

# The Causal Factors That Influence the Organization Performance of The Agricultural Machinery Industry

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This study tries to investigate 1) the impact of change management, human capital development, and the formation of business partnerships on the innovation management of the agricultural machinery industry in Thailand. 2) To investigate how innovation management influences the competitive advantage of the agricultural machinery business in Thailand. 3) To investigate the impact of innovation management on the competitive advantage of the agricultural machinery business in Thailand. Organizational performance of Thailand's agricultural machinery sector 4) To investigate the impact of competitiveness on the organizational performance of Thailand's agricultural machinery industry 5) Examine the approach to innovation management that influences the structure of the agricultural machinery industry in Thailand to develop policy suggestions and guidelines for innovation management in the agricultural machinery industry in Thailand. This study employs both quantitative and qualitative research methods. The cause and productive relationship of the farm machinery business was investigated using quantitative research. A questionnaire was administered to 380 executives in the farm machinery business, and phenomenology interviews were conducted with nine executives who were principally responsible for innovation management. The statistics utilized in the hypothesis were a confirmatory factor analysis of the second-order and a structural equation model. The research is based on hypotheses. Confirmatory factor analysis demonstrated that the hypothetical model corresponds well to the empirical data or that the model has a high degree of correctness. Considered from the chi-square ( ) 115.97 statistically significant at the level of 0.10 (p-value 0.10), chi-square ( ) is 1.18, and the Comparative Fit Index (CFI) is 1.00. The Goodness of Fit Index (GFI) was 0.97, and the Adjusted Goodness of Fit Index (AGFI) was 0.94. The benefit of this research can explain the relationship between—the cause and effect of innovation management on the organizational performance of the agricultural machinery industry on research theory. The study's results can be used in management as a guideline for managing innovation and technological advancement. Businesses need to adapt and respond to changing environments to survive stable growth and competitiveness in international markets, which leads to good results to happen to the organization in the future.

**Key words:** Change management, Human Capital Development, Innovation management, Organization Performance, Agricultural Machinery Industry.

## 1. INTRODUCTION

The 13th National Economic and Social Development Plan (BE 2023-2027) aims to transform the production structure into an innovation-based economy by enhancing the competitiveness of the key manufacturing and service sectors. It can respond to the development of technology and modern society by linking the local economy and small-scale entrepreneurs to the value chain of the manufacturing sector (Office of the National Econometrics and Social Research Center). In today's continuously changing business climate, which affects public and private organizations, companies must adapt their operating models accordingly [Al-Haddad and Kotnour \(2015\)](#) to make the system more efficient. There is a

reduction in personnel burden. Technology will become the foundation for supporting the organization's activities to modernize the development process with social events ([Shim et al., 2002](#)). One of the primary drivers of corporate growth in the country would be the sector of machinery industry operators. Therefore, the adaptation guidelines of agricultural machinery operators apply to producers and distributors of agricultural machinery in the future research and development of agricultural machinery that satisfies market demand and is suitable for operation in each planting region with the increasing prevalence of modern technology. This will increase the level of current agricultural output, such as incorporating automation/artificial intelligence/internet of things/sensors ([Kuranchie-Mensah & Amponsah-Tawiah,](#)

2016). Due to the justifications mentioned above, the researcher acknowledges the significance of studying the causal elements that influence the organizational performance of the agricultural machinery business. This is to prepare and motivate the farm machinery industry to develop a comprehensive innovation management system. The findings of this study will be included in formulating policies and programs for innovation management inside the business.

According research Objectives of research 1) Examine the impact of change management, human capital development, and business alliance formation on innovation management in the Thai agricultural machinery industry. 2) Examine the impact of innovation management on Thailand's agricultural machinery industry's competitiveness. 3) Examine the impact of innovation management on organizational performance in the Thai farm machinery sector. 4) Examine the impact of competitiveness on the performance of Thailand's agricultural machinery industry association. 5) Examine the innovation management guidelines that influence the structure of the agricultural machinery sector in Thailand to develop policy suggestions and innovation management guidelines for the agricultural machinery industry in Thailand.

## 2. Literature review

### 2.1 Innovation Management

Innovation is the creation and improvement of research and development that leads to the development of commercially viable items, according to the strategic plan for innovation development devised by the organization's leaders (Dereli, 2015). Innovation capability is the ability to change ideas and the body of knowledge to create products, systems, and processes that continually benefit the organization and its stakeholders (Lawson & Samson, 2001). Innovation capability includes innovation-enhancing strategies, organizational behavior, working process, product and market acquisition, vision and strategy that support innovation, talent and creative management resources (Zhou & Li, 2010). Given the importance of small and medium-sized enterprises to the Thai economy, businesses can enhance their organizational performance by embracing sustainable technology. The Thai government has begun to provide unique training and incentives to encourage innovation's continuous contribution (Saengchai, Mitprasat, & Jermisittiparsert, 2019)

### 2.2 Competitive Advantage

The competitiveness component, in which customer relationship management is used to handle information about individual customers and carefully manage customer touch points to build customer loyalty (Kaneko & Yimruan, 2017; Klaprabchone, Chengseng, Prapho, Lissani, & Sangsawang, 2019; Kotler & Keller, 2018). To keep the business in a position of superiority over the competition, competitors must be chosen under the business's resources and level of preparedness. In addition,

three variables contribute to a competitive advantage: 1) Cost, which the firm has created and increased its efficiency, and 2) Productivity. Cost-effective operations generate competitive advantages. 2) Quality is the organization's production of dependable, high-quality goods that satisfy the needs and expectations of customers. 3) Delivery is the delivery of products on time, in the correct quantity, and at the correct location, leading to reliability in delivery and prompt customer reaction (Chamsuk, Fongsuwan, & Takala, 2017).

### 2.3 Organization Performance

Moreover, a good organization's performance measurement system can evaluate results from two perspectives: The economy has measurements like financial ratio, profitability, market share growth, and the measure of satisfaction with the organization's stakeholders, such as customer satisfaction, employee happiness, and social and environmental performance (Santos & Brito, 2012) In addition, the majority of corporate organizations concentrate on promoting and growing industrial sectors for growth and sustainable development throughout the supply chain. The performance was then evaluated by comparing the organization's supply chain performance to its supply chain potential (Sharma, Chandna, & Bhardwaj, 2017). Enhancing working conditions and customer satisfaction through employee service lowers consumer discontentment, increases adaptability and mobility, and responds to consumer needs more quickly (Kasim, Haracic, & Haracic, 2018).

### 2.4 Change Management

For the management of technology to influence the success of entrepreneurs, entrepreneurs must have access to modern technology for product development (Haseeb, Hussain, Kot, Androniceanu, & Jermisittiparsert, 2019). The invention is crucial to the success of a business since having superior technology and innovation will aid in gaining a competitive edge and, most importantly, the ability to produce innovations. (Jasra, Hunjra, Rehman, Azam, & Khan, 2011). In response to this shift, firms are diversifying, impacting their management procedures. 2015; Theodorakopoulos & Budhwar In addition, the change element on diversity in establishing a culture of participation will inspire employees to be innovative and entrepreneurial (Mehta & Gupta, 2014).

### 2.5 Human Capital Development

Possibility for dynamic human capital growth. The development of human capital, regarded as the core of modern corporate management, is an integral part of the Thai Industrial Development Master Plan on the Human Capital Potential. It is the utilization of wisdom to generate innovation and create additional value. (Chiang & Shih, 2011). Therefore, the firm must consider the potential of its human resources. Regarding the ability to flexibly adapt This is in response to global developments and technological advancements (Craciun, 2015), as well as

the dynamic capability of the organization's utilization of resources to positively impact performance and create a competitive advantage (Chien & Tsai, 2012).

## 2.6 Theoretical Framework

Building alliances in international business is by creating alliances that support the sharing of resources of multinational and international businesses by doing business internationally. This results in lower operating expenses, fewer errors, increased market intelligence (Martin and Salomon (2003), and corporate cooperation in the technology sector. Information technology support for business operations information. Therefore, alliances must be formed to trade resources and information, especially with this client group, to expand the business and ensure the organization's survival (Byun, Sung, & Park, 2018).

As research hypotheses, the review of linked concepts, theories, and research can be summed up.

*Hypothesis 1 Change management has a direct positive*

*influence on innovation management.*

*Hypothesis 2 Human capital development has a direct positive influence on innovation management.*

*Hypothesis 3 Building business alliances have a direct positive influence on innovation management.*

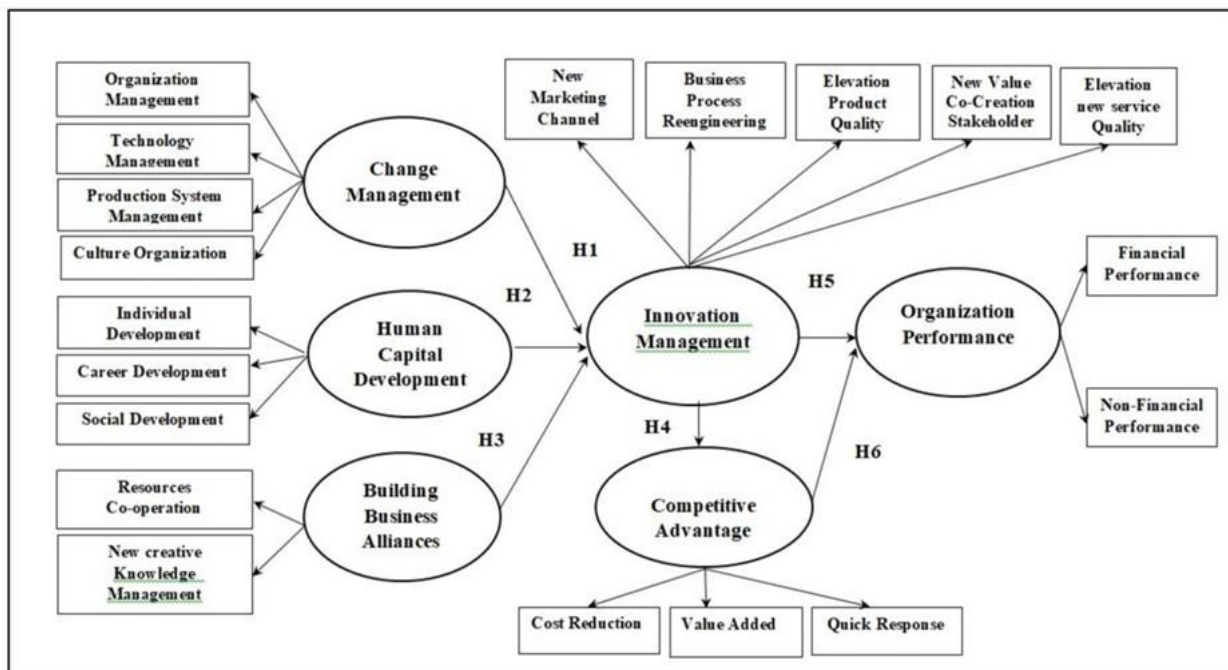
*Hypothesis 4 Innovation Management has a direct positive influence on competitive advantage.*

*Hypothesis 5 Innovation Management has a direct positive influence on organization performance.*

*Hypothesis 6 Competitive advantage has a direct positive influence on organization performance.*

From the review of concepts, theories, documents, and related research, each variable has a relationship to create a Theoretical framework of the study shows the relationship between Change Management, Human Capital Development, Building Business Alliances, Innovation Management, and Competitive Advantage and Organization Performance.

## Theoretical Framework



**Figure 1:** Theoretical framework of the study shows the relationship between Change Management, Human Capital Development, Building Business Alliances, Innovation Management, Competitive Advantage and Organization Performance

## 3. Research Methodology

This research employed a mixed-methods approach, combining a quantitative research method with qualitative research in a multi-phase design. The research process consists of two parts. The first step is quantitative research to examine the components and model of the causal factors affecting the organizational performance of the agricultural machinery industry in Thailand, followed by qualitative research to clarify and validate the quantitative findings (Chieochan, Lindley, & Dunn, 2000). Qualitative research is a descriptive study of the Thai farm machinery business.

### 3.1 Population and sample

Thailand's agricultural equipment operators served as the population sample for this study. As an organizational system, there are 1,617 sites (Kongtip et al. (2018) (as of February 2, 2022) that are classified into units of analysis for this research. The quantitative research sample group consists of top executives in Thailand's agricultural machinery industry. There were 1,617 locations in total. 10 to 20 times per 1 observed variable was the criterion for determining sample size (J. Hair, Black, Babin, & Anderson, 2010). There were 19 observation variables in this study. There were between 200 and 380 samples. 380

samples constituted the total number of samples. The sample consists of 380 top executives from Thailand's agricultural machinery business (Department of Industrial Works, 2021) selected using proportional stratified random sampling. Step one is to split districts and districts based on location and use a straightforward sampling technique to cover Bangkok and the surrounding provinces.

### 3.2 Key Informants in Qualitative Research

Through non-participant observation, purposive sampling, and information collected from experienced key informants, the researcher could determine the key informants, theoretical sampling, and purposive sampling because it is possible to arrive at a very accurate interpretation of it (Shaw et al., 2017) by making use of in-depth interviews with 9 different persons. To be eligible for consideration, candidates must be high-level executives in the agricultural machinery industry in Thailand who have been honored with technology awards and excellent industry awards for agriculture and processed agriculture (Best Technology and Industry Award, 2021 and 2020, National Innovation Agency, 2022). Additionally, candidates must be executives of diverse business sizes, with employee counts ranging from 50 to 100, 101 to 150, and more than 150.

### 3.3 Data Collection

Make a letter requesting permission from the agency along with informing the agency. The data collection in quantitative research is from senior executives of the agricultural machinery industry.

### 3.4 Research Tools

Tools used to collect data: The researcher used the test, a closed-ended question type, in which parts 1 and 2 are checklists, parts 3 - 5 are Likert's Rating Scale (Harpe, 2015), and part 6 are Open-ended questions.

### 3.5 Quality Assurance of Research Instruments

The following steps include the quality testing of research tools: 1) Content Validity Testing utilizing a questionnaire designed by three experts to examine the congruence of the questions with the study conceptual framework's aims. Using the formula IOC (Index of Item Object Congruence) =  $R/N$ , the corresponding index was then calculated between the query and the characteristics, based on the research objectives. To be congruent with the research aims, the correlation index between the questions must be at least 0.50 (Ulewicz & Nový, 2013). The range of 0.67 to 1.00 might be utilized as a question. 2) Verification of reliability to verify the dependability of the tool based on an experiment (Try Out) with executives of the agricultural industry who are not the actual sample group of 30 individuals using the Alpha Coefficient analysis according to the Cronbach method (Cronbach, 1984). To be deemed acceptable, the confidence value of the entire questionnaire must be at least 0.70. (E. Hair, Halle, Terry-Humen, Lavelle, & Calkins, 2006). Equal to 0.909 and based on the

research tool's quality test results with a confidence check utilizing the alpha coefficient and Cronbach's technique. It was determined that the confidence value of the questionnaire, divided by each factor, fell within the range of 0.823-0.929, which meets the requirements. The questionnaire can therefore be used to acquire research data.

### 3.6 Tools in Qualitative Research

Method of qualitative research This study's material was gathered with a semi-structured interview consisting of an in-depth interview questionnaire and the study of data from secondary sources and important information providers. The researcher used a semi-structured interview as a guideline for an in-depth interview with a non-participant observation so that the research could be conducted under the research methodology and the organization's stated objectives using a phenomenological approach based on Heidegger's phenomenological concept, which focuses on finding meaning by looking beyond appearances to the underlying meaning. Using a semi-structured interview, the primary objective was to comprehend the significance of individuals' past life experiences (Davidson, Paulus, & Jackson, 2016).

### 3.7 Data Collection in Qualitative Research

Make a letter requesting permission from the agency and informing the agency to schedule a date and time that will invite the informant to join a specific group discussion—recording the conversation and taking note of the informant's details, without citing the informant's name, just specifying the information from any discussion group in which order of the information providers, etc.

### 3.8 Statistics and Data Analysis

1. The researcher has analyzed the data using descriptive statistics and the data obtained to analyze the statistical values consisting of frequency, percentage and Standard Deviation by the statistical package program and Structural Equation Model: SEM.

2. The causal factor analysis by analyzing the path analysis using the statistical package program and Structural Equation Model: SEM and considering the value  $\chi^2/df$  is less than 2, the CFI index is close to 1, the RMSEA index and the RMR index is less than 0.05, which is within the acceptable range which (E. Hair et al., 2006). The model is therefore considered to be harmonious with the empirical data.

### 4. Data analysis in Qualitative Research

In this research, the phenomenological approach was used according to the concept of Heidegger as a guideline for the study aimed at understanding the meaning of the phenomenon through the process of data collection, including data analysis with rigorous analysis and interpretation. There is a systematic screening Thorne (2000) to study concepts, theories and research related to the phenomenon that needs to be studied in depth. To be theoretical sensitivity by building the credibility of the data by the Triangulation.

### 5. Research results

Quantitative research results. The opinion level of the causal factors influencing the organizational performance of the agricultural machinery industry in Thailand. The overall level of opinion on various factors. In each aspect,

there was a high-level average. The mean values were 4.20, 4.16, 4.15, 4.13, 4.12 and 4.07, respectively, shown in Table 1.

**Table 1. Shows The Mean Feedback Levels and The SD Values of The Variables**

Variable	Mean	SD.	Interpretation
Organization Performance	4.20	0.68	High
Building Business Alliances	4.16	0.67	High
Innovation Management	4.15	0.66	High
Competitive Advantage	4.13	0.70	High
Change Management	4.12	0.69	High
Human Capital Development	4.07	0.71	High

The test found that the correlation coefficients of the 19 observed variables of 171 were related, and the correlation of all pairs of variables had the same direction. The correlation coefficient between the variables was positive, with a coefficient between 0.446 – 0.797 statistically significant at the 0.01 level, the correlation coefficient of variables must not exceed 0.90, which indicates that the variables studied are not Too high a relationship problem Multicollinearity (Pallant, 2020), including testing for the independence of these variables. KMO (Kaiser-Meyer-

Olkin) and Bartlett's test of Sphericity to determine the suitability of the variable group found that the KMO value of 0.968, which is greater than 0.8, is very suitable for the composition analysis and Bartlett's Test of Sphericity was statistically significant (Bartlett's Test = 8738.490, df = 171, Sig = 0.000). Therefore, these variables did not have comorbidity problems and were appropriate to be analyzed for measurement and research models. E. Hair et al. (2006); Klaprabchone et al. (2019) are shown in Table 2 as follows:

**Table 2: Correlation Coefficient**

	ID	CD	SD	OM	TM	PSM	COM	RCO	KINM	NMC	CRM	EPQ	CS	TPM	CR	VA	QR	FP	NFP	
$\bar{X}$	3.98	4.09	4.14	4.09	4.20	4.10	4.11	4.20	4.13	4.11	4.17	4.15	4.15	4.21	4.12	4.16	4.13	4.19	4.21	
SD	0.71	0.73	0.73	0.70	0.67	0.72	0.69	0.67	0.67	0.65	0.70	0.66	0.62	0.67	0.72	0.70	0.70	0.67	0.69	
ID	1	0.780**	0.737**	0.797**	0.741**	0.735**	0.752**	0.717**	0.577**	0.560**	0.519**	0.552**	0.514**	0.516**	0.732**	0.712**	0.688**	0.699**	0.687**	
CD		1	0.763**	0.780**	0.765**	0.752**	0.734**	0.695**	0.567**	0.569**	0.533**	0.540**	0.501**	0.487**	0.699**	0.661**	0.656**	0.708**	0.662**	
SD			1	0.789**	0.765**	0.752**	0.750**	0.654**	0.545**	0.488**	0.536**	0.532**	0.446**	0.485**	0.711**	0.642**	0.644**	0.683**	0.650**	
OM				1	0.758**	0.748**	0.747**	0.789**	0.640**	0.579**	0.597**	0.562**	0.565**	0.568**	0.775**	0.770**	0.728**	0.784**	0.748**	
TM					1	0.752**	0.726**	0.752**	0.573**	0.520**	0.584**	0.563**	0.539**	0.573**	0.738**	0.722**	0.686**	0.759**	0.738**	
PSM						1	0.765**	0.752**	0.575**	0.514**	0.530**	0.518**	0.503**	0.518**	0.739**	0.740**	0.698**	0.727**	0.709**	
COM							1	0.785**	0.621**	0.593**	0.585**	0.566**	0.547**	0.576**	0.761**	0.737**	0.723**	0.734**	0.743**	
RCO								1	0.659**	0.627**	0.567**	0.575**	0.588**	0.574**	0.726**	0.738**	0.686**	0.726**	0.724**	
KINM									1	0.793**	0.725**	0.738**	0.675**	0.711**	0.545**	0.530**	0.512**	0.557**	0.539**	
NMC										1	0.760**	0.747**	0.714**	0.690**	0.544**	0.528**	0.522**	0.561**	0.561**	
CRM											1	0.755**	0.698**	0.770**	0.580**	0.552**	0.527**	0.590**	0.573**	
EPQ												1	0.728**	0.695**	0.577**	0.522**	0.501**	0.561**	0.572**	
CS													1	0.667**	0.575**	0.548**	0.498**	0.549**	0.551**	
TPM														1	0.558**	0.527**	0.514**	0.567**	0.571**	
CR															1	0.768**	0.738**	0.793**	0.762**	
VA																1	0.755**	0.765**	0.768**	
QR																	1	0.767**	0.763**	
FP																		1	0.731**	
NFP																				1

\*\* p-value < 0.01

Analysis of the causal factor structure model influencing the organizational performance of the agricultural industry in Thailand. The results showed that chi-square = 115.97 was statistically significant at the 0.10 level (p-value=0.10), the Comparative Fit Index (CFI) was 1.00, and the Goodness of Fit Index (GFI) was 0.97. The Adjusted Goodness of Fit Index (AGFI) was 0.94, and the root mean square error of approximation (RMSEA) was 0.02. All indices passed the criteria indicating that the model was harmonious with the empirical data. As shown

in Table 3:

Results of analysis of direct effects, indirect effects and total effects: It was found that the constituent variables of the causal variables and the outcomes of the causal factors influencing the organizational performance of the agricultural industry in Thailand have direct influence, indirect influence and real influence divided by research hypothesis as shown in Table 4. An overview of the causal factor structure model analysis influencing the organization performance of the agricultural machinery industry in Thailand that has undergone correlation to be

consistent from the generated model with the real data is shown in Figure 2.

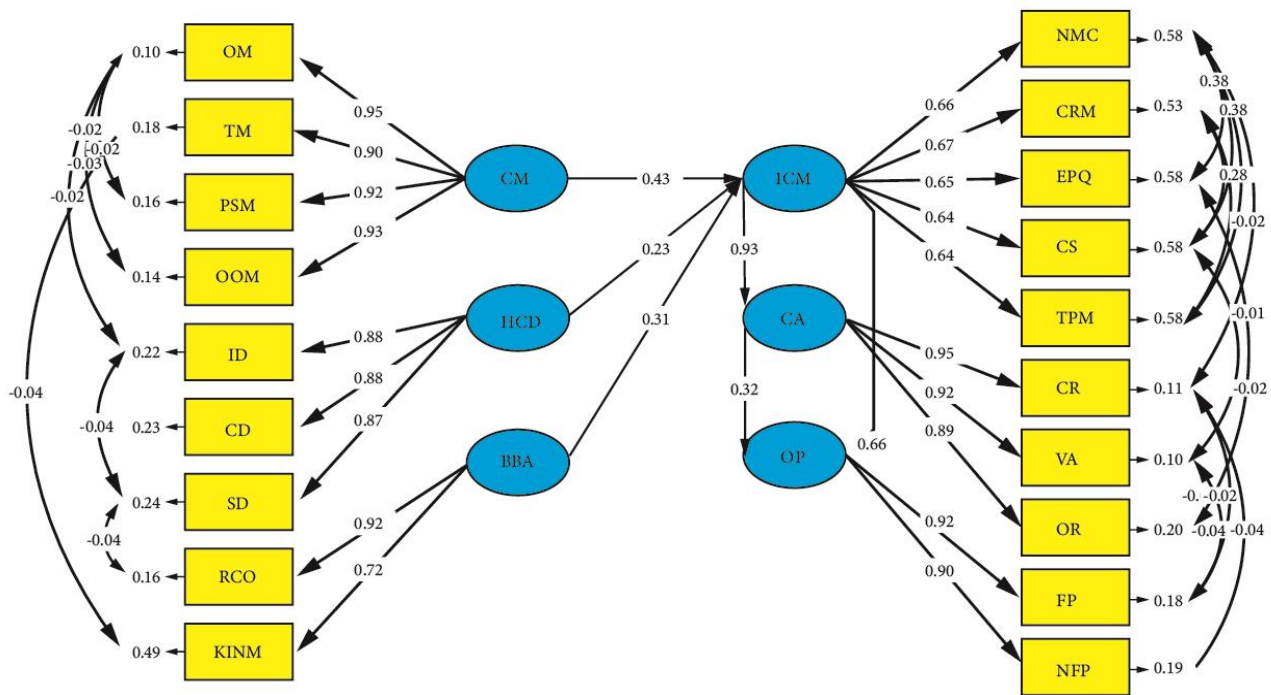
**Table 3. The Results of Checking The Conformity Of The Empirical Model With The Theoretical Model. (Prototype Model)**

Variable	Model	Interpretation
Chi-square	115.97	Pass
Chi-square/df	1.18	Pass
df	98	Pass
p-value	0.103	Pass
GFI	0.97	Pass
CFI	1.00	Pass
RMSEA	0.02	Pass

**Table 4: Direct Effects (DE), Indirect Effects (IE), and Total Effects (TE)**

Cause variable	Result variable								
	Innovation Management (ICM)			Competitive Advantage (CA)			Organization Performance (OP)		
	DE	IE	TE	DE	IE	TE	DE	IE	TE
Change Management (CM)	0.43**	-	0.43**	-	0.40**	0.40**	-	0.41**	0.41**
Human Capital Development (HCD)	0.23*	-	0.23*	-	0.22**	0.22**	-	0.22*	0.22*
Building Business Alliances (BBA)	0.31**	-	0.31**	-	0.29**	0.29**	-	0.29**	0.29**
Innovation Management (ICM)	-	-	-	0.93**	-	0.93**	0.66**	0.29*	0.95**
Competitive Advantage (CA)	-	-	-	-	-	-	0.32**	-	0.32**

\*\*p<0.01, \*p<0.05



**Figure 2:** The analysis of the causal factor structure model influencing the organization performance of the agricultural industry Chi-Square=115.97, df=98, p-value=0.10387, RMSEA=0.021

From Figure 2 and Table 4, the results of the analysis revealed that

(1) Change management had a direct positive influence on innovation management. It was found that change management (CM) positively influenced innovation management (ICM) with a direct influence of 0.43. The total was 0.43, with a statistically significant level of 0.01. Therefore, hypothesis 1 was accepted.

(2) Human capital development had a direct positive influence on innovation management. It was found that human capital development (HCD) positively influenced innovation management (ICM) with a direct influence of 0.23. The total was 0.23 with a statistically significant level of 0.05. Therefore, the second hypothesis was accepted.

(3) Building Business alliances had a direct positive influence on innovation management. It was found that business alliances (BBA) had a direct positive influence on

innovation management (ICM) with a direct influence of 0.31, and the real influence was 0.31, statistically significant at the 0.01 level. Therefore, hypothesis 3 was accepted.

(4) Innovation Management, it was found that innovation management (ICM) had a direct positive influence on competitive advantage (CA) with a direct influence of 0.92 and a total influence of 0.93. It was statistically significant at the 0.01 level, so hypothesis 4 was accepted.

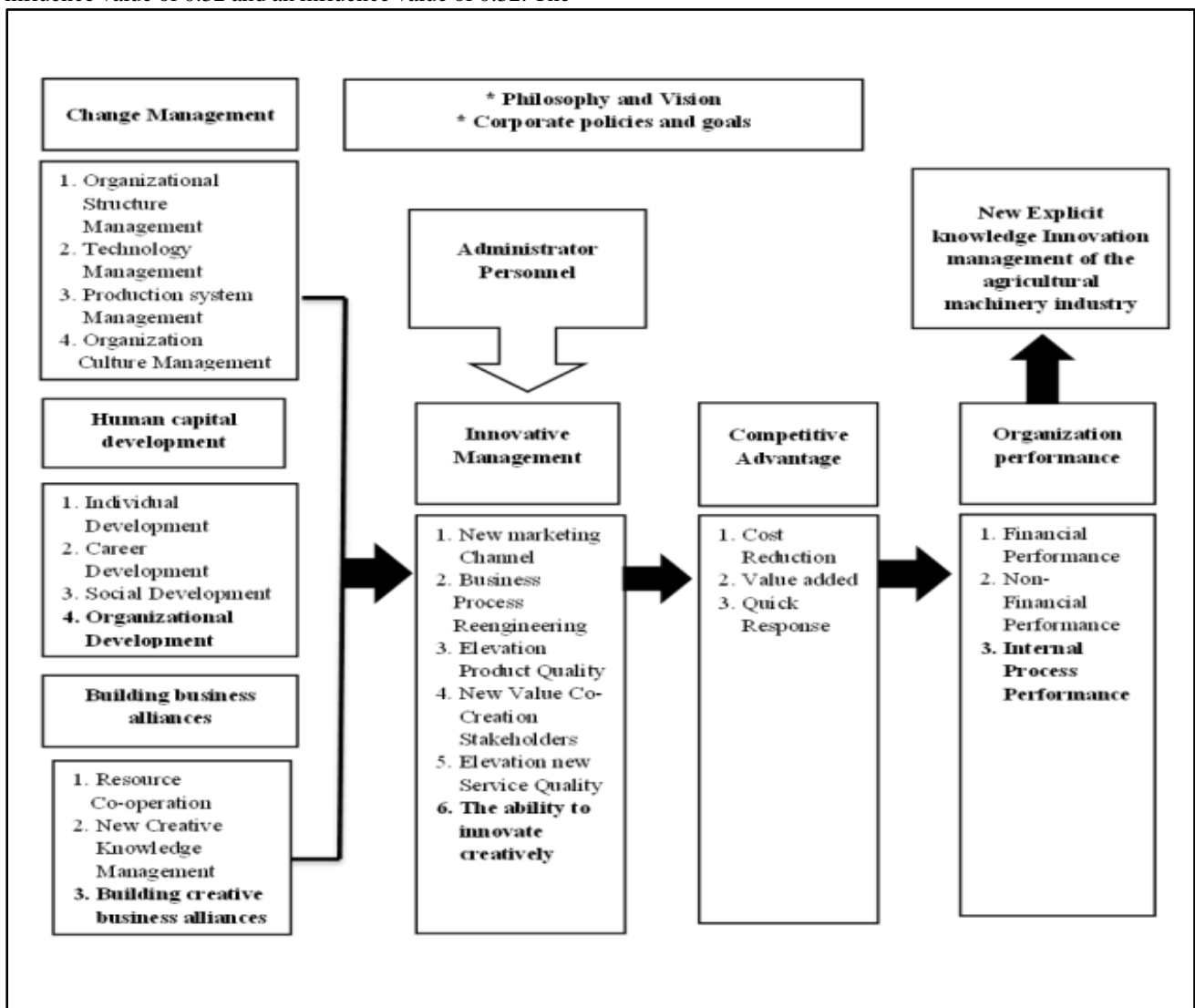
(5) Innovation Management, it was found that innovation management (ICM) had a direct positive influence on organization performance (OP) with a direct influence of 0.66 and an indirect influence of 0.29, and the total influence was 0.95, with a statistically significant level of 0.01. Therefore, hypothesis 5 was accepted.

(6) Competitive advantage, it was found that the competitive advantage (CA) had a direct positive influence on the organization's performance (OP), with a direct influence value of 0.32 and an influence value of 0.32. The

total was 0.32, statistically significant at a 0.01 level. Therefore, hypothesis 6 was accepted.

Qualitative research results. The interviews with the 9 key informants found that the opinions were the same in content. That the executives of the organization understand and have a way to change according to the work environment quickly and will make personnel ready to support the changes are keen to develop human resources in the organization to have skills, knowledge and competence in the direction of organizational change by accelerating the organization to accelerate the change by focusing on building the organization's innovation management capabilities. In addition, the organization has invested in the adoption of digital technology. Navigating the application used in customer service to make customers more convenient creates competitiveness and develops and encourages personnel to innovate and create innovations.

### 5.1 New Explicit Knowledge



**Figure 3.** New Explicit Knowledge model, innovation management approach of the domestic agricultural machinery industry  
 From Figure 3, a new form of knowledge and an innovative management approach for the agricultural machinery industry found that change management human capital development builds business alliances. It is an

important factor in the organization's transformation towards corporate innovation management can create competitiveness and lead to good corporate performance. There are guidelines and developments to promote development in various fields as follows: 1) Change management by promoting, developing and pushing for improvement of work efficiency plans creating a flat structure preparation of technology development plans for both short-term and long-term plans 2) Human capital development by focusing on promoting, developing and driving personnel to develop appropriate human capital and to accommodate changes in a dynamic manner training on how to use technology to create and develop systems for employees and make an action plan and a control plan including focusing on organizational development 3) Building Business alliances by bringing new knowledge and new creativity to share and exchange knowledge to increase potential and new knowledge is gathered into a central database system to act as a center for exchanging information, knowledge and opinions including creating creative business alliances 4) Innovation management by using technology as a tool to create added value, create productivity Using new online marketing communications and applications development of online media Including the ability to innovate creatively. 5) Competitive Advantage by defining strategies and actions to build relationships, create conversations in the online world to solve customer problems and formulating strategies for creating interactions with customers creates an emphasis on integrating needs. 6) Organization performance by determining short-term and long-term financial impressions. There is a set of impressions in the field of expanding a new customer base, including internal processes' performance.

Therefore, guidelines and development and promotion by giving importance to innovation management. There is an awakening to change in production to increase capacity and ability to adapt to various situations. In creating positive traits, there are constructive traits, understanding each other's strengths and promoting cooperation to be unified for the organization's sustainable performance.

## 6. Discussion and Conclusion

Change management has a direct, positive effect on innovation management that is statistically significant at the 0.01% level, confirming hypothesis 1 due to the competitive business climate. This permits the agricultural machinery business to adapt and accommodate structural flexibility-related shifts. Adjustments must be made to the organizational structure's adaptability to enhance work plans, boost productivity, and decrease delays. The focus of executives is management. If the organization can effectively manage change, concentrate on fostering a culture of engagement.

Consequently, the organization will also be able to manage innovation. The findings are congruent with the findings of [Damanpour and Schneider \(2006\)](#) study, which demonstrated that for organizational innovation to be

successful, an effective organizational transformation process is vital to the organization's long-term growth. Moreover, this is congruent with the findings of [Kennedy \(2018\)](#), which indicate that managers must use innovation management to produce new goods or processes.

Human capital growth has a direct, beneficial effect on innovation management. It was statistically significant at the 0.05 level, so accepting the second hypothesis, the current scenario shift is a dynamic transition that brings change for sustainable survival and an increasing emphasis on individual human resources' knowledge, skills, and abilities. The uniqueness of the individual was utilized in the organization's growth, resulting in all parties having positive interactions with one another and contributing to the formation of good collaboration; this comprehension will aid the organization in being inventive. These findings are similar to [Al-Romeedy \(2019\)](#) study, which demonstrates that applying technology in human resource management results in increased productivity-increasing people's productivity by encouraging training to develop the new knowledge and skills essential to execute the work according to the position and duties required to perform one's tasks and to be able to perform replacement work in other positions.

Building business connections positively affects innovation management at a level of 0.01, which is statistically significant; hypothesis 3 is accepted. Management should be adaptable in coordinating the business's resources by cooperating to develop and improve our production processes to maximize efficiency and minimize waste. Additionally, it introduces new knowledge and encourages sharing of new creative ideas to boost job potential. In addition, fresh creative ideas are compiled in a central database system for full information access between enterprises or partners. The findings are consistent with a study by [Jeongeun, Tae-Eung, and Hyun-Woo \(2018\)](#), which demonstrated that equipment and technology systems must be related to cooperation in the work of the organization in the field of information technology for that organization providing information technology support in that organization. Therefore, having partners to exchange resources and expertise about different consumer groups is essential for the business's expansion and the organization's sustainability.

Innovation management has a positive, direct effect on the competitive advantage that is statistically significant at the 0.01 level, thus accepting hypothesis 4. In a highly competitive study, industry managers must rapidly change their working patterns and methods. The results are congruent with [Sirmon, Hitt, Arregle, and Campbell \(2010\)](#) research. Management must determine how to establish the direction of their firm, how to alter their operating model and identify their selling features and strengths. Value loyal customers Using technology strengthens the ability to compete and improve customer service, particularly for current consumers.

Innovation Management has a direct positive influence on



organization performance with statistical significance at the 0.01 level. Hypothesis 5 is accepted because entrepreneurs and business owners have applied technology and innovation by implementing digital data management for forecasting and planning. Due to the difference's singularity, it utilizes process expertise to make the industry competitive and generate sustainable performance with creative packaging. This will allow the firm to build competitive advantages, resulting in improved and more sustainable performance. According to a study by Shu, Zhou, Xiao, and Gao (2016), organizational innovation as a crucial process for driving success and boosting organizational competitiveness can be applied to Performance optimization. Competitive advantage has a positive, direct effect on organization performance that is statistically significant at the 0.01 level; hence, hypothesis 6 is supported, as Executives collaborate to build competitiveness. A competitive advantage plan must be adapted to changing circumstances to place a corporation in a position of superiority over its rivals. It adds value to products and services to set them apart from the competition. According to a study by Chamsuk et al. (2017), competitive advantages consist of three factors: 1) Cost: The organization has created and increased its efficiency, creating competitive advantages through operations with lower costs. 2) Quality is the organization that manufactures dependable, high-quality products that satisfy the needs and desires of customers. 3) Delivery is the timely delivery of products. Quantity and location are accurate, resulting in delivery dependability, including prompt customer service. This results in expanding the organization's operations (Chamsuk et al., 2017).

## 7. Research Recommendations

### 7.1 Policy benefits

The government has the policy to accelerate and support the innovation development of the agricultural machinery industry by linking with the private industry as well as various benefits to support and promote the work of the private sector. This will enable the development of innovations that truly meet the needs of the private sector.

### 7.2 Suggestions for the Next Research

This research has an analytical unit at the organizational level. In subsequent studies, further studies should be conducted at the individual level, including the results of innovation management from the perspective of employees. In addition, a Multi-Level Model should be studied to see the elements of innovation management at many levels. And in future research may apply the conceptual framework of this research to study a group of clearly separated control variables. Therefore, in the future, the results of this research should be used in other business studies or industries to compare and confirm study results. Other variables should be studied that are factors that cause innovative behavior in work, such as Creative Leadership and Innovative Behavior Leap.

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