

The Influence of Knowledge Management, Knowledge Workers and Industrial Revolution 4.0 Towards Competitiveness in Ivory Glove Sdn Bhd

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ABSTRACT

The aim of this study was to examine the influence of knowledge management, knowledge workers, and industrial revolution 4.0 (IR4.0) on the competitiveness of Ivory Glove Sdn Bhd. Two methods have been used in this study which were interviews and questionnaires. The interviews have been conducted with the Vice Chairman of Ivory Glove Sdn Bhd, and the management team. In addition, a total number of 106 employees in Ivory Glove Sdn Bhd have participated in this research study. The Statistical Package for the Social Sciences (SPSS) was used to analyze the data. The research goals were met using reliability analysis, descriptive analysis, and correlation analysis. According to the findings, Ivory Glove Sdn Bhd's competitiveness is positively impacted by all the variables. However, this study also showed that Ivory Glove Sdn Bhd needs to put more emphasis on knowledge management for the business to be more competitive in the market and industry. The findings of this study have an important implication on how Ivory Glove Sdn Bhd's management could improve and focused on the competitiveness for its future growth. The results of this study provide information on how the company can achieve competitiveness by implementing change management related to knowledge management, upskilling the knowledge workers, and adapting industrial revolution 4.0 concepts in manufacturing operations. All the above are essential for an organization to remain competitive and relevant in the global market. Based on the findings, it can be concluded that there is a positive influence of knowledge management practice, knowledge workers' contribution, and adaptation of industrial revolution 4.0 on innovation competitiveness in Ivory Glove Sdn Bhd. The adaptation of the fourth industrial revolution is critical in ensuring knowledge capture, knowledge creation, knowledge sharing, knowledge transfer, and knowledge application, particularly to assist management in exploring global networking and branding their product in Malaysia, as well as to improve knowledge workers' expertise and skills in becoming competitive in the digital era.

Keywords: competitiveness, Industrial Revolution 4.0, Ivory Glove Sdn Bhd., knowledge management, knowledge workers

INTRODUCTION

Background of The Study

Demand for rubber gloves globally continued to increase throughout the COVID-19 outbreak. The glove industry in Malaysia is in high demand from the domestic and international markets for medical and healthcare supplies. Order lead times are short, pricing competition is tough, and the COVID-19 pandemic has raised the stakes as mentioned by (Hutchinson & Bhattacharya, 2021). Due to unprecedented demand, the rubber industry needs knowledgeable workers to support manufacturing activities and proper knowledge management systems to support the industry.

Human resources continue to be a challenge for many industries including the glove-based industry. The implementation of manufacturing control via lockdowns globally has led to a constraint on the manufacturing process. Furthermore, the demand for gloves has increased tremendously due to them becoming an essential item in the COVID-19 prevention personal protective equipment (PPE) tool. Automation is the way forward to overcome the acute labor shortage in the market and ensure businesses remain competitive. With the movement control order, human movement significantly has been restricted. The rising material and utility costs have left the industry players to quickly find a solution to ensure prices are kept competitive and survive the stern competition from other industry players either nationally or even globally.

Therefore, knowledge management practices, knowledge workers' contribution, and adaptation of industrial revolution 4.0 on innovation competitiveness in the glove-based industry are essential to remain competitive and relevant in the global market.

Global Competition

Thailand being the world's major producers of natural rubber (NR) continues to replant 65,000 hectares of rubber trees each year. It produced NR worldwide with 4.37 million metric tons in 2020 and Indonesia came next with 3.04 million metric tons. Both countries experienced a production drop in output as a result of the COVID-19 pandemic.

Based on the Nation Master Report, Malaysia is the fifth largest producer and exporter of NR, the leather production and export of rubber products, the largest consumer of natural rubber, and the world's largest and leading rubber gloves producer which annually rubber gloves export worth RM29.8 billion in 2020. The COVID-19 pandemic resulted in a positive impact on the rubber industry especially when most countries import tons of rubber gloves and this good impact increased the industry's annual growth by 12 percent from the previous years.

Figure 1 shows the leading NR-producing countries worldwide in 2019 and 2020 in 1,000 metric tons. Thailand contributed 35 percent of the world's NR production in 2020 with its 4.37 million metric tonnes of output. Thailand is now the top producer of NR in the world as a result of this. In 2020, Thailand's production of NR decreased 10% from the previous year.

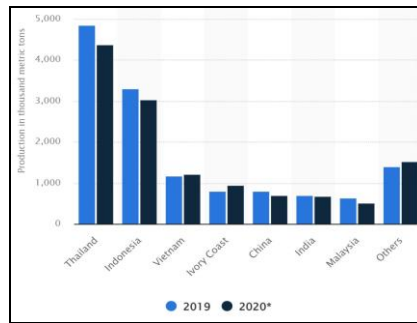


Figure 1: Leading natural rubber producing countries worldwide in 2019 and 2020

National Competition

Malaysia supplies approximately 68 percent of the world's gloves, followed by Thailand at 13 percent, and China at 10 percent. Rubber glove exports are likely to expand further as the Omicron COVID-19 variants emerged. Malaysia will secure a sufficient supply to the world, defending its market. According to Malaysia Rubber Council, until October 2021, the overall exports of Rubber and Rubber Products increased by 70.7 percent (RM63.2 billion), as compared to RM37 billion within the same period in 2020 as shown in Figure 2. This has proven that Malaysia's rubber products remain dominant in the third quarter of 2021, allowing the industry to continue to thrive and contribute to the country's economy. Although many industries have been suffering from the impact of the pandemic, the glove industry can be considered as a savior to the Malaysian GDP although overall Malaysia was still at a loss. In 2019 which is before the pandemic, the revenue from the glove industry, according to the Malaysian Rubber Glove Manufacturers Associations (MARGMA) stood at RM17.35 billion. The number skyrocketed to RM35.26 billion in 2020 (Nee, 2021).

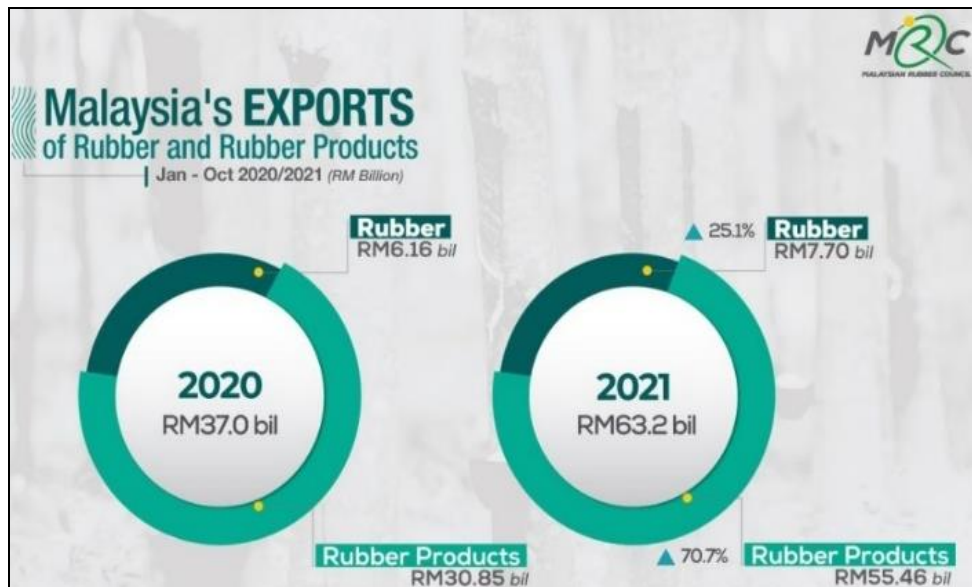


Figure 2: Malaysian Rubber Export 2021

Company Background

A Malaysian-based Ivory Glove Sdn Bhd, is a private limited company has set up a manufacturing site in Kamunting, Taiping, Perak in 2020. This company is run entirely by local employees. The company's expertise is in producing examination gloves which are the Nitrile rubber gloves (NBR) and Natural rubber gloves (NR) that are used in the medical field, especially for the healthcare and servicing sector.

This company began operations 8 months after its confirmation and has operated with 6 machines on a site of 92,596 square feet. A single production line can make 13,000 gloves per hour. With 24 hours of operation in a single production, this firm manufactured 312,000 gloves per day. Over two million gloves are produced in a week. The company exports its products to Thailand, the United States, Turkey, and Tunisia for original equipment manufacturers, as well as to Korea, India, and Tunisia for direct production.

PROBLEM STATEMENT

Since its founding in 2020, Ivory Glove Sdn Bhd has experienced revenue growth even though currently the market of the company is only in a few countries. As a result of the strong demand for rubber gloves during the COVID-19 pandemic, where China, one of the largest glove producers in the world, ceased its operations due to the pandemic. Malaysia's Top Glove also gradually closed 28 plants as it seeks to control the outbreak (BBC News, 2020). Since the pandemic began, the company has experienced a sharp increase in demand for its glove product. It was due to the announcement by the World Health Organization (WHO) that gloves are one of the crucial PPE for COVID-19 (WHO, 2020) and (Livingston, Desai, & Berkwits, 2020). It also led to a price war among competitors since the sector is extremely in demand and highly sought after globally.

Knowledge management is referred to as one of the factors that significantly contribute to firms' ability to keep up with rapid developments (Banyhamdan, Aljawarneh, Alomari, Almasarweh, Harafsheh, & Alwaqfi, 2020). Knowledge management is an intangible investment that has caused the organization's benefit and how the development of qualified human elements capable of obtaining, processing, and analyzing them (Taha & Youhanna, 2013). During an interview session with the Vice Chairman of Ivory Glove Sdn Bhd, Dr. Sumathi Selvam mentioned that knowledge is very tacit. It must be transformed into an industry. In Ivory Glove Sdn Bhd, the management encourages its employees to learn more skills, especially improving knowledge and expertise. The management sees this as a good practice and will continue to spread at all levels. During the pandemic, there was a Movement Control Order (MCO) enforced nationwide and many countries hence hiring skilled workers has been stopped, skill development or training also stopped, and even running the production operation was also under control rate. The work instructions and Standard Operating Procedures were via hardcopy in the company hence it is not quite easy to access and train the team remotely. Knowledge creation, transfer, organizing and storing, and application were a challenge since there is MCO and no face-to-face interaction. Tomé, Gromova, & Hatch, (2022) in their study found that there is a crisis in knowledge management due to a lack of "social knowledge" linked with changed "organizational behaviors" and competent people becoming incompetent. The crisis can be overcome by using technology to train the team with the right online process so that the workers become competent again.

Furthermore, Dr. Sumathi also shared that skilled workers are valuable assets for an organization because highly skilled workers lead the company's performance and growth. Knowledge workers are critical for any company to continue to be successful. Manufacturing companies in Malaysia have stated that they are having difficulty recruiting skilled workers. Dr. Sumathi Selvam stressed that attitude and behavior are very important and need to be developed. Skills and knowledge can be

learned. She was glad that Ivory Glove Sdn Bhd has several good skilled workers, but the number is not high. To retain them, she said the company is investing in talent development programs to upskill its employees. One of the benefits that the company is giving its employees is an increase in salary for those employees willing to learn more skills. This offer is not only for skilled workers but also those at the operator levels. This will motivate them to enhance their skills and knowledge to stay put with the company. A knowledge worker is considered novel if they can solve the problem and use their knowledge, skills, and experience to find new methods of doing things effectively and make excellent sound decisions (Maximilian, Hildegard & Fabian, 2021).

In order to catch up with consumer demand for gloves, the company must rely not only on manpower solely but also on automation especially when the MCO is enforced. According to Dr. Sumathi, currently, the company is using 3 production lines and will be increasing to 6 production lines soon. Currently, one single “Former” machine is used and will be increased to 3 single and 3 double “Formers” machines. The top management according to her is committed to adopting industrial revolution 4.0 and automation. However, adopting machines and automation is costly, and the decision should be taken in a very rush manner. According to Hardekopf, 2019 six out of ten small businesses regularly struggle with cash flow. As a new start-up, the operating expenses (OPEX) and capital expenses (CAPEX) are limited. On top of everything, ensuring good infrastructure is the backbone of the automation, therefore, the facility must be equipped with good infrastructure.

Industrial 4.0 can be used as a focal point to help manufacturers achieve sustainable development and meet the triple bottom line (Economic, Ecological and Societal). The study by Jayashree, Reza, Malarvizhi, & Mohiuddin (2021) found top management commitment, supply chain integration, and IT infrastructure have a significant impact on Industrial Revolution 4.0 implementation. Therefore, based on the information given, it is crucial that Ivory Glove Sdn Bhd consider the rationale for boosting production by implementing knowledge management, contributions from skilled workers, and adaptation of industrial revolution 4.0 in its operations. The researchers investigate further whether implementing knowledge management, the contribution from the knowledge workers, and adapting industrial revolution 4.0 in the organization would be able to increase competitiveness in the company.

LITERATURE REVIEW

Tanielian (2018), studied the competitiveness of rubber and profit growth among rubber farmers in Thailand. The farmer's inflation cost operation, according to the study, was unable to match the profit gained from rubber production during major price declines, particularly with the rubber market price set by the Thai government to meet those costs. For Indonesia, rubber exports to the Association of Southeast Asian Nations have become less competitive. This is due to the quality of rubber-based goods being at a low level in the import composition of ASEAN nations that can create consumer goods with greater added value. The most dramatic drops were observed in Singapore, Malaysia, and Thailand (Ansonfino, Zuzmelia, Dahan, & Puteri, 2021). According to Setiawan (2012), natural rubber exporting countries competed in the global rubber market by focusing on small and medium-sized rubber firms (SMEs). The government can play a critical role (Mesquita et al., 2007) in assisting companies in lowering costs and improving competitiveness by developing clear standards and quality control and financially supporting design, marketing, and technology transfer programs in a particular industry (Altenburg & Meyer-Stamer, 1999).

Knowledge management practices are an organization's lifeline, and it has been identified as a critical component for organizational survival in today's competitive era. (Jabbar et al., 2019) have given a good example of knowledge management practices, which is Toyota Motor. As elaboration by this article, Toyota Motor Corporation undergoes obstacles that have hampered its progress and management from the previous years until the current time. As explained, Toyota makes automobiles in Japan and exports them to other countries, thus a result of globalization and rising demand for its

products, now they are operating in a variety of foreign markets. The success of Toyota motor is because of the knowledge management approach in its personnel management like technical support in the capital, properties, material, and machinery in ensuring that the organization generates, shares, and secures knowledge in its management operations. The most important consideration in Toyota Motor is how they make the sharing sessions a success.

According to Muhammed & Zaim (2020), the study more specifically focuses on peer knowledge sharing and reinforcing leadership support, which highlights knowledge management success as an important mediator necessary for linking individual knowledge management behaviours, knowledge sharing, with organizational performance.

Hypothesis 1: There is a significant relationship between knowledge management and competitiveness in Ivory Glove Sdn. Bhd.

The knowledge worker, whose primary job functions are intellectual, is the base of knowledge integration. Knowledge workers, according to Davenport (2005), are individuals who have a high degree of competence, education, and experience, as well as the capacity to develop, share, and use knowledge. Knowledge workers vary from industrial or services, they work with some information and knowledge (Noor & Minai, 2019)

Employee competitiveness is influenced by factors such as pay and benefits, accomplishment and recognition, work environment, job stability, training, and development. Some measures should be put in place to help the knowledge worker feel like they can manage and take charge of their work circumstance (Alwi et al., 2020). The labor deficit issue must be addressed by hiring additional people to cope with the development of production lines in order to boost productivity. The glove manufacturing business is a labor-intensive industry, adequate human resources are required to conduct the production and complete the operation process. In addition, companies must hire the appropriate people for the right tasks Mok (2021) to oversee financial flow and investments, human resource administration, promotional and marketing, supply, and logistics.

Professional training, digital skills, up-to-date technology knowledge and abilities, must also be given to workers through workshops and seminars in order to equip them with the essential information and skills (Mok, 2021). The knowledge worker acknowledges the strategic importance of knowledge management and uses information technology (IT) systems to support plans for improving the organization's competitiveness (Alwi et al., 2020). Hence our next hypothesis is as follows:

Hypothesis 2: There is a significant relationship between knowledge workers and competitiveness in Ivory Glove Sdn. Bhd.

Industrial Revolution 4.0 (IR4.0) process is autonomously managed and optimized through CPS (Cyber-Physical-System), Internet-of-thing (IoT), Artificial intelligence (AI), Addictive manufacturing, cloud computing, autonomous robots, big data, simulation, internet-of-services (iOS), and augmented reality (Tay et. al,2018). All of these are the key aspects to characterize IR4.0. IR4.0 is an integrated, adapted, optimized, service-oriented, and interoperable manufacturing process that correlates with algorithms, big data, and high technology. (Lu, 2017). The current challenges of shorter product lifecycles, highly customized products, and stiff global competition make the IR4.0 or smart factory sought after for competitiveness.

In the current IR4.0 era, technology is important for the firm to gain a competitive edge. The advancement of technology has moved the human physical touch from operating the machine to the touch of the interface system that operates the machinery. Knowledge workers that are well entrenched in Technology or we called it Tech-savvy will have the capability to handle the human-machine interaction, technology-technology interfaces, creativity, and innovation to consistently upgrade the instruments and equipment that will give a competitive edge compared to competitors.

Lack of experience, unavailability of technology, non-modern infrastructure, poor economic condition, and political instability have a negative impact on competitiveness. A change in the short-term and long-term policy in the context of IR4.0 will ensure manufacturing firms can implement technological improvement and contribute to the country's competitiveness. Hence our final hypothesis is as below:

Hypothesis 3: There is a significant relationship between Industrial Revolution 4.0 and competitiveness in Ivory Glove Sdn. Bhd.

THEORETICAL FRAMEWORK

The theoretical framework serves as the focus of the research, and it is linked to the research problem under study. It is the blueprint or guide for research, (Grant & Osanloo, 2014). The theoretical framework below describes the variable used in this study. It will perform empirical research and test the framework as per Figure 3 in the glove-based industry in Malaysia to test our proposed framework.

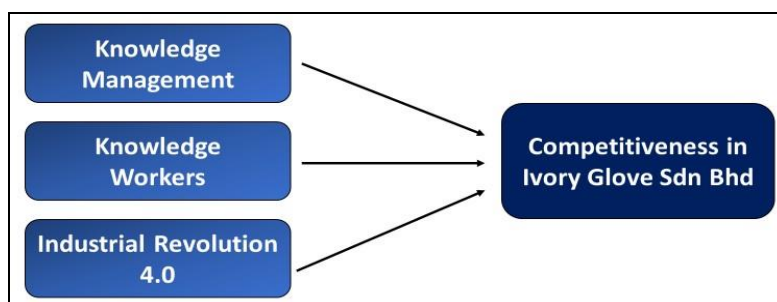


Figure 3: Theoretical Framework

METHODOLOGY

The preliminary data for this study were collected from a set of questionnaire surveys which was distributed to the executives and shop floor workers at the Ivory Glove Sdn Bhd and an in-depth interview session involving senior management personnel. In addition, based on various research discussions, the researchers have reviewed approximately 99 journals and research articles related to the independent and dependent variables namely; a) knowledge management, b) knowledge workers, c) industrial revolution 4.0, and d) competitiveness. Although the researcher reviewed journals and articles from year 1982, most of the references were based on recent journals and articles which are from the year 2018 to 2022. Earlier journals and articles were referred to for definitions, theories, frameworks, etc.

All the data gathered are analyzed using Statistical Package for Social Sciences (SPSS) version 26. The Correlation Coefficient was used in this research to measure the relationship between independent variables (knowledge management, knowledge workers, and industrial revolution 4.0) with dependent variables (competitiveness) in Ivory Glove Sdn Bhd. From the results, it can be determined whether independent variables influence the dependent variable using this method. The unit of analysis is individual because the researcher wants to examine the knowledge management practices, knowledge workers' contribution, and adaptation of industrial revolution 4.0 towards the competitiveness in Ivory Glove Sdn Bhd. The target population was the key personnel from the management level as well as employees and shop floor workers at Ivory Glove Sdn. Bhd. Currently, the company has 119 employees.

The Vice Chairman and one of the Directors of Ivory Glove Sdn. Bhd were interviewed and enquired about the strengths and weaknesses of the company, the external opportunities and threats the company faces, moving forward plan and growth, competitive advantages etc. The questionnaire was disseminated to the employees of Ivory Glove Sdn Bhd. The researchers conducted a briefing session and explained the objective of the survey and what was to be achieved or the outcome of the survey.

The research instrument that was used in this study is a similar questionnaire that is in line with the research objective of this study. All the survey questions were carefully constructed and based on previous journal studies from the literature reviewed. The questionnaire was distributed to the target respondents as per Table 1 while the interview was held as per the confirmed appointment schedule by the company. We expect to receive at least 92 responses using the Likert-scale format which is scaled 1= strongly disagree, 2= disagree, 3=neutral, 4=agree and 5-strongly agree.

Table 1: Component of Research Questions

Component Research Questions	Total Questionnaire
Demographic (Gender, age, education level, department & years of experience)	5
The effect of Knowledge management on Competitiveness	10
The effect of Knowledge Workers on Competitiveness	6
The effect of Industrial Revolution 4.0 on Competitiveness	6
Competitiveness	6
TOTAL	33

ANALYSIS AND FINDINGS

The researchers were able to conduct a briefing session and disseminate survey questionnaires to 106 employees from various departments for the purpose of this study. The profile of the respondent includes the respondent's gender, age, education level, department, and working experience as in Table 2.

Table 2: The respondents' demographic information (n=106)

Variable	Description	Frequency	Percentage
Gender	Male	69	65.1
	Female	37	34.9
Age	Below 20 years old	1	0.9
	21-30 years old	63	59.4
	31-40 years old	32	30.2
	41-50 years old	8	7.5
	51-60 years old	2	1.9
Education	Below SPM	1	0.9
	SPM	54	50.9
	Certificate	14	13.2
	Diploma	20	18.9
	Degree	15	14.2
	Master/ PhD	2	1.9
Department	Compounding	2	1.9
	Engineering	25	23.6
	Finance	2	1.9
	Human Resources	3	2.8
	Maintenance/ Facilities	2	1.9
	Logistics	1	0.9
	Production	54	50.9

	Purchasing	1	0.9
	Quality Assurance	9	8.5
	Sales & Marketing	2	1.9
	Security & Supply Chain	1	0.9
	Wastewater Treatment	4	3.8
Experience	Less than a year	32	30.2
	1 – 4 years	55	51.9
	5 – 10 years	11	10.4
	More than 11 years	8	7.5

The skewness and kurtosis values, which were assessed using the statistical methodology, were analyzed to examine the data for the normal distribution of this research study. Table 3 displays the results of the skewness and kurtosis values for each variable in this research study. All the variables, knowledge management, knowledge workers, industrial revolution 4.0, and competitiveness exhibit negative skewness values, with values ranging from -0.93 to -1.56. Value is within -3 and +3 hence it is normal. The researchers looked at the normal distributions' kurtosis values. Kurtosis values show all positives ranging from 2.42 to 4.17. based on the data, the value is normal since all are below 10.

Table 3: Skewness and Kurtosis of the Variables

Descriptive Statistics				Skewness		Kurtosis	
	Mean	Std. Deviation	N	Statistic	Std. Error	Statistic	Std. Error
Knowledge Management	3.902	0.7440	106	-1.28	0.24	3.23	0.47
Knowledge Workers	3.993	0.7143	106	-1.56	0.24	4.17	0.47
Industrial Revolution 4.0	3.881	0.7353	106	-1.07	0.24	2.42	0.47
Competitiveness	3.967	0.6971	106	-0.93	0.24	2.61	0.47

Based on Table 4, outcome from SPSS analysis is as stated below. Knowledge Management yield Cronbach's Alpha value that is the highest, .898 followed by competitiveness with .863, next is Industrial Revolution 4.0 with .860 and finally Knowledge Workers with .853. All the above results are 'very good' according to (Hair, 2019). As a result, all items for each variable from the survey are valid and reliable without the need to eliminate even a single question.

Table 4: Cronbach Alpha reliability test

Variables	Cronbach Alpha	Result	Total Item
Knowledge Management	.898	Very Good	10
Knowledge Workers	.853	Very Good	6
Industrial Revolution 4.0	.860	Very Good	6
Competitiveness	.863	Very Good	6

R-Square explained the proportion of changes in one variable that may be anticipated or explained by the variance of another variable. The regression analysis is shown in Table 5 along with an explanation of all the independent variables that affect the dependent variable. According to the r-square calculation, the independent variable can account for 64.5% of the variance in the dependent variable (knowledge management, knowledge workers, and industrial revolution 4.0). the P value for knowledge management is high which is 0.624 (> 0.05). This means that knowledge management does not contribute to the company's competitiveness.

Table 5: Model of Summary

Variables	Beta	Theta	P-value	Collinearity Tolerance	Statistics VIF
Knowledge Management	.052	.491	.624	.308	3.243
Knowledge Workers	.250	2.346	.021**	.307	3.260
Industrial Revolution 4.0	.562	6.276	.000**	.435	2.298
Competitiveness					
R Squared	.645				
Adjusted R-Square	.634				
F-Value	61.664				
Durbin Watson	1.691				

**Sig.2 tailed, statistically significant $p < 0.05$

According to Table 6, the knowledge management value is .049, which suggests that if knowledge management is raised by one scale or unit, employee adoption engagement will increase by 4.9 percent. Knowledge workers, on the other hand, will increase by 24.4 percent. While for industrial revolution 4.0, the value is .532 which means it will increase by 53.2 percent and is the highest among the other two variables. The independent variables have a substantial value aside from that. Considering this, it may be said that the independent factors have a strong influence on the dependent variable. The beta value reveals that industrial revolution 4.0 influenced competitiveness, which is 56.2 percent. Competitiveness will be strong if the industrial revolution 4.0 adoption is high. The link between knowledge workers and competitiveness is favorable by 25.0 percent, though. Competitiveness, however, will also be high when the knowledge workers' influence is high. It is possible to draw the conclusion that industrial revolution 4.0 have a greater effect on competitiveness than knowledge workers and knowledge management. This is due to the larger beta value of the industrial revolution 4.0 ($=0.562$, $p=0.01$) compared to knowledge workers ($=0.250$, $p=0.01$) and knowledge management ($=0.052$, $p=0.01$).

Table 6: Coefficient

Model	Unstandardized Coefficient		Standardized Coefficient		Sig.
	B	Std. Error	Beta	t	
(constant)	.736	.247		2.979	.004
Knowledge Management	.049	.100	.052	.491	.624
Knowledge Workers	.244	.104	.250	.2346	.021
Industrial Revolution 4.0	.532	.085	.562	6.276	.000

Dependent Variable: Competitiveness

In determining the strength of evidence from the results, the researchers applied the hypothesis testing method. As per table 7 below the hypothesis of knowledge management influence, and competitiveness is not supported. Due to its β being .052, β is a value between -1 to $+1$. The closer the number to 1 or -1 is better. For knowledge management, the result is very low which is near zero. Furthermore, the P-Value is .624 which is not significant statistically. For Knowledge workers and Industrial revolution 4.0, the β value is higher and the highest is Industrial revolution 4.0 which is .562 which means the strongest association of variable is with Industrial revolution 4.0. for P-value for both independent variables are below 0.05 which is .021 and .000 for Knowledge workers and Industrial Revolution 4.0 respectively. This gives a meaning that we can reject the null thesis and conclude that the result is statistically significant and supported our research.

Table 7: Summary of Hypothesis testing

Research Hypothesis	β	P Value	Results
There is a positive influence of Knowledge Management with Competitiveness	.052	.624	Not Supported
There is a positive influence of Knowledge Workers with Competitiveness	.250	.021	Supported
There is a positive influence of Industrial Revolution 4.0 with Competitiveness	.562	.000	Supported

CONCLUSION

Based on the descriptive analysis showed a positive result in mean, Cronbach alpha, normality, and correlation. But based on regression, it is not significant. The relationship between knowledge management on competitiveness performance in Ivory Glove Sdn Bhd is not significant. This finding is not aligned with the previous study (Suknunan & Mohanraj,2019) which shows that knowledge management does have the potential to positively influence institution strategy but should ideally be represented at the executive level for its potential to be fully realized. The influence of knowledge workers on competitiveness in Ivory Glove Sdn Bhd indicates that knowledge workers with certain skills and technical abilities are very important to enhance a company's competitive performance. This is supported further by Sokól & Figurska (2021), who found that the research results are particularly relevant to the development of creative knowledge workers employed in creative organizations. According to Kristanti (2020), knowledge must be managed to gain a competitive advantage. This can be enhanced by performing innovation strategies to put the knowledge into the best practices and to access and disseminate the knowledge to boost employee performance. The influence of IR4.0 on competitiveness in Ivory Glove Sdn Bhd result showed a positive relationship between IR4.0 to enhance firm competitiveness performance. The study found that knowledge workers and industrial revolution 4.0 highly influenced the competitiveness of Ivory Glove Sdn Bhd. This can be proven by Jovanovski et. al, (2019) stated that digitalization and industrial automation have helped European businesses compete successfully on a global scale. Based on the articles from previous studies, there is a positive influence of knowledge management practice, knowledge workers' contribution, and adaptation of IR4.0 on innovation competitiveness in the manufacturing industries across many firms and countries as stated in our literature review above. Based on the researchers' finding, there is a positive influence of Knowledge Management, Knowledge Workers', and IR4.0 with Competitiveness although the result for Knowledge Management does not support compared to the other two.

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AUTHORS' CONTRIBUTION

Mat No, N. Supervised, conceived, and planned the study topic. Abdul Wahab, S took the lead in writing the manuscript, carried out the study framework, and planning the overall preparation, contributed in the knowledge worker's section. Mohamad Rasidi, N. performed the calculation, contributed to the interpretation of the results, and contributed in the IR4.0 section. Mohd Zaki, N linked the company for this study and carried out the data preparation and contributed in the knowledge management's section. All authors provided critical feedback and discussed the results and contributed to the final manuscript.

CONFLICT OF INTEREST DECLARATION

We certify that the article is the Authors' and Co-Authors' original work. The article has not received prior publication and is not under consideration for publication elsewhere. This manuscript has not been submitted for publication nor has it been published in whole or in part elsewhere. We testify to the fact that all Authors have contributed significantly to the work, validity and legitimacy of the data and its interpretation for submission to Jurnal Intelek.

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