upper	p
LSG → IC → EPI	0.044	0.017	0.014	0.093	0.002
LSG → FA → EPI	0.033	0.015	0.008	0.074	0.006
LCE → IC → EPI	0.035	0.016	0.008	0.076	0.007
ICE → FA → EPI	0.052	0.021	0.021	0.105	0.005
ERU → IC → EPI	0.054	0.020	0.024	0.107	0.001
ERU → FA → EPI	0.036	0.016	0.013	0.074	0.003
IA → IC → EPI	0.082	0.029	0.037	0.154	0.001
IA → FA → EPI	0.031	0.015	0.008	0.068	0.005

3. To develop the effects of independent variables and intermediate variables on the performance improvement of technology-based SMEs in the Guangdong-Hong Kong-Macao Greater Bay Area.

Firstly, based on innovation theory, organization theory, enterprise behavior theory and management mechanism theory, this paper takes "Exploration and Research on Innovation Management Mechanism of Small Technology Enterprises in the Greater Bay Area" as the research direction, and starts the research work from qualitative research:

delves into various aspects of innovation in the context of enterprise management and strategic development. It extensively discusses the establishment of innovation objectives, the importance of aligning these objectives with long-term strategic goals, and the process of innovation itself within enterprises. Here are some key points covered in the document:

1. Innovation Objective: to interviews from entrepreneurs, the necessity of setting clear, precise, and time-bound innovation objectives that align with the long-term strategic goals of an enterprise. It highlights the importance of these objectives in guiding enterprise innovation activities and in achieving national transformation.

2. Types of Innovation: Different types of innovation are outlined, such as transformative, innovative, and imitation innovations. Each type has specific characteristics and plays a distinct role in the strategic development of an organization.

3. Innovation Environment: The document discusses the components of an innovative environment, which includes a supportive market environment, cultural factors, and institutional mechanisms. These elements collectively facilitate enterprise innovation by providing the necessary external and internal conditions.

4. Innovation Resources: The availability and management of innovation resources—such as human, material, and financial resources—are considered crucial for the innovation process. Effective allocation and integration of these resources are vital for sustaining competitive advantages and for the continuous innovation capabilities of enterprises.

5. Ability to Innovate: The document also touches on the capabilities required for innovation, which include identifying opportunities, developing technologies, and building efficient management mechanisms. It emphasizes the role of organizational structure, ideology, and incentive methods in fostering an environment conducive to innovation.

6. Innovation Culture: Lastly, it addresses the significance of fostering a culture of innovation within enterprises. Such a culture promotes creativity, risk-taking, and strategic thinking, which are essential for the dynamic development of innovative solutions and sustainable business practices.

Table 5 hypotheses studied in this research:

No.	Hypothesis	Results
H1	The impact of long-term strategic goals on the innovation capability.	accepted
H2	The influence of internal cooperation environment factors on the innovation capability.	accepted
H3	The influence of Effective resource utilization factors on the innovation capability.	accepted
H4	The influence of Innovative Ability on the innovation capability.	accepted
H5	The impact of long-term strategic goals on the firm agility.	accepted
H6	The influence of internal cooperation environment factors on the firm agility.	accepted
H7	Effective resource utilization factors influence enterprises on the firm agility.	accepted
H8	The influence of innovative ability on the firm agility.	accepted
H9	The innovation capability on enterprise performance improvement.	accepted
H10	The firm agility on enterprise performance improvement	accepted

Discussions

1. Seize opportunities, keep up with the times, and realistically set innovation targets

As mentioned earlier, making decisions at the top of the company is likely to be a strategy where key innovations will ultimately be made at the top. Innovation is a strategic decision. For example, many glossy institutions see the market as a fully open world market, but the world market has decided that it is very blind and unstable. According to Chen (2018) said the enterprise innovation decision is not based on this, then the enterprise innovation is not institutionalized innovation, but local innovation. If it is strategic, and the organization does not regularly plan innovation decisions, it is difficult to generate new core competencies for the organization, which can put the organization in a difficult position. It will hide in the market competition and lose the internal survival and development of the enterprise.

There are many levels of organizational structure in modern enterprises, and the decision-making hierarchy of enterprises is often centered on it. According to Duan (2021) in organizations that are somewhat multi-layered, innovation can occur at different levels. Innovation, therefore, provides a lot of hierarchy that matches the organizational structure of the company.

In particular, it is important to note that significant innovation is a strategic decision that often affects the overall development trend of the enterprise. Since it has run out, most decisions are made by senior decision-makers in the company and are made based on the importance of the decision. Such decisions should be taken according to the opinions of different levels of thought and organization. If possible, persuade the decision-making layer to cooperate.

According to Chen et al., (2023) Decision coordination can take the form of soliciting opinions based on the above lower levels. It can also make advanced adjustments based on higher decision-making levels, such as determining the new direction of corporate industry development to facilitate evolution. Performance at a higher level of the company, these decisions, along with innovative management mechanisms, must be made at the top of the advanced coordination

2. Balance the interior and exterior to create an environment, Meet demand through an innovative environment

The impact of the external environment on the organization can be analyzed in three ways. First of all, it's a good factor in business marketing, and that is, the environment is a business marketing opportunity. Secondly, it is an unfavorable factor that poses a threat to the environment. Third, there are elements that do not affect the marketing of the enterprise, and the enterprise can be regarded as a neutral element. Wu (2020) said Organizations must respond appropriately to opportunities and threats to enable environmental change.

Environmental management is a company strategy each family sees the environment as a new part of its business strategy and environmental protection as an important task of its business activities. Operational management, and gradually concretize strategies corresponding to environmental problems in procurement, development, design, manufacturing, waste disposal, etc., so as to reduce and minimize the environmental load caused by water, energy, raw materials, chemical substances, etc. invested in business activities.

According to Xiong, (2020) said the environmental management is an organization's management and operation of internal and external environmental issues. It is a comprehensive, holistic and strategic concept. Environmental management aims at the sustainable development of society and enterprises, responds to broad environmental issues as an important strategic element of enterprises, penetrates environment-friendly concepts and technologies into all aspects of organizational production and business activities and social activities, and strives to comprehensively and thoroughly reduce the negative interference of environment on enterprise management. And through the improvement of environmental benefits as the center of a variety of innovative activities to promote the growth of organizational capacity, enhance the competitiveness of enterprises, to achieve the creation of corporate value.

3. Targeted integration and effective configuration, Maximize the effect of enterprise resource allocation

Open innovation is a new innovation mode in which enterprises integrate internal and external innovation resources to improve innovation performance. Under the condition of open innovation, the company's absorption and transformation ability is also the key factor affecting the open innovation ability. So, Chen et al., (2020) said what exactly does absorption play a role? What kind of synergy exists between internal and external innovation resources of enterprises? Under the conditions of turbulent external environment, how can enterprises choose a matching organizational model according to internal capabilities and resources to

obtain the best open benefits? These issues are important issues that need to be addressed for the effective implementation of open innovation.

According to Luo, (2021) said the latest research, the search for external knowledge has an important impact on improving the innovation efficiency of enterprises. However, different types of external collaborators disagree on the importance of innovation efficiency. We also found that there was cooperation between internal R&D (R&D). Find knowledge of vertical and horizontal cooperation enterprises in innovative practice. However, there is not enough complementary evidence between internal R&D and knowledge search in universities/research institutions. Interaction between internal competencies and different open model's companies with strong internal R&D capabilities work with science partners to increase innovation efficiency. The enterprises with stronger internal R&D capacity and average production capacity should cooperate with more horizontal cooperative enterprises. Companies with average in-house development capabilities are closely related to technology organizations and partners, and the value chain can greatly increase innovative efficiency. Therefore, Adair (2022) said the pointed out that companies with different characteristics should choose an open model that matches their internal capabilities.

4. With a scientific attitude and unremitting spirit

Creating greater benefits for enterprises Management decision making is the specific decision making that an enterprise makes as it carries out strategic decisions at an internal level. It aims at achieving high-level coordination of activities and rationalization of the use of resources throughout the Organization. For example, the company's decision. Production plans, sales plans, updates, equipment selection, pricing of new products, financing are all the same. Management decisions do not directly determine the fate of an organization. However, Chen & Li (2024) said its accuracy greatly affects the level of effectiveness of management and the success of corporate goals. Management of innovative decision-making involves innovative decision-making in various important aspects of the scope of management.

Management innovation comes into being under the historical background of economic globalization and information globalization. In the early 1970s, for the first time since the end of the Second World War, a major change in business management took place: the production management model with "total quality control" as the core began in Japan, which is a production management model adapted to the industrial age. Its main content is: on the other hand, the enterprise triggered a wave of mergers and acquisitions at home and abroad. At the same time, Duan, (2021) said the organization is changing from "pyramid type" to "network type", from vertical management to horizontal management. There's something new. Organizational management concept innovation, organizational structure innovation, organizational management method innovation, corporate social image innovation. Enterprise product innovation.

The content of project management and innovation refers to the decision of project management and innovation being more and more important. According to Chen (2020) In order to survive and develop an enterprise, it is more important than strategic innovation. For example, structural reform of the above-mentioned institutions is not directly related to the fate of the institutions. However, Li et al., (2022) explain the expansion of the business does have a significant impact on the survival of the company. Another example: the image of the institution. Cultural innovation is the case of enterprise, it is the expression of corporate image. This is an essential part of corporate power, and management innovation decisions must be designated as an essential part of high-level decision-making.

5. The atmosphere of cultural innovation can allow enterprises to plug in the wings of success

In the process of operation of an enterprise, the behavior of entrepreneurs, the behavior of enterprise model figures and the behavior of all employees of the enterprise should have certain norms. In the formulation of norms and the implementation of norms, a certain culture of corporate behavior will be formed. For example, business behavior has corporate social responsibility and corporate responsibility towards consumers, the responsibilities of enterprises to internal members, the responsibilities between enterprise operators and enterprise owners, and the responsibilities that enterprises must bear in various specific operations. The assumption of these responsibilities must be guaranteed by certain norms of conduct.

According to David, (2022) explained as a people-to-people association-based business activity, the business behavior of a company must finally be coordinated, that is, the company must be an individual organization, and all the activities of the organization must finally be done by the people. Therefore, Adair (2022) also said it is inevitable that innovation of corporate system and business strategy will be reflected in people's values. Corporate culture the corporate culture referred to here, its form, in the context of human thought, refers to the value of man. The content reflects the concept of a humanized enterprise system, business strategy and other related activities. Therefore, enterprise culture is critical for effective enterprise development.

The cultural innovation of the enterprise is the continuous innovation and development of the enterprise with the change of the environment in the process of development. The cultural innovation of enterprises is also built on the characteristics of unique characteristics and reflects the common values of enterprises. The essence of enterprise culture innovation is to break the rigid cultural concept, and the application of perspective is indispensable. The true management of an organization is the establishment of the organization's culture, the implementation of a new process and the way to manage change. Research on the whole process of innovation. And Li et al., (2022) said in the face of increasingly fierce market competition, more and more organizations realize that innovation is the spirit of shaping corporate culture and the key to improving the competitiveness of enterprises. Corporate culture construction and project management practice.

Under the conditions of a market economy, Xiong, (2020) said no matter how big or small an enterprise is, it is an independent producer and entrepreneur of goods. Is the driving mechanism. The organization of work and innovation in an organization is the core activity and organization of the process. The effective functioning of this process also depends on mechanization. Some mechanisms to support and encourage enterprise innovation.

And an additional of Cao, (2022) in a market economy, the most important mechanism of the enterprise is the enterprise mechanism of innovation. What is called an enterprise's innovation mechanism is the inherent function and operating method of companies continuing to innovate continuously. Enterprise innovation is the periodic process of creative creation and shaping research and development, forming innovative content, transmitting innovative results, forming marketing effect, then developing market demand, and then entering into new innovation process. We have orders. However, there are also unique intersections and interaction points, supporting and promoting accurate and effective enterprise innovation mechanism, and enterprise innovation activities are possible sustainable cycle, sustainable development. In China, the vast majority of enterprises still have weak innovation capabilities,

which is due to the fact that these enterprises have not yet established a truly effective enterprise innovation mechanism.

Synthesize the new knowledge

The importance of innovation as a strategic decision in enterprise management and how it is influenced by both internal and external factors. First, innovation is often driven by top-level decision-makers, and it requires setting realistic targets that align with market dynamics and organizational structures. Successful innovation is strategic, involving regular planning and coordination across different organizational levels to foster new core competencies.

Secondly, balancing internal and external environments is essential. Enterprises must adapt to external factors, which can present opportunities or threats, and should incorporate environmental management into their business strategies. This holistic approach integrates environmental considerations into operations to enhance sustainability and competitiveness.

Moreover, open innovation plays a crucial role in maximizing resource allocation. By integrating internal and external innovation resources, organizations can improve performance, especially when leveraging external knowledge and collaborating with research institutions.

Lastly, management decisions shape the organization's ability to innovate. Innovation in management, culture, and business models is necessary for adapting to market changes. A strong corporate culture that supports innovation fosters an environment where continuous improvement is possible, ensuring long-term sustainability and competitiveness in a dynamic market environment.

Recommendations

Recommendations in this research

1. Policy-related Recommendation; Policymakers should create a cohesive innovation policy that supports small technology-based enterprises in the Greater Bay Area. This can be achieved by providing financial incentives such as R&D tax credits, establishing regional innovation hubs, and easing cross-border regulatory barriers. Such efforts would foster collaboration between Guangdong, Hong Kong, and Macau, enabling a seamless flow of talent and resources to drive technological innovation and economic growth in the region.

2. Academic-related Recommendation; Academic institutions should enhance partnerships with small technology-based enterprises by offering specialized programs and collaborative research initiatives. These programs should focus on entrepreneurial skills and innovation management, while collaborative projects can help SMEs access cutting-edge technologies and expertise. By fostering a shared innovation environment, universities can bridge the gap between academia and industry, accelerating technological advancements and enhancing innovation capacity in the Greater Bay Area.

3. Private Sector-related Recommendation; Small technology-based enterprises should adopt an open innovation model, collaborating with external partners such as research institutions and larger corporations to access external expertise. They should integrate advanced technologies like AI and data analytics to boost agility and resource optimization. Additionally, fostering an internal culture of innovation by aligning strategic goals with employee incentives will encourage creativity and enhance long-term performance, making firms more competitive in the dynamic Greater Bay Area market.

Further research

1. Research should explore how government initiatives like the “Double Innovation” policy affect innovation performance in small hi-tech enterprises. It would focus on evaluating policy effectiveness, identifying barriers, and offering recommendations for optimizing regulatory frameworks to better support innovation in the Greater Bay Area.

2. Future studies could examine the influence of organizational culture on innovation capabilities in small technology enterprises. Research would analyze how internal cultural factors, such as creativity and collaboration, drive innovation and affect overall competitiveness in high-tech industries.

3. Research can focus on how small enterprises in the Greater Bay Area leverage open innovation and partnerships with external entities, such as research institutions. It would explore the impact of these collaborations on innovation processes and strategic resource allocation for enhanced business performance.

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