SCIENCE - TECHNOLOGY DEVELOPMENT: A CASE OF HO CHI MINH CITY, VIETNAM

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ABSTRACT

Purpose: This study aims to analyze the results and limitations of Ho Chi Minh City's scientific and technological development in international integration, from which the study proposes solutions to develop science and technology to meet the requirements of science and technology sustainable development needs in Ho Chi Minh City, Vietnam.

Methods: This study uses qualitative methods to analyze the development of science and technology in Ho Chi Minh City. The article also uses analytical, synthesis, logical, and historical methods to clarify the results and limitations of science and technology development in Ho Chi Minh City.

Findings: From the analysis and assessment of the reality of science and technology development in Ho Chi Minh City, the study contributes to proposing solutions to develop science and technology, and innovate to meet requirements for rapid development in Ho Chi Minh City today.

Research, Practical & Social Implications: This study will help the Ho Chi Minh City government to fully understand the achievements and limitations of science and technology development in Ho Chi Minh City in the process of international integration.

Originality/value: The value of the study will be aware of the results and limitations of science and technology in Ho Chi Minh City and having timely and scientific solutions is the basis for making good use of the achievements of the 4.0 industrial revolution to meet the needs of the requirements for socio-economic development in Ho Chi Minh City's future.

Keywords: science technology, technology economy, digital transformation, Ho Chi Minh City, Vietnam.

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RESUMO

Objetivo: Este estudo tem como objetivo analisar os resultados e limitações do desenvolvimento científico e tecnológico da cidade de Ho Chi Minh em integração internacional, a partir do qual o estudo propõe soluções para desenvolver ciência e tecnologia para atender às necessidades de desenvolvimento sustentável de ciência e tecnologia na cidade de Ho Chi Minh, Vietnã.

Métodos: Este estudo utiliza métodos qualitativos para analisar o desenvolvimento da ciência e tecnologia na cidade de Ho Chi Minh. O artigo também usa métodos analíticos, de síntese, lógicos e históricos para esclarecer os resultados e as limitações do desenvolvimento da ciência e tecnologia na cidade de Ho Chi Minh.

Constatações: A partir da análise e avaliação da realidade do desenvolvimento da ciência e da tecnologia na cidade de Ho Chi Minh, o estudo contribui para propor soluções para o desenvolvimento da ciência e da tecnologia, e inovar para atender aos requisitos de rápido desenvolvimento na cidade de Ho Chi Minh hoje.

Pesquisa, Implicações Práticas & Sociais: Este estudo ajudará o governo da cidade de Ho Chi Minh a entender plenamente as realizações e limitações do desenvolvimento de ciência e tecnologia na cidade de Ho Chi Minh no processo de integração internacional.

Originalidade/valor: O valor do estudo estará ciente dos resultados e limitações da ciência e tecnologia na cidade de Ho Chi Minh e ter soluções oportunas e científicas é a base para aproveitar as realizações da revolução industrial 4.0 para atender às necessidades dos requisitos para o desenvolvimento socioeconômico no futuro da cidade de Ho Chi Minh.

Palavras-chave: ciência tecnológica, economia tecnológica, transformação digital, Cidade de Ho Chi Minh, Vietnã.

1 INTRODUCTION

Ho Chi Minh City (HCMC) is an economic, cultural, scientific-technological, educational, and training center with an important position in the country; with a natural land area of about 2 thousand km², accounting for 6.36% of the national area, a population about 8.5 million people, accounting for about 9.2% of the country's population; the South and Southeast are adjacent to the Mekong Delta provinces, rich in agricultural products; the North and the Northwest are contiguous to the Southeast and the Central Highlands, the area of industrial crops is diversified; There are convenient roads, waterways, and airways to all regions of the country, as well as to countries in the region and the world. With unique historical features; That is the place where the early contact with the Western modern technology industry, with the abundant labor force, dynamic thinking, creativity, and quickness to reality, HCMC soon becomes an economic and cultural center society has generated about 1/4 of
GDP, 1/3 of the value of industrial products, 30% of the total national budget revenue, and 30% of the total export turnover, attracting about 1/3 of the total project FDI projects of the country.

Over the past, promoting the role of science-technology in developing high-quality human resources in HCMC has always been interesting, directed by the City Party Committee and leaders, and worked together to promote the potential capabilities, advantages, seizing opportunities, and repelling difficulties, have made active contributions to making the city become one of the science-technology centers and training centers for quality human resources national high. Achievements in promoting the role of science-technology in the development of high-quality human resources in the city are also pervasive, promoting the development of the southern critical economic region in particular and the whole country in particular.

1.1 RESEARCH QUESTIONS

The article focuses on clarifying the research questions, which is also the orientation in which the report conducts research:
- What is the reality of science and technology development in HCMC today?
- What solutions are needed to develop solutions to develop science and technology in HCMC?

2 LITERATURE REVIEW

In the world, there is much research work on the role of science-technology and the impact of the fourth industrial revolution, typically: World Economic Forum (2016), "The Future of Jobs: Employment. Skills, and Workforce Strategy for the Fourth Industrial"; Richard Works (2017) "The impact of technology on labor markets"; World Trade Report (2017) "Impact of technology labor a market outcome"; Joel Mokyr (2018), "Technology and science reinforce each other to take the global economy ever higher", Finance & Development, 2 (55). The content of the research talks about the impact of science - technology, especially the impact of the fourth industrial revolution on employment and wages in the period of technological development, the impact of technology on job skills and tasks, technology and the future of work, studies show that technological advances can help workers, can also replace labor, labor needs High-quality
labor is increased, unskilled labor is reduced, machinery is more interested in the development process, especially computers, thereby, changing wages.

In Vietnam, the Proceedings of the International Conference (2003) with the seminar, "The influence of scientific, technical and technological progress on the research and development of human and human resources in recent years the beginning of the twenty-first century". This is research content on the role of science, engineering, and technology in human development and human resources in our new era. According to the author, the impact and influence of science, engineering, and technology on people, and human resources is an indispensable factor in the period when science-technology becomes an important productive force. The work highlights the impact and role of science-technology in improving the quality of human resources (the most important resource for socio-economic development in the early years of the 21st century) to meet the requirements of the times.

The article "Science and Technology Policies and the Middle-Income Trap: Lessons from Vietnam" gave 2 reasons why Vietnam fell into the middle-income trap: First, the Ministry of Science and Technology is a weak ministry with little budget, unable to persuade other ministries to cooperate in more ambitious and capital-intensive strategies. Second, the excitement around S&T policies was fuelled by an influx of high-tech Vietnamese returning home after the 2008 Global Financial Crisis, lending support for building start-up ecosystems (Robyn & Robert, 2020).

Author Long (2012) "Planning procedure has an important role to assure the quality of plans for science and technology (S&T) development. The set-up of the procedure for S&T development planning in our country should be based on the renovation of actually valid regulations, conformity to the content and nature of S&T planning, the relation between the issued S&T planning and S&T development strategies and facilitation of activities of participants in the preparation of the procedure of S&T planning. In our country, it is needed to focus the attention of hard and soft planning on the set-up of procedures for S&T development. Hard planning for S&T development should follow the 5 steps: identification of causes of S&T planning, a draft of versions of S&T planning, selection of the best planning options, improvement of the selected option, and the issue of the plans"; this paper aims to examine whether foreign technology acquisition is complementary to internal technology development in the context of a developing country (Nguyen, Dang, Nguyen, & Phung, 2021)
In "Science and Technology Development in Vietnam: Current Situation and Solutions" the authors argued that: During 35 years of industrialization, modernization, and international integration, science and technology in Vietnam have made important progress in all aspects, making a practical contribution to economic development - society, improving the quality of people’s lives, and consolidating national defense and security. However, science and technology in Vietnam today still have many shortcomings such as the level of science and technology in social production remains low and backward compared to other countries in the region; low labor productivity; these shortcomings have been affecting the demand for reform of an economic growth model to meet the requirements of rapid and sustainable development. In the coming time, to overcome the above problems, Vietnam needs to deploy a synchronous system of solutions (Vu & Tri, 2021); The application of technological advances from the Fourth Industrial Revolution has had great impacts and changes on many aspects of socioeconomic life; people are liberated from jobs that require physical labor, heavy work, simple repetitive jobs, as well as housework, opening up many development opportunities knowledge economy, high-level forms of management and technology management, great efficiency (Tri, Anh & Hoa, 2022)

In summary, through the research situation related to the topic, it has been shown that the role of science-technology in socio-economic development in general, is for the development of high-quality human resources. In particular, there have been quite a few works mentioned. But that research is still really not in-depth and systematic. However, the above works are still valuable for us to inherit and develop systems and more deeply the theoretical and practical issues in the article.
3 DATA AND METHODOLOGY

The study researches based on accessing data, which are the views of international organizations on science and technology development, documents, resolutions, directives, circulars, etc. of the Communist Party of Vietnam, the State on human resource development; Scientific research works, books, and scientific journals published by prestigious research agencies; Information sources exploited through agencies' websites, press releases, and some foreign journals are also used to clarify relevant content.

The study uses a combination of research methods, such as historical and logical methods, comparison and comparison, analysis and synthesis, induction and deduction, and statistical methods from sources of reference material for research purposes.

4 RESULTS AND DISCUSSION

4.1 THE RESULTS IN SCIENCE-TECHNOLOGY DEVELOPMENT IN HCMC

*HCMC has a modern technical infrastructure.* HCMC has 3 key laboratories (there are 16 key laboratories in the whole country) and focuses on 7 fields of science-technology including biotechnology, information technology, materials technology, mechanical engineering - automation, petrochemical, energy, and infrastructure. The city has a high-tech park, which is an important basis for the city to develop science and technology, as well as develop quality human resources high. The city's hi-tech park covers an area of 913 hectares, located in a convenient location, between 43 industrial parks and export processing zones of the southern key economic region, adjacent to the National University of HCMC, the high-tech park has the development advantages with the goal of becoming "a city of science and technology". The hi-tech park has successfully attracted corporations and technology companies to invest in and produce high-tech products such as Intel, Nidec, Jabil, Sonion, Sanofi, FPT, and Samsung, and currently has 82 remaining projects effective with a total investment capital of 4,356 million USD, of which 46 projects are in operation (HCMC science and technology book, 2017, p.141). In addition, the high-tech park also established artificial centers and incubators such as Research and Development Center; Training Center; High-tech Business Incubator. Established 3 key laboratories of the Research and Development Center, namely: Laboratory of Precision Mechanics and Automation, Laboratory of Semiconductor, and Laboratory of Nanotechnology. In short, the high-tech park is a multi-functional center for technology research and development, which attracts many domestic and foreign
investors and is also home to many high-quality workers in the City. Every year, a large number of graduates are attracted to high-tech parks to work and research.

In addition to the high-tech park, the city also has a centralized information technology park, including the Quang Trung software area, with 140 operating IT enterprises (91 domestic and 49 foreign) and 33 investors who have been and are completing construction work for domestic activities, seeking opportunities for cooperation and development in the IT industry with big names at home and abroad operating such as HP, KDDI, SPS, TMA, etc. Global CyberSoft, Vina Data... with 20,155 people studying and working. Enterprises have built and provided more than 250 products, services, and solutions in many different fields (HCMC Science and technology book, 2017, p.144). Software Technology Park of Vietnam National University HCMC, including 34 active employees, including 02 professors/associate professors, 02 doctors, 05 masters, and 13 bachelors, the aim is to build an innovative startup ecosystem, shortening the distance between university and business, identified as the "extension arm" of the University. E-Town area, which is considered an effective office building area of the City, with more than 200 tenants who are famous domestic and foreign companies mainly operating in the IT field such as Atlas Industries (Vietnam) Co., Ascenx Technologies Vietnam Co., Ltd, Branch of Panasonic Vietnam Co., Ltd. In HCMC, Bureau Veritas (VN) Co., Ltd, CSC Vietnam Co., Ltd, Cybozu Vietnam Co., Ltd, and Digital Works Vietnam Co., Ltd... with more than 12,000 people working daily. Ho Chi Minh City High-Tech Agricultural Park, the whole Hi-Tech Agricultural Park has 682 people, including 11 doctors, 59 masters, 245 universities, and 53 colleges, the rest are intermediate and unskilled workers. 14 enterprises are investing in the Hi-Tech Agriculture Park, including 01 foreign investment project and 13 domestic investment projects with a total investment of 450 billion VND, completing 11 types of agricultural production models. The high-tech application industry meets VietGap standards, Global Gap standards, and export standards to Europe. This is a pilot agricultural technology development center, after which research products and pilot models are replicated nationwide. Technology incubators include Quang Trung Software Business Incubation Company Limited (QTSC Incubator for short), which has incubated more than 20 software businesses and has many successful businesses such as BTM, DMG, SYMBIO, AMBITION, SOLID LINE, VMT, etc. The software products at QTSC Incubator are quite diverse, typically BTM's retail and data warehouse solutions; Technology Business
Incubation Center - Nong Lam University HCMC (hereinafter referred to as CTBI-NLU; Technology Business Incubation Center - HCMC University of Science and Technology (hereinafter referred to as HCMUT-TBI), in addition, Thanh The city also has other incubation centers such as Hi-Tech Business Incubator; High-tech Agricultural Business Incubation Center; Youth Startup Support Center. to create conditions for the development of science and technology enterprises, based on taking production, technological goods and services as the focus for development.

HCMC has a large number of research and development organizations, including those belonging to ministries, ministerial-level agencies, and government agencies; research and development organization managed by HCMC is 76 units including: Research and development organization managed by HCMC People's Committee; Universities, Institutes and Colleges; National University HCMC; Science and technology service organizations (Scientific and technological service organizations operate in relation to industrial property; Science and technology service organizations operate in relation to standards, measurement and quality) Scientific and technological information organization including (Scientific and technological information work, Scientific and technological statistics work, Science and technology market development work); Application organization science - technology under HCMC Department of Science and Technology (RTTC), ECC-HCMC - Energy Conservation Center; Organization to support technology market development, science - technology business incubation. This science-technology of the city works to develop the science-technology of the city, as well as developing high-quality human resources, science-technology human resources...

The city has a developed source of scientific and technological information, the science-technology information linkage system has expanded the scope of connection and sharing of scientific information with 16 units in the city, and the department of science-technology has a center for science-technology information and statistics. Up to now, there have been 30 units participating in the system, connecting 313,796 documents, including 18,067 full-text documents. This is a scientific and technological information base for research, teaching, and scientific information to scientists, as well as a portal for research products to be introduced and applied in practice to create conditions for the development of the science-technology market to do this task.
Thus, the abovementioned physical and technical facilities, it has created favorable conditions for the development of science-technology in the city, and since then, it has also trained and attracted many qualified workers. High-quality focus on the City of Study and Work, resulting in the City having high-quality human resources developed in both quantity and quality.

**HCMC attracts many scientific and technological investment resources.** The financial sources for investment in scientific and technological development and research in HCMC are made up of sources: state budget, enterprise investment, and foreign capital. Period (2011 - 2015) investment in science - technology is 5,783.51 billion VND, accounting for 2.24% of the total balance of local budget expenditure. Which, investment expenditure for science and technology development is VND 4,628,267 billion, accounting for 80%, and expenditure for scientific and technological activities is VND 1,155,234 billion, accounting for 20% (Ho Chi Minh City Department of Finance). Businesses in HCMC have spent a considerable amount of money investing in science and technology activities. This investment is divided into two groups: expenses for performing science and technology tasks; costs of technological innovation. The total cost for research and development is 585,870, of which the cost for performing science and technology tasks is 69,134; the cost for innovation is 516,736 (National Science and Technology Information Administration, Research and Development Survey Data 2014).

The development of science and technology in the city became more exciting when the government issued Decree No. 13/2019/ND-CP, dated February 1, 2019, on science-technology enterprises. According to the Decree, the Government has issued many policies to support science-technology enterprises. In 2018 the city had 146 science-technology enterprises, of which 68 enterprises registered for certification as science-technology enterprises, by 2019 the city had 732 science-technology enterprises, there were 86 enterprises are certified as science-technology enterprises supported by the State (Ho Chi Minh City Department of Science and Technology, report on science and technology activities in 2018, 2019).

**HCMC has good human resources in science and technology.** In addition to the potential of infrastructure, HCMC is also a locality with potential scientific and technological human resources. In 2011, the total number of scientific research and development personnel of organizations in HCMC was 17,820 people, of which researchers were 14,544 people, accounting for 82%; technical staff 855 people account for 5%; support
staff 2,421 accounting for 14%. But by 2017 this number increased much to 21,300 people, of which 19,116 research staff accounted for 75%, 1,237 technical staff accounted for 6%; support staff 3,999 people, accounting for 19%, through the data, we can see that the number of science-technology research and development human resources of the City tends to increase, in which, technical staff and support staff have an increasing trend increase, which reflects the need for increased scientific experimentation.

_HCMC has many scientific and technological research programs and activities._

In the process of international integration in science-technology. In 2018 the city implemented 105 science-technology tasks, in 2019 implemented 167 new tasks and accumulated from previous years, the city is currently performing 388 science-technology tasks, The tasks are aimed at breakthrough programs of the City, contributing to improving product quality, high practical application rate such as City's Science - Technology has "Researched, designed and manufactured" automatic rinsing system of underground tanks, installed on trucks”; "Researching, designing, manufacturing, and testing energy-saving control devices for lighting systems using high-pressure lamps" was tested in District 6, saving 40% on total energy the amount of lighting; accomplish the task of "results of robot-assisted laparoscopic surgery in colorectal cancer and prostate cancer", helping to reduce the human resource load for one surgery, helping to reduce the burden on hospitals in terms of medical conditions. shortage of doctors; successfully implemented the task "Technology for manufacturing intelligent public lighting systems using LED" researched by the University of Science and Technology in collaboration with Dien Quang Company (Ho Chi Minh City Department of Science and Technology, report on science and technology activities in 2018, 2019).

Science and technology research and development activities of the City are also directed toward the issues the City is concerned about such as: reducing flooding; reducing environmental pollution; reducing traffic congestion; Smart City projects, serving people's health, and researching and creating new varieties for agriculture, typically: Researching, designing and manufacturing IoT gateway devices that integrate security solutions on the platform IoT platform, to pilot application of air quality monitoring in the City's Hi-Tech Park; Research and build a traffic jam warning system based on data from the community and analyze big data, get information from traffic participants, then analyze the congestion situation and warn people about the situation traffic patterns in the surrounding areas; Building a tool to support automatic extraction.
of gray matter, white matter, and cerebral fluid from MRI images to support the diagnosis of Alzheimer’s disease.

The process of international integration in science and technology activities of the City takes place in many fields and forms such as cooperation in research, technology transfer, organization of seminars, and exchanges between scientists. Every year, the City organizes more than 60 seminars, including more than 10 international seminars serving key programs and solving urgent problems of the City, each seminar attracts nearly 200 delegates domestic and international from 28 different countries. From 2016 to 2019, international cooperation in the city's science and technology activities usually focuses on business incubator activities (for example, in collaboration with Canada through the workshop "Evaluating operational effectiveness of business incubators" and cooperated with Korea through the workshop "Management of business incubators"); International conference in 4 key industries such as International conference: "International and domestic experience in research and application of artificial intelligence (AI) – Recommendations for HCMC". Which, the Department of Science and Technology presided over and cooperated with Vietnam National University HCMC to organize a training course on "Artificial intelligence and the application potential in HCMC", through which, to introduce, update and supplement information, knowledge, the cognitive potential of artificial intelligence and capabilities, application fields of AI in research, management, production, life. The city has organized the 4th International Conference on Computational Science and Engineering (ICCSE – 4), this is a regular conference, with the orientation to become a popular forum for knowledge exchange of new knowledge in the field of computational science and technology, raising awareness about the role and application of computation to promote research and development of computational science and technology in the city, as well as in Vietnam. In addition, there are also international seminars on econometrics, systems engineering, integrated application engineering, nanotechnology, and applications...

**HCMC has connected and formed cooperation links between universities, institutes, science-technology organizations, and businesses.** To carry out scientific research activities, transfer, apply, commercialize research results, train, and manage in the field to form products belonging to the group of key and potential products of the City: The city has many programs to support small and medium enterprises, schools, and research institutes in innovation and improving the qualifications of workers. In 2019, the
The city has more than 3,000 individuals and start-up groups trained in knowledge, practical experience, and idea development; more than 280 lecturers and officials of universities and units are equipped with knowledge about entrepreneurship and innovation, and more than 82,500 turns of managers and 12,981 enterprises have been trained in science and technology, innovation; In the districts, creative clubs have been formed at schools, 13,380 teachers and 136,666 students of high schools in the city are fostered STEM creative technology (which is integrated: Science – faculty of science). Science, Technology - Technology, Engineering – Engineering, and Math - Mathematics) contribute to arousing the passion for scientific research in schools (HCMC Department of Science and Technology, annual report on Science and technology activities, 2019).

The city has cooperated with the Ministry of Science - Technology to implement programs on investment in research, development, and application of science and technology. Which, focuses on research, innovation, and technology transfer activities in key fields such as agriculture, industry, transportation, smart city construction, and implementation of many programs and specific processes so that science and technology can truly become the driving force of the city's socio-economic development. The City is the leading place in the three-house linkage, the model of enterprise-state-research organization, taking the state as the center, is the "bridge" in the relationship to promote the capacity of the staff. Ministry of Science and technology, and at the same time improve investment efficiency, serving socio-economic development. The most prominent of this association is Program 04 (A program to support enterprises to modernize at low cost, create general competitive advantages, and boost exports). The city has also established a new Equipment Design and Manufacturing Center - a unit under the HCMC Department of Science and Technology. This is the place to gather and attract the city's scientific and technological resources to research, perfect the technology, and test the production of several pieces of equipment and technologies, contributing to the modernization of several manufacturing industries and the spearhead of the HCM City.

The city has built and developed the science-technology market (Techmart Equipment and Technology Market) and launched the Technology Exchange (March 2012), the Exchange is an organization and broker. technology transfer, intellectual property; propose and develop policies to support technology transfer; provide guidance, training, and professional development on technology transfer activities for human
resource development and international cooperation in technology transfer. The City's technology trading activities in recent times have been active, with many portals for organizations, scientists, and research institutes to conduct successful technology transactions, and bring products and ideas to customers who think outside of the market. With this, the City has formed a science-technology portal: Innovation and technology transfer portal-Techport; Center for Information and Statistics of Science - Technology Ho Chi Minh City.

In short, HCMC's scientific and technological activities, research, and development have been active in many fields. The city has infrastructure for science-technology development, along with high-quality human resources, many sciences, and technology organizations, and the largest investment budget for science-technology in the country. All of this will create favorable conditions for the city's science and technology to develop, thereby promoting the improvement of the quality of human resources.

4.2 LIMITATIONS ON SCIENCE-TECHNOLOGY DEVELOPMENT IN HCMC

However, science-technology in HCMC still has limitations such as not promoting its full potential and strengths. As a result, the City's investment attraction in recent years tends to slow down and has to compete with neighboring localities, this is due to the dynamic policies of localities, the resilience of new economic zones has not been explored, the development has not yet been completed in terms of infrastructure, due to the change in investment objectives of enterprises but the main reason is still, the city lacks the budget for infrastructure investment. However, the deterioration of infrastructure and planning has not solved the current problems of the City such as traffic jams, flooding, housing area below the national average, and environmental pollution this leads to a lack of attractiveness for investors, which is also a dilemma that the City is difficult to overcome in a short time. The city's economy has developed over the years, and the next year is higher than the previous year, but the economic development is not sustainable, there are many potential risks, the product produces a lot but has not yet crystallized the value of gray matter. In addition, HCMC is facing problems that need to be resolved such as the city's pioneering spirit facing many problems, inadequacies in urban planning and management, quality of natural resources, etc. The city's human resources have not yet met the upgrading requirements of the economy, not only that there is an
imbalance in the supply and demand of human resources, the level of human resources is still poor, and the economy still relies on labor simple operation, low productivity, and labor efficiency, the development level of science-technology is still at an average level and depends heavily on foreign countries, added value and content of science-technology in the country, product is low. That makes the product competitiveness low, the economic growth is not sustainable and stable. The above limitations have been recognized by the City Party Committee: The City Party Committee commented: "Human resources have not met the requirements of development and international integration, and science-technology has not become a driving force for promotion. promote economic-cultural-social development…"Investment in science and technology has not met the requirements; has not yet made a breakthrough in the financial mechanism for scientific and technological development; the results of applying scientific research to production and life are still limited; the science and technology market develops slowly. The technological level of many industries and fields and many enterprises are still backward" (HCMC Party Committee, 2015, p. 102 - 103).

4.3 SOLUTIONS TO DEVELOP SCIENCE-TECHNOLOGY IN HCMC

To develop socio-economics in HCMC in a modern direction, there is no other way than to promote the role of science-technology in high-quality human resources, to exploit the full potential and strengths of the City, achieving the ultimate goal of socio-economic development. In the future, it is necessary to focus on the following solutions:

Firstly, thoroughly and fully realize the role of science-technology in each step, each strategy, and each policy of socio-economic development in general in the entire political system of Vietnam. Thereby creating a unity of perception and action in the political system.

Secondly, develop a strategy for strong development of science-technology as a basis for improving productivity, quality, efficiency, and competitiveness of industries, fields, and the whole economy, promoting restructuring economy and renewing the economic growth model, promoting R&D, innovative start-ups, and applications combined with technology development, especially in new industries and fields with potential and strengths. Renovate and perfect mechanisms and policies for mobilizing, allocating, and effectively using investment capital for scientific and technological
activities. Continue to improve the policy of state budget investment in science-technology activities in the direction of avoiding overlapping and overlapping allocations, avoiding scattered investment, ensuring effective use and strong development of labor resources intelligence, raising people’s intelligence, and training talents.

Thirdly, focus on building core technological capabilities, promoting productivity and quality, and taking advantage of the achievements of the Fourth Industrial Revolution. Implement effectively and synchronously, with a focus on national science-technology programs, and restructure national science-technology programs for the period of 2021 - 2025, in which enterprises need to play a role central role, serving practical socio-economic development goals. Formulate and organize the implementation of 1-2 large and large-scale technology development programs and projects with the participation of both the public and private sectors, with mechanisms to attract diverse resources (investment capital) development, scientific and technological causes, economic cause, resources from enterprises) to create breakthroughs in socio-economic development. Invest resources to organize the implementation of artificial intelligence (AI) and space strategies.

Fourthly, promote breakthroughs in building synchronous infrastructure with several modern works. Focus on prioritizing investment, and soon put into use key infrastructure works, clusters, and projects connecting key economic regions in the South. To synchronously and modernly build infrastructure in urban areas, especially large urban centers; creating breakthroughs in the development of information technology and telecommunications infrastructure, building and connecting the national database. Focusing on developing digital infrastructure and ensuring network security, creating favorable and safe conditions for people and businesses to access digital resources because this is the infrastructure that plays a decisive role in the ability and speed of digital transformation, and is also the foundation for establishing and operating digital businesses in the Industrial Revolution 4.0.

5 CONCLUSION

HCMC is the center in all fields of the Southern region, as well as the whole country, the city has a favorable geographical position, developed socio-cultural-economic conditions, and is a political-administrative center main, where the representative agencies in the region, in the country, as well as abroad are concentrated
in different fields of economy, politics, culture, diplomacy is the place where all activities are concentrated, important national and international conferences, meetings and seminars, the economy is the most developed city in the country, holds the core position of the southern economy, has developed industry, and has 3 export processing zones. and 10 large industrial parks, accounting for nearly 60% of the total industrial output value of the whole region, the city is a center of trade, import, and export, with the city's commercial turnover accounting for 70% of the country, operating finance - development bank, where the country's large financial supply - demand, is the center of transportation and post and telecommunications, the main place in charge of transporting goods and passengers. h of the whole country, the city is also the main communication place, connecting regions in the country as well as internationally, the city is the center of culture, education, health, science-technology. Promoting the role of science-technology is one of the basic factors reflecting the level and quality of the country's sustainable development. In recent years, the development of science-technology in HCMC has actively contributed to socio-economic development, improved labor productivity, reduced unemployment, and narrowed the gap between the richest and the poorest group, applying information technology to state management. However, science-technology in HCMC also poses many challenges, requiring HCMC to implement the above solutions synchronously to further promote the role of science-technology in the economic development of society.
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