

The Impact of Artificial Intelligence Warehousing Automation Equipment Combined with Visual Positioning Picking Operation System in Taiwan's Warehousing Staff Strategy

Kanglin Chiang

Assistant professor
China University of Technology
Taiwan

Huai-Tien Wang¹

Associate professor
China University of Technology
Taiwan

Abstract

Taiwan's small and medium warehousing companies traditionally adopted a single warehousing service model. However, in the face of the diversified warehousing needs of customers, coupled with the trend of warehousing automation and intelligence, embracing intelligence has become a choice that small and medium warehousing companies have to make. In this era of industrial intelligence, when the traditional small and medium warehousing industry introduces intelligent equipment, it will affect the enterprise's employees. This study mainly analyzes the implication and impact of the small and medium warehousing industry that introduced artificial intelligence warehousing automation equipment combined with a visual positioning picking operation system. The study uses a questionnaire survey to do descriptive statistical analysis, reliability analysis, factor analysis, variance analysis, and multiple regression analysis to confirm whether the research hypothesis holds. The results are : (1) Employees consider competitiveness from the company's perspective. Employees believe that paying attention to changes in the company can bring employees a long-term future. When employees are not willing to use no salary adjustment in exchange for the company's growth, staff will look for other companies' positions. (2) Salary is not the top concern of all employees. Employees will pay attention to the long-term competitiveness of equipment because employees believe that enterprises with long-term competitiveness can keep employees from losing their jobs. Therefore, this study found that when employees faced the introduction of new equipment, employees prioritized the possibility of unemployment. However, the company only selects employees who support the company's growth.

Keywords : Choice decision, competitive strategies, managerial decision making, employees cultivation strategies

1. Introduction

In Taiwan, automated picking systems for warehouses are not universal. However, due to the advancement of science and technology, Taiwan's warehousing industry automation equipment is also being built at an accelerated pace. The automation process will have much impact on employees. This study is mainly through the attitudes of warehouse workers to affect the development of technological picking systems. In the context of environmental competition, industrial innovation is a necessary trend. Artificial intelligence technology has been introduced into the warehousing industry. The primary purpose is to solve the dependence on manual "picking." However, some links are still insurmountable, so cooperate with visual operation positioning to simplify manual picking. Therefore, automation systems have always been essential tasks in warehousing systems.

In Taiwan's warehousing industry, manual picking is widely used. Only a few companies will introduce artificial intelligence technology systems. The systems adopted by the company can lead to changes in what employees do, which will make the job content of pickers to retrain necessary. Those unable to learn new job content face leaving. Therefore, advanced technology enables employees to improve their skills continuously. For employees, technology is the driving force behind talent development. This study mainly uses employees' attitudes and lives to find responses due to building intelligent technology. Therefore, employees will become a part of many vital successes.

¹Corresponding author: Huai-Tien Wang

In addition to the above motives, the purpose of this research is whether the personnel have an attitude confrontation with the addition of artificial intelligence warehousing automation equipment to the visual positioning and picking operation system. Let warehouse center efficiency cannot improve. Therefore, in developing the system, an essential element is still to evaluate employees. Increase the integration of staff work content and system development in the warehouse center.

The main target of this study is the staff in the warehousing center. Select several logistics centers in the north, central and southern districts of Taiwan. Questionnaires were conducted in the logistics center utilizing electronic questionnaires. This research will use data inference analysis mode to do descriptive statistical analysis, reliability analysis, factor analysis, variance analysis, and multiple regression analysis.

2. Literature Review

Taiwan's small and medium warehousing companies traditionally adopted a single warehousing service model. However, it cannot satisfy the diversified warehousing needs of customers. The current problem in Taiwan is using many employees to pick goods. The picking efficiency is slow, and the delivery time cannot be shortened. According to research, picking work usually accounts for around 55% of the total operating cost of a logistics warehouse. The training level of traditional picking staff should also increase with the development of new picking systems (Melinda &Ginting 2020). About 60% to 70% of logistics and warehousing companies like Amazon's labor force will be spent on picking. Therefore, designing an efficient "logistics distribution system" to reduce labor costs and improve efficiency is one of the critical issues that many logistics manufacturers urgently need to solve (Hung, 2020).

According to an analysis report, machine vision has many applications, including face recognition and gesture control in PCs and 3C game consoles, barcode readers in logistics and warehousing, innovative medical care, and industrial automation. The global machine vision market was valued at 13.23 billion in 2021 and is expected to expand at a compound annual growth rate (CAGR) of 7.7% from 2022 to 2030 (Grand View Research, 2021). In addition, according to the AI market research report, the global artificial intelligence market will reach US\$76.44 billion in 2025, with a compound annual growth rate (CAGR) of 21%. Among them, North America is the primary market for the artificial intelligence market (Technavio, 2021).

Logistics intelligence means that after the artificial intelligence brain, IoT vision, and transmission nerves are installed, the limbs can be commanded in real time to perform actions such as handling, conveying, storage, and sorting. In addition, real-time data can help improve control efficiency. Let the warehousing industry use fewer people to complete work faster, more accurately, and at a lower cost. (Chen, 2021). The research on warehouse management systems and scheduled production cadences shows that smart glasses are reliable after 8 hours. The manufacturing yield can be improved (Murauer & Pflanz, 2018). In addition, using augmented reality (AR) technology in smart glasses during the picking process can save 22% of the time and reduce errors by at least 33% (Murauer & Cornelia, 2019).

As mentioned above, visually positioned smart glasses picking has innovative value and can translate knowledge, technology, and market opportunities into actual production. Employee incompatibility issues during the transition from the old model to the new vision-based smart glasses picking process have profoundly impacted the warehousing industry. Human-Machine Symbiosis in Organizational Decision-Making finds that "Artificial intelligence can expand human cognition when solving complex problems, humans adopt an intuitive approach when dealing with uncertainty and ambiguity in organizational decision-making. Moreover, the design of artificial intelligence systems should augment rather than replace Human Contributions (Jarrahi, 2018).

When the actual perceived technical performance and the expected result are more excellent than the expected feeling, the employee's responsiveness will decrease, and vice versa, the responsiveness will increase (Ulaga& Eggert, 2005). Therefore, when the AI robot picking function is powerful, the content of human work will also change. Becoming a controlling employee with more design or judgment is necessary. This study analyzes job content's impact on workers when trends emerge over time to more clearly establish employees' relationship to automation systems, smart glasses, job content, and future job development content in a symbiotic environment.

3. Methodology

According to the discussion of relevant literature, this study established a framework to clarify the research structure and hypothesis.

3.1 Research Structure

It affects the construction of artificial intelligence automation equipment and visual positioning picking system for employees. The essence of this topic is through technological equipment on the attitude and life of employees. When employees' attitudes and life levels are all affected, whether employees will choose to leave or work harder, the decision-making response of employees' choice trends does affect the decision-making of the speed of enterprise technology. No matter how fast technology changes, people are still at the heart of all jobs. Technological equipment is only a tool controlled by human beings, so the changes in employees' attitudes and real-life behavior affect the warehouse center's operation. (Figure 1)

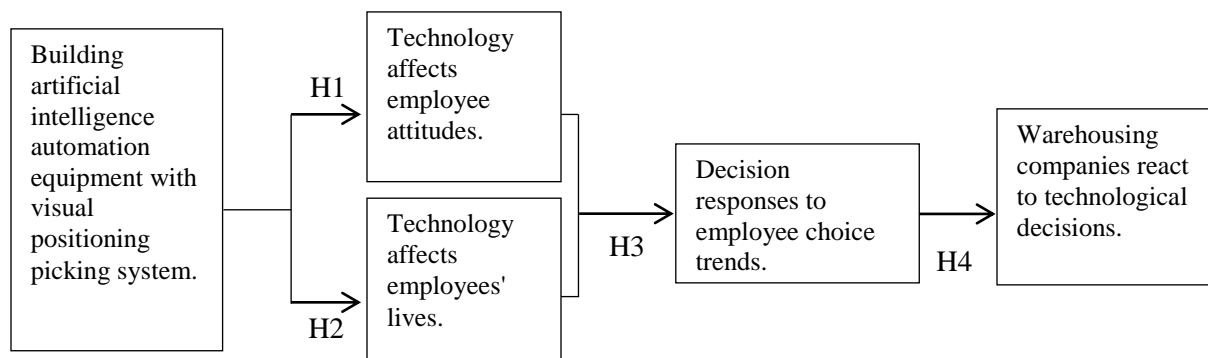


Figure 1 Research Structure

3.2 Research hypothesis

Based on the above research framework, the research established the hypothesis.

H1 : "Building artificial intelligence automation equipment combined with visual positioning picking system" significantly affects "employee attitude."

H2 : "Building artificial intelligence automation equipment combined with visual positioning picking system" significantly affects "employee life."

H3 : "Employee attitude" and "employee life" have a significant impact on "employee's decision-making response to choice trends."

H4 : Employees' decision-making choice trend significantly affects the warehousing companies' decision-making technological response.

To test whether the research hypothesis holds. The data collected from the formal questionnaires to verify the hypothesis through descriptive statistical analysis, reliability analysis, factor analysis, variance analysis, and multiple regression analysis to confirm whether the research hypothesis holds.

3.3 Methods

This research uses the questionnaire survey method. The contents include descriptive statistical analysis, reliability analysis, factor analysis, variance analysis, and multiple regression analysis by SPSS 23.0. The following will explain the usage of each analysis method and the occasions to apply in this research.

The study uses descriptive statistical analysis to assess the employees of the warehouse center in Taiwan as the questionnaire object. According to the descriptive statistical analysis, the standard deviation value represents the difference in the respondents' opinions on the questionnaire item. The smaller the standard deviation, the smaller the difference of opinions. On the contrary, the larger the standard deviation, the more discrete the opinions.

Reliability analysis refers to the stability and consistency of the test results. The questionnaire of this study is based on Cronbach's alpha measure proposed by Guilford (1965) to measure the reliability of each dimension. The primary purpose is to test whether fills out to the questionnaire items are consistent and to know the degree of consistency. When Cronbach's alpha value is higher than 0.7, it represents high reliability, and if it is in the interval of 0.5-0.6, it represents acceptable reliability, but if it is lower than 0.5, it represents low reliability. In this study, "Corrected item-total Correlation" and "Cronbach Alpha if Item Deleted" were used as the observation points for deleted items. Delete the items whose Cronbach's alpha is less than 0.5, and continue to repeat this step until there are no items with Cronbach's alpha less than 0.5.

Factor Analysis is for a set of data to determine the structure of the factors without limiting the number of factors and path parameters. The Kaiser-Meyer-Olkin sampling adequacy (KMO) measure was calculated before the analysis. Kaiser (1974) states that the KMO value is between 0 and 1. When the KMO value is closer to 1, the higher the correlation between variables, the more suitable it is for factor analysis. If the KMO value is less than 0.5, it is unsuitable for factor analysis. Therefore, this study uses KMO to test the interdependence of the items in this questionnaire.

Then, about factor analysis, the factor loading greater than 0.5 was designated as a significant loading to determine the items included in each main factor. After determining factor 1, the value of factor loading is more significant than factor 2, and the factors are all classified as factor 1.

In this study, after extracting the main facet factors, after extracting main facet factors in factor analysis, the analysis of variance (The Analysis of Variance, ANOVA) was used to compare and analyze whether the mean of the Taiwan storage facet was different. ANOVA determines to compare the amount of variation between samples and the amount of variation within each sample. The formula for total variation (TSS) in the analysis of variance is $\sum_{i=1}^n \sum_{j=1}^n (Y_{ij} - \bar{Y}_{total})^2$, the formula for between-group variation (BSS) is $\sum_{i=1}^n n_i (\bar{Y}_i - \bar{Y}_{total})^2$, the intra-group variation (WSS) is $\sum_{i=1}^n \sum_{j=1}^n (Y_{ij} - \bar{Y}_i)^2$. The respondents have been divided into groups in this study, but the differences can be proved by variance analysis, indicating significant differences between groups.

This study uses multiple regression analysis to analyze the quantitative relationship between one or more independent variables and the number of dependent variables and to establish a functional model. It used multiple regression analysis tools to predict the impact of independent variables on dependent variables and test the entire framework's explanatory power to see if the results reached a significant level.

4. Results and Discussion

This study obtained the following results using descriptive statistical analysis, reliability analysis, factor analysis, variance analysis, and multiple regression analysis. The paper collected 79 copies of the questionnaire online from some companies building artificial intelligence warehousing automation equipment combined with a visual positioning picking operation system during Feb to Jun, 2022 in Taiwan, with a recovery rate of 100%.

4.1 Descriptive statistical analysis

The sample size was 79 from the descriptive statistics. The minimum average value is 2.78, and the questionnaire item is "10. Are employees satisfied with the way of loading and unloading goods with manual stackers and picking them manually?" The minimum value indicates that employees are not satisfied with the cooperation of non-automated equipment and the way to locate picking visually. The highest average value was 4.47, and the questionnaire item was "4. The company built artificial intelligence warehousing automation equipment with visual positioning and picking operation system, volunteered as a teaching seed coach, and taught other colleagues. The company will give bonuses to volunteers. Did employees accept this teaching training?" Employees show that employees are highly willing to learn automation equipment with visual positioning and operation systems.

As observed by the standard deviation, the minimum value is 0.543, and the questionnaire item is "9. In the future, some enterprises will use artificial intelligence warehouse automation equipment to cooperate with the visual positioning and picking operation system. Employees will want to learn the system's functions first to help them find another job in the future?". This shows that they will want to learn the system and increase their competitiveness. The maximum standard deviation is 1.136, and the questionnaire item is "1. After the company builds artificial intelligence warehousing automation equipment with visual positioning and picking operation system, the demand reduced for personnel. If employees are staff members in this position, did the company require value from employees?". It shows that some employees think that the value needed by the company is not great, but some employees think that they have the value that the company needs. (Table 1)(Note : * in Table 1 represents the minimum value, ** represents the maximum value)

Table 1 Descriptive statistical analysis

Items	Mean	Standard deviation
1. After the company builds artificial intelligence warehousing automation equipment with visual positioning and picking operation systems, the demand is reduced for personnel. Do staff feel needed these employees by the company? (hereinafter referred to as item 1)	3.38	**1.136
2. After the company builds artificial intelligence warehousing automation equipment with visual positioning and picking operation system, the company's overtime expenses will reduce accordingly. Will this part of overtime income affect living expenses? (hereinafter referred to as item 2)	3.65	1.026
3. The company's capital expenditure to build artificial intelligence warehousing automation equipment and visual positioning and picking operation system will crowd out the salary increase of employees for three years, so will the failure to increase the salary affect living expenses? (hereinafter referred to as item 3)	3.84	1.018
4. The company built artificial intelligence warehousing automation equipment with visual positioning and picking operation system, volunteered as a teaching seed coach, and taught other colleagues. The company will give bonuses to volunteers. Did employees accept this teaching training? (hereinafter referred to as item 4)	**4.47	.617
5. After the company builds artificial intelligence warehousing automation equipment with the visual positioning and picking operation system, reduced the workload. The company should not only build an automation system. Does the company think they should fully build the automation system? (Construction will affect future salary increases). (hereinafter referred to as item 5)	3.63	.976
6. After the company builds artificial intelligence warehousing automation equipment with visual positioning and picking operation system, is it a sharp weapon to compete with competitors? (hereinafter referred to as item 6)	4.09	.804
7. The company's construction of artificial intelligence warehousing automation equipment combined with visual positioning and picking operation system will change the work content. If the original salary remains unchanged, is it accepting it? (For example, the original stacker loading and unloading staff is changed work content to significant cargo dismantling or a dismantler of small goods.) (hereinafter referred to as item 7)	3.76	.866
8. Some companies already use artificial intelligence warehousing automation equipment with visual positioning and operation systems. If the company does not want to build this system, would staffers want to apply for a company with this system? (hereinafter referred to as item 8)	3.82	.828
9. In the future, some enterprises will use artificial intelligence warehouse automation equipment to cooperate with the visual positioning and picking operation system. Employees will want to learn the system's functions first to help them find another job in the future? (hereinafter referred to as item 9)	4.41	*.543
10. Are employees satisfied with the way of loading and unloading goods with manual stackers and picking them manually? (hereinafter referred to as item 10)	*2.78	.943
11. After using the company's artificial intelligence warehousing automation equipment to cooperate with the visual positioning and picking operation system, it will still have an error rate on the system. Accepted the system to help in work during the correction period? (hereinafter referred to as item 11)	3.91	.624
12. After using the company's built-in artificial intelligence warehousing automation equipment to cooperate with the visual positioning picking operation system, even the system has space for improvement. Recommending the company improves the system (Effective improvement methods, the company will give bonuses). (hereinafter referred to as item 12)	4.15	.579
13. After the company builds artificial intelligence warehousing automation equipment with visual positioning and picking operation system, in order to increase employee feedback, it asks employees to invest in this equipment freely. After two years of operation, employees can distribute dividends proportionally. Do employees invest funds? (hereinafter referred to as item 13)	3.61	1.031
14. The company's construction of artificial intelligence warehousing automation equipment with visual positioning and picking operation system is relatively close to employees' major, so will fully cooperate with the company to build this system? (hereinafter referred to as item 14)	4.14	.655
15. Employees already love the current company, but the company builds artificial intelligence warehousing automation equipment with a visual positioning picking operation system. Will the staff love this company more? (hereinafter referred to as item 15)	3.87	.822

4.2 Reliability analysis

This study aims to confirm questionnaire is reliable. Therefore, Cronbach's Alpha analyzed its reliability (Table 2), and its value is 0.702. It has a relatively high-confidence analysis. Whether there are questionnaire items with a value lower than 0.702, the results show that no questionnaire items that have to delete.

Table 2 Reliable analysis

Items	Cronbach's Alpha
Item 1	0.676
Item 2	0.659
Item 3	0.659
Item 4	0.638
Item 5	0.619
Item 6	0.647
Item 7	0.654
Item 8	0.652
Item 9	0.655
Item 10	0.680
Item 11	0.628
Item 12	0.631
Item 13	0.634
Item 14	0.627
Item 15	0.624

0.702

4.3 Factor analysis

Based on the reliability analysis results, this study continued to conduct factor analysis. The results showed that its KMO value is 0.648. In addition, Bartlett's P-value of 0.000 is less than 0.05 (Table 3). This questionnaire is suitable for factor analysis through the cognitive attitude of Taiwan warehousing staff to fill in the questionnaire.

Table 3 KMO and Bartlett test

Kaiser-Meyer-Olkin measures the adequacy of sampling		.648
Bartlett's Test of Sphericity	Chi-Square Test	264.908
	df	105
	Significance	.000

Then, Table 4 shows from factor analysis. The factor of the questionnaire has been divided into five primary elements, and this study named the factors. Aspect 1 : Focusing on improved equipment, the central axis of each topic is that employees have a positive attitude toward the automation equipment system. Aspect 2 is real-life, and the subject is concerned about lifestyle change. Facet 3 is the support construction. The questionnaire explains that automation equipment should be applied on a large scale to increase efficiency. Dimension 4 is the investment feedback, and each item indicates the degree to which employees care about revenue. Dimension 5 is the employee value, and the question proposes the degree to which employees attach importance to self-worth.

Table 4 Factor analysis of rotation component matrix

Factors	Items	Factor				
		1	2	3	4	5
Factor1- improved equipment dimension	9	.785				
	14	.687				
	12	.657				
	4.	.606				
	15	.528				
Factor2- real-life dimension	10.		.356			
	2.		.867			
	3		.791			
Factor3- support construction dimension	11			.835		
	5			.795		
Factor4- investment feedback dimension	13				.685	
	6				.643	

	7	.549
Factor5-	1	.848
employee value dimension	8	.438

4.4 Variance analysis (ANOVA)

Next, the analysis of variance was carried out in this study. It is known that in the analysis of variance, the F test value is 2.751, and the P-value is 0.03, which is significant. It proves that the sample data have formed differences between groups.(Table 5)

Table 5 Analysis of variance

	Model	Sum of squares	df	Mean squared	F	Significance
1	regression	19.811	14	1.415	2.751	.003
	residual	32.923	64	.514		
	total	52.734	78			

4.5 Multiple regression analysis

It performed multiple regression analysis on the questionnaire items classified by each factor analysis.

This study utilized the "enter" multiple regression analysis methods. And set up the dependent variable "15. Employees already love the current company, but the company builds artificial intelligence warehousing automation equipment with a visual positioning picking operation system. Will the staff love this company more?" It can be seen from Table 6 that "5. After the company built artificial intelligence warehousing automation equipment with the visual positioning and picking operation system, it reduced the workload. The company should not only build an automation system. Does the company think they should fully build the automation system? (Construction will affect future salary increases)." (P values are all 0.004), and "12. After using the company's built-in artificial intelligence warehousing automation equipment to cooperate with the visual positioning picking operation system, even the system has space for improvement. Recommending the company improves the system (Effective improvement methods, the company will give bonuses)." (P-value is 0.024). From the contents of the questionnaire known items 5 and 12, it is that the employees love the company because the company has advanced equipment, and the artificial intelligence warehousing automation equipment combined with the visual positioning picking operation system has a greater impact on the work content. (Table 6)

Table 6 All questionnaires multiple regression analysis

Models	N. S. C.		S. C.	T	Sig.
	B	S. E.	Beta		
(constant)	.312	1.054		.296	.768
Item 1	.074	.080	.102	.924	.359
Item 2	.050	.106	.062	.469	.640
Item 3	-.091	.101	-.113	-.901	.371
Item 4	.007	.162	.005	.043	.966
Item 5	.328	.109	.389	3.020	** .004
Item 6	-.132	.116	-.129	-1.137	.260
1 Item 7	-.056	.109	-.058	-.507	.614
Item 8	-.040	.120	-.041	-.336	.738
Item 9	.155	.192	.102	.807	.423
Item 10	-.027	.096	-.031	-.280	.780
Item 11	-.162	.177	-.123	-.920	.361
Item 12	.409	.177	.288	2.313	** .024
Item 13	.143	.091	.179	1.564	.123
Item 14	.236	.159	.188	1.488	.142

Note :

Dependent variable : Item15

S. C. : Standardized coefficient, N. S. C. : Non-Standardized coefficient, C. S. : Collinearity statistics, T : Tolerance, Sig. : Significance

4.5.2 Multiple regression analysis of factor analysis 1

It performed multiple regression analysis on factor analysis 1. Table 8 it got that the questionnaire items "14. The company's construction of artificial intelligence warehousing automation equipment with visual positioning and picking operation system is relatively close to employees' major, so will fully cooperate with the company to build this system?" and "12. After using the company's built-in artificial intelligence warehousing automation equipment to cooperate with the visual positioning picking operation system, even the system has space for improvement.

Recommending the company improves the system (Effective improvement methods, the company will give bonuses)." To "15. Employees already love the current company, but the company builds artificial intelligence warehousing automation equipment with a visual positioning picking operation system. Will the staff love this company more?" is influential. It found that employees want the company to build an automation system and will have a positive attitude towards the automation equipment system. As named in Factor Analysis 1, it will be an attempt to improve work equipment to suit employees' needs.

Next, this study performed multiple regression analysis for factor 2. In Table 7, except for the significant constant, there are no other significant questionnaire items.

Put factor 3 into multiple regression analysis. Table 7 shows that the constant is significant. There is also a questionnaire item "5. After the company built artificial intelligence warehousing automation equipment with the visual positioning and picking operation system, it reduced the workload. The company should not only build an automation system. Does the company think they should fully build the automation system? (Construction will affect future salary increases)." It is significant. Its p-value of 0.004 is less than 0.05. As far as factor 3 is to support the construction aspect, employees should use the automation equipment on a large scale. Staff does not care about the salary not raise, and the employees value the efficiency brought by the equipment more than the salary.

It performed multiple regression analysis on factor 4. Table 7 shows that the constant is significant. Moreover, a questionnaire item "6. After the company builds artificial intelligence warehousing automation equipment with visual positioning and picking operation system, is it a sharp weapon to compete with competitors?" Significantly, the P-value of 0.046 is less than 0.05. Factor 4 is caring return on investment. It shows that some employees care about the investment of automation equipment, which will affect the degree of love for the company.

Lastly, it performed multiple regression analysis for factor 5. In Table 7, except for the significant constant, there are no other significant questionnaire items.

Table 7 Multiple regression analysis of questionnaire items for factor 1 to 5

Models	N. S. C.		S. C.	T	Sig.	
	B	S. E.	Beta			
REGR factor 1	(constant)	.536	.836		.641	.523
	Item 9	.066	.181	.044	.364	.717
	Item 14	.339	.151	.270	2.242	** .028
	Item 12	.398	.166	.280	2.390	** .019
	Item 4	-.002	.153	-.001	-.012	.990
REGR factor 2	(constant)	3.683	.448		8.219	** .000
	Item10	-.077	.103	-.088	-.745	.459
	Item 2	.108	.113	.135	.952	.344
	Item 3	.003	.111	.004	.027	.979
REGR factor 3	(constant)	2.717	.557		4.880	** .000
	Item 11	.006	.166	.005	.038	.970
	Item 5	.312	.106	.370	2.937	** .004
REGR factor 4	(constant)	2.861	.590		4.848	** .000
	Item 13	.177	.093	.222	1.905	.061
	Item 6	.047	.120	** .046	.388	.699
	Item 7	.048	.110	.051	.441	.660
REGR factor 5	(constant)	3.012	.467		6.456	** .000
	Item 1	.065	.084	.090	.775	.441
	Item 8	.168	.115	.169	1.453	.150

4.5.3 Discussion of the research results

Overall, in the multiple regression analysis facet 1 (improvement of equipment) (question 12, 14), facet 3 (support for construction) (question 5), facet 4 (return on investment) (question 6), does have a significant effect. The attitude of employees towards the construction of warehousing automation equipment and visual positioning and picking operation system is supportive (H1). Even if it affects living income, the change in work content will still be supportive (H2). Therefore, for the research hypothesis H3, "employee attitude" and "employee life" do have a significant impact on "employee's decision-making response to choice trends." However, there is no significant impact on the real-life dimension of factor 2 and the employee value dimension of factor 5. From this situation, it knew that divided employees into two groups. One is thinking about the company's competitiveness from the company's standpoint. One is thinking about their value from their standpoint. So the two groups' decisions were made differently.

5. Conclusion

For enterprises, the choices of employees will affect the future direction of the enterprise. In the case of sufficient funds and personnel, the stability of work and the kinetic energy of employees are the core issues to be considered.

In Taiwan, artificial intelligence warehousing automation equipment combined with a visual positioning picking operation system is still developing. In addition, more and more warehouse centers are going to invest in this system. Mainly in response to a large number of logistics, warehousing, and delivery volume in e-commerce. For enterprises that invest in the early stage, it is necessary to train traditional employees who can operate the automation system, so the cooperation of employees in the construction process is vital.

This study uses artificial intelligence warehousing automation equipment with visual positioning and operation system equipment to investigate employee decision-making dynamics. Employees think about the company's view that hope enterprises can bring long-term jobs to employees. Even employees are willing to use no salary adjustment for the company's growth. Therefore, this study assumes that H5, employee decisions form factors 1, 3, and 4. On the contrary, employees from factors 2 and 5 think about their value from their standpoint, and such employees will seek positions offered by other companies.

From the above research, employees do not care about factors 1, 3, and 4 about salary. Employees will pay attention to equipment and enterprises' long-term competitiveness. Because of the long-term competitiveness, such employees will not be unemployed. However, the type of employee in factors 2 and 5 is switching jobs immediately. Therefore, this study found that when employees face the construction of new equipment, employees thinking of core are the possibility of unemployment. Nevertheless, companies only choose who supports the company's growth and do not consider increasing salary.

References

- Chen Juxing, (2021). 2021 Edition: Looking at Taiwan's Logistics Industry Operational Report from the Numbers. *Modern Material Handling & Logistics*, 114.
- Grand View Research (2021), *Machine Vision Market Growth and Analysis Report*, 2030.
- Guilford, J. P. (1965). *Fundamental Statistics in Psychology and Education*. New York : McGraw-Hill.
- Hung, I-Lung (2020). *The Artificial Intelligence Based Image Recognition and Classifier System*, Department of Computer Science and Information Engineer, Cheng Shiu University, Master Thesis.
- Jarrahi, M. H. (2018). Artificial intelligence and the future of work : Human-AI symbiosis in organizational decision making. *Business horizons*, 61(4), 577-586.
- Kaiser, H.F. (1974). An index of factorial simplicity. *Psychometrika*, 39, 31-36.
- Melinda, T., &Ginting, R. (2020). Design of warehousing system in order picking process : literature review. *In IOP Conference Series : Materials Science and Engineering*, 801(1), 012126. IOP Publishing.
- Murauer, & Cornelia S. (2019). *Full shift usage of smart glasses in order picking processes considering a methodical approach of continuous user involvement*. TechnischeUniversität Berlin, Doctoral Thesis.
- Murauer, N., &Pflanz, N. (2018). A full shift field study to evaluate user-and process-oriented aspects of smart glasses in automotive order picking processes. *I x D & A*, 38, 64-82.
- TechNavio. (2021). *Global Artificial Intelligence Market*. Infiniti Research Ltd.
- Uлага, W., & Eggert, A. (2005). Relationship value in business markets : the construct and its dimensions. *Journal of Business-to-Business Marketing*, 12(1), 73-99.