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Article

The impact of government support on port industry competitiveness: A qualitative exploration

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Abstract: Focusing on Shanghai Port, this in-depth study explores how government support can make port organizations more competitive. This study shall implement qualitative analysis based on in-depth interviews with key industry and government leaders to break down the complicated actions taken by the government and how they have changed the operational and strategic skills of the port industry. Seven factors were found in our study to be the most crucial support factors: Financial, regulatory, infrastructure growth, talent, market, policy, and organizational support. In their ways, each of these groups undermines the ability of port businesses to compete. For instance, finance can make ports more competitive in aspects such as tax cuts, lower interest rates, innovation and R&D funds, financing programs, venture capital funds, and putting up R&D sites. Supporting regulations makes sure that there is fair competition and smooth operations. This is done by protecting intellectual property, keeping the market going smoothly, improving the business environment, and monitoring market regulations. Building new infrastructure, such as innovation and updated buildings, enables the smooth running of the port businesses and minimizes wastage of time; thus, more time is spent on production. Supporting talent, the market, and policy all work together to make the human capital, international cooperation, and strategic regulatory framework that a company needs to stay ahead in the long run. It is clear from organizational support how important collaborative networks are for making ports more competitive. These networks, for instance, can be of assistance in helping schools and businesses work together, create new technologies, and find ways for companies and colleges to study together. This study examines these support systems to determine where the government should step in and how the systems can be made better to make ports more competitive. In terms of practical contribution, this in-depth study helps policymakers and port workers plan for the future. This study shows a fair way for the government to support the port business, which changes with its needs and stays competitive in the world of trade.

Keywords: financial support; government support; industry-government collaboration; infrastructure development; international trade; market support; organizational support; policy interventions; port competitiveness; regulatory support; shanghai port; talent support; technological innovation

1. Introduction

1.1. Background of the study

Across countries, global ports are in a fierce battle to be the best. The Singapore Maritime and Port Authority (MPA) is in charge of the country's ports, which are known for being very flexible and efficient (Osundiran et al., 2021). Singapore is a global trade hub and redistribution center because it is strategically located on busy

shipping routes and has high-tech infrastructure. It constantly ranks highest for container storage and ship docking. Business-friendly rules, efficient customs, and effective services attract shipping and transport businesses globally, giving it a competitive edge in its industry (Osman et al., 2021).

However, the Port of Time Rotterdam is technologically advanced. The natural location for maximum consumers and revenue offers many deep-sea berthing and communication facilities (Hermann et al., 2022). Paste literature has indicated that waste management, such as recycling practices, renewable energy public transport options, and complimentary bicycle rentals, have encouraged the community to change their behavior and lean towards environmental sustainability (Gianoli and Bravo, 2020). Additionally, the port administration has made significant progress in switching to greener, non-polluting transportation and renewable energy sources. These efforts have allowed the Port to become greener and attain a market competitive edge.

As a high-profile port in Shanghai, it plays a vital role in the country's vibrant inland shipping scene. It is tasked with many types of goods through significant government approaches to constructing infrastructure and enhancing logistics (Sheng and Kim, 2021; Deng et al., 2022). These government attempts to make the port industry more competitive and willing to sacrifice part of the sovereignty established the place of Shanghai in the world trade (Hu et al., 2020; Lee and Shen, 2020).

However, a new port in Shanghai faces stiff competition because of the increase in trading port trading competition and the lower-cost ports both inside and outside China (Osundiran et al., 2021). Keeping costs down and service quality higher is easier said than done, which is why well-planned business efficiency and sustainable development strategies are needed (Hermann et al., 2022).

Along with economic developments, environmental degradation and unsafe operations have become significant issues in Shanghai, and the Port should devise a system to minimize the adverse effects and enhance security and its reputation (Liu et al., 2022). Adopting new digital and technology advances is essential for improving service, lowering costs, and optimizing operations. This can be attained through AI, IoT, and big data.

Shanghai Port could also face problems because of changes in geopolitics and rising geopolitical threats, which could affect trade and market positioning (Osman et al., 2021). Organizational learning theory, resource-based theory, and stakeholder theory are some theories that help understand how the Port Industry Competitiveness works. These concepts examine how ports can improve competitiveness using learning, strategic resources, and stakeholder management. They thoroughly examine the industry's problems and the solutions that must be solved (Afshari and Hadian, 2021; Li et al., 2022; De, 2021).

Focusing on innovation, stakeholder involvement, and flexible policies will help Shanghai Port stay competitive in the global maritime industry as it navigates these tricky areas. See **Table 1**.

Table 1. Ranking of the world's top 20 container throughput ports in 2022.

Port Ranking	Name of the port	2022 Container Throughput Container Throughput (million TEUs)	2021 Container Throughput Container Throughput (million TEUs)	year-on-year growth rate	2020 Container Throughput Container Throughput (million TEUs)	2019 Container Throughput Container Throughput (million TEUs)	Compound growth rate for the last three years
1	Shanghai	4730	4703	0.6%	4350	4333	3.0%
2	Singapore	3729	3747	−0.5%	3687	3720	0.1%
3	Ningbo Zhoushan	3335	3108	7.3%	2872	2754	6.6%
4	Shenzhen	3004	2877	4.4%	2655	2578	5.2%
5	Qingdao	2567	2371	8.3%	2201	2102	6.9%
6	Guangzhou	2486	2418	2.8%	2317	2283	2.9%
7	Busan	2207	2269	−2.7%	2181	2199	0.1%
8	Tianjin	2102	2027	3.7%	1835	1730	6.7%
9	Hong Kong	1657	1780	−6.9%	1797	1830	−3.3%
10	Rotterdam	1470	1530	−3.9%	1435	1482	−0.3%
11	Dubai	1400	1374	1.9%	1349	1411	−0.3%
12	Antwerp-Bruges	1350	1202	12.3%	1203	1186	4.4%
13	Klang	1328	1374	−3.3%	1324	1358	−0.7%
14	Xiamen	1243	1205	3.2%	1141	1113	3.8%
15	Tanjung Palapas	1064	1120	−5.0%	980	908	5.4%
16	Los Angeles	991	1068	−7.2%	921	934	2.0%
17	New York-New Jersey	950	899	5.7%	759	747	8.3%
18	Kaohsiung	949	986	−3.8%	962	1043	−3.1%
19	Long Beach	913	938	−2.7%	811	763	6.2%
20	Suzhou	908	811	12.0%	629	627	13.1%

Source: World Container Port Throughput Rankings (2023).

According to figures released by the Ministry of Transport, there has been a significant drop in the number of containers the Port has handled over the last ten years.

1.2. Research question

Grand research question: What effects do different types of government support, like fiscal policies, building up facilities, regulatory frameworks, and policy interventions, have on the competitiveness of China's port industry?

Research questions:

- What are the specific ways the government is helpful, such as through financial aid, rules and regulations, investing in infrastructure, and programs that help people improve their skills?
- How do different types of government funding affect significant aspects of port operations, like how well they run, how well they serve, how well they come up with new technologies, and how well they do financially?
- What are the difficulties and limits of establishing effective government support systems to make ports more competitive, and how can these be fixed?

- How can the port industry and government work together to maximize assistance measures and align them with industry needs to maintain competitiveness in the global trade ecosystem?

1.3. Research objectives

- To examine how fiscal policies, infrastructure development, regulatory frameworks, and policy interventions boost China's port industry's competitiveness.
- To examine how government support affects port operations' efficiency, service quality, technological innovation, and financial performance.
- To explore the barriers to government allocation of funds for port development and provide recommendations.
- To examine how the Port and government may collaborate to launch more supportive measures and tailor them to the Port industry needs to stay competitive in the world trading space.

2. Literature review

2.1. Research theory

The decision on the Port's strategic policies must be based on a broad framework featuring shareholders, the government, customers, suppliers, and laborers, as the stakeholder's theory recommends. This theory will identify and analyze stakeholders who can influence or curtail the implementation by determining their respective needs, interests, and power in management planning. According to stakeholder theory, corporations must listen and agree to the demands of stakeholders. There is a need for communication and stakeholders' dialogue to unleash the win-win ideology during the processes of optimizing to reach that level.

Freeman and Phillips were the prime stakeholder theory contributors (Freeman and Phillips, 2021). In other words, stakeholder theory suggests that a company's behavior is influenced by stakeholders, i.e., those with some interest in the company. Employees, consumers, management, investors, government, society, and activists constitute stakeholders. The theory advocates the understanding of their needs and preferences, together with their expectations.

As stakeholder theory emphasizes, the relationship between the organization and the various stakeholders is vital. This entails having a deep understanding of the connection between the organization and all the critical stakeholders, knowing how they can be solicited for feedback, and having an interest-oriented approach toward handling and involving them in decision-making. Stakeholder strength, importance, and the context of urgency determine their level of stakeholder salience. The theory of stakeholders entails that stakeholders such as owners, employees, managers, and community members can influence the company's performance, and hence, their preferences must be factored in.

It is primarily the theory of stakeholders that has been developed based on the needs of the workers, the customers, financiers, society, and government. Such an approach was integral in involving numerous parties with different, unique influences

and interests to find solutions that fit more than one or two groups of people. The stakeholder theory's rationale is that ethics and social responsibility are essential for the success of any company. Therefore, it clearly defines how ethical responsibility also helps firms to interpret all the involved parties, not only shareholders, e.g., antigambling measures that conform to social standards and sustainable business operations are devised.

Stakeholder theory states that a company cannot achieve its success only based on its well-being but has to meet the needs of its stakeholders. When the goals and dreams of stakeholders are addressed, this can solve their existing issues and create long-term value in the organization. Stakeholder theory perceives a company symbolically as an apparatus of interactions between numerous stakeholders. The redistribution of such stakeholders' mindsets through relationships and conversations on challenges makes gaining from their input, support, and resources possible.

Stakeholders naturally affect the company, allowing them to realize specific threats and opportunities by considering stakeholder interests. Identifying and fulfilling the demands of all involved parties allows for solving issues, threats, and organizational structure campaigns that lack flexibility. Effective stakeholder management builds trust, improves public perception, and provides a corporation an edge over competitors.

Stakeholder theory recognizes stakeholders' conflicting interests and agendas can cause disputes. Addressing and reconciling stakeholder concerns is complicated and requires thoughtful compromise. Subjective and situational stakeholders' influence and pressure can be characterized. Stakeholder relevance can be difficult to quantify because the evaluator's perspective and principles may vary.

Stakeholder theory focuses on stakeholders' interests and interactions within an organizational setting, which may limit its ability to address social or systemic challenges that affect stakeholders and organizational performance. Stakeholder theory and external and social theories should be combined to complete the picture and comprehension. Organizations and practitioners must deal with implementation issues since stakeholder theory provides only a conceptual framework for problem-solving and decision-making. Stakeholder interests and organizational capacities must be balanced when translating stakeholder theory into actionable strategies and practices.

Stakeholder management requires time, energy, and resources. Engaging stakeholders, encouraging discourse, and addressing their concerns require significant organizational effort, especially for resource-constrained organizations facing resource allocation and implementation feasibility difficulties. Since stakeholder theory implies that organizations effectively identify and represent stakeholder interests, it can be challenging to ensure that all parties, especially marginalized or minority stakeholders, are considered. Promoting broad stakeholder participation in decision-making may take time.

Regarding the stakeholder theory, stakeholder connections affect port industry competitiveness. This study can, therefore, examine how organizational flexibility, government support, and industrial organizational structure affect Chinese port industry competitiveness by identifying essential stakeholders and their concerns. The theory emphasizes stakeholder participation and collaboration for innovation.

Stakeholder involvement in innovation boosts competitiveness. The study should use stakeholder theory to explore how stakeholder involvement and feedback affect port industry innovation initiatives in investigating the relationship between organizational innovation, managerial innovation, and competitiveness.

Stakeholder theory highlights policy makers and industry professionals' management duties. Policymakers develop rules and assist ports, while port industry executives shape competitive advantage. Stakeholder theory emphasizes that knowing stakeholder perspectives and expectations can inform Port Industry Competitiveness strategies. Scholars used stakeholder theory to study port industry stakeholder dynamics in previous academic research studies. Researchers can examine how stakeholder interests and influences affect industry competitiveness from a stakeholder perspective. Stakeholder theory can also help researchers choose questionnaires, interviews, observations, and case studies to collect quantitative and qualitative data on stakeholders' viewpoints, needs, and interactions. On the other hand, stakeholder theory provides an inclusive framework for analyzing and managing port organization-stakeholder relationships, helping academics answer study questions.

A theoretical study on port industry stakeholders includes several stakeholders. The port industry relies on government agencies to regulate and manage port operations, safety, and regulatory development. Their policies, laws, and environmental planning affect port development. Port operators and companies directly administer ports, including commercial operations, building, and upkeep. They share interests with the government, shipping, and cargo owners.

Port services are used mainly by shipping corporations and cargo owners to convey products. Quality, efficiency, and cost of port services affect their interests. Local communities and environmental organizations advocate for environmental protection, social responsibility, and sustainable port development and participate in port planning and decision-making.

2.2. Conclusion

This paper examines the complex impact of government support in improving China's port industry competitiveness, focusing on Shanghai Port. The study is based on learning theories, resource-based, and stakeholder theories. These theories provide a good explanation of the subsidizing by the government and the navigational efficiency of the Port.

Organizational learning theory claims that an organization will be relevant and successful if it consistently undertakes the learning and adaptation process. RQ2 and RO2 highlight government support's effects on port operations, such as operational efficiency and service quality, thus showing that this theory is significant. Through government support, Ports can elevate its competitiveness by investing in infrastructure, recruitment of personnel, and policy initiatives for forming systemic learning.

Resource-based theory explains that an organization has a sustainable edge over competitors because it has rare and valuable resources. It corresponds to RQ1 and RO1, which examine fiscal policies and infrastructural development as part of government support. Grants may be a tool, for example, for the ports to receive financial support,

desirable regulation, and access to new infrastructure, helping them to perform better.

According to stakeholder theory, all these points are essential: Government, business, customer, supplier, and community, as they unanimously convert into an integral component of the business's interest and drive them to accomplish their goals. RQ4 and RO4 focus on how the port industry and the governing bodies could maximize their support initiatives and correlate them with the business requirements. This confirms that the theory is significant and relevant to this research study. Ports and government bodies can establish support systems with stakeholders by interacting with them and acknowledging their feelings to enhance collaboration and competition.

Through synthesizing various theoretical perspectives, this article aims to identify a mode of linkage interactions between Chinese government policies and the competitiveness of the port industry. In organizational learning theory, ongoing improvement is the focus; the resource-based theory highlights the valued resources; and the stakeholder theory empowers collaborative engagement of various stakeholder groups. The theories explain government support and the necessity of port competitiveness, which are the backbone of this research question and hypotheses.

3. Methodology

3.1. Study tools

This qualitative study utilized in-depth interviews, informed by semi-structured interviews, which were flexible and targeted explorations of participants' viewpoints (Ruslin et al., 2022). This methodology approach was based on its ability to explain specific Port Industry Competitiveness and government support themes while allowing participants to provide unique ideas. This could be a source of knowledge extension, making the research project better as it increases the awareness of the complexity of the industry.

Interviewers used open-ended questions (included in the semi-structured interview guide) to conduct more specific interviews regarding participants' views about government support and port competitiveness. The primary method was coding, categorizing, and finding patterns and themes in the interview participants' responses. This thorough effort ensures that the outcome is based on the participants' thoughts and feelings, which guarantees that the study's results are true and accurate. With these language levels, the audience can understand and value the research study's scientific solid features.

Participants verbally outlined their experiences in semi-structured interviews and provided detailed feedback, making the empirical study canvas more complex. These qualitative methods look for small details that the quantitative method might miss. The goal is to give a complete and detailed picture of the marine industry as it works within the market forces and economic systems and the rules and regulations it has to follow.

The study's goal was to show what life is like for people working in the port business by asking them about the challenges of market competition, the importance of government involvement, and the general knowledge supporting port development. In their research, Ruslin et al. (2022) affirm that having a variety of interviews to entice people based on their interest in a study is critical and effective in better understanding the problem and getting a full view of the situation pertaining to port business

competition.

3.2. Data collection administration

The research approach included personal interviews with the bureaucrats of Shanghai Port Enterprises and the experts of Shanghai's local government. The study used the ethnographic method for this research. The primary mechanism was the time researchers spent exploring various cases and interactions, creating a picture of how social bases evolve and teamwork occurs. Such information produces a complicated picture illustrating the different interplay between the authorities, government, and the port business (Geertz, 1973). The participants were interviewed first-hand and became better acquaintances with the researchers; hence, they could comfortably divulge necessary information and knowledge (Malinowski, 1922).

This research study data was gathered from experts from Shanghai Port Enterprises and the Shanghai municipal government. This was also very helpful since it enabled many more subjects to be looked into and sufficient information to be collected for the study. The researchers preferred to conduct face-to-face and video interviews at Tencent Meetings to ensure that the data was sufficiently varied for purposes of their research. During the 21-day discussion, researchers learned much about what each expert thought and had done.

The researchers heard back from the top leaders of Shanghai Port and the Shanghai city government via email. The Shanghai city government gave good feedback in three days, and the top managers at Shanghai Port agreed to the interviews six days later. This quick and positive response shows that the business world acknowledges the significance of this study and intends to back it up. It also shows that the stakeholders have high hopes and respect for the study (Patton, 2015).

In general, the ethnographic and mixed-interview methods used in this study made it possible to understand how the competitiveness of the Shanghai Port business and government support work together in a complex way. This method's design ensured the data was complete and authentic, leading to deep thoughts and understanding of the study topic (Fetterman, 2010). This multi-layered approach to the research method not only added to the theoretical depth of the study but also made it more valuable and relevant in real life.

3.2.1. Units of analysis

Since Shanghai's Port is so important, we carefully chose the people we would question by consulting with two groups of experts: government experts and experts from Shanghai port enterprises. Government experts make important decisions because they know a lot about policy, and business experts bring essential insights from a wide range of strategic and operational support that is key to the Port's success. These experts are at the top of their organizations and make crucial decisions. Their points of view provided a complete picture of operating strategies and planning for the future (Englund and Graham, 2019).

Equally important information comes from the technical pros who run the day-to-day business. Because they are involved in many practical tasks, these front-line workers provide a critical view from the ground up that is needed to grasp the complex workings of ports fully. They have a unique perspective on competitive port operations

and current problems because of their experiences and ideas (Bayerlein, Knill, and Steinebach, 2020).

Through interviews with government and management experts, this study project aims to get a completer and more nuanced picture of how competitive the Shanghai port is. Understanding and appreciating how strategic choices and operational execution interact in the port environment is improved by combining these different points of view. According to the people asked to participate, the study's primary goal is to discover the complicated relationships that makeup Shanghai's Port's competitive scene.

Dworkin (2012) states that most scholars who do qualitative studies suggest using a sample size of 5 to 50 people. Therefore, the researcher inquired from 15 experts from Shanghai port companies and 15 from the Shanghai municipal government to be interviewed.

3.2.2. Sampling method

This study's qualitative questionnaire will use purposive sampling with great care. This method is meant to carefully choose participants whose knowledge and experience are closely related to the study's goals. The planned result of strategically using this method is to give people deep insights that are especially useful for the complex details of this study (Campbell et al., 2020).

Purposeful sampling focuses on carefully choosing people who can offer unique and exciting points of view. Government and business experts will be selected as the main partners of this study. This decision aims to learn more about how the government helps and competes in the port business.

The study considers the different experiences and points of view of corporations. It includes government and business experts to make it more comprehensive (Englund and Graham, 2019; Bayerlein et al., 2020). Corporate experts can give you unique information about how competition works and how to develop new ideas because they have strategic views and can make decisions. On the other hand, company experts bring a practical understanding because they are involved in running the business, and government experts know about policies and trends.

Hopefully, including these two different groups on purpose will help people gain insights. The smart idea behind this method is to combine the views of those who actively shape the direction of the industry with those involved in the day-to-day tasks that make it run. This mixing of points of view will give us a fuller and more detailed picture of how competition and new ideas work together in port operations.

3.2.3. Sample size

The sample size is the number of comments or answers sent during the survey. Choosing the right group is thought to be the most essential thing that can be done to reduce sampling errors. This is important because it can be hard not to generalize too much from qualitative studies' results (Onwuegbuzie and Daniel, 2003; Onwuegbuzie and Leech, 2005). Therefore, to reach saturation, rules for sampling have been outlined for qualitative studies. For example, Creswell (2002) said that phenomenological studies should have no more than ten people, while Morse (1994) said they should have no less than six participants to get to the heart of experiences. The researcher plans to talk to 30 experts in the current study, including 15 from the government and

15 from Shanghai port businesses.

3.2.4. Data collection method

This research examines the many factors that affect the competitiveness of the port industry and how vital government help is in the context of port operations. A multidimensional study methodology will meet the primary and secondary study goals. To reach the first study goal, it is necessary to look into the factors that affect the success of some sectors. To do this, an organized study approach will be used to find the fundamental factors that affect competition in the port industry in a planned way.

In contrast, the second study goal is to explain how government help can improve the competitiveness of the port industry. A qualitative study approach will be used to shed light on this aspect. This methodological choice was made to ensure complete understanding because of the complicated role added support plays in this case. Through conversations, the qualitative study provides a way to look into the complex workings of government aid and learn from people who work in the field.

For both goals, the study methods chosen are appropriate for the unique nature of each goal. The organized study plan for the first goal makes it easier to look at all the factors that affect the competitiveness of the port industry in a planned way. For the second goal, a qualitative study method is used to get first-hand accounts and views from essential stakeholders to show how government support can bring about significant changes.

This study goes beyond a superficial understanding by using interviews to look into the many complex layers that make up the competitive fabric of the port business. The study aims to use these different but related research methods to get a complete picture of the factors that affect ports and how the government help change their competitive landscape.

3.3. Limitations

The insufficient sample variety and representativeness limits this study. In-depth research into the Port of Shanghai and its competitors was possible, but the results may not apply to a broader audience. The port industry is very different across areas and countries, with various ways of doing business, other rules and regulations, and different levels of competition. Therefore, using a more varied sample, such as stakeholders from other maritime hubs and ports, would make the results more valuable and representative. By comparing different ports, the study could look at how government support works in various situations, considering differences in policy frameworks, infrastructure growth, and how the industry works.

It would be better to learn how government support mechanisms can be changed to fit different regional or national situations if more points of view from different port authorities, government agencies, and business stakeholders were included. Adopting this method would make the results more applicable to other situations and give helpful information about how the found support factors can be changed and expanded in various work settings.

To get around this problem, future research could use a multi-site or cross-national study design that includes several ports or maritime groups from different parts of the world. This method would make the sample more varied and allow for a

more thorough study of how government support affects port success, considering each port ecosystem's various features and difficulties.

The study shows a critical and self-reflective stance by recognizing this limitation and suggesting future research directions to get around it. It also indicates room for more research and stresses the importance of looking at different situations in the port business.

4. Results

Grounded theory, co-theorized by Glaeßer and Strauss (1967), is a technique commonly used in qualitative research and flourishes many times over with its deeper consideration of micro issues within the greater sphere of sociology. On the other hand, this method has been hailed for its characteristic research method: at first, nothing is expected, and no concepts are looked into. Rather than going straight to the theory, it goes through the process of deduction by looking at the raw data and developing concepts and categories. It then proceeds to put all the information together as a theory. The outstanding characteristic of Grounded Theory is that it is the theory that is generated out of the problem instead of being predetermined by the hypothetical theory. This demands researchers to carry out systematic data collection with the essential concepts abstracted from real-life situations to be used as a basis for formulating theories. Shared question from Shalu By facilitating the emergence of such theories, this is a foundational mechanism that works to represent the phenomenon's reality and validate them. In its first steps, a researcher trying the Grounded Theory must be inspired by a clear cognition of the problem and will not be limited by methodological restrictions.

Such a viewpoint is acknowledged by experts in qualitative interviews like Charmaz (2007), who suggest that the researchers allow "the real issues to reveal themselves rather than be trapped by limits of methodology." Thus, this approach is fundamentally based on repeated, stepwise comparison and analysis, forming logical connections and transforming data into concepts, eventually resulting in an overall theoretical framework (Guo, 2015). Grounded theory as a paradigmatic theory is the leading new theory that provides grounds for more application. Therefore, it is used for practical and theoretical purposes after some time. Its main feature lies in the deep exploration of empirical facts, extracting new concepts and ideas, and realizing the process of theory construction from the bottom up. In reviewing a large amount of literature, Grounded Theory forms a substantive theoretical framework by seeking viewpoints and perspectives with broad representational significance.

Overall, the uniqueness of Grounded Theory lies in its emphasis on starting from actual observations and experiences and constructing theories that reflect the essence of phenomena through the induction and refinement of raw data. The widespread application of this method has introduced a new theoretical paradigm into the field of qualitative study, providing researchers with more flexible tools and approaches.

Therefore, the process of this Grounded Theory study is illustrated in **Figure 1** as follows:

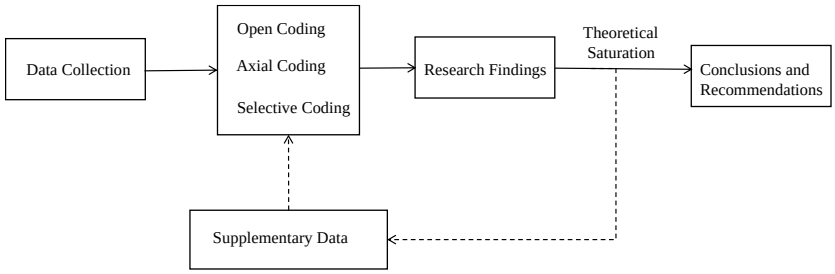

Figure 1. Study process based on grounded theory.
Source: Created by the author.

The characteristics of Grounded Theory closely align with this study, allowing for the avoidance of the "formulaic" limitations on the data utilized and conclusions drawn under the empirical paradigm of purely quantitative analysis, which can be constrained by empirical notions or presupposed theoretical models.

4.1. Preliminary process

In this study, the ethnographic method became a powerful tool for gaining in-depth insights into the perspectives of port enterprise and municipal government experts in Shanghai. In ethnographic research, scholars typically immerse themselves in and observe a specific community to understand its values and social structures, among other aspects. The researcher established a close rapport with the experts through the opportunity to participate for three months and observation. Consequently, this aided in a deep knowledge of the concerned study field and paved the way for selecting interviewees and conducting in-depth interviews. The quality of this deep engagement formed a firm foundation for the research achievement, facilitating the comprehension of processes and central problems among the field's practitioners.

4.2. Data collection and organization

To ensure the study reached the anticipated depth and breadth, the researcher carefully selected interviewees from two distinct groups: experts from Shanghai port enterprises and the Shanghai government. This brilliant combination of the interview methods, for which Tencent Meeting, as a video conferencing platform, prevailed, added another 21 days to the research phase. It was not just that the researcher was granted numerous time advantages for careful data gathering, but also that it was much more convenient and comfortable for the experts to take part in the study, ensuring the information got a proper value and reliability. Noteworthy is the initial response received via email from the senior management of Shanghai Port and the Shanghai municipal government, which was both swift and positive. The Shanghai municipal government replied favorably within three days, and the senior management of the Shanghai port consented to the interview request by the sixth day. This reflected the professional field's recognition of the study and indicated the high level of support and interest from the involved parties.

The question addressed by the qualitative study: What forms of support can the government provide to enhance Port Industry Competitiveness?

- Government experts
    - Do you think government support is essential for business growth? Why?

- What relationship do you see between government support and business competitiveness?
- What specific supports have governments provided to enhance business competitiveness?
- What contribution does this support make to business development? (Does it enhance business competition?)
- Do you think the support provided by the government for enhancing business competitiveness is sufficient?
- What measures do you think the government should take to enhance support for business competitiveness further? What are the potential areas for improvement?
- Can combining government support and the company's efforts help the company gain a competitive edge? If so, can you share some successful cases?

- Shanghai port experts
  - Do you think government support is essential for developing the company you are currently working for? Why?
  - What relationship do you see between government support and corporate competitiveness?
  - What specific supports have governments provided to enhance the competitiveness of the company you work for?
  - What contribution does this support make to the development of your organization?
  - Do you think the support provided by the government for enhancing corporate competitiveness is sufficient?
  - What measures should the government take to enhance support for corporate competitiveness further? What are the potential areas for improvement?
  - Can combining government support and the company's efforts help the company gain a competitive edge? If so, can you share some successful cases?

4.3. Sample selection

Following strong support from the Shanghai Municipal Government and the management of Shanghai Port, the researcher successfully obtained detailed contact information for the experts, including their email addresses, mobile numbers, and WeChat IDs. According to Dworkin (2012), most scholars in qualitative studies suggest a sample size of 5 to 50 participants. Therefore, the researcher sent interview requests to 15 Shanghai Port enterprise experts and 15 Shanghai municipal government experts, with seven port enterprise experts and 11 government experts responding positively, providing a rich information resource for the study. Each participant's interview lasted an average of 37 min. The researcher meticulously transcribed and organized the recordings to ensure accurate information recording, resulting in a substantial interview text totaling about 34,000 words.

Regarding the qualitative analysis, according to theoretical saturation (Gong et al., 2018), this paper took 7 "Experts of enterprises in Shanghai port" and 8 "Experts

from Shanghai Municipal Government" from the initial 18 samples, which focused on three samplings to test whether the theoretical saturation is achieved to guarantee more profound and broader study results. To protect the thoughts and actual identities of the interviewees, the researcher concealed the names of the participants and adopted a unique kind code with the letter "A" followed by the numbers 1–10, e.g., A1, which means the 1st interviewee. With this name idea in mind, the file name for each interview record in the data was also designed to function as a security measure - not only does it allow the study to remain confidential, but it helps maintain the overall study's reliability. Moreover, this detail-oriented approach gave one more bullet to the scientific integrity and credibility study string.

Detailed information is shown in **Table 2**.

Table 2. Respondent sample information.

Respondent	Institution	Gender	Years of work experience	Interview duration
A1	Shanghai Municipal Government	Male	17	42
A2	Shanghai Municipal Government	Male	22	35
A3	Shanghai Municipal Government	Female	14	38
A4	Shanghai Municipal Government	Male	9	40
A5	Shanghai Municipal Government	Female	11	27
A6	Shanghai Municipal Government	Male	16	31
A7	Shanghai Municipal Government	Male	15	29
A8	Shanghai Municipal Government	Female	28	33
A9	Shanghai Port	Male	9	35
A10	Shanghai Port	Male	12	38
A11	Shanghai Port	Female	7	29
A12	Shanghai Port	Male	11	26
A13	Shanghai Port	Female	15	33
A14	Shanghai Port	Male	10	35
A15	Shanghai Port	Male	8	39

Source: Designed by the researcher.

4.4. Data analysis process

This study employs Grounded Theory to qualitatively analyze the collected data through three key steps: open, axial, and selective coding. To comprehensively capture the theoretical dimensions of the study, the qualitative analysis process requires continuous concept formation and dimension extraction from the data, following a cyclic process of data collection, concept formation, integration, and reorganization of theoretical extraction. Simultaneously, saturation testing of the text is necessary to ensure the conclusions' comprehensiveness, reliability, and validity. If new concepts are identified in the data collected subsequently, they need to be checked or combined with already formed concepts, creating primary categories and confirming whether the original categories cover the new ones. Therefore, it is necessary to revise the initially formed theoretical categories. This process repeats until no new categories or concepts emerge, achieving theoretical saturation. This study strictly follows the qualitative

analysis process of Grounded Theory, utilizing relevant qualitative software, with the specific study process as follows:

4.4.1. Open coding: Extracting concepts and categories

Open coding involves processing the collected data to ensure details "reveal the essence and present cultural echoes" and to "analyze the hidden and grounded themes, characteristics, and patterned regularities among themes in the data, systematically and orderly presenting them" (Glaser and Strauss, 1967). It is an operational process of breaking down, comparing, conceptualizing, and categorizing the data, dispersing a large amount of data according to certain principles, assigning concepts, and then recombining them in new ways (Chen, 2000). The goal is to discover similar or related types from the raw data while naming them to determine their concepts and dimensions. Open coding includes three steps: 1) conceptualization, which involves extracting content from original comments, breaking it down into independent sentences, and coding elements from these sentences, thereby transitioning from colloquial to refined language to form preliminary concepts; 2) concept classification, which optimizes, analyzes, and filters concepts, gathers concepts of the same category, analyzes the connections between words, and forms a cluster of concepts belonging to the same category; 3) categorization, which further abstracts and names the clusters of concepts. Using the coding function of relevant qualitative software, the collected interview data is coded and tagged word by word without preset premises and biases, generating initial concepts and discovering conceptual categories from the raw data.

Following the coding principles of Grounded Theory, the researcher initially utilized Data Analysis Software to conduct open coding on the interviews. A total of 37 open codes were obtained. Details are shown in **Table 3**.

Table 3. Results of open coding analysis.

Excerpts from original data	Conceptualization	Open coding
Respondent A1: "By providing loans, tax reductions, and other means, the government can significantly alleviate the financial burden on companies, offering them more funds for development."	A1 Tax Reduction Alleviates Corporate Financial Burden	C1 Tax Reduction
Respondent A1: "Government intervention in economic policy can provide financial support to businesses through means such as offering loans and reducing interest rates."	A2 Reducing Interest Rates Provides Financial Support for Businesses	C2 Reduction of Interest Rates
Respondent A2: "The government can increase financial support for innovative and technological enterprises by establishing innovation funds and technology business incubators, aiding companies in better conducting technological study and development and innovation."	A3 Establishing Innovation and R&D Funds to Support Innovative Enterprises	C3 Establishment of Innovation and R&D Funds
Respondent A1: "By providing loans, tax reductions, and other means, the government can significantly alleviate the financial burden on companies, offering them more funds for development."	A4 Establishing Loan and Financing Programs to Reduce Corporate Financing Costs	C4 Establishment of Loan and Financing Programs
Respondent A10: "Regarding financial support, the government can establish more venture capital funds to provide more financial support for enterprises with innovative potential."	A5 Establishing Venture Capital Funds to Provide Financing for Businesses	C5 Establishment of Venture Capital Funds
Respondent A1: "By establishing R&D bases and providing R&D funding, the government has actively promoted technological innovation in Shanghai port enterprises, enhancing their competitiveness within the industry."	A6 Establishing R&D Bases and Providing R&D Funding	C6 Establishment of R&D Bases and Provision of R&D Funding
C6 Establishment of R&D Bases and Provision of R&D Funding	A7 Strengthening Intellectual Property Protection to Enhance Innovation Incentives	C7 Strengthening Intellectual Property Protection

Table 3. (*Continued*).

Excerpts from original data	Conceptualization	Open coding
Respondent A1: "The government's role in regulations and oversight helps maintain market order, prevent unfair competition, and provide a fair competitive environment for businesses." Respondent A2: "The government also plays a key role in establishing industry standards and regulations, ensuring market stability and fairness."	A8 Maintaining Market Order through Regulation	C8 Maintaining Market Order
Respondent A1: The government can also improve the business environment, simplify administrative approval procedures, and reduce the operating costs of enterprises. Respondent A11: By optimizing the business environment, the government has promoted the healthy development of enterprises.	A9: Optimize the business environment	C9: Optimize the business environment
Respondent A3: The government's role in formulating regulations and standardizing the market helps enterprises operate in a fair, competitive environment.	A10: Formulate regulations to standardize the market and create a fair competition environment.	CC10: Regulations standardize the market
Respondent A1: Regarding infrastructure construction, the government's financial investment has equipped the Port of Shanghai with modern port facilities. This has improved operational efficiency and enabled the Port of Shanghai to better cope with the continuously increasing cargo flow and the complex international trade environment.	A11: Infrastructure construction helps to enhance the efficiency of the industrial chain.	C11: Enhance enterprise efficiency
Respondent A2: The government's investment in infrastructure, such as roads, transportation, and communication networks, has provided enterprises with more convenient transportation and logistics conditions, helping to reduce operating costs.	A12: Investment in infrastructure construction reduces operating costs for enterprises.	C12: Reduce enterprise operating costs
Respondent A4: The government's support for technological innovation, through providing study and development funds, constructing innovation parks, and other means, can help enterprises continuously improve their technological levels, promote industrial upgrading, and enhance competitiveness.	A13: Constructing innovation parks to promote industrial upgrading	C13 Construction of Innovation Park
Respondent A1: The government can increase its investment in infrastructure construction and enhance the overall operational level of Shanghai Port by upgrading facilities and improving efficiency.	A14: Introducing and updating modern facilities to enhance operational efficiency.	C14: Upgrading to modern facilities
Respondent A1: The government can encourage businesses to engage in international cooperation and attract more professionals with a global perspective.	A15 Encourages companies to introduce international talent	C15 Encourages the introduction of talent
Respondent A12: The government can enhance training and technical support for businesses, boosting their core competitiveness.	A16 Enhances corporate training and technical support	C16Corporate Training
Respondent A1: The government can increase investment in talent development by collaborating with universities and establishing talent training programs to cultivate more talents with international competitiveness.	A17Establishing talent training programs	C17Establishment of talent cultivation programs
Respondent A3: The government also plays a crucial role in education and training, enhancing the overall quality of the workforce.	A18Enhancing workforce quality through education and training	C18 Enhancing the quality of the workforce
Respondent A1: The government encourages enterprises to cooperate internationally, expand their markets, and enhance global competitiveness.	A19 Encouraging enterprises to engage in international cooperation to enhance global competitiveness	C19 Encouraging International Cooperation
Respondent A2: The government can also increase support for foreign trade by promoting international trade to expand enterprises' global market share.	A20 Conducting activities to promote international trade	C20 Promoting International Trade
Respondent A6: The government can also focus more on supporting the expansion of international markets and cultivating a global perspective to help enterprises better adapt to the challenges of international competition.	A21 Cultivating enterprises to expand into international markets	C21 Fostering enterprise expansion into international markets
Respondent A7: Under the guidance of government policies, not only has advanced ship technology been introduced, but customer favor has been won by enhancing service levels.	A22 Guiding enterprises to introduce advanced technology to enhance competitiveness	C22 Guiding enterprises to adopt advanced technology

Table 3. (*Continued*).

Excerpts from original data	Conceptualization	Open coding
Respondent A2: The main potential for improvement lies in the government's in-depth understanding of industry development trends. The government can strengthen communication with enterprises to understand their market needs and difficulties more comprehensively and formulate targeted support policies accordingly.	A23 Strengthening communication with enterprises to formulate targeted industrial policies	C23 Formulating targeted industrial policies
Respondent A1: The government's market access policies directly affect enterprises' entry and exit thresholds. Policies favorable to market access can provide enterprises with a broader market space, facilitate expansion, and increase their market share.	A24 Market access policies help to increase enterprise market share	C24 Formulating market access policies
Respondent A12: At the policy level, the government has introduced a series of industrial policies for the Shanghai Port, which have directed its development.	A25 Policy guidance for the enterprise development direction	C25 Policy guidance on the development direction of enterprises
Respondent A13: "With the increasing global focus on environmental protection and sustainable development, governments can guide enterprises towards a greener direction by formulating more motivating environmental policies."	A26 Formulating environmental policies to incentivize sustainable development in enterprises	C26 Formulation of environmental policies
Respondent A2: "Government investment in technological innovation, by providing study and development funds and formulating innovation policies, can help enterprises maintain technological leadership, improve product quality and innovation capability, thereby making them more competitive in the market."	A27 Formulating policies for technological innovation to enhance enterprises' innovation capabilities	C27 Formulation of policies for technological innovation
Respondent A8: "The government can formulate more flexible foreign trade policies by expanding trade channels and carrying out trade promotion activities to assist enterprises in expanding into international markets."	A28 Formulating flexible foreign trade policies to assist enterprises in expanding into international markets	C28 Formulation of foreign trade policies
Respondent A4: "The government can formulate more flexible policies for talent recruitment to attract top international professionals to join enterprises. Talent is the core of enterprise development, and innovation in government talent policies will help enhance enterprises' innovative capacity and international competitiveness."	A29 Formulating flexible policies for talent recruitment	C29 Formulation of policies for talent recruitment
Respondent A6: "The government can effectively stimulate the vitality of enterprises by providing financing, reducing regulatory restrictions, and encouraging entrepreneurship."	A30 Formulating policies to encourage entrepreneurship	C30 Formulation of entrepreneurship policies
Respondent A6: "The government can effectively stimulate the vitality of enterprises by providing financing, lowering regulatory restrictions, and encouraging entrepreneurship."	A31Formulating policies to reduce regulatory restrictions	C31Formulation of policies to lower regulatory restrictions
Respondent A2: "Regarding technological innovation, the government can strengthen cooperation with universities and study institutions to jointly promote technological innovation, thereby enhancing the technological content of enterprises in the global market."	A32 Promoting university-industry collaboration to drive technological innovation	C32 Promoting university-industry cooperation
Respondent A11: "The government's encouragement of technological innovation has provided strong support for enterprises to enhance their technological capabilities."	A33Encouraging enterprise technological innovation	C33Encouraging technological innovation
Respondent A7: "The government can make enterprises more clearly understand its support policies through more proactive publicity."	A34Strengthen proactive publicity and support policies	C34Publicity and support policies
Respondent A3: The government can establish more convenient approval and application processes to reduce the time cost for businesses in obtaining and implementing policies.	A35 Simplify administrative approval procedures	C35 Simplify approval procedures
Respondent A10: The government can establish a closer industry-academia-study collaboration mechanism to promote the rapid application of scientific and technological achievements.	A36Establishing an industry-academic-study cooperation mechanism to promote the application of achievements	C36Establishing an Industry-Academic-study Cooperation Mechanism

Table 3. (*Continued*).

Excerpts from original data	Conceptualization	Open coding
"Respondent A2: The government can offer more specialized consulting services to assist enterprises in better planning their development strategies."	A37Providing specialized consulting services to assist enterprises in planning development strategies	C37Consulting Services

Source: Designed by the researcher.

4.4.2. Social science academic translation: axial coding: Selecting the core categories

After the initial stage of open coding in the study, researchers simplified a large volume of raw data into concepts and categories, and some independent variables in the theoretical framework began to emerge. However, the categories derived from the open coding stage are almost entirely independent, with their interrelations not being deeply explored. Establishing these relationships is a necessary prerequisite for concluding. Therefore, researchers use grounded theory and Data Analysis Software analysis to connect these independent categories, reintegrate the decomposed data, and arrive at axial coding. The details are as follows in **Tables 4** and **5**.

Table 4. Core category coding.

Number	Axial coding	Open coding
Z1	Fiscal Support	C1 Tax Reduction and Exemption
		C2 Reduction of Interest Rates
		C3Establishment of Innovation and R&D Funds
		C4 Establishment of Loan Financing Programs
		C5 Establishment of Loan Financing Programs
		C6 Establishment of R&D Bases with Provision of R&D Funding
Z2	Regulatory Support	C7 Strengthening Intellectual Property Protection
		C8 Maintaining Market Order
		C9 Optimizing the Business Environment
		C10 Regulating the Market through Legislation
Z3	Infrastructure Construction	C11 Enhancing Corporate Efficiency
		C12 Reducing Corporate Operating Costs
		C13 Constructing Innovation Parks
		C14 Upgrading to Modern Facilities
Z4	Talent Support	C15 Encouraging Talent Recruitment
		C16 Corporate Training
		C17 Establishment of Talent Development Programs
		C18 Improving Labor Force Quality
Z5	Market Support	C19 Encouraging International Cooperation
		C20 Promoting International Trade
		C21 Cultivating Enterprise Expansion into International Markets
		C22 Guiding Enterprises to Adopt Advanced Technologies

Table 4. (*Continued*).

Number	Axial coding	Open coding
Z6	Policy Support	C23 Formulating Targeted Industrial Policies
		C24 Establishing Market Access Policies
		C25 Directing Enterprise Development through Policy Guidance
		C26 Formulating Environmental Protection Policies
		C27 Developing Science and Technology Innovation Policies
		C28 Formulating Foreign Trade Policies
		C29 Developing Talent Attraction Policies
		C30 Establishing Entrepreneurship Policies
		C31 Implementing Policies to Reduce Regulatory Restrictions
Z7	Organizational Support	C32 Promoting School-Enterprise Cooperation
		C33 Encouraging Scientific and Technological Innovation
		C34 Publicizing Support Policies
		C35 Simplifying Approval Procedures
		C36 Establishing Industry-Academic-study Cooperation Mechanisms
		C37 Providing Consulting Services

Source: Designed by the researchers.

Table 5. Results of open coding analysis.

Selective coding	Axial coding	Open coding
Port Industry Competitiveness	Fiscal Support	C1 Tax Reduction and Exemption
		C2 Reduction of Interest Rates
		C3Establishment of Innovation and R&D Funds
		C4 Establishment of Loan Financing Programs
		C5 Establishment of Loan Financing Programs
		C6 Establishment of R&D Bases with Provision of R&D Funding
	Regulatory Support	C7 Strengthening Intellectual Property Protection
		C8 Maintaining Market Order
		C9 Optimizing the Business Environment
		C10 Regulating the Market through Legislation
	Infrastructure Construction	C11 Enhancing Corporate Efficiency
		C12 Reducing Corporate Operating Costs
		C13 Constructing Innovation Parks
		C14 Upgrading to Modern Facilities
	Talent Support	C15 Encouraging Talent Recruitment
		C16 Corporate Training
		C17 Establishment of Talent Development Programs
		C18 Improving Labor Force Quality

Table 5. (*Continued*).

Selective coding	Axial coding	Open coding
	Market Support	C19 Encouraging International Cooperation
		C20 Promoting International Trade
		C21 Cultivating Enterprise Expansion into International Markets
		C22 Guiding Enterprises to Adopt Advanced Technologies
	Policy Support	C23 Formulating Targeted Industrial Policies
		C24 Establishing Market Access Policies
		C25 Directing Enterprise Development through Policy Guidance
		C26 Formulating Environmental Protection Policies
		C27 Developing Science and Technology Innovation Policies
		C28 Formulating Foreign Trade Policies
		C29 Developing Talent Attraction Policies
		C30 Establishing Entrepreneurship Policies
		C31 Implementing Policies to Reduce Regulatory Restrictions
	Organizational Support	C32 Promoting School-Enterprise Cooperation
		C33 Encouraging Scientific and Technological Innovation
		C34 Publicizing Support Policies
		C35 Simplifying Approval Procedures
		C36 Establishing Industry-Academic-study Cooperation Mechanisms
		C37 Providing Consulting Services

Source: Designed by the researcher.

4.4.3. Selective coding

Table 6. Statistics table of coding objects.

Axial coding	number of respondents			Selective coding
	Government experts	Business experts	Total	
Z1 Fiscal Support	28.7%	8.7%	37.4%	Government Support
Z2 Regulatory Support	5.3%	3.4%	8.7%	
Z3 Infrastructure Construction	12.6%	6.8%	19.4%	
Z4 Talent Support	2.3%	0.7%	3%	
Z5 Market Support	3.8%	2.8%	6.6%	
Z6 Policy Support	10.9%	4.5%	16.4%	
Z7 Organizational Support	4.7%	3.5%	8.2%	

Source: Designed by the researcher.

Additionally, through **Table 6**, the "Coding Object Statistics Table," the researcher demonstrates the distribution of selective coding under the primary axial coding. In this distribution, financial support (Z1) accounts for 37.4% of the respondents, with government experts constituting 28.7% and corporate experts making up 8.7%. In terms of government support, regulatory support (Z2) accounts

for 8.7%, infrastructure construction (Z3) for 19.4%, talent support (Z4) for 3%, market support (Z5) for 6.6%, policy support (Z6) for 16.4%, and organizational support (Z7) for 8.2%. These statistical outcomes provide insight into the distribution ratios of different selective codings among government and corporate experts, offering valuable information for further analysis and the formulation of corresponding strategies.

4.4.4. Theoretical saturation test

The theoretical Saturation Test refers to the point at which additional data no longer generate new theoretical categories or concepts, indicating that the study results have achieved theoretical saturation. This study used three interview transcripts to conduct a theoretical saturation test. After three stages of coding, the results showed that the concepts and categories derived from these in-depth interview data were similar to those obtained from other materials used in this study and did not yield new concepts or categories. Therefore, it can be concluded that the theoretical model established in this study is saturated (**Table 7**).

Table 7. Saturation test.

Source text material	Conceptualization	Secondary coding	Primary axis coding
Government investment in technological innovation, by providing R&D funding and constructing innovation parks, among other methods, can assist enterprises in maintaining a technological lead.	The government provides R&D funding and establishes entrepreneurial parks	C3 Establishment of an Innovation and Study & Development Fund	Z1 Financial support
Government regulations and policies provide enterprises with a foundation to operate within a clear and stable legal environment, reducing legal risks and enhancing market competitiveness.	Regulatory policies provide enterprises with a stable legal environment	C10 Regulations standardize the market	Z2 Regulatory support
The government invests heavily in infrastructure development, focusing on enhancing Shanghai Port's port facilities. This includes dock upgrades, channel dredging, and other projects, which improve the Port's operational efficiency and reduce logistics costs.	The government invests funds in infrastructure development to enhance operational efficiency and reduce costs.	C12 Reduce enterprise operating costs	Z3 Infrastructure development
The government can also focus more on support for innovation-driven development and talent cultivation to help enterprises become more competitive.	Government support for talent cultivation	C17 Establishment of talent cultivation programs	Z4 Talent support
The government can encourage enterprises to strengthen international cooperation by organizing trade negotiations and promotional activities to help enterprises expand into global markets.	Encourage enterprises to strengthen international cooperation.	C19 Encourage international cooperation	Z5 Market support
Government market access policies have a direct impact on the competitive position of enterprises. Policies favorable to market access can expand the market share of enterprises and provide a broader market space.	Market access policies are beneficial for enterprises to increase their market share.	C24 Formulate market access policies	Z6 Policy support
The government can also provide more training and consulting services to help enterprises better utilize technological innovation to drive industrial upgrading.	The government provides training and consulting services	C37 Consulting services	Z7 Organizational support

Source: Designed by the researcher.

Based on the analysis results above, the following diagram can be derived (**Figure 2**).

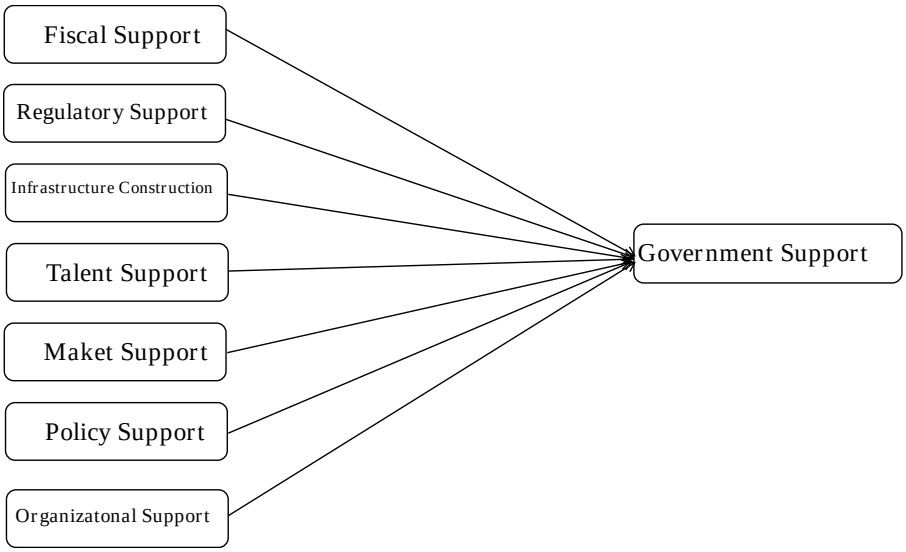

Figure 2. Government support factors.

Source: Created by the author.

4.4.5. Conclusion, case studies, and relevant examples

Practical examples and case studies that can illustrate the validity and serve as guides to applying these case study findings include the Port of Singapore, which benefited from government support, and The Maritime and Port Authority of Singapore (MPA), which has helped establish support mechanisms to create infrastructure, reform legislation, and increase capabilities. Another example is the Next Generation Port 2030 (NGP 2030) project, which uses cutting-edge technologies and digital solutions to make the Port more competitive and efficient. The MPA has invested heavily in automation, data analytics, and smart logistics systems to foster innovation and technical advancement in the port ecosystem.

Marine enterprises can also do business simply due to MPA regulatory changes and streamlining. Due to these efforts, many shipping lines and transport companies have set up warehouses in Singapore, making the Port more competitive.

As a practical government support example to enhance the Port's organization's competitiveness, the government has developed talent through programs like the Maritime Singapore Connect Office (MSC) and Singapore Maritime Institute (SMI). These programs aim to train future maritime staff. The Port will have access to the people it needs to compete. The case of the Port of Singapore shows that the government's help could be the factor to improve port efficiency. The incredible outcome of the comprehensive plan proposed by the government, which includes the construction of infrastructure, policy changes, and talent nurturing, has strengthened the Port and helped it to remain a world maritime hub. In light of the presented research, the following concerns how government support can make ports more competitive.

5. Conclusion

5.1. Results summary discussion

The research study analysis reveals that the main influencing support factors include Z1 financial support, Z2 regulatory support, Z3 infrastructure development,

Z4 talent support, Z5 market support, Z6 policy support, and Z7 organizational support.

Among them, Z1 financial support mainly includes C1 tax reduction and exemption, C2 lowering interest rates, C3 setting up innovation and R&D funds, C4 establishing loan and financing programs, C5 setting up venture capital funds, and C6 establishing R&D bases to provide R&D funds.

Z2 regulatory support mainly includes C7 strengthening intellectual property protection, C8 maintaining market order, C9 optimizing the business environment, and C10 regulating the market through laws.

Z3 infrastructure construction mainly includes C11 improving enterprise efficiency, C12 reducing enterprise operating costs, C13 building innovation parks, and C14 updating modern facilities.

Z4 talent support mainly includes C15 encouraging talent introduction, C16 corporate training, and C17 establishing talent development programs.

Z5 market support mainly includes C19 encouraging international cooperation, C20 promoting international trade, C21 nurturing enterprises to expand into international markets, and C22 guiding enterprises to introduce advanced technology.

Z6 policy support mainly includes C23 formulating targeted industrial policies, C24 developing market access policies, C25 guiding the development direction of enterprises through policies, C26 formulating environmental protection policies, C27 formulating science and technology innovation policies, C28 formulating foreign trade policies, C29 formulating talent introduction policies, C30 formulating entrepreneurship policies, and C31 formulating policies to reduce regulatory restrictions.

Z7 organizational support mainly includes C32 promoting school-enterprise cooperation, C33 encouraging technological innovation, C34 publicizing support policies, C35 simplifying approval procedures, C36 establishing industry-academia-study cooperation mechanisms, and C37 providing consulting services.

5.2. Theoretical contribution

The organizational learning, resource-based, and stakeholder theories on which the study is based have allowed a nuanced look into the complex relationship between government funding and port competitiveness. By using these theoretical frameworks together, the study added to what is already known about how external support systems can help organizations learn, get resources, and work with stakeholders, making the port industry more competitive.

5.3. Methodological limitations and their potential impact

The methodological limitations of this work must be acknowledged. While qualitative research provides rich insights, researcher bias may exist. The study focused on the Port of Shanghai, which gave a thorough look, but it may make applying the results to other port situations challenging. When figuring out what the results mean, these problems should be considered. More research may be needed in quantitative or multi-site studies to confirm and expand on the results.

5.4. Practical implications and recommendations

The study's results have important real-world implications for Chinese policymakers and port managers. This study gives a plan for improving support systems to make ports more competitive by pointing out the areas of most significant importance where the government should step in. Policymakers should balance port industry support needs throughout the listed areas. They should also adapt programs to port firms' evolving challenges and opportunities.

Port authorities should work with government agencies and stakeholders to adapt support programs to business needs. Support measures must be regularly assessed to ensure value and flexibility in a changing global trade environment.

5.5. Future research directions

More research is needed to understand how government support influences port competitiveness and how to improve port appeal. Future research could examine further support elements or apply the framework to different sectors or geographies. This would make industry comparisons easier and outcomes more universal.

Through longitudinal studies, it is also possible to look at the long-term effects of government support programs on port performance. These studies should consider changes in the market, new technologies, and political shifts. These research projects would add to the ongoing academic discussion and help make support plans for the port industry more robust and long-lasting.

By talking about the study's methodological flaws, highlighting its theoretical contribution, offering practical implications and suggestions, and pointing the way forward for future research, the conclusion now gives a full and insightful summary of the study's importance and potential for further research and use.

5.6. Reflection

Description: With an emphasis on Shanghai Port, this qualitative study investigated the relationship between government support and the port industry's ability to compete. Key industry and government officials were interviewed in-depth to gather primary data.

Feelings: I enjoyed doing this critical research that may inform policymakers and port operators. I was also worried about interpreting complex qualitative data.

Evaluation: The study highlighted financial, regulatory, infrastructure, talent, market, policy, and organizational government assistance variables that boost port competitiveness. An in-depth understanding of how each factor adds was made possible by vast amounts of interview data.

Analysis: I used open, directional, and selective coding to carefully evaluate the data and build a coherent theoretical framework explaining how the government improves port competitiveness.

Conclusion: This research showed the comprehensive government support needed to boost the port industry's competitiveness in globalized trade. These findings can help policymakers allocate resources across the seven support dimensions.

Action plan: Based on the experience, I will improve my interview and qualitative data analysis skills for future qualitative studies to gain more significant

insights.

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