

Study of High-Quality Digital Development Path of Guangdong Foreign Trade Enterprises from the Perspective of Post-Epidemic Era

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Abstract

Based on the theory of enterprise capability, this paper constructs a corpus of digital high-quality development of foreign trade enterprises with the EED-TOE model, in which two configurations of digital high-quality development capability of foreign trade enterprises are analyzed, one is integration capability+organizational operation; the other is deep work ability+social cooperation ability. This paper analyzes the latest status quo of Guangdong foreign trade enterprises in the post-epidemic era, analyzes the mechanism of high-quality digital development model of foreign trade enterprises based on the two capacity configurations with the EED-TOE model, followed by putting forward suggestions for high-quality digital development path of Guangdong foreign trade enterprises from the perspective of post-epidemic.

Keywords

Epigenetic dynamics, EED - TOE model, trade enterprises, digitization, Guangdong Foreign Trade.

1. Introduction

In the post-epidemic era, both of the traditional foreign trade industry and its related industrial chain & supply chain are all under the direct and indirect influence of the epidemic, in terms of choosing the path of optimization, transformation and upgrading with "heterogeneity" approaches and accesses. Under the theme of high-quality development, the foreign trade economy bears a purpose of transforming the growth momentum of the foreign trade economy by improving the growth efficiency of the foreign trade economy and realizing the innovation-driven development of the foreign trade economy. Moreover, it also requires acceleration of the development and transformation of foreign trade economy, as well as green economy, in the form of deep integration of digital economy and foreign trade physical economy, so as to improve the overall level of high-quality development of foreign trade economy.

Besides, the combination of the supply-side reform of foreign trade and the digital economy, which conforms to the international and domestic double cycle, is increasingly undergoing changes, evolution and reform from the aspects of resource allocation efficiency, development power, economic development quality and the degree of digital economic transformation. Furthermore, the strategy of adapting to the international and domestic double cycle is an inevitable choice to adapt, both strategically and tactically, to the economic situation at home and abroad in the post-crisis era.

From the perspective of global trade, the international trade at the global level has shrunk significantly since the outbreak of the epidemic in 2020. The impact of this epidemic has not

only remarkably reduced the potential growth rate of the recovery of the sluggish world economy that was originally affected by the post-crisis era; it has also seriously affected the expectations of various global economic investors. Among them, financial risks and the downturn of the physical economy have also witnessed a superposition resonance of the "butterfly effect". Therefore, it is quite evident that the high-quality development of foreign trade enterprises that realize the transformation and upgrading of the digital economy has become an urgent subject to study at present.

2. Literature References

2.1. Trade and Digital Economy

As far as foreign trade enterprises are concerned, in the process of transformation and upgrading of the digital economy, digitalization takes advantage of the mechanism of "economies of scale" effect to achieve a substantial reduction in the production costs of foreign trade enterprises(You Yucong, Yi Luxia,2021; Liu et al,2021); the "expansion effect" of the economic scope radiated by the digital economy has further catalysed the diversification of foreign trade business , as well as the emergence of some relevant new formats and new chains(Sandeborg et al,2020; Wang Wenbo,2022). Those changes can not only meet the increasingly differentiated and personalized needs of consumers, but also the "Internet 2.0+network effect" brought by the transformation and upgrading process of the digital economy breaks through the diminishing marginal utility law advocated by traditional mainstream economics, which bring more intangible value added to the supply of goods and services of foreign trade enterprises. On the other hand, the precise integration of the matching mechanism of the digital economy also uses information and data mining (such as blockchain technology) to match the supply and demand information of foreign trade enterprises and reduce the transaction costs of foreign trade enterprises, thus promoting the production and operation of foreign trade enterprises. To this end, the foreign trade industry has put forward countermeasures and suggestions to speed up the digital transformation, break through the "data island", cultivate third-party service providers, build a digital technology supply system, strengthen the construction of new information infrastructure, speed up the network transformation, set up digital development funds, optimize the allocation of factor resources, cooperate with well-known Internet enterprises, expand digital marketing and other channels, together with cultivating new digital competitiveness (Xiao Ziyi,2021; Qi & Gao,2023).

2.2. Epigenetic Economic Dynamics.

Epigenetic Economic Dynamics (EED) is a new branch of evolutionary economics and genetic economics. Geo-economics, based on the research of traditional economic principles, combines the genetics and behavioral genetics of modern bioengineering, as well as the cutting-edge epigenetics and other new branch theories, and uses the increasingly rich biological gene database to analyze the new opportunities brought by genetic research to economics.

Its research objects include two: economic and human (i.e. economic and natural people). The main idea of its research is to use the research of biological natural people to perspective social and economic phenomena, and further analyze human society and corporate organizational economic behavior decision-making. Therefore, genetic economics is a new interdisciplinary frontier discipline. Genetic economics originated from Daniel Benjamin et al. of Cornell University in 2007 (Benjamin et al., 2007). Beauchamp et al. (2011) summarized and reviewed the development of genetic economics, further clarifying the research paradigm of applying genetic data to contemporary economic research. The feasibility of treating economy as an organism rather than a mechanism is based. The concept of "genetic economics" defines the

consideration in time and space, and adopts the time sequence of economic stability for research (Golubev A, 2011).

More and more important new discoveries in biological genetics contribute to EED related literature. In particular, the consensus reached in the academic discussion is that the theoretical analysis framework and research paradigm of new economics may be opened due to the inclusion of epigenetics in evolutionary economic thinking (also known as evolutionary economic thinking by some scholars). Mikel G ó mez-Uranga et al (2014), through studying the evolution of large Internet industry groups such as Apple, Google, Microsoft, Facebook, Amazon and Samsung, demonstrated a new method of integrating epigenetics into economics, namely epigenetic economic dynamics (EED), which is a new branch of evolutionary economics. Mikel G ó mez-Uranga et al (2014) objectively revealed the dynamics of business groups (taking Internet enterprises as an example) through the paradigm of economic metaphor, and called it "business ecosystem". Mikel G ó mez-Uranga et al (2014) introduced the concept of epigenetic economic dynamics and defined it as "the research of epigenetic dynamics (a branch of epigenetics), which is the result of the organization's adaptation to the major changes in their environment. It can be seen that epigenetic economic dynamics is a new interdisciplinary combination of biology and economics, and is also consistent with the idea of evolutionary economics derived from Darwin's biological evolution theory.

First of all, the concept of EED enables economics to understand how the dynamics of the mentioned business groups (such as enterprises, industries and other economies) respond to changes in their environment.

Secondly, EED is also useful in analyzing the dynamic results of these economic behaviors. Due to the influence of epigenetic dynamics, there may be abnormalities, failures or obstacles to innovation, and/or obstacles to development and competition at some levels (i.e. intellectual property, economic monopoly, etc.).

In addition, EED can clearly depict the fierce competition between business groups and the core areas of competition between enterprises. Economic metaphor is also applied to enterprise organization and management in combination with EED theory. Although metaphor is increasingly prominent in organizational theory, metaphor can be used to explain enterprise organization and management behavior and decision-making with comparative models.

Some scholars also outlined another model of economic metaphor understanding - domain interaction model (Joep P. Cornelissen. 2005), which has a profound impact on organizational theory and research; It shows that metaphor involves the connection of the whole semantic domain. In these semantic domains, the corresponding relationship between terms or concepts is constructed rather than interpreted, and the resulting metaphorical mapping image and the corresponding extended economic and management significance are creative. The research of genetic economics has also gained new recognition and application in the field of evolutionary game research of corporate organizational cooperative behavior. Many scholars believe that genetic economics is a frontier interdisciplinary with the fastest development in recent years. It explores the impact of biological genetic information on corporate organizational economic behavior, thus forming a deeper understanding of human behavior, economic organizational decision-making game and the biological factors hidden behind their respective characteristics. In terms of its research technology, paradigm and specific research methods, genetic economics has also been integrating economic metaphor, neuroeconomics and epigenetic elements. There is a general consensus in the academic community that the research results of genetic economics (including epigenetics and economic metaphor) will help to enhance the accuracy of economic analysis (Chen Hua et al., 2021; Tang Tanling et al., 2017).

2.3. Review.

Based on the above literatures, it is evident that the academic community has done extensive research on digitalization and foreign trade, and the research on EED theory has made some progress in recent years. However, at present, the academic community has relatively limited literature on the study of foreign trade digitalization based on the EED perspective, while there are few studies on the high-quality development path of digitalization of Guangdong foreign trade enterprises from the perspective of epidemic situation with the analysis of EED theory. Therefore, this study can play a complementary role to the existing literature.

3. Theoretical Framework

Evolutionary theory has existed in economic theory for a long time: trying to study economic process dynamically with evolutionary paradigm. Schumpeter is the first economist to propose that the economic change at the macro level of society is sustainable and dynamic evolution. The main purpose of Schumpeter's early use of evolutionary theory is to explain the instability of the business cycle at the macro level. Later, he further developed and proposed an evolutionary paradigm enterprise theory from the micro perspective of enterprises. He believed that the overall fluctuation of the business cycle at the macro level could be mined and further inferred from the specific time pattern of the micro entrepreneurial behavior of enterprises. Like the thought of classical economics, entrepreneurial talent is also defined as a unique element resource, and Schumpeter also defines entrepreneurial behavior of entrepreneurs as innovative behavior.

Schumpeter claimed that entrepreneurs' intelligence, mind and so on change with the social and economic cycle, just like the fluctuations encountered in different periods of innovation diffusion, only the most talented entrepreneurs (entrepreneurship resources) are most able to continue to face the challenges of the new economic environment and overcome difficulties. Such entrepreneurial talent resources are extremely scarce. However, once the initial external environmental challenges are eliminated, more competitive enterprises will do the same thing because of the free competition market effect, which becomes the imitation effect. At the same time, the multiplier effect will also indirectly promote the collective imitation of economic behavior.

Since the 1990s, the evolutionary economics theory developed from the evolutionary thought has been widely used in the field of technological innovation research. A large number of documents show that the academic community has built a package of evolution models for the process of technology diffusion, among which the typical ones are learning imitation, experience accumulation and learning mode. In this process, evolution thought has established a leap innovation from micro to macro, which is reflected in the fact that evolutionary economics has begun to study social rules and institutional origin and changes, and at the same time, it has also begun to analyze and study the path dependence in the process of economic evolution, as well as the motivation of technological innovation and transformation.

The development trend in recent years has proved that evolutionary economics theory has become an important research paradigm and method for describing, analyzing and exploring complex socio-economic phenomena. Evolutionary economics has also realized the interdisciplinary intersection with management, resulting in a large number of applied theories recognized and promoted by the academic community, especially self-organization theory, dynamic evolutionary game theory, chaos theory and nonlinear dynamics, which have been systematically integrated into the theoretical framework of evolutionary economics to explain various complex economic management operating systems or the internal mechanism of enterprise micro self-organization.

On the other hand, the great progress of modern biology, especially bioinformatics engineering, has also greatly promoted the rapid development of modern evolutionary economics. A large number of biological terms and bioinformatics engineering theories have emerged in the literature of evolutionary economics. Many basic tools of biological theory (such as population dynamics, genetics, genetic engineering, etc.) are used to describe the economic world and the organizational behavior of micro-enterprises.

At this stage, the theory of biological metaphor and economic metaphor also began to appear. Metaphor also entered economics from the previous study of philosophy and rhetoric, and produced economic metaphor, in which evolutionary economics provided a research paradigm. At the individual level of micro-enterprises' self-organization, the accumulation of knowledge and external uncertainty are the constraints of the behavior of the self-organizing subjects of micro-enterprises in the economy, and also the preconditions of the decision-making influence of enterprises' adoption of "heterogeneity" behavior. Therefore, the combination of evolutionary economics and knowledge management in management has begun to study how to change the state of micro-enterprises' individual learning ability.

The neoclassical school has also studied and deduced the learning theory. Its view is that in the process of studying, deducing and refining "Bayesian learning" from the possibility of social paradox and rational trap, all microeconomic subjects will eventually learn to cooperate with each other (Bayesian learning theory uses probability to express all forms of uncertainty, and realizes the learning and reasoning process through probability rules).

Under the free competition market model of classical economics, microeconomic entities will eventually cooperate with each other to achieve market balance. Evolutionary economics theory further explains the deeper problem on this basis, that is, the theory of "adaptability" is put forward on the basis of "Bayesian learning" theory, which has also become an important principle of game evolution in the later stage. Evolutionary economics believes that adaptation leads to greater changes, which are not spontaneous, but can only come from changes in the external environment. And "Bayesian learning" is derived from the response and adjustment to the "adaptability" of this evolutionary game. This is clear with epigenetic dynamic economics (external environment change); (embedding) variation; the change of the external economic environment corresponding to genetic) affects the internal of the enterprise, resulting in the response and adjustment of the "adaptability" of the enterprise evolution game, the change of the internal "Bayesian learning", and the realization of win-win cooperation between enterprises. Nash equilibrium is consistent.

Traditional mainstream economics is based on classical physics (such as Newtonian mechanics). The core idea of classical physics is that "all complex objects in the world can be divided and all different objects can be homogenized". It can be seen that the cognitive premise of classical physics is "the world is regular and can be fully recognized by human beings". Accordingly, the traditional mainstream economics based on classical physics also assumes that the economic world is "homogeneous, reversible and symmetrical". This kind of thinking is deterministic and often too mechanical and linear.

Evolutionary economics is based on the definition of "mutation, replication and selection" of genes in biology, and metaphorically puts forward the core theory of "convention (convention), novelty, search and selection process". The understanding of evolutionary economics to enterprises is that enterprises are an organism. In the market competition, enterprises use their own knowledge (such as expertise/know-how, etc.) to surpass their competitors, and the enterprises that achieve better performance are metaphorically referred to as "the fittest". In the whole free competition market, enterprises must follow economic laws and trade practices. Therefore, they are based on "rules" rather than maximizing benefits at any time. Convention (agreement) is metaphorically referred to as an "organizational gene", and is also a document

carrier for enterprise knowledge, acquisition and accumulated experience. The emergence of "heterogeneous" enterprises is precisely the difference in practice among enterprises. "Novelty" and "search" are a genetic "variation" of genetic genes, which directly or indirectly leads to changes in individual behavior of enterprises; It is worth noting that the realization process and results of the individual behavior of enterprises caused by this gene "mutation" are "unpredictable" and generally exist in economic activities, so they are "irregular and not fully recognized by human beings". This is also the most fundamental difference between evolutionary economics and traditional mainstream economics. Whether this gene "mutation" can adapt depends on the market selection, and the core mechanism of selection is market competition. Therefore, evolutionary economics studies the impact of instinct, habitual culture, psychological activities, mental memes and cognitive models on corporate organizational decision-making, which has been neglected by traditional economics for a long time. That is, the paradigm shifts from "rational man" to "irrational man". In the framework of evolutionary economics, the fitness function replaces the payment function in the classical game. Adaptability is a core concept of evolutionary economics theory, which can be used to describe the inheritance of enterprise self-organization genes. In the evolutionary dynamic game model, the fitness of a game strategy is equal to the growth rate of the number of people who adopt the strategy after each game. Therefore, the fitness function can also be regarded as a one-to-one mapping relationship between a game strategy and its fitness.

4. Current Situation of Guangdong Trade Enterprises in the Post-epidemic Era

In the post-epidemic era, profound changes have taken place in various fields of society (such as transportation, scientific and technological innovation, enterprise operation mode, logistics supply chain, etc.). Therefore, building an organizational and institutional cooperation mechanism that is more suitable for the "post-epidemic era" is also a major practical challenge faced by social governance and enterprise transformation (Chen Yinghua, 2022). In the post-epidemic era, the traditional foreign trade industry and its related industrial chain and supply chain are all under the direct and indirect influence of the epidemic, choosing the path of optimization, transformation and upgrading with "heterogeneity", and under the theme of high-quality development of foreign trade economy, accelerating the development and transformation of foreign trade economy and green economy. The deep integration of digital economy and foreign trade real economy can improve the overall level of high-quality development of foreign trade economy (You Yucong, Yi Luxia, 2021). The impact of the post-epidemic has not only significantly reduced the potential growth rate of the recovery of the sluggish world economy, which was originally affected by the post-crisis era, but also seriously affected the expectations of various global economic investors. Among them, the financial risks and the downturn of the real economy have also emerged a "butterfly effect" prominent superimposed resonance. The high-quality development of foreign trade enterprises that realize the transformation and upgrading of the digital economy is an urgent subject to study at present.

According to the analysis of the daily economic news report in November 2022, as a major foreign trade province, the main reason why Guangdong's foreign trade is facing challenges in the post-epidemic era is that the epidemic is still affecting many important foreign trade towns. In Shenzhen, Guangdong Province, the first half of 2022 was affected by the fluctuation and disturbance of the epidemic situation in Shenzhen and Hong Kong, and the pull of Shenzhen's foreign demand on economic growth showed a downward trend. According to the customs data, its import and export value increased slightly (1.4%), and the growth rate only rose to 3.9% in the first three quarters of 2022. In Dongguan, an important manufacturing city in Guangdong,

the disturbance of the epidemic has also led to the rise of various logistics costs such as production of raw materials, foreign trade and shipping, and its import and export growth rate rose to 1.9% in the first half of 2022 and then fell again. These phenomena and data show that Guangdong's foreign trade enterprises are still affected by the epidemic in the post-epidemic era, especially the short-term fluctuations and disturbances have a great impact on Guangdong's key foreign trade towns.

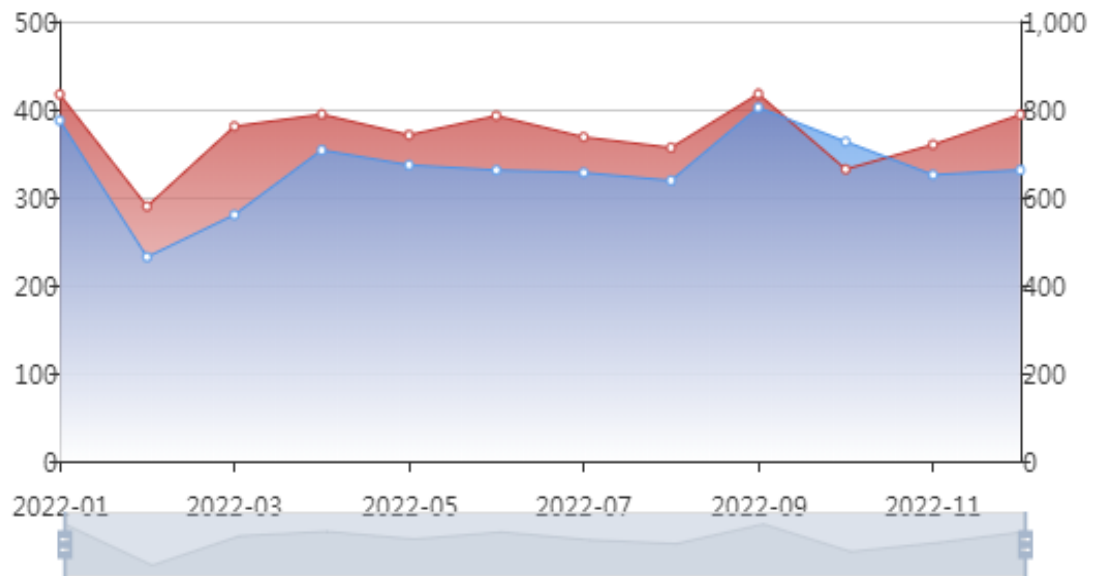


Fig1. Gross import and export value of Guangdong Province in 2022

(Source: Guangdong Branch of the General Administration of Customs of China)

Note: the red line indicates import; the blue line indicates export.

Figure 1 shows the trend of Guangdong's gross foreign trade in 2022. According to customs data, the trade volume of Guangdong Guangzhou to ASEAN declined by 15.9% in the first three quarters of 2022. Compared with the trade volume of Hong Kong (down 4.3%), in a sense, the trade volume of Guangzhou to ASEAN declined by a large margin. The research report of the Guangdong-Hong Kong-Macao Greater Bay Area Research Institute pointed out that the reason is closely related to the transfer of the foreign trade industry chain to ASEAN. According to the research report of the Institute of International Trade and Economic Cooperation of the Ministry of Commerce, Guangdong Province and ASEAN have a special relationship in the field of manufacturing industry. There are both "competition" and "division of labor" between them. After the transfer of the foreign trade industry chain to ASEAN, the reduction of division of labor can indirectly lead to the decline of foreign trade in Guangdong Province.

Compared with the growth of foreign trade in Dongguan, Guangzhou and Shenzhen, Foshan, Guangdong Province, achieved remarkable results in the first three quarters of 2022. As the manufacturing hub of Guangdong Province, the growth of foreign trade in Foshan City reached 6.5%, which has become the supporting force for the growth of Guangdong's foreign trade in the post-epidemic era for many times. This was also reflected in the early stage of the epidemic in 2020. The data in 2020 showed that Guangdong's foreign trade had a negative growth of 0.9% in that year, while the foreign trade in Foshan City had a rebound in the same period, It achieved a growth of 4.8% and exceeded the 500 billion mark for the first time in 2020; by 2022 in the post-epidemic era, Foshan's foreign trade growth rate reached 21.7%, 5 percentage points higher than the provincial average level, and further exceeded the 600 billion yuan mark. This is mainly related to Foshan as an important home appliance town. Foshan home appliance enterprises rely on the growth of overseas orders to play a role in boosting foreign trade. Among them, Foshan's famous home appliance Glanz enterprise has maintained a large proportion of its sales of all categories exported to the North American market, microwave oven

products, refrigerators and other products. From the perspective of the demand side, the export supply of home appliances in Foshan actually matches the growth of the specific demand of the foreign "home economy" under the epidemic situation. The home-based scenario driven by the "home economy" has led to a sharp rise in the demand for home appliances. At the same time, part of the industrial chain has broken down in the foreign related industries under the influence of the epidemic situation, which also provides an opportunity for the home appliance brands in Foshan, Guangdong Province to go abroad with substitution effects. Unlike Dongguan, Guangzhou, Shenzhen and other Guangdong cities, Foshan's foreign trade has its own good industrial chain, that is, its foreign trade comes from its internal industrial structure, rather than the processing trade at both ends. Therefore, when the international supply chain is blocked by the impact of the epidemic, as long as there are some demand-side gaps in related foreign trade products, Foshan, Guangdong can respond relatively quickly, Realize production and supply by virtue of its endogenous industrial structure and industrial chain, and restore the balance between supply and demand.

From the above analysis, it can be seen that Guangdong Province, as a major province of foreign trade, is necessary to give play to the cluster effect of various major foreign trade cities in Guangdong Province and its structural effect to a certain extent in order to develop foreign trade and strengthen foreign trade. In the single industry field, each prefecture-level city of Guangdong's foreign trade can build a complete industrial chain, build a multi-group industrial chain, cultivate more large foreign trade pillar manufacturing enterprises, and improve the resilience of foreign trade cities in the post-epidemic era. In the same way, a diversified and balanced foreign trade structure of Guangdong should be built among various industrial sectors to help foreign trade cities achieve stability in foreign trade under special post-epidemic fluctuations. In the post-epidemic era, the high-quality development of industry is one of the necessary conditions and paths to promote the high-quality development of Guangdong's foreign trade, and is also a core of the supply-side structural reform of Guangdong's foreign trade in the post-epidemic era.

5. Capability Configuration Analysis of Guangdong Trade Enterprises' Digital High-quality Development Model

Based on the theory of enterprise capability, this part constructs a corpus of digital high-quality development of foreign trade enterprises under the EED-TOE model. In the corpus, it analyzes the configuration of digital high-quality development capability of two foreign trade enterprises, one is integration capability+organizational operation; the second is deep work ability+social cooperation ability. Based on these two capacity configurations, this part proposes the digital high-quality development path of Guangdong foreign trade enterprises.

5.1. Theory and Concept Definition of Enterprise Capability.

According to the definition of management science, enterprise capability generally refers to the sum of enterprise's strength in production, technology, sales, management and capital. In recent years, some scholars have also defined enterprise capability as: enterprise capability refers to the ability of enterprises to allocate resources and play the role of resource combination production and competition. The essence of these two definitions is that the ability of an enterprise is an organic integration of its tangible, intangible and organizational resources (Lu Xiongwen, 2013). The source of competitiveness of enterprises is their own organizational ability, while the internal self-organization ability is affected by external industries, industries and markets, and is accumulated and formed based on the dynamic learning of enterprises in market competition; The accumulation of relevant knowledge and capabilities is embedded in the self-organized internal management of enterprises in various ways (Gary Hamel, 2000).

5.2. EED - TOE Model.

According to the three criteria put forward by Gary Hamel's enterprise capability theory: market pioneering; the utility and heterogeneity of demand are the basis criteria. This model refines the core capabilities of foreign trade enterprises in digital transformation, and then obtains their capability combination.

Firstly, the first dimension is divided based on the TOE framework, and combined with the epigenetic theory of the previous part of this study, the digital transformation mechanism of foreign trade enterprises under the EED-TOE framework is analyzed. In recent years, the academic community has combined the adaptability of enterprises to identify and take advantage of emerging markets and technological opportunities with the TOE model framework to form the EED-TOE model (You Yucong, Zeng Sumei, Sun Chun, 2020). The EED-TOE model points out that gene, variation and selection constitute the three most critical bioeconomic metaphors and SEM research parameters in all bioeconomic metaphors according to relevant documents and theories such as evolutionary economics. When we extend biological metaphor to other disciplines, theories derived from economics and biology provides an "anchor point" for economic metaphor. Bioeconomic metaphor needs to be endowed with its own new disciplinary significance in combination with specific enterprise research objects. The evolution of foreign trade enterprises' organizations is far faster than the natural evolution of biology, and has a wider radiation. Compared with the external environment, the human, social and economic environment in which the enterprise is located and the natural physical environment in which the biology is strong have great "heterogeneity". The influence of biology on the natural physical environment is relatively weak, and the force majeure is strong and significant.

As shown by Fig2. , at TOE technical level, the foreign trade enterprise platform must take digital technology as its platform support, accumulate local "data pool", strengthen local comprehensive foreign trade services, and expand its own foreign trade e-commerce (especially cross-border e-commerce) platform, so as to better enable the development of local related manufacturing industry, that is, digital technology drives foreign trade to indirectly drive manufacturing industry. The digital heterogeneity of foreign trade enterprises lies in their international cross-border, foreign trade overseas orders and other characteristics, and the digital scramble for orders is the most intuitive manifestation of the digital heterogeneity of foreign trade enterprises. In this process, the three appearances of EED embedding, variation and genetic correspondence are the digital technology embedding platform as the support, which makes the internal "data pool" variation of enterprises produce new benefits, and finally expands cross-border e-commerce, genetic changes the behavior of manufacturing industry, and empowers the development of local relevant manufacturing industries.

Concordance		Concordance Plot	File View	Clusters	Collocates	Word List	Keyword List
Hit	KWIC						
1	g if it avoids knowledge sharing. I will not call technology a driver, but it is an important aspect and an i						
2	lopment of automation and artificial intelligence technology, a large number of abstract and complex knowledg						
3	cs technologies of intelligent manufacturing core technologies. According to Deng Haokun, the chief operating						
4	atform. The platform must be supported by digital technology, accumulate local "data pool", strengthen Foshan						
5	and New Products Fair, provincial scientific and technological achievements appraisal, etc. Excellent qualif						
6	mation of traditional enterprises is crucial. The technological advantage of technological competition today						
7	technology application scenario 1 knowledge atlas technology After years of accumulation, automotive enterpri						
8	sible, but not tangible". For example, blockchain technology, AI algorithm, PaaS, SaaS, Internet platform, on						
9	chnology is used to analyze the market demand, VR technology allows customers to view the real-time status of						
10	f knowledge among enterprises, the homogeneity of technology among the same industry and the enhancement of e						
11	he effective and appropriate use of data analysis technology. Among them, it is more important to know which						
12	uoduoduo uses distributed artificial intelligence technology and adopts decentralized flow distribution mecha						
13	rapid development. Through the combination of new technologies and application scenarios, more small and medi						
14	y focused on the development of their products or technologies, and believed that as long as they mastered th						
15	which was established in 2018, and use blockchain technology and big data to build six service platforms for						
16	knowledge management. Using digital, intelligent technology and big data, combined with the characteristics						
17	al of green reform in the steel industry by using technology and big data. Value analysis of digital tradetchn						
18	topology structure by applying knowledge mapping technology and building application platforms, Support engi						
19	facing challenges. Due to the integration of new technologies and cloud computing and the rich data sources,						
20	before. It depends on the construction of digital technology and credit system, which also greatly reduces th						
21	before. It depends on the construction of digital technology and credit system, which also greatly reduces th						
22	rise belongs, including industry market capacity, technology and development trend, competitor information, u						
23	ience and basic skills mastered by employees, the technology and development capabilities contained in the en						
24	ny time without running the bank counter. Digital technology and digital thinking have also penetrated into t						
25	ta industry, strengthen the innovation of digital technology and digital products, and carry out the pilot de						
26	overall transformation integrating data, digital technology and digital products. For small and medium-sized						
27	cess of goods trade, and deeply integrate digital technology and digital resources into all links of negotiat						
28	ability of enterprises The development of digital technology and digital commerce has accelerated the arrival						

Fig2. Concordance distribution of technology in the corpus.

Concordance	Concordance Plot	File View	Clusters	Collocates	Word List	Keyword List
Hit	KWIC					
1	n. According to the basic activities of knowledge management, a knowledge management system reengineering syst					
2	ew technologies. This means that enterprises must manage a large amount of knowledge existing in the curre					
3	ew technologies. This means that enterprises must manage a large amount of knowledge existing in the curre					
4	nagement activities, including personal knowledge management ability and organizational knowledge management a					
5	erspective of process view, the dynamic knowledge management ability and management innovation are divided int					
6	management ability. The organizational knowledge management ability includes organizational vision, organizat					
7	d for enterprises, that is, the dynamic knowledge management ability is one of the key factors for enterprises					
8	ion system, so as to improve enterprise knowledge management ability. It is hoped that through knowledge manag					
9	nsufficient risk control ability and weak capital management ability. Not only that, the whole cross-border co					
10	y the impact path and degree of dynamic knowledge management ability on management innovation. ¶ The system d					
11	s can use digital technology to improve knowledge management ability, promote enterprises to provide accurate					
12	e management ability and organizational knowledge management ability. The organizational knowledge management					
13	edge management in terms of knowledge content and management ability under the digital background, and ponders					
14	y enterprises have made great efforts in internal management, actively breaking through data barriers, and ach					
15	s can indeed provide a larger space for knowledge management activities, and provide opportunities for geograp					
16	ment innovation can be improved through knowledge management activities in the dynamic internal and external e					
17	layer to ensure the smooth progress of knowledge management activities, including personal knowledge manageme					
18	brought a lot of impacts and changes to knowledge management activities, making enterprise knowledge managemen					
19	iplinary tacit knowledge includes three knowledge management activities: multi-disciplinary knowledge acquisit					
20	ntegrate digital technology into various business management activities of enterprises. In terms of the change					
21	ntegrate digital technology into various business management activities of enterprises, Yu Haoqing believes th					
22	mation technology, the effectiveness of knowledge management activities such as acquisition, sharing, integrat					
23	ies can indeed provide more support for knowledge management activities, such as a platform with social functi					
24	ive On the integration and deepening of knowledge management activities, the difference is that knowledge mana					
25	gement capability The implementation of knowledge management activities will affect all aspects of the organiz					
26	hus, enterprise knowledge management is a dynamic management activity process centering on "knowledge creation					
27	enterprises, in the process of dynamic knowledge management affecting management innovation, how to maximize					
28	nizational performance. and customer relationship management affects organizational performance through the in					

Fig3. Concordance distribution of management in the corpus.

Concordance	Concordance Plot	File View	Clusters	Collocates	Word List	Keyword List
Hit	KWIC					
1	new demand, the internal can quickly package and organize a new combat unit according to the task. To some					
2	h as Google, Tiktok, Facebook, Boka Live Academy, organized a series of activities such as "online Canton Fai					
3	hibitions of domestic trade exhibitions, and well organize a series of key exhibitions, such as the China In					
4	s and work practices, cost-benefit analysis, etc. Organization acceptance: users can participate in design and i					
5	effectively use it is still a challenge for many organizations. According to the European knowledge management f					
6	ganization of knowledge acquired from outside the organization according to certain standards; Internalization r					
7	tal depends on the joint effect of individual and organizational activities. The non-observability of intellectual					
8	es in living environment, it needs to improve its organizational adaptability, market competitiveness, innovation					
9	better market feedback in China by virtue of its organizational advantages before entering the international mark					
10	better market feedback in China by virtue of its organizational advantages before entering the international mark					
11	o occupy a place in the international market. (2) Organizational advantages. First of all, in the early stage of t					
12	o occupy a place in the international market. (2) Organizational advantages. First of all, in the early stage of t					
13	ging and sharing employee knowledge capital by an organization, aiming at enabling the organization to achieve s					
14	e the rapidly changing market, how to efficiently organize all kinds of resources, how to stimulate the pote					
15	urses are required for specific work roles in the organization. All these are now managed in one system, even if					
16	res of knowledge resources inside and outside the organization. Among them, the more important is the knowledge					
17	tion, and constructs a knowledge-based innovation organization and a sustainable innovation system. How can know					
18	struct the operation mode of knowledge management organization, and abandon the thinking inertia and path depend					
19	proach of China's most innovative knowledge-based organizations, and accumulated strength to promote the developm					
20	ent refers to establishing the connection between organizations and customers, collecting and analyzing customer					
21	edge stored in programs, products, etc. Knowledge organization and evaluation Knowledge organization and evaluat					
22	. Knowledge organization and evaluation Knowledge organization and evaluation is the process of mapping, classif					
23	to the whole country by entrusting a third party organization, and finally 11 organizations were selected. Thes					
24	of enterprise knowledge creation, precipitation, organization and flow, and uses AI to promote the intelligent					
25	introduce new cross-border e-commerce formats; It organized and held a series of activities such as "the firs					
26	application and innovation is easier to play, and organizations and individuals are easier to achieve knowledge m					
27	d that knowledge management is beneficial to both organizations and individuals. 3.4 Technology and talents coope					
28	d that knowledge management is beneficial to both organizations and individuals. 4:4 Technology and talents coope					

Fig4. Concordance distribution of organization in the corpus.

As shown by Fig3. and Fig.4, at Organizational level, the core capabilities of digital intelligent organization management should not be mastered by only a few organizations and enterprises. As the digitalization of foreign trade enterprises, the industrial organization level must be committed to helping all foreign trade enterprises to obtain all kinds of resources, especially data resources, link the digital intelligent ecosystem from the industrial level, and enable foreign trade enterprises to implement the digital intelligent management at the organizational level on a large scale. The middle layer of digital intelligent organization management is the process of knowledge organization management, including knowledge organization identification, knowledge organization generation, knowledge storage, knowledge sharing and knowledge application at the organizational level. At the organizational level, EED embeddedness, variation and heredity are shown as follows: the outer layer is a digitalized knowledge capability layer embedded in the foreign trade environment to ensure the smooth operation of knowledge management organization activities, which can be specifically divided into: personal knowledge management capability and organizational knowledge management capability. Among them, digital organizational knowledge management capabilities can be further divided into: digital organizational vision, digital organizational strategy, digital organizational structure, digital knowledge assessment, digital organizational culture, digital technology and digital information infrastructure level. This layer can also be understood as the appearance representation of the dynamic process of EED embedding and variation, which is the key factor affecting the knowledge management of digital organizations. Therefore, it can be seen that the digital transformation knowledge management of foreign trade enterprises is an embedded and variant dynamic management process with "digital knowledge creation, digital knowledge identification, digital knowledge storage, digital knowledge sharing and digital knowledge application" as the core.

Concordance	Concordance Plot	File View	Clusters	Collocates	Word List	Keyword List
Hit	KWIC					
1	peration and creating a good external development environment, all localities and relevant departments should m					
2	foreign trade has increased steadily in a complex environment. Among them, the collection volume of small and m					
3	ce and technology to adapt to the new digital era environment, and an efficient knowledge management system is					
4	edented convenience for the current foreign trade environment, and become a new impetus for the development of					
5	edented convenience for the current foreign trade environment, and become a new impetus for the development of					
6	s organizational guarantee and creates management environment and conditions, so management innovation plays a					
7	n the face of uncertainty brought by the external environment and epidemic situation. The digital transformatio					
8	ed their research scope to the Chinese enterprise environment, and have targeted discussions on management inno					
9	nd non-discriminatory digital economy development environment, and inject impetus into the recovery and develop					
10	of the adaptation and integration of the external environment and internal resources of enterprises Xie Hongmin					
11	to cope with the changes in internal and external environment and poor performance. Enterprises can not rely on					
12	allenges faced by knowledge management in the new environment, and proposes ways to improve it. 1. Definition a					
13	ganizational management [1]. The impact of market environment and technological change on enterprises is partic					
14	ith the intensification of the global competitive environment and the popularization and application of knowled					
15	e strong support of the advantages of the overall environment and the official orientation, the blue ocean busi					
16	e strong support of the advantages of the overall environment and the official orientation, the blue ocean busi					
17	dynamic capabilities, their interaction with the environment and the way of creating and disseminating knowled					
18	nd these three issues. The high volatility of the environment and the uncertainty of the environment. From our					
19	en digitized, resulting in the uncertainty of the environment, and the control of technology has caused many ob					
20	Technicians, R&D personnel and excellent working environment, and the company has strong financial strength, i					
21	t activities in the dynamic internal and external environment, And then enhance enterprise performance. Accordi					
22	gement practices in time to adapt to the changing environment and ultimately achieve the goal of improving orga					
23	e seen that market competition and organizational environment are the main reasons for the emergence and implem					
24	nterprises. Finally, create a harmonious business environment at home and abroad. Although foreign trade enterp					
25	government can help create a harmonious business environment at home and abroad, strengthen the relevant finan					
26	coping strategies when dealing with the changing environment. At present, the overall foreign trade environmen					
27	evolve at any time with the internal and external environment changes faced by the organization and the applica					
28	evolve at anv time with the internal and external environment changes faced by the organization and the applica					

Fig5. Concordance distribution of environment in the corpus.

As shown by Fig.5 at Environmental level, the digital innovation of foreign trade enterprises depends on creating a good development environment, especially for the export-oriented economy of foreign trade.

In the process of EED embedding, variation and inheritance, while digitalization strengthens international cooperation with the outside world by virtue of the environmental level, and creates a good external trade development environment, all relevant departments should increase policy support and supply, and constantly optimize the marketization, legalization.

The international business environment is to accelerate the digital innovation transformation of foreign trade enterprises with the help of policy support supply at the environmental level, so as to upgrade small and medium-sized foreign trade enterprises and achieve high-quality development.

From the perspective of knowledge management, the environmental level of knowledge management system also needs to change with the progress of digital technology to adapt to the new environment of the digital era of foreign trade, and the efficient knowledge management system is also the key factor to accelerate the digital transformation of foreign trade enterprises. In the digital foreign trade industry in the post-epidemic era, knowledge management has been different from the past, and the new modern knowledge management system is actually a prerequisite, playing a key role in promoting the digital transformation of the entire organization.

The change of external environment will also stimulate the management innovation of enterprises, which can promote the fundamental transformation of enterprise digitalization through the organization and management practice in the process of EED embedding, mutation and inheritance, effectively improve the efficiency of digital resource utilization, promote the stable, healthy and sustainable development of foreign trade enterprises, and enhance the core competitiveness of foreign trade enterprises.

In addition, the interaction between knowledge management and the external environment can form a specific "entrepreneurial class", which is the result of the enterprise organization's adaptation to the external environment variation and the internal resource embedding, variation adaptation and integration inheritance, forming a new entrepreneurial talent class. It can be seen that the external market environment competition and the internal environment of the enterprise organization are the main reasons for the emergence and implementation of management innovation in foreign trade enterprises.

5.3. Corpus Research and Capability Configuration.

With the aid of the self-built corpus, this study explores the capability configuration of the digital high-quality development model of foreign trade enterprises. As shown in Figure 6, you can clearly see the terms related to "capability".

Concordance	Concordance Plot	File View	Clusters	Collocates	Word List	Keyword List
Hit	KWC					
1	have newer and higher skill reserves and relevant ability accumulation. At this time, enterprise managers					
2	have newer and higher skill reserves and relevant ability accumulation. At this time, enterprise managers					
3	knowledge management skill, not a pure technical ability. 3.5 Actively participate in the exploration of					
4	"Foreign trade enterprises have a strong learning ability, and a small step of the online Canton Fair will					
5	and optimization, and improve the rapid response ability and anti-risk ability of the supply chain. Order					
6	reflected the organization's knowledge processing ability and individual's creation and innovation ability					
7	p work ability includes creativity, comprehensive ability and judgment. Deep work can enable humans to lea					
8	p work ability includes creativity, comprehensive ability and judgment. Deep work can enable humans to lea					
9	s experience and cultivates knowledge acquisition ability and knowledge insight in the value-added of prod					
10	dge acquisition ability, knowledge transformation ability and knowledge application ability. Dynamic knowl					
11	dge acquisition ability, knowledge transformation ability and knowledge application ability have a positiv					
12	dge acquisition ability, knowledge transformation ability and knowledge application ability, and managemen					
13	transformation ability and knowledge application ability, and management innovation is divided into four					
14	of process view, the dynamic knowledge management ability and management innovation are divided into three					
15	risk management and control ability, data analysis ability and market sensitivity and other new core compet					
16	tivities, including personal knowledge management ability and organizational knowledge management ability.					
17	adaptability, market competitiveness, innovation ability, and transformation ability. Enterprises have pe					
18	uring to enhance the international market premium ability and "voice power". In response to this problem,					
19	we need to explore the value of data through AI's ability, and we need an intelligent analysis process. Th					
20	of capital loss due to insufficient risk control ability and weak capital management ability. Not only th					
21	ntive indicators. In general, taking the creative ability, collection ability, dissemination ability, degr					
22	the survey team are the spiritual cornerstone and ability cornerstone to help the "Ten Thousand Enterprise					
23	r e-commerce, but also have skilled data analysis ability. Currently, such talents are relatively scarce.					
24	cooperation ability, risk management and control ability, data analysis ability and market sensitivity an					
25	as organization, business model, process and work ability definition. From the perspective of practice, th					
26	as organization, business model, process and work ability definition. From the perspective of practice, th					
27	eatative ability, collection ability, dissemination ability, degree of shared resources, and use ability of					
28	general. taking the creative ability. collection ability. dissemination ability. degree of shared resourc					

Fig.6. A screenshot of the capability configuration of the digital high-quality development model of foreign trade enterprises in the corpus

Through further sorting and induction, according to the principle of "co-occurrence", we found the following capabilities "combination". Service capability: through the transformation of the digital supply chain of foreign trade enterprises into localized operation, the full-chain digital service capability has been built to improve the response efficiency and response quality of local customers' needs. With the help of big data, cloud computing, etc., the service capability and sharing capabilities of overseas warehouses have been deeply explored, and the "going to sea" with partners has been realized to achieve win-win cooperation. Customization capability: The transformation of foreign trade enterprises' digital supply chain needs flexible customization capability and logistics efficiency based on the advantages of foreign trade enterprises' digital supply chain. Shipping (shipping) capability: The digitalization of foreign trade enterprises also requires enterprises to cooperate with cross-border e-commerce platforms (such as Alibaba International Station) to form a strong digital shipping capability, so as to create a stronger export competitiveness of foreign trade enterprises' products (services) and realize global cargo transportation. These three capabilities constitute a capability configuration combination of digital high-quality development model of foreign trade enterprises: integration capability+organizational operation capability (service capability+customization capability+shipping capability). In addition, further analysis can also find another combination: deep work ability+social cooperation ability. Deep work ability: Generally speaking, there are two main abilities that machines can not replace at present or forever: deep work ability and social cooperation ability. The construction of these two capabilities is the focus of knowledge management. Deep work ability includes creativity, comprehensive ability and judgment. Deep work can enable humans to learn more complex things and apply them to specific business environments. The ability of social cooperation involves irrational issues such as the emotion of enterprises as economic people, that is, the ability of enterprises to integrate into society.

5.4. Results and findings.

From the above analysis, it can be seen that Guangdong Province, as a major foreign trade province, is necessary to develop foreign trade and strengthen foreign trade, so as to give play to the cluster effect of various major foreign trade cities in Guangdong Province to a certain extent, with the help of the ability configuration of integration ability+organization and operation digital high-quality development mode, and at the same time give play to its structural effect. In the field of single industry, each prefecture-level city of Guangdong's foreign trade can build a complete industrial chain, build a multi-group industrial chain with the help of the ability combination of digital high-quality development model: "deep work ability+social cooperation ability", cultivate more large foreign trade pillar manufacturing enterprises, and improve the resilience of foreign trade cities to face fluctuations in the post-epidemic era. In the same way, a diversified and balanced foreign trade structure of Guangdong should be built among various industrial sectors to help foreign trade cities achieve stability in foreign trade under special post-epidemic fluctuations. In the post-epidemic era, the high-quality development model of industrial digitalization is one of the necessary conditions and paths to promote the high-quality development of Guangdong's foreign trade, and is also a core of the supply-side structural reform of Guangdong's foreign trade in the post-epidemic era.

6. Conclusions and Suggestions

Based on the above analysis, for Guangdong foreign trade, a good digital trade integrated e-commerce service platform plays a core role in market competition, promotes the transformation of traditional trade chain to digital trade chain, and promotes the digital high-quality development of foreign trade enterprises. In fact, it is also an apparent process embedded in genetics, helps foreign trade enterprises' products and services go to sea, and

greatly reduces the comprehensive trade costs of foreign trade enterprises in the post-epidemic era. Therefore, taking the "digital trade platform" as the central hub, which is produced by the "novelty" and "search" gene "mutation" through market competition, can create an efficient digital "industrial chain" and better realize the high-quality digital development model of foreign trade enterprises. Each prefecture-level city of foreign trade can also build a complete industrial chain, build a multi-group industrial chain, cultivate more large foreign trade pillar manufacturing enterprises, and improve the resilience of foreign trade cities facing fluctuations in the post-epidemic era. Through the transformation and localized operation of the digital supply chain of foreign trade enterprises, the construction of the full-chain digital service capability has improved the response efficiency and response quality of local customers' needs. With the help of big data, cloud computing and other technologies, the service capability and sharing function of overseas warehouses have been deeply explored to achieve "going to sea" with partners, achieve win-win cooperation and promote the high-quality digital development of foreign trade enterprises.

Moreover, in the post-epidemic era, Cantonese foreign trade enterprises shall form a diversified and multi-dimensional service ecosystem including digital foreign trade import and export settlement solutions, cross-border e-commerce collection service solutions, localized collection service solutions, one-stop foreign trade collection service solutions, as well as cross-border trade global supply chain financial services, etc.

Other than that, the platform digital operation of the transaction link from traditional foreign trade to cross-border e-commerce, from domestic e-commerce to cross-border e-commerce, is faced with a more complex and high-risk environment. Thus, trade enterprises not only need to upgrade and restructure their business philosophy, operation mode and talent organization systems in an all-round way, but also have to face new challenges such as soaring prices of raw materials, prolonged sales and payment cycle, exchange rate fluctuations, and changes in cost structure. If foreign trade enterprises want high-quality development, they are supposed to seek profits from services. In this process, how to help foreign trade enterprises accelerate digital transformation and achieve cost reduction and efficiency improvement through the deployment of resources and the empowerment of digital technology has become the core and vital priority.

Specifically, especially from the relation between trade and finance, in response to the needs of foreign trade enterprises in improving business operation efficiency, overseas business compliance, local settlement and other aspects, a number of strategic arrangements shall be made, promptly and timely, to build a cross-border settlement service platform based on compliance and technology-driven, namely, cross-border collection service, together with deeply enabling cross-border e-commerce, so as to solve and outsmart the financing problems of small and medium-sized trading enterprises with data resources+AI core algorithm. Apart from that, it can outsmart the issues such as the whole cross-border collection market's insufficient coverage of traditional solutions for small and medium-sized customers, many intermediate links of cross-border settlement and long chain, high cost, and insufficient level of digitalization and intelligence.

The challenges such as the obstruction of the flow of people and the instability of the supply chain due to the intensification of the epidemic have further forced more small and medium-sized enterprises to move towards digitalization, and those foreign trade manufacturing enterprises that embrace digitalization have also shown greater resilience. The digitalization of cross-border e-commerce platforms has provided the trade firm with good guidance, making it easier for us to react more quickly, find the market and gain insight into new products

In the post epidemic era, from the gap between supply and demand behind the data, business opportunities can be found more accurately, and more convenient water testing methods can be obtained at the same time. In fact, the digitalization of foreign trade has played an important

role in the epidemic and post epidemic era, whether in finding business opportunities and directions or in obtaining orders. For many small, medium and micro cross-border e-commerce sellers, the guidance of these data has and will further help them find the possibility of counterattack in the period of global market volatility, order fragmentation, and foreign trade from general to structural growth.

In the face of the new economic situation at home and abroad, foreign trade enterprises should practice their internal skills, seize the great opportunities of the digital economy, enable the development of enterprises with the digital economy, and promote the stability and development of enterprises. More importantly, foreign trade enterprises should support the digital innovation demonstration and leading of large foreign trade leading enterprises, and develop the national leading digital foreign trade supply chain, supply chain financing, foreign trade comprehensive services and other systems. Specifically, they shall promote the use of digital systems, improve the efficiency and competitiveness of enterprises, and complement the shortcomings of digital foreign trade. Policy makers are expected to support the opening of Cantonese foreign trade digital resources, share the data of single window, tax, customs, ports, market supervision, logistics and other industries, and encourage enterprises to carry out digital construction cooperation; support the construction of digital foreign trade and trade park, integrate and link the physical unit data of the park and virtual international foreign trade data, and use third-party thinking to drive the innovation and development of the foreign trade industry.

Under the epidemic, digitalization has become an emergency means for many foreign trade enterprises, but still in the post-epidemic era, the use of digital foreign trade services is most likely to be irreversible. The efficiency and stability advantages of digital foreign trade in all aspects have been verified during the epidemic, so that enterprises can still receive orders, ship goods and receive payment. In other words, in the post-epidemic era, this advantage will continue.

It is worth mentioning that digital payment for trade firms is not only the infrastructure of the digital economy, but also the rigid demand of small and medium-sized trade enterprises and offline merchants. The data precipitation brought by the capital flow and information flow makes the payment institutions become the information link, and based on this, it provides multiple services including commercial operation for small and medium-sized trade enterprises and offline merchants, which makes payment an important starting point for the digital transformation of small and medium-sized trade enterprises.

Last but not least, digitalization implementation can also be committed to helping foreign trade enterprises to better carry out digital transformation, directionally analyze the global foreign trade industry, interpret various foreign trade policies and share coping strategies, help foreign trade enterprises understand the latest market, at the same time, accelerate business expansion in a faster and more compliant way, and improve the global competitiveness of Canton foreign trade enterprises.

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