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**THE COMPETITIVE ADVANTAGE OF PT UNIHAN IN ELECTRONIC
MANUFACTURING INDUSTRY**

Xu Cheng, Jacob Donald Tan

Universitas Pelita Harapan, Jakarta

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Corresponding author:

Xu Cheng
961019375@qq.com

Abstract: *In recent years, the competition in the manufacturing industry has become more intense, and the situation of manufacturing companies has become more difficult. This study chooses PT UNIHAN as a case study to understand the reasons why it still survives in the electronics manufacturing industry. This article is mainly based on interviews, supplemented by file notes and observations to collect data, through qualitative research, to analyze the latent variables that enable PT UNIHAN to gain a competitive advantage and how these latent variables contribute to its competitive advantage. Finally, the researchers found lean supply chain management, cost control, continuous R&D, specialized engineers team, accommodating production capacity, quality control, aggressive exploring market segmentations, integrated management systems, and focused human welfare as the main nine factors that contribute to PT UNIHAN's competitive advantage. This research can provide some references for disadvantaged companies to enhance their competitive advantages. The mini-model theory can also be used as a new reference for academic research.*

Abstrak: Dalam beberapa tahun terakhir, persaingan di industri manufaktur semakin ketat, dan situasi perusahaan manufaktur menjadi semakin sulit. Penelitian ini memilih PT UNIHAN sebagai studi kasus untuk memahami alasan mengapa masih bertahan di industri manufaktur elektronik. Artikel ini terutama didasarkan pada wawancara, dilengkapi dengan catatan file dan observasi untuk mengumpulkan data, melalui penelitian kualitatif, untuk menganalisis variabel laten yang memungkinkan PT UNIHAN memperoleh keunggulan kompetitif dan bagaimana variabel laten tersebut berkontribusi terhadap keunggulan kompetitifnya. Terakhir, para peneliti menemukan manajemen rantai pasokan yang ramping, pengendalian biaya, penelitian dan pengembangan yang berkesinambungan, tim insinyur yang terspesialisasi, mengakomodasi kapasitas produksi, pengendalian kualitas, eksplorasi segmentasi pasar yang agresif, sistem manajemen yang terintegrasi, dan kesejahteraan manusia yang terfokus merupakan sembilan faktor utama yang berkontribusi terhadap kesuksesan PT UNIHAN. keunggulan kompetitif. Penelitian ini dapat memberikan beberapa referensi bagi perusahaan-perusahaan yang kurang beruntung untuk meningkatkan keunggulan kompetitifnya. Teori mini model juga dapat dijadikan referensi baru dalam penelitian akademis

INTRODUCTION

AdWise Solutions (2022) declared that a nation's overall, and particularly its economic development, depends heavily on its manufacturing sector. A nation's economic strength is determined by the growth of its manufacturing sectors. Manufacturing still makes a huge contribution to the global economy. According to data published by the World Bank, world manufacturing output for 2021 was \$16,350.21B, a 20.21% increase from 2020 (Macrotrends,2022). The proportion of manufacturing output value in world GDP has continued to rise slightly in the last 3 years, from 15.94% in 2019 to 17.01% in 2021.

In 2021, the manufacturing sector contributed approximately 19.25 percent to Indonesia's GDP. According to a report from Deloitte, Indonesian manufacturing will be ranked number 15 in world manufacturing hubs by 2023. Statista (2022) described Indonesia as one of the world's largest manufacturing countries, and the industry is becoming increasingly important to the country's economy. Competition for manufacturing plants has intensified in recent years. E-commerce technology is getting more and more attention from manufacturing enterprises. The wide application of e-commerce has enhanced the competitive advantages of factories but also intensified the competition among factories (Ju & Tang, 2022).

The COVID-19 pandemic has made life even harder for manufacturing companies. World manufacturing output for 2019 was \$13,968.82B, a 1.11% decline from 2018, and manufacturing output for 2020 was \$13,600.88B, a 2.63% decline from 2019 (Macrotrends,2022). A survey by The United Nations Industrial Development Organization in March 2021 shows that 81 percent of firms expect a loss of revenue of more than 50 percent in 2020 compared to 2019. More than 90% of surveyed companies of all sizes, types, and technology levels report lower orders and shortfalls in cash flow. About 70% of companies reported input and worker shortages and faced bankruptcy.

During the epidemic, many other companies in the same industry are facing revenue decline, shortage of funds, layoffs, and even bankruptcy, etc. As a segment of manufacturing, the factories in the OEM industry have a very low profit per unit and rely entirely on volume. Under the impact of the epidemic, the price of raw materials has risen, governments of various countries have blocked logistics, the price of containers has soared due to a shortage of manpower, and customer demand has decreased, making it difficult for OEM companies to survive. However, in facing fierce competition, a troubled external environment, and a low survival rate, PT UNIHAN can still maintain normal production, pay wages on time or even in advance, and ensure the welfare of employees.

Existing literature focus on supply chain resilience (Dubey et al., 2021; Queiroz et al., 2020; Chowdhury et al., 2021) or technology domains (Wang & Wang, 2021), while from an operations management perspective, OEM manufacturing specifics are still underexplored. Dynamics within individual firms are also ignored. Ahmadi-Gh and Bello-Pintado (2022) proposed that follow-up researchers can longitudinally research the positive correlation between sustainable practices and competitive advantages.

PT UNIHAN is a Fortune 500 Taiwanese company. The main business is to develop computer peripherals, communication technology, and consumer electronics products to brand suppliers, and engage in the development, design, and manufacture of computer peripherals and components. Its products are roughly divided into Computer Products, Consumer Electronics, Communication Products, Car Electronics, and Smart Electronics. Communication products include Cable modem, Smartphone, Set-top box (STB), and Network switch. PT UNIHAN established a new factory in Indonesia in 2019, mainly producing cable modem and STB as OEMs and some ODMs.

Affected by the pandemic, PT UNIHAN's revenue in December 2022 is 112.769 billion, a monthly decrease of 0.62%, and an annual decrease of 27.61%; the fourth quarter revenue is 358.03 billion, a quarterly increase of 1.5%, and an annual decrease of 20.8%. Communication products are still the pillar category, accounting for around 60% (Yang, 2023). According to Taipei real-time report (2022), PT UNIHAN pointed out that the annual revenue decline in the fourth quarter of 2022 was mainly due to the decline in shipments of the three major businesses of information products (laptops, desktops), consumer products, and communication products.

OEM companies are constantly adjusting and optimizing their strategies to improve their competitive advantages. In recent years, Many OEM companies research focus on improving the competitive advantage of the industry (Fang et al., 2020). The research will explore the competitive advantage of communication products, which are the pillars of PT UNIHAN. We hope to provide some references for disadvantaged factories to enhance their competitive advantages. As a member of PT UNIHAN, the researcher can gain a further understanding of the company's strategy and competitive advantages through this research.

Based on the research problems above, below are the research questions:

1. What are the strategic factors that contribute to the competitive advantage of PT UNIHAN ?
2. How are the strategic factors applied/implemented to contribute to the competitive advantage of PT UNIHAN ?

LITERATURE REVIEW

OEM and ODM

Vissarion (2018) explained that an OEM (Original Equipment Manufacturer) or original equipment manufacturer produces a product, which then re-brands another company's product and sells it to the end user. The brand manufacturer is responsible for product design and development, and the manufacturer accepts the entrustment of the brand manufacturer to organize processing, production, and shipment according to the requirements.

ODM (Original Design Manufacturer) is entrusted by the purchaser to provide all services from R&D, design to production, and post-maintenance. The purchaser only conducts sales. The difference between OEM and ODM is mainly in the intellectual property rights of the design. OEM means that the brand owner owns the intellectual property rights of the product, and it designs the product, while the manufacturer is only responsible for the production. It is often referred to as "manufacturing OEM"; ODM means that the manufacturer owns the intellectual property rights of the product, and the manufacturer is responsible for the R&D and design of the product. That is often said "design foundry". PT UNIHAN has both OEM and ODM products.

Competitive Advantage

Ovidijus (2021) explained Competitive advantage means superior performance relative to other competitors in the same industry or superior performance relative to the industry average. Competitors are more competitive in some aspects, so they have an advantage and form a competitive advantage. For example, if the company's innovation ability is relatively strong, then the speed of launching new products will be faster, allowing the company to seize the opportunity in the competition, so that formed a competitive advantage. Generally speaking, competitive advantages come from four aspects: 1. Product cost and quality, 2. Owning unique competitive resources. 3. Preventing competitors from entering, 4. Crushing competitors' market inputs.

According to Porter (1997), There are many ways to achieve the advantage but only two basic types of it: cost or differentiation advantage. A company with a cost advantage can offer products at a lower cost, and differentiation allows a company to offer highly differentiated products to consumers. A cost-of-ownership advantage or differentiation is sustainable and can give a company a long-term competitive edge.

Porter's 5 Forces

The five forces model was created by M. Porter in 1979 to understand how five key competitive forces are affecting an industry. The five forces identified are Threat of new entrants, Bargaining power of buyers, Threat of substitutes, Bargaining power of suppliers, Industry rivalry (Porter, 2008).

Ovidijus (2021) explained that these forces determine the level of competition in the industry. The stronger the bargaining power of upstream suppliers, the greater the control over the prices of downstream buyers, and the more intense the competition. The increase of new entrants in the industry and the threat of external substitute products will also increase the intensity of competition. Upstream and downstream, internal and external, and existing competition have continuously enhanced the level of market competition.

Porter's Generic Strategy

Porter (1985) pointed out that a firm's relative position within its industry determines whether a firm's profitability is above or below the industry average. The fundamental basis of above-average profitability, in the long run, is sustainable competitive advantage. There are two basic types of competitive advantage a firm can possess: low cost or differentiation. The two basic types of competitive advantage combined with the scope of activities for which a firm seeks to achieve them, lead to three generic strategies for achieving above-average performance in an industry: cost leadership, differentiation, and focus. The focus strategy has two variants, cost focus and differentiation focus.

VRIO

The term was originally developed by Barney (1991) in his work 'Firm Resources and Sustained Competitive Advantage', where the author identified four attributes that a firm's resources must possess to become a source of sustained competitive advantage. The term VRIO comes from the words value, rarity, imitability, and organization. VRIO framework is the tool used to analyze a firm's internal resources and capabilities to find out if they can be a source of sustained competitive advantage.

Barney (1995) explained the VRIO model: sustainable competitive advantage cannot be created by simply assessing environmental opportunities and threats and then operating a business only in a high-opportunity, low-threat environment. Sustainable competitive advantage also relies on unique resources and capabilities that firms can apply to the environmental competition. To discover these resources and capabilities, managers must seek valuable, scarce, and high-imitation resources from within the enterprise, and then develop and utilize these resources through their organizations.

METHODOLOGY

This study is applying the qualitative approach to discover the competitive advantage of a case study through the eyes of the informants. A case study focuses on developing an in-depth analysis of a single case or multiple cases. Schell (1992) stated that the case study is the most flexible of all research designs, allowing the researchers to retain the holistic characteristics of real-life events while investigating empirical events. This research employed a case study strategy. A single instrumental case study is used for this research to conduct in-depth research.

PT UNIHAN is the case chosen to analyze the competitive advantage of a company in the OEM industry. Since the researcher is a member of the company, triangulation will be used for this qualitative research to avoid personal opinions affecting the research results. The data comes from employees, supervisors, and customers. The researchers use a semi-structured interview, observation, and field notes to collect data on this research. Interviews are conducted face-to-face or via WeChat call.

Analyzing data will be started by thematizing the collected data. Afterward, classifying those several topics through topic analysis. Next, pattern analysis will be done to create latent variables. The researchers will closely check to ensure the elements can be used as the competitive advantage of PT UNIHAN communication products.

Name	Position	Age	Detail
Tony (1-1)	Supervisor	40~45	PMC Department manager. Mr. Tony has been in this industry for over 20 years and knows the company very well.
Simon (1-2)	Supervisor	40~45	R&D Department manager. He has very rich product development and problem analysis capabilities.
Dahai (1-3)	Supervisor	35~40	MC Department manager. Responsible for the incoming of raw materials and any problems related to materials during the production process, and has a very strong sense of cost control.
Leo (2-1)	Employee	35~40	He is an RD leader with rich R&D experience.
Vinni (2-2)	Employee	25~30	She has been in the company for three years and has a certain understanding of the basic situation.
Steven (2-3)	Employee	25~30	The personnel of the PT UNIHAN manufacturing unit is more professional in production-related issues.
Alex (3-1)	Customer	35~40	The company Alex belongs to is currently one of the units with the largest orders from PT UNIHAN. They have high requirements for product quality and manufacturing and pay attention to the fulfillment of corporate social responsibility.
Jemmy (3-2)	Customer	35~40	His company's new customers are currently making new technology products.
Andy (3-3)	Customer	35~40	Special concern about quality and cost issues, the product volume is relatively large, and the profit margin is low.

FINDINGS AND DISCUSSION

This research will use the latent variables obtained from supervisors, employees, and customers to construct a propositional mini-model theory.

4.1. Propositions

Researchers use these latent variables to construct propositions in this section. Through these propositions, the researchers will explain how each variable contributes to the competitive advantage of PT UNIHAN.

4.1.1 Proposition 1 (P1): Lean Supply Chain Management (V1) contributes to the Competitive Advantage (V10)

PT UNIHAN managers know that lean supply chain management can greatly guarantee production, reduce costs, improve customer satisfaction, etc., thereby enhancing the company's competitive advantage. In the early days of the company, it began to spend resources to cultivate and support suppliers. Many suppliers even built it concerning PT Unihan's system framework, which is very beneficial to cooperate with PT Unihan to improve the leanness of the supply chain. Lean supply chains can realize rapid response to demand and timely supply, ensuring the flexibility of production. The timing of the purchase of raw materials is also very precise, and the finished products can be delivered to customers on time. This was confirmed by interviews with managers.

“Our supply chain management and control capabilities are very strong. [...]. 30 days to deliver the goods to the designated factory, but our company can control the actual delivery time is 1-2 days different from the estimated time. For factories like SZ, the JIT feeding is done four hours in advance, and the materials are called 3 times a day. [...]. Many suppliers were cultivated by PT Unihan itself.” - Tony (1-1)

“Our product design changes, such as packaging materials will be more frequent, suppliers need to cooperate with us to adjust production immediately.” - Simon (1-2)

“Our supply chain is very lean. We use the SAP system in Germany. The material requirements are very precise. From placing an order to the time of delivery by the supplier, there are strict controls and views. [...]. Many of them specialize in our business and gradually grow from a small factory to a bigger one. The volume of our company is enough to support them. Some suppliers have even grown up with our technical support.” - Dahai (1-3)

4.1.2. Proposition 2 (P2): Cost Control (V2) contributes to the Competitive Advantage (V10)

PT UNIHAN conducts comprehensive and multi-dimensional cost control. Procurement cost control benefits from a good cooperative relationship with suppliers and is in an advantageous position for price negotiation, which enables procurement to reduce procurement costs when negotiating prices. Everyone has a strong sense of cost control and knows many cost control methods. For example, strictly control inventory, reduce capital occupation, and improve warehouse space utilization; apply automated production and automated operations to improve production efficiency and stability, and reduce operating personnel; reduce the number of line changes, which can create profits for the factory to maintain production. PT UNIHAN can independently develop products, and find design problems or improve solutions during the production process to ensure stable product functions or reduce costs.

During the interview, everyone from the company's management to grassroots employees has a strong sense of cost control. PT UNIHAN's cost control keeps quotations low and promotes competitive advantage.

“The second is cost control. It comes from process technology, process control, etc.; if the cost is low, then our price has an advantage. A lean supply chain can reduce costs by reducing inventory, increasing inventory turnover, and reducing storage space.” - Tony (1-1)

“For the suppliers our company finds, PT Unihan is in an advantageous position and has a price advantage. [...]. Although the profit margin of the supplier is limited, in the long run, PT Unihan and the supplier will grow together and cooperate for a win-win situation.” - Tony (1-1)

“Cost control is also a very important item, such as strict inventory control, reducing capital occupation, and improving warehouse space utilization; applying automated production and automated operations to improve efficiency.” - Dahai (1-3)

4.1.3. Proposition 3 (P3): Continuous R&D (V3) contributes to the Competitive Advantage (V10)

PT UNIHAN has strong R&D and the ability to independently develop products. The proportion of ODM has reached nearly 20%. At present, some new technology patents have made breakthroughs and reached the world's leading level. R&D capabilities have promoted the company's continuous development and business transformation from OEM to ODM, and then to DMS (acronym for Design Service Manufacturing). With strong R&D support, the company can carry out business upgrading and transformation to enhance its competitive advantage. RD monitors design problems during the production process and makes improvements and upgrades to ensure stable product functions or reduce costs. RD can develop together with customers, assist in dealing with design changes, etc., which can improve customer satisfaction. PT UNIHAN's strong R&D capabilities and cost and price advantages make customers willing to place orders. Investing in R&D is investing in future competitiveness.

“From OEM to ODM, and then to DMS, the company has no independent brand, but its research and development capabilities have been continuously enhanced, and some customers are even willing to do OEM production.” - Tony (1-1)

“Deeply cultivated in the field of broadband communication technology for many years, with the latest software and hardware research and development technology and product experience, a new generation of integrated services leading the industry.” - Simon (1-2)

“Some research and development technologies have made breakthroughs and reached the world's leading level.” - Leo (2-1)

4.1.4. Proposition 4 (P4): Specialized Engineers Team (V4) contributes to the Competitive Advantage (V10)

The senior management of PT UNIHAN believes that excellent engineers are a very valuable asset of the company and a weapon to make money beyond EMS, so they attach great importance to the cultivation of talents, provide good welfare guarantees, and strive to retain talents. This company attaches great importance to employee training, has developed a special professional skill learning platform, encourages employees to learn and improve, and provides promotion channels for outstanding employees.

The cultivation of specialized engineers enables PT UNIHAN to continuously produce excellent engineers to support various tasks of production and operation and enhance the company's competitiveness. Specially import the process automation system to reduce the repetitive work of engineers and let them fully demonstrate their value.

“We have excellent R&D engineers who specialize in various products and technologies. They are very valuable assets, and they are also profitable weapons beyond EMS. PT UNIHAN continues to recruit highly educated and high-quality engineers to join the team” - Simon (1-2)

“The company's new R&D personnel will train their design and development capabilities by watching cases. Through talents, improve R&D capabilities and enhance the company's competitive advantage.” - Leo (2-1)

4.1.5. Proposition 5 (P5): Accommodating Production Capacity (V5) contributes to the Competitive Advantage (V10)

As senior Tony said in the interview, technology is the foundation of an enterprise and the premise of competition. The introduction of production line automation reduces costs and makes production more stable. PT UNIHAN's manufacturing capability is excellent, in line with international standard process technology. Excellent manufacturing capability enables PT UNIHAN efficiently and flexibly produce reliable products, which makes PT UNIHAN stand out from the competition. PT UNIHAN ranks second in the industry, its manufacturing capacity is beyond doubt, and it can undertake orders from large customers, which was also proved in the interview with customer Alex. Accommodating production capacity contributes to the Competitive Advantage.

“Our process technology is at the leading level in the same industry, and at the same time, we can accept small batches of diversified orders, and try our best to meet customer needs. [...]. Generally, it is required that the F/C cannot be moved for three months, but now it can realize the change of urgent needs within three weeks, which is completely impossible for other OEMs.” - Tony (1-1)

“Our company has been committed to improving the automation of the production process and the application of artificial intelligence. Through system integration and information system establishment, we have built a highly flexible intelligent production model to provide customers with stable, and high-quality products.” - Simon (1-2)

“With production automation, especially during the previous epidemic, some people may not be able to come to work in time, but the machine can still operate normally. The quality it produces is relatively stable.” - Steven (2-3)

4.1.6. Proposition 6 (P6): Quality Control (V6) contributes to the Competitive Advantage (V10)

PT UNIHAN has invested a lot of resources to achieve excellent quality control in all links of the whole process of production, ensuring the quality of products. Quality control is very important in product competitiveness. As PT UNIHAN customers said, the customers will choose lower prices with the same quality. In this way, it can also be said that at the same price, high-quality products are more favored by customers.

“Achieve real-time monitoring and response to the quality of the entire manufacturing process, quickly control product quality and traceability, and ensure stable product quality that meets design specifications and meets customer requirements.” - Simon (1-2)

“Quality control runs through the whole process, from the supplier's internal QC inspection, and quality control, to our incoming material inspection, production quality assurance, OQC inspection of finished products, and OBA inspection at the time of shipment, throughout the entire production process.” - Dahai (1-3)

4.1.7. Proposition 7 (P7): Aggressive Exploring Market Segmentations (V7) contributes to the Competitive Advantage (V10)

At present, the EMS industry is already a red ocean. Through the explanations of supervisors, employees, and customers, we can see that PT UNIHAN is exploring new market segments in three aspects. The first is to accept new product sub-markets, and explore new markets and new products with customers; second, to use strong R&D, from OEM, to ODM, to DMS, to constantly seek new business models, and to develop new markets from OEM to DMS; The last is investing R&D in new technologies, such as some hot 5G communications in recent years, and even more complex ARVR. New products and new markets are future competitiveness. Enterprises are actively exploring new market segments to

form their competitive advantages. This point is highly irreproducible, and it is difficult for competitors to replicate.

"The company will pay attention to small customers or new category markets, and grow together with them, not only limited to the current market. Although some small customers or new products in new industries are not large, PT Unihan also welcomes them and is willing to jointly develop and grow together." - Tony (1-1)

"Now we are doing DMS, from design to production, and then to service, such a model is difficult to replicate" - Simon (1-2)

"The group now invests more in design and R&D. It invests a lot of money every year and has a lot of R&D personnel. There are also some research and development in new fields, such as some hot 5G communications in recent years, and even more complex ARVR." - Steven (2-3)

4.1.8. Proposition 8 (P8): Integrated Management Systems (V8) contributes to the Competitive Advantage (V10)

The powerful and complete system of PT UNIHAN guarantee of production and operation, making management more efficient. The operations of various departments are connected in series, and the direct and indirect production units are closely connected. The system inventory and other data are also updated in real-time, which is very accurate. Approximately ten days after the monthly close, financial reports for the entire group are generated and sent to the COO and CEO for review. The company's production and financial status are clear at a glance. Using this information can effectively assist management decision-making.

"The first thing to talk about is the system. [...] The operations of each department are connected in series, and the system inventory and other data are also updated in real time, which is very accurate. About ten days after the monthly close, the financial report of the entire group will be generated and sent to the COO and CEO for review. assisting in decision-making. [...] You can have a clearer understanding of the stock situation. [...] The SFIS system has very accurate production information." - Vinni (2-2)

"Our systems are also very powerful, with various operations and control systems. It can also control daily operations very comprehensively and effectively. The SFIS system used in production, the SRM control system for procurement management, the 3PL system connected with third-party logistics, and the enterprise internal management ERP system use SAP. SAP is a very well-known enterprise management system in Germany with powerful functions. There are also various supplementary management and control systems, such as assets, materials, customs clearance, internal forms, etc." - Steven (2-3)

4.1.9. Proposition 9 (P9): Focused Human Welfare (V9) contributes to the Competitive Advantage (V10)

PT UNIHAN protects the rights and interests of employees, creates a comfortable environment and working atmosphere, improves employee satisfaction and loyalty, and realizes "happy work, happy life". PT UNIHAN has done a good job in corporate social responsibility. Steven said that human care can enhance employee loyalty. People are the fundamental driving force of all production. Customers attach great importance to the fulfillment of corporate social responsibility, and if it is not done well, it will have a bad impact. Fulfilling corporate social responsibility has no direct benefits. If both sides can be done well, it will undoubtedly increase customers' trust in the company and its products.

"The company's welfare protection, such as overtime work, the company will require strict control over the number of overtime hours, which cannot exceed the statutory overtime hours, and will also pay

overtime fees following regulations. The company will also provide free lunch to employees who work overtime on weekends. The night shift also provides some shuttle arrangements for commuting to and from get off work, wages are paid on time, and paydays are paid on weekends or holidays, or even paid in advance."- Vinni (2-2)

"It is more reliable and stable, such as fulfilling corporate social responsibilities, protecting the rights and interests of employees, not employing underage employees, controlling overtime hours, ensuring the working environment of employees, environmental protection, etc."- Jemmy (3-2)

CONCLUSION, RECOMMENDATIONS, AND IMPLICATIONS

The 9 latent variables and 9 propositions were obtained through the data collected through the previous analysis, and the mini-model theory is constructed as shown in below Figure 5.1. From this, the researchers concluded that these variables are very important factors for the competitive advantage of PT UNIHAN.

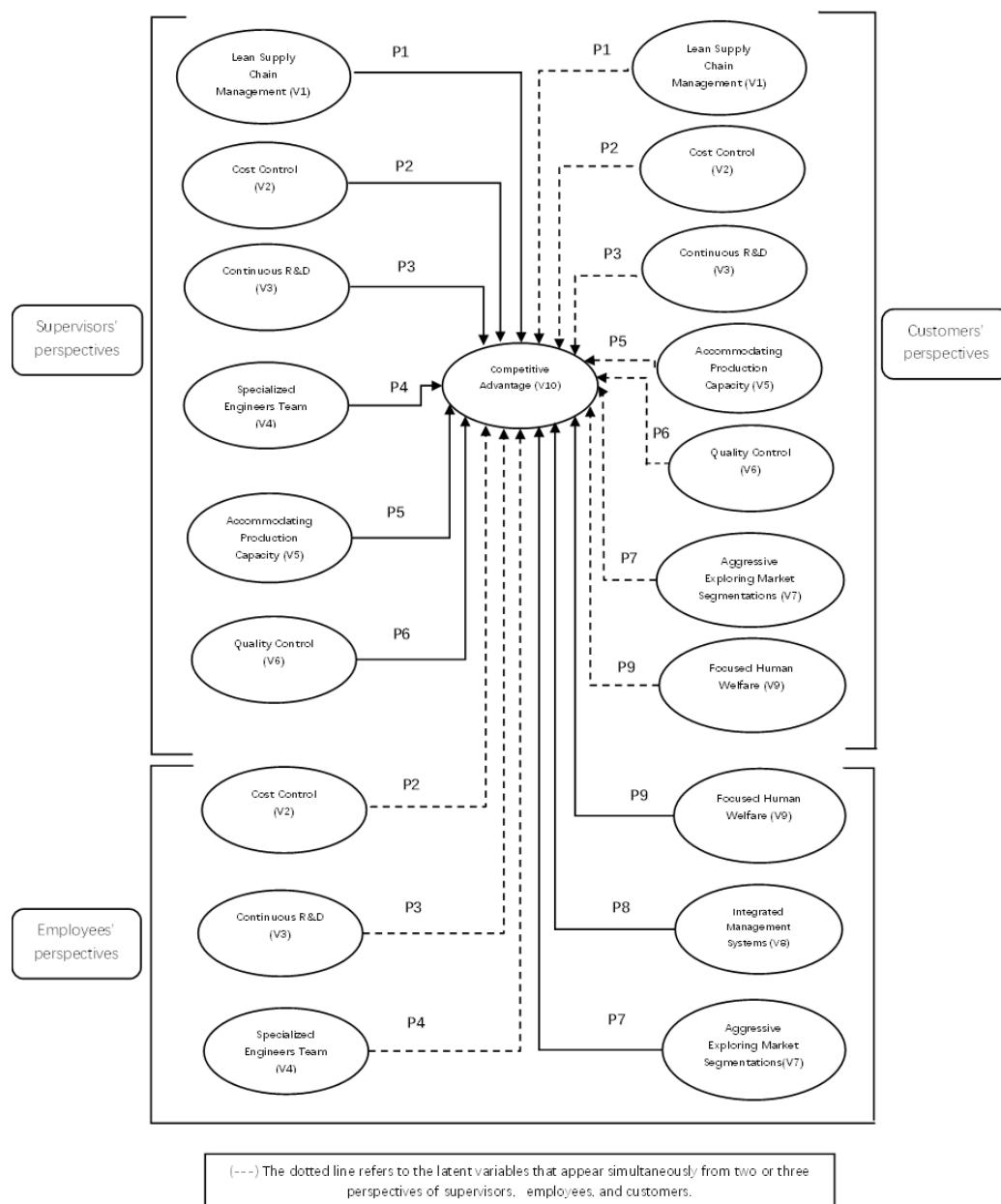


Figure 5.1 Mini Model Theory of Factors that Affect the Competitive Advantage of PT UNIHAN

Implications

The data collected by the researchers, the variables analyzed, and the mini-model theory can all be used as new references for academic research. Follow-up researchers can continue to study the same case of PT UNIHAN or other companies in the same industry. The quantitative study can also be applied to follow up the qualitative research.

For the managers of PT UNIHAN, it can be used as a reference for strategic decision-making and management adjustment. Other companies in the same industry can learn from PT UNIHAN's competitive advantage factors, find a path suitable for their survival conditions, and enhance their competitive advantages.

Limitations & Recommendations

Because this research is only for the specific case analysis of PT UNIHAN, subsequent research can be repeated on other companies in the same market category or the entire industry until this theory becomes a grand theory. The interview transcript is translated from Chinese to English. Some expressions may lose their essence of meaning when researchers analyze the themes with data. Therefore, further research of the same company PT UNIHAN can be conducted and reinvestigated.

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REFERENCES

AdWise Solutions. (2022). Importance of Manufacturing Industries. Retrieved from <https://www.linkedin.com/pulse/importance-manufacturing-industries- adwisesolutions>

Ahmadi-Gh, Z., & Bello-Pintado, A. (2022). Why is manufacturing not more sustainable? The effects of different sustainability practices on sustainability outcomes and competitive advantage. *Journal of Cleaner Production*, 337, 130392.

Alas, R., Übias, U., Lorents, P., & Matsak, E. (2017). Corporate Social Responsibility In European And Asian Countries. *Jurnal Manajemen Bisnis Dan Inovasi (JMBI) UNSRAT* Vol. 4 No. 1

Barney, J. B. (1995). Looking inside for competitive advantage. *Academy of Management Perspectives*, 9(4), 49-61. Retrieved from <https://doi.org/10.5465/ame.1995.9512032192>

Chang Ming Liu. (2011). Research of the Excellent Engineers' Quality Training. *Advanced Materials Research* (Volumes 291-294), page 1812-1815. Retrieved from <https://doi.org/10.4028/www.scientific.net/AMR.291-294.1812>

Chowdhury P, Paul SK, Kaisar S, Abdul Moktadir Md. (2021). COVID-19 Pandemic Related Supply Chain Studies: A Systematic Review. *Transportation Research Part e: Logistics and Transportation Review* 148(April):102271. Retrieved from <https://doi.org/10.1016/j.tre.2021.102271>

Chai, Q., Xiao, Z. and Zhou, G., (2020). Competitive strategies for original equipment manufacturers considering carbon cap and trade. *Transportation Research Part D: Transport and Environment*, 78, p.102193.

Dubey R, Bryde DJ, Foropon C, Tiwari M, Gunasekaran A. (2021). How Frugal Innovation Shape Global Sustainable Supply Chains during the Pandemic Crisis: Lessons from the COVID-19. *Supply Chain Management*. Retrieved from <https://doi.org/10.1108/SCM-02-2021-0071>

Fang, C., You, Z., Yang, Y., Chen, D. and Mukhopadhyay, S. (2020). Is third-party remanufacturing necessarily harmful to the original equipment manufacturer? *Annals of Operations Research*, 291, pp.317-338.

siang-Lan Chen. (2012). Board Characteristics and R&D Investment: Evidence from Taiwan's Electronics Industry. *Advances in Management & Applied Economics*, vol.2, no.4, 2012, 161-170. Retrieved from <https://scindeks.ceon.rs/Article.aspx?artid=1821-34488800036R>

Ju, S., & Tang, H. (2022). Competition and operating efficiency of manufacturing companies in E-commerce environment: empirical evidence from Chinese garment companies. *Applied Economics*, 1-16.

Li, W., & Zhao, X. (2022). Competition or coopetition? Equilibrium analysis in the presence of process improvement. *European Journal of Operational Research*, 297(1), 180-202.

Magazine (2002). Inspiring Innovation. *Harvard Business Review*. Retrieved from <https://hbr.org/2002/08/inspiring-innovation>

Macrotrends (2022). World Manufacturing Output 1997-2023. Retrieved from <https://www.macrotrends.net/countries/WLD/world/manufacturing-output>

Ndubuisi Ekekwe. (2012). When You Can't Innovate, Copy. *Harvard Business Review*. Retrieved from <https://hbr.org/2012/05/when-you-cant-innovate-copy>

Ovidijus Jurevicius. (2021). Porter's Five Forces. Strategic Management Insight. Retrieved from <https://strategicmanagementinsight.com/tools/porters-five-forces/>

Ovidijus Jurevicius. (2021). Competitive Advantage. Strategic Management Insight. Retrieved from <https://strategicmanagementinsight.com/tools/competitive-advantage/>

Porter, M. E. (1985). *Competitive Advantage*. Ch. 1, pp 11-15. The Free Press. New York.

Porter, M. E. (1985). Technology and competitive advantage. *Journal of business strategy*, 5(3), 60-78.

Porter, M. E. (2008). The five competitive forces that shape strategy. *Harvard business review*. Available from <https://hbr.org/2008/01/the-five-competitive-forces-that-shape-strategy>

Porter, M.E. (1997). COMPETITIVE STRATEGY. Measuring Business Excellence, Vol. 1 No. 2, pp. 12-17. Retrieved from <https://doi.org/10.1108/eb025476>

Queiroz MM, Ivanov D, Dolgui A, Wamba SF. (2020). Impacts of Epidemic Outbreaks on Supply Chains: Mapping a Research Agenda amid the COVID-19 Pandemic through a Structured Literature Review. *Annals of Operations Research*. Retrieved from <https://doi.org/10.1007/s10479-020-03685-7>

Schell, C. (1992). The value of the case study as a research strategy. *Manchester Business School*, 2(1), 1-15.

Scott, D., & Usher, R. (2010). *Researching Education* (2nd ed.). London, England: Continuum.

Statista Research Department. (2023). Contribution of gross domestic product at current market prices from the manufacturing sector in Indonesia from 2017 to 2021. Retrieved from <https://www.statista.com/statistics/1302348/indonesia-gdp-contribution-manufacturing-sector/>

Sumarljati, T., Suprihanta, C. P., & Setiawan, I. T. (2021). Factors In Purchase Intention Of Foreign

Soccer Club Jersey. *JMBI UNSRAT (Jurnal Ilmiah Manajemen Bisnis Dan Inovasi Universitas Sam Ratulangi)*., 8(3). <https://doi.org/10.35794/jmbi.v8i3.35661>

United Nations Industrial Development Organization. (2021). Impact assessment of covid-19 on indonesia's manufacturing firms. Retrieved from <https://www.unido.org>

Vissarion Yfantis. (2018). What Does OEM Mean and How Does It Work? Retrieved from <https://www.parallels.com/blogs/ras/what-does-oem-mean/>