

# Relationships Among Corporate strategy, Corporate Organizational Capability, Corporate Social Responsibility, Artificial intelligence and Corporate financial performance – a Case Study of Paradigm

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**ABSTRACT:** During recent years, the competition for corporate survival has further intensified due to the AI wave. As a result, many large companies must effectively deploy corporate strategies whilst seeking to fulfill corporate social responsibility. It is hoped that innovation, marketing capabilities and organizational capability underpin the creation of good financial performance and hence ensure sustainable survival and development.

The main objective of this study is to verify the relationships between key constructs of its own constructed model. A survey was conducted on the employees of a multinational company listed in Taiwan. Snowball sampling was deployed on this population and finally, a series of statistical analyses were performed with the software packages SPSS and M-plus. The empirical results indicate that both "corporate organizational capability" and "corporate social responsibility" have partial mediating effects and "Artificial intelligence" has a "quadruple" moderating effect in the constructed model. These findings can serve as reference for the company's management decisions.

**KEY WORD:** Corporate strategy, corporate organizational capability, corporate social responsibility, Artificial intelligence, Corporate financial performance

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Date of Submission: 04-02-2025

Date of acceptance: 16-02-2025

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## I. RESEARCH MOTIVATIONS AND OBJECTIVES

### 1.1 Research motivations

From the 1990s to the early 2000s, scientists achieved numerous essential targets for AI, such as the defeat of the world chess champion. Compared to the past few decades, computers now have more advanced data computing and processing power, and AI research has become more widespread and easily accessible. AI technology is rapidly evolving into "artificial general intelligence", enabling software to perform complex tasks. For example, software can create content, make decisions, and learn - capabilities previously exclusive to humans.

Artificial intelligence is also widely applied across many different fields. Robots operate restaurants and shops and repair urban infrastructure. AI manages transportation systems and autonomous vehicles. Smart platforms manage multiple urban domains, such as garbage collection and air quality monitoring. In fact, urban AI is now embodied in urban spaces, infrastructure, and technology, transforming our cities into unsupervised autonomous entities. Digitally supported smart responsive services can be conveniently implemented in real-time. Many cities now actively utilize big data and AI to increase economic returns by providing better energy, computing power, and connectivity for our infrastructure. Meanwhile, given the advances in medicine, neuroscience, robotics, and statistics, prevailing predictions suggest that many human occupations will be gradually replaced by AI.

Therefore, when large corporates use substantial resources (beyond the reach of small enterprises) along with business strategies and organizational capability to create financial performance, should they also consider implementing corporate social responsibility? In particular, when large corporates seek to reduce manufacturing and other costs to enhance competitiveness, should they also develop "higher-end" AI use cases to protect the survival and rights to work for those at the base level of the society?

In sum, the competition for corporate survival has become fiercer amid the AI wave. As a result, many large companies must effectively deploy corporate strategies whilst seeking to fulfill corporate social responsibility. It is hoped that the use of innovation, marketing capabilities and organizational capability creates good financial performance and hence ensures sustainable survival and development.

## **1.2 Research Objectives**

Based on the above, this study focuses on the relationships among Corporate strategy, corporate organizational capability, corporate social responsibility, Artificial intelligence and Corporate financial performance. A survey was conducted on the employees (including managers) of a multinational company listed in Taiwan. Snowball sampling was deployed on this population and finally, a series of statistical analyses were performed with the software packages SPSS and M-plus. The main objective of this study is to verify the relationships between key constructs of its own constructed model. The main objectives of this study are summarized and described below:

- (1) To understand whether Corporate strategy has positive and significant influence on Corporate financial performance
- (2) To understand whether Corporate strategy has positive and significant influence on Corporate organizational capability
- (3) To understand whether Corporate strategy has positive and significant influence on Corporate social responsibility
- (4) To understand whether Corporate social responsibility has positive and significant influence on Corporate financial performance
- (5) To understand whether Corporate organizational capability has positive and significant influence on Corporate financial performance
- (6) To understand whether Artificial intelligence and Corporate organizational capability have positive and significant influence on Corporate financial performance
- (7) To understand whether Artificial intelligence and Corporate strategy have positive and significant influence on Corporate financial performance
- (8-1) To understand whether Artificial intelligence and Corporate strategy have positive and significant influence on Corporate social responsibility
- (8-2) To understand whether Artificial intelligence and Corporate social responsibility have positive and significant influence on Corporate financial performance

As extension of the above eight objectives are the following objectives:

- (9) To understand whether both the Corporate organizational capability and Corporate social responsibility have dual mediating effects in the model constructed by this study; and
- (10) To understand whether Artificial intelligence has multiple moderating effects in the model constructed by this study.

## **II. LITERATURE REVIEW AND HYPOTHESIS DEDUCTION**

### **2.1 Corporate strategy (CS)**

#### **2.1.1 Conceptual definition of Corporate strategy**

This study conceptually defines Corporate strategy as “a collective term for various corporate strategies, including competitive strategy, marketing strategy, development strategy, brand strategy, financing strategy, technology development strategy, talent development strategy, resource development strategy, and more. Hence, corporate strategies are constantly emerging, one after another. For example, digitalization is a completely new strategy. Despite a wide diversity of corporate strategies, the basic attributes are the same – the tactical approaches for companies and the schemes to address overall, long-term, and fundamental issues of companies”. The above definition was developed based on the following literature and the perspectives held by this study.

#### **2.1.2 Sub-construct (secondary constructs) of Corporate strategy**

Chen (2018) indicated that the sub-construct of Corporate strategy are low cost and differentiation.

During recent years, the competition for corporate survival has further intensified amid the AI wave. Companies and organizations must endeavor to maintain slack resources for sustainable survival and development.

Based on the above, this study defined three sub-construct for Corporate strategy: low cost, differentiation and Slack resources.

### **2.2 Corporate organizational capability (COC)**

#### **2.2.1 Conceptual definition of Corporate organizational capability**

This study conceptually defines Corporate organizational capability as “a company’s ability to embark on organizational work. It is the corporate ability to transform its various input factors into products or services with higher production efficiency or higher quality compared to competitors provided with the same inputs. Organizational capabilities include a set of efficiency and efficacy capabilities possessed by a company. These

capabilities can be manifested in any activity from product innovation, development to marketing.” The above definition was developed based on the following literature and the perspectives held by this study.

#### 2.2.2 Sub-construct (secondary constructs) of Corporate organizational capability

Chen (2018) believed that the sub-construct (secondary constructs) of corporate organizational capability are innovation capability and marketing capability.

Based on the above, this study refers to innovation capability and marketing capability as the sub-construct (secondary constructs) of corporate organizational capability and these two sub-construct (secondary constructs) are the basis for development of the questionnaire about this dimension.

### 2.3 Corporate social responsibility (CSR)

#### 2.3.1 Conceptual definition of Corporate social responsibility

This study conceptually defined Corporate social responsibility as “the fundamental responsibilities that companies should assume for the society as a whole and corresponding stakeholders in order to protect and enhance the legitimate rights and interests of stakeholders”. The above definition was developed based on the following literature and the perspectives held by this study.

Corporate social responsibility is a voluntary corporate commitment. Based on the concept of sustainable development, companies need to consider not only internal operations but also the impact on the society and the natural environment, so as to improve the quality of life for families, local communities, and the society. Driven by the global trend, corporate social responsibility is viewed as a fundamental business strategy (Ho, 2008).

Bowen (1953) defined Corporate social responsibility as a company’s obligation and pursuit of all activities meeting its value and satisfying to the society.

According to Huang (2001) and broadly speaking, Corporate social responsibility is the corporate behavior in adherence to ethics and integrity. In particular, this goes beyond business management and accountability to stakeholders. It is accountability to all stakeholders.

Chu (2005) suggested that it is a form of moral integrity. While seeking profits, companies must proactively undertake responsibilities for consumers, employees, stakeholders, as well as for products and services, environments, and the society.

Hsu (2008) indicated that in addition to constantly seeking profit growth from the society, companies must comply with statutory responsibilities; continue to meet social, moral and behavioral expectations; proactively identify, assume, improve and fulfill duties of care and protection for consumers, employees and their families, products and services, the society and the environment.

Chiang (2009) pointed out that corporate social responsibility is an indicator of corporate culture that combines the external environment with the company's internal operations. It is a motto, a policy and a practice of putting words into actions. Corporate social responsibility is people-oriented. It is an extension of a company’s spirit upward, outward, and inward. It is about meeting the social and moral expectations, the general public’s needs and the company’s interests through corporate actions and employees' collective participation.

#### 2.3.2 Sub-construct (secondary constructs) of corporate social responsibility

Chen (2018) posited that the sub-construct (secondary constructs) of corporate social responsibility are proactive corporate social responsibility and reactive corporate social responsibility.

Based on the above, this study designed this dimension of the questionnaire by referring to the sub-construct (secondary constructs) of Corporate social responsibility according to Chen (2018) and in reference to Lu (2006).

### 2.4 Artificial intelligence (AI)

#### 2.4.1 Conceptual definition of Artificial intelligence

The conceptual definition of Artificial intelligence in this study is as the follows: Artificial intelligence, also known as machine intelligence, refers to intelligence demonstrated by machines created by humans. Generally speaking, Artificial intelligence refers to the technology of presenting human intelligence through ordinary computer programs. This term also addresses the research on whether and how such intelligent systems can be realized. The above definition was developed based on the following literature and the perspectives held by this study.

In Alan Turing's groundbreaking paper “Computing Machinery and Intelligence” in 1950, he proposed the possibility of machine thinking. In this study, Turing first coined the term “Artificial intelligence” and presented it as a theoretical and philosophical concept (Google, 2024).

Artificial intelligence (AI) is also known as machine intelligence. It refers to intelligence demonstrated by machines created by humans. Generally speaking, Artificial intelligence refers to the technology of presenting human intelligence through ordinary computer programs. This term also addresses the research on whether and how such intelligent systems can be realized.

The definition of Artificial intelligence in general textbooks is “the study and design of intelligent agents”. An intelligent agent is a system that can observe its surroundings and take actions to achieve goals. John McCarthy’s definition in 1955 is “the science and engineering of making intelligent machines”. Andreas Kaplan and Michael Heintz defined Artificial intelligence as “a system’s ability to correctly interpret external data, to learn from such data and to use those learnings to achieve specific goals and tasks through flexible adaptation”. Artificial intelligence can be defined as machines or computers that mimic cognitive functions associated with human minds and human thinking, such as learning and problem-solving. As a branch of computer science, Artificial intelligence perceives its environments and takes actions that maximize its chances of success. Furthermore, Artificial intelligence can learn from past experiences, make reasonable decisions, and respond quickly. Therefore, the scientific goal of Artificial intelligence researchers is to understand intelligence by constructing computer programs capable of symbolic reasoning or inference.

#### 2.4.2 Sub-construct (secondary constructs) of Artificial intelligence

Artificial intelligence research is highly technical and specialized, with each branch in depth and distinct from others. It covers an extremely wide scope. Artificial intelligence research can be divided into several technical problems. Its branches mainly focus on solving specific problems, one of which is how to use different tools to complete specific applications. Furthermore, the core problems in Artificial intelligence include the construction of capabilities similar to or exceeding humans in reasoning, knowledge, planning, learning, communication, perception, movement, object manipulation, tool use, and machine operation.

The four main components of Artificial intelligence include:

- (1) Expert systems: Acting as experts to handle situations under review and produce expected or anticipated performance;
- (2) Heuristic algorithms: Including evaluation of small-scale solutions and possibly involving some guessing to find near-optimal solutions;
- (3) Natural language processing: Achieving human-machine communication in natural languages; and
- (4) Computer vision: Automatically generating the ability to identify shapes and functions.

Based on the above, this study designed the questionnaire by using the four main components and four sub-construct of Artificial intelligence and in reference to Pao (2024).

### 2.5 Corporate financial performance (CFP)

#### 2.5.1 Conceptual definition of Corporate financial performance

This study conceptually defines Corporate financial performance as “whether Corporate strategy, its implementation and execution are contributing to the final operating performance” (Wei, Yang and Qin, 2007).

#### 2.5.2 Sub-construct (secondary constructs) of Corporate financial performance

The balanced scorecard (BSC) was first proposed by Robert Kaplan and David Norton in 1990 as a management tool for measuring strategic performance. It uses a “strategy map” to describe Corporate strategy (including strategic objectives) in four perspectives: financial, customer, internal process, and learning and growth. These strategic objectives must have causal relationships and be interconnected to clearly describe the strategy. For example, profit improvement must stem from customer satisfaction; achieving customer satisfaction requires process improvement; and processes need to be rooted in employee learning. Therefore, BSC surpasses traditional performance measurement models that primarily focus on financial accounting measures (Liu, 2003).

Based on the above, this study uses the financial and non-financial perspectives of the balanced scorecard as the sub-construct for Corporate financial performance, namely financial, customer, internal process, and learning and growth. Financial as the first sub-construct is measured with EPS (earnings per share) of the listed company in the case study. The other sub-construct are the company’s customer, internal process, and learning and growth. The questionnaire was designed with reference to Sung (2016), and the results were obtained through the questionnaire distribution.

### 2.6 Hypothesis Deduction

This study establishes its research framework based on research objectives and the literature review and then develops research hypotheses according to the research framework. Given the limited literature to date addressing the pairwise relationships between the main constructs of the research framework, this study

primarily uses the pairwise relationships of constructs proposed by Chen (2018). This is mentioned here for clarification.

#### 2.6.1 Corporate strategy and Corporate financial performance

Chen (2018) indicated that Corporate strategy has positive and significant influence on Corporate financial performance.

Chen (2018) indicated the following:

(1) Cost leadership negatively moderates the relationship between CSiR and CFP. In such a way that a high level of cost leadership decreases CFP gains attributable to CSiR.

(2) Differentiation negatively moderates the relationship between CSiR and CFP. In such a way that a high level of differentiation decreases CHP gains attributable to CSiR.

The above two results show that low cost and differentiation have significant influence on Corporate financial performance .

Based on the abovementioned, this study developed the following hypothesis:

H<sub>1</sub>: Corporate strategy has positive and significant influence on Corporate financial performance.

#### 2.6.2 Corporate strategy and corporate organizational capability

Chen (2018) suggested that Corporate strategy and corporate organizational capability are related.

Based on the abovementioned, this study developed the following hypothesis:

H<sub>2</sub>: Corporate strategy has positive and significant influence on Corporate organizational capability.

#### 2.6.3 Corporate organizational capability and Corporate financial performance

Chen (2018) contended that corporate organizational capabilities (including innovation capability and marketing capability) have positive and significant influence on Corporate financial performance.

Based on the abovementioned, this study developed the following hypothesis:

H<sub>3</sub>: Corporate organizational capability has positive and significant influence on Corporate financial performance.

#### 2.6.4 Corporate strategy and corporate social responsibility

Chen (2018) posited that Corporate strategy and corporate social responsibility are related.

Based on the abovementioned, this study developed the following hypothesis:

H<sub>4</sub>: Corporate strategy has positive and significant influence on corporate social responsibility.

#### 2.6.5 Corporate social responsibility and Corporate financial performance

According to Chen (2018), the mean of firm performance for companies adopting proactive CSR engagement strategy is higher than the mean of firm performance for companies adopting reactive CSR engagement strategy, *ceteris paribus*.

Chen (2018): Selecting proactive CSR engagement strategy or reactive CSR engagement strategy in theoretically appropriate conditions increases firm performance; i.e., companies which choose proactive (reactive) CSR engagement strategy under conditions that fit to the encountering environmental conditions perform better than if they had adopted the reactive (proactive) CSR engagement strategy.

Based on the abovementioned, this study developed the following hypothesis:

H<sub>5</sub>: Corporate social responsibility has positive and significant influence on Corporate financial performance.

#### 2.6.6 Artificial intelligence, corporate organizational capability and Corporate financial performance

Up to date this study has yet to identify domestic/overseas literature on the relationship among Artificial intelligence, corporate organizational capability and Corporate financial performance. Hence, this study made bold assumptions and performed validations with caution. The questionnaire was designed to measure and validate as such. The following hypothesis was developed:

H<sub>6</sub>: Artificial intelligence and corporate organizational capability have positive and significant interaction effects on Corporate financial performance.

#### 2.6.7 Artificial intelligence, Corporate strategy and Corporate financial performance

Up to date this study has yet to identify domestic/overseas literature on the relationship among Artificial intelligence, Corporate strategy and Corporate financial performance. Hence, this study made bold assumptions and performed measurements and validations with caution. The following hypothesis was developed:

H<sub>7</sub>: Artificial intelligence and Corporate strategy have positive and significant influence on Corporate financial performance.



#### 2.6.8.1 Artificial intelligence, Corporate strategy and corporate social responsibility

Up to date this study has yet to identify domestic/overseas literature on the relationship among Artificial intelligence, Corporate strategy and corporate social responsibility. Hence, this study made bold assumptions and performed measurements and validations with caution. The following hypothesis was developed:

H<sub>8-1</sub>: Artificial intelligence and Corporate strategy have positive and significant influence on corporate social responsibility.

#### 2.6.8.2 Artificial intelligence, corporate social responsibility and Corporate financial performance

Up to date this study has yet to identify domestic/overseas literature on the relationship among Artificial intelligence, corporate social responsibility and Corporate financial performance. Hence, this study made bold assumptions and performed measurements and validations with caution. The following hypothesis was developed:

H<sub>8-2</sub>: Artificial intelligence and corporate social responsibility have positive and significant influence on Corporate financial performance.

### III. RESEARCH METHODOLOGY

Based on the abovementioned research motivations and objectives, literature review and hypothesis development, the following research framework is established (Figure 3-1).

#### 3.1 Research framework

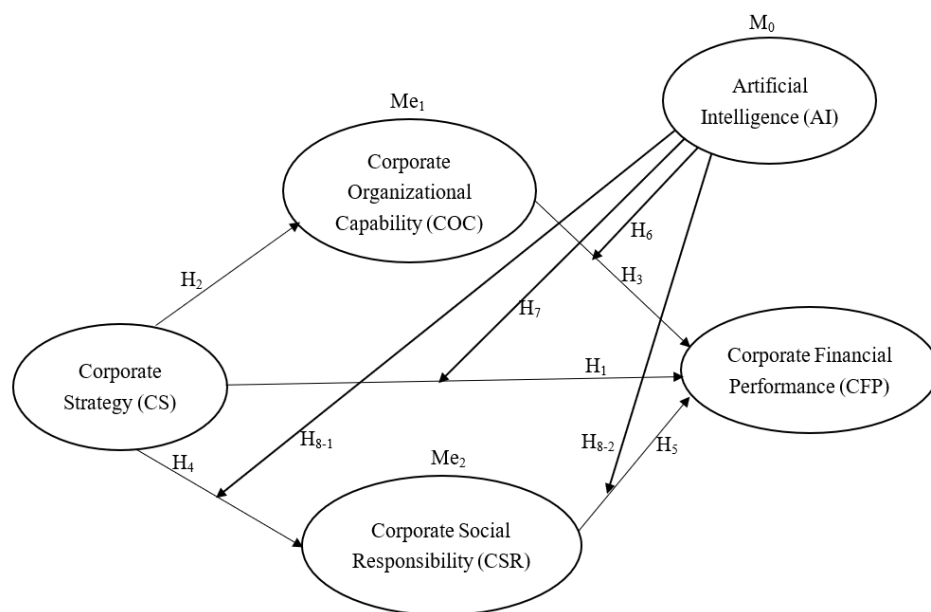


Figure 1 Research framework

#### 3.2 Questionnaire design

The questionnaire design and the collection method for four out of the five main constructs of the model established by this study, i.e., Corporate strategy, corporate organizational capability, corporate social responsibility, and Corporate financial performance - were based on and slightly modified from the questionnaires developed by Chen (2018), Ho (2008), Pao (2024), Liu (2003), and Sung (2016). Only the questionnaire on Artificial intelligence was designed by this study in reference to online literature.

The measurement design used a seven-point Likert scale, with scores from 7 to 1 based on agreement levels, where 7 represents extreme agreement and 1 represents extreme disagreement. A higher score indicates a higher agreement level, and vice versa.

#### 3.3 Sampling method

Due to research resource limitations, this study surveyed the employees (including managers) of a multinational company listed in Taiwan. Snowball sampling was deployed on this population. The study distributed 15 expert questionnaires as a pilot test, made improvements based on suggestions from scholars and

experts, then conducted a post-test to ensure the questionnaire for each main construct in the Mo-Me model meets the standards for reliability, expert validity, discriminant validity, and convergent validity standards (Chiou, 2024). Furthermore, 420 formal questionnaires were distributed and 301 valid samples were collected, at an effective response rate of 71.67%.

### **3.4 Questionnaire data, measurement system, and statistical software**

To validate the research framework developed by this study, linear structural equation modeling (SEM) was used to perform confirmatory factor analysis (CFA) on the research model structure. The questionnaire was divided into five latent variables, with each latent variable further divided into observable/explicit variables, and each observable/explicit variable containing several survey questions. The study then used the statistical software packages SPSS and M-Plus to perform a series of statistical analyses on the organized and valid questionnaire files. The main results and analyses in the report are shown in the next section.

### **3.5 Linear structural equation modelling (SEM)**

Confirmatory factor analysis (CFA) is an analytical method related to exploratory factor analysis (EFA). To conduct a confirmatory factor analysis, this study first constructed a research model for the relationships among the five unobservable variables (latent variables): Corporate strategy, corporate organizational capability, corporate social responsibility, Artificial intelligence, and Corporate financial performance. Structural equation modeling (SEM) includes structural models and measurement models, to effectively solve the causal relationships between implicit variables or latent variables (Chiu, 2024).

### **3.6 Analysis of measurement model fit**

Diamantopoulos & Siguaw (2000) considered that the factor loading between latent/implicit variables and manifest/explicit variables mainly measures the strength of linear correlation between observable variables and unobservable variables. The closer the factor loading is to 1, the better the observable variables can measure the unobservable variables (in other words, better reliability). In addition, the average variance extracted (AVE) calculates the ability of unobservable (implicit) variables to explain the variance of each observable variable. Higher AVE values indicate higher reliability of the implicit variables (i.e., unobservable variables), as well as convergent validity and discriminant validity. Typically, the AVE value must be greater than 0.5.

### **3.7 Moderated mediation model (Mo-Me model)**

The model constructed by this study is a moderated mediation (Mo-Me) model, an “interference-type” mediation model. According to Chiou (2024), Mo-Me refers to a meditating effect moderated by a moderating variable (Mo), where 'Me' is the noun, and 'Mo' is the adjective. Hence, the mediating effect is the focus of the research analysis. The mediating effect must be established before the moderating effect, which then serves as the basis for the moderating path. (In other words, mediation comes first and then interference or moderation).

## **IV. RESULTS AND ANALYSIS**

The results of this study show that the factor loadings of all observable variables are between 0.8 and 0.9, indicating good reliability. The AVE values in this study are all greater than 0.5, indicating high reliability and convergent validity of the observable (explicit) variables (Table 4-1).

As described in the research methodology, the model constructed by this study is a moderated mediation (Mo-Me) model, an “interference-type” mediation model. According to Chiou (2024), Mo-Me refers to a meditating effect moderated by a moderating variable (Mo), where 'Me' is the noun, and 'Mo' is the adjective. Hence, the mediating effect must be established before the moderating effect, which then serves as the basis for the moderating path. (In other words, mediation comes first and then interference or moderation).

Mediating effects are the focus of the research analysis, shown in the figures below:

H<sub>1</sub>: Corporate strategy has positive and significant influence on Corporate financial performance (accepted).

H<sub>2</sub>: Corporate strategy has positive and significant influence on corporate organizational capability (accepted).

H<sub>3</sub>: Corporate organizational capability has positive and significant influence on Corporate financial performance (accepted).

H<sub>4</sub>: Corporate strategy has positive and significant influence on corporate social responsibility (accepted).

H<sub>5</sub>: Corporate social responsibility has positive and significant influence on Corporate financial performance (accepted).

Moreover, as shown in Tables 4-2-1 and 4-2-2, none of the confidence intervals (bias corrected or percentile) contains zero. Hence, corporate organizational capability (COC) and corporate social responsibility (CSR) are the “partial” dual mediating variables in the model constructed by this study.

The comparison in Table 4-3 Model Results: Quadruple Moderating Effects of Artificial intelligence indicates the following:

- (1)H<sub>6</sub>: Artificial intelligence and corporate organizational capability have positive and significant interaction effects on Corporate financial performance is accepted according to Table 4-3-1: Moderating Effect of AI as a Latent Variable (1); Figure 4-2-1: Moderating Effect of AI as a Latent Variable (1); and Plot 1 in Figure 4-2-2: Moderated Mediating Effect.
- (2)H<sub>7</sub>: Artificial intelligence and Corporate strategy have positive and significant influence on Corporate financial performance is accepted according to Table 4-3-2: Moderating Effect of AI as a Latent Variable (2); Figure 4-2-2: Moderating Effect of AI as a Latent Variable (2); and Plot 2 in Figure 4-2-4: Moderated Mediating Effect.
- (3)H<sub>8-1</sub>: Artificial intelligence and Corporate strategy have positive and significant influence on corporate social responsibility is accepted according to Table 4-3-3: Moderating Effect of AI as a Latent Variable (3); Figure 4-2-3: Moderating Effect of AI as a Latent Variable (3); and Plot 3 in Figure 4-2-6: Moderated Mediating Effect.
- (4)H<sub>8-2</sub>: Artificial intelligence and corporate social responsibility have positive and significant influence on Corporate financial performance is accepted according to Table 4-3-4: Moderating Effect of AI as a Latent Variable (4); Figure 4-2-4: Moderating Effect of AI as a Latent Variable (4); and Plot 4 in Figure 4-2-8: Moderated Mediating Effect.

Research reports by this study are shown below as a reference.

### 1. Determination Criteria of Measurement System in the Model (Table 4.1)

**Table 4-1: Determination Criteria of Measurement System in the Model**

Unobservable variable (latent variable)	Observable variable	Factor loading	Average Variance Extracted, AVE
Corporate strategy, CS	Low cost	.831	.529
	Differentiation	.812	.504
	Slack resources	.824	.516
Corporate Organizational Capability, COC	Innovation capability	.822	.515
	Marketing capability	.832	.531
Corporate Social Responsibility, CSR	Proactive corporate social responsibility	.827	.518
	Reactive corporate social responsibility	.822	.515
Artificial intelligence, AI	Expert systems; heuristic algorithms	.831	.529
	Natural language processing; computer vision	.831	.529
Corporate Financial Performance, CFP	Financial (EPS)	.836	.534
	Customer	.839	.538
	Internal process	.821	.514
	Learning and growth	.832	.531

Source: This study

### 2. Table 4-2: Model Results – Comparison of Dual Mediating Effects

Table 4-2-1 and Table 4-2-2 indicate the mediating effects of corporate organizational capability (COC) and corporate social responsibility (CSR), respectively.

**Table 4-2-1 Analysis and Comparison of Specific Indirect Effects (Me1: Corporate Organizational Capability, COC)**

		Product of		BOOTSTRAP 1000 TIMES 95% CI				
Point Estimate	S.E.	Coefficients		Bias corrected		Percentile		
		Est./S.E.	P-Value	Lower	Upper	Lower	Upper	
INDIRECT EFFECTS								
CS	0.418	.162	2.580	.000	2.421	2.739	2.400	2.741
COC	0.438	.122	3.590	.000	3.357	3.803	3.336	3.816
CFP	0.435	.182	2.390	.000	2.122	2.686	2.101	2.697
CONTRASTS								



CSvs. CFP	0.516	.162	3.185	.000	3.037	3.361	3.026	3.372
CS vs. COC	0.443	.125	3.554	.000	3.371	3.719	3.360	3.382
COC vs.CFP	0.514	.186	2.763	.000	2.574	2.932	2.563	2.943

**Table 4-2-Analysis and Comparison of Specific Indirect Effects (Me2: Corporate Social Responsibility, CSR)**

	Point Estimate	Product of Coefficients			BOOTSTRAP 1000 TIMES 95% CI			
		S.E.	Est./S.E.	P-Value	Bias corrected		Percentile	
					Lower	Upper	Lower	Upper
INDIRECT EFFECTS								
CS	0.415	.161	2.578	.000	2.417	2.739	2.217	2.617
CSR	0.342	.123	2.780	.000	2.657	2.903	2.457	2.857
CFP	0.435	.181	2.403	.000	2.222	2.584	2.022	2.422
TOTAL	1.192	.525	7.761	.000	7.296	8.226	6.696	7.896
CONTRASTS								
CS vs. CFP	0.515	.161	3.199	.000	3.038	3.360	2.838	3.670
CS vs. CSR	0.442	.123	3.593	.000	3.470	3.716	3.270	2.975
CSRvs.CFP	0.535	.181	2.956	.000	2.775	3.137	2.575	3.670

### 3. Table 4-3 Model Results –Quadruple Moderating Effects of Artificial intelligence

- (1) Table 4-3-1: Moderating Effect of AI as a Latent Variable (1); Figure 4-2-1: Moderating Effect of AI as a Latent Variable (1); and Plot 1 in Figure 4-2-2: Moderated Mediating Effect

**Table 4-3-1: Moderating Effect of AI as a Latent Variable (1)**

			Estimate	S. E.	Est./S.E.	Two-TailedP-Value
AI		BY				
	AI1		0.812	0.104	7.808	0.000
	AI2		0.831	0.101	8.228	0.000
COC		BY				
	COC 1		0.752	0.086	8.744	0.000
	COC 2		0.823	0.064	12.859	0.000
BI-1		BY				
	BI-1-1		0.711	0.094	7.564	0.000
	BI-1-2		0.716	0.092	7.783	0.000
BI		ON				
	AI		0.824	0.231	3.567	0.000
	COS		0.795	0.131	6.069	0.000
	AI * COS		0.175	0.078	2.244	0.000
CFP		WITH				
	AI		0.770	0.129	5.969	0.000

**Note: P<0.05 indicates the presence of an interaction effect.**

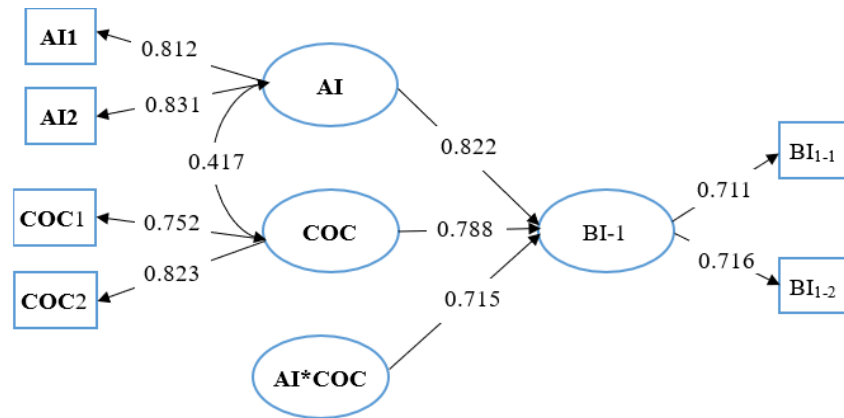


Figure 4-2-1: Moderating Effects of AI as a Latent Variable (1)

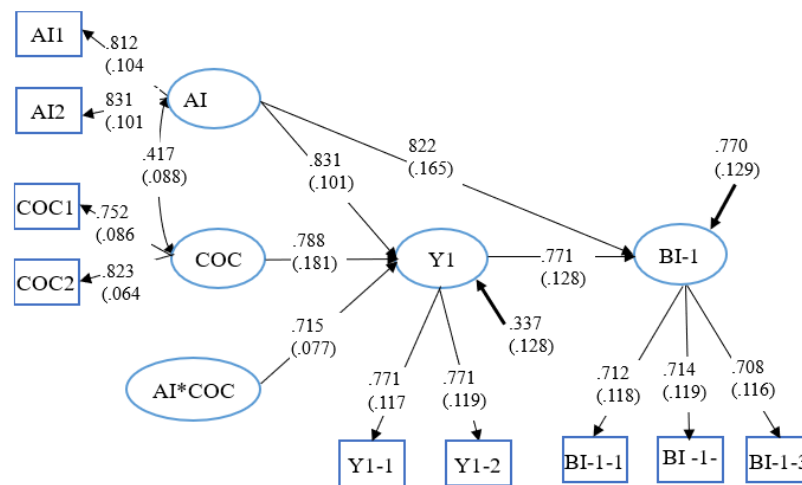


Figure 4-2-2: Moderated Mediating Effect- Plot 1

- (2) Table 4-3-2: Moderating Effect of AI as a Latent Variable (2); Figure 4-2-3: Moderating Effect of AI as a Latent Variable (2); and Plot 2 in Figure 4-2-4: Moderated Mediating Effect.

Table 4-3-2: Moderating Effect of AI as a Latent Variable (2)

			Estimate	S. E.	Est./S.E.	Two-Tailed P-Value
AI		BY				
	AI 1		0.803	0.112	7.717	0.000
	AI 2		0.821	0.123	6.675	0.000
CS		BY				
	CS 1		0.874	0.085	10.282	0.000
	CS 2		0.856	0.082	10.439	0.000
BI-2		BY				
	BI-2-1		0.736	0.088	8.364	0.000
	BI-2-2		0.733	0.092	7.967	0.000
BI		ON				
	AI		0.812	0.118	6.881	0.000
	CS		0.865	0.167	5.800	0.000
	AI* CS		0.872	0.081	10.765	0.000
CFP		WITH				
	AI		0.816	0.130		0.000

Note: P<0.05 indicates the presence of an interaction effect.

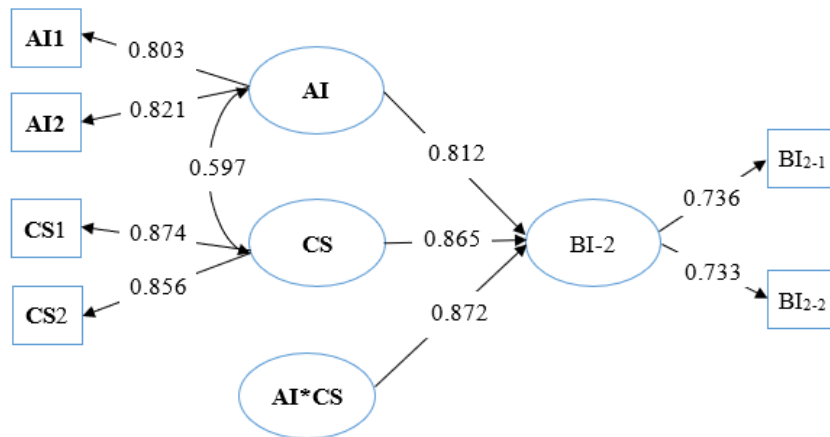


Figure 4-2-3: Moderating Effects of AI as a Latent Variable (2)

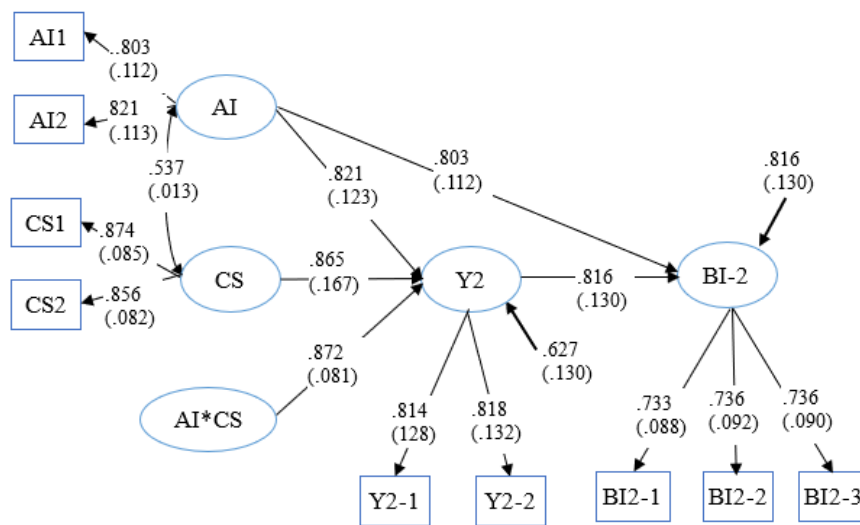


Figure 4-2-4: Moderated Mediating Effect- Plot 2

- (3) Table 4-3-3: Moderating Effect of AI as a Latent Variable (3); Figure 4-2-5: Moderating Effect of AI as a Latent Variable (3); and Plot 3 in Figure 4-2-6: Moderated Mediating Effect.

Table 4-3-3: Moderating Effect of AI as a Latent Variable (3)

			Estimate	S. E.	Est./S.E.	Two-Tailed P-Value
AI		BY				
	AI-1		0.831	0.112	7.420	0.000
	AI-2		0.833	0.211	3.948	0.000
CS		BY				
	CS-1		0.808	0.097	8.330	0.000
	CS -2		0.817	0.077	10.610	0.000
BI-3		BY				
	BI-3-1		0.733	0.092	7.967	0.000
	BI-3-2		0.747	0.095	7.863	0.000
BI		ON				
	AI		0.832	0.265	3.140	0.000
	CS		0.813	0.174	4.672	0.000
	AI * CS		0.792	0.091	8.703	0.000
CSR		WITH				
	AI		0.789	0.147		0.000

Note: P<0.05 indicates the presence of an interaction effect.

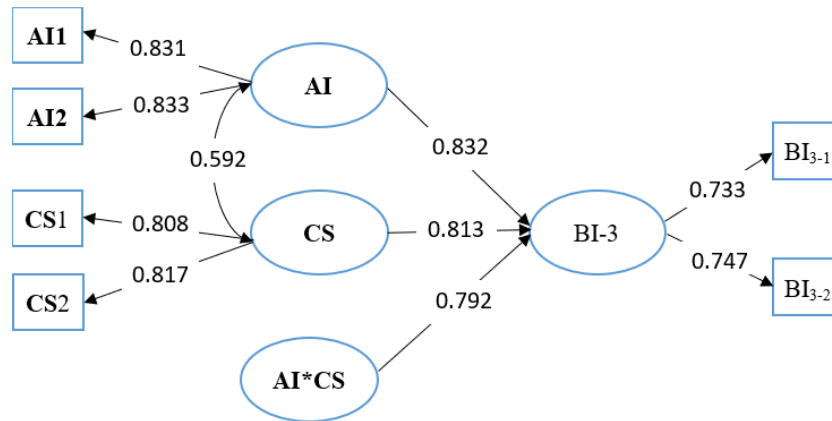


Figure 4-2-5: Moderating Effects of AI as a Latent Variable (3)

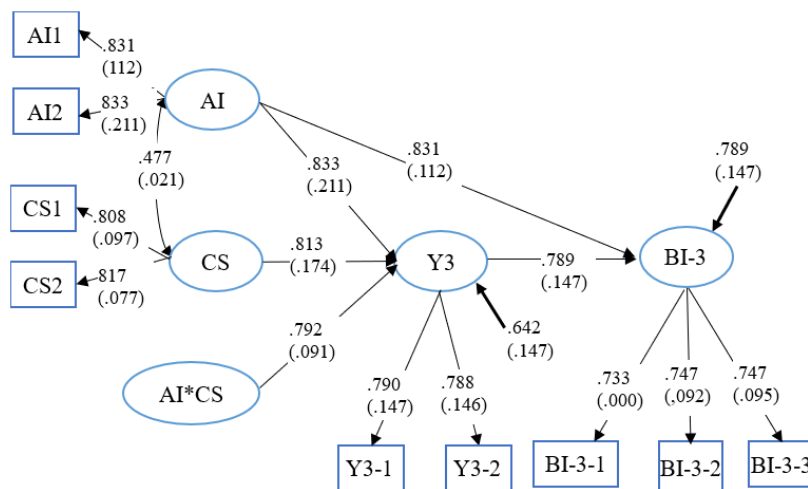


Figure 4-2-6: Moderated Mediating Effect- Plot 3

- (4) Table 4-3-4: Moderating Effect of AI as a Latent Variable (4); Figure 4-2-7: Moderating Effect of AI as a Latent Variable (4); and Plot 4 in Figure 4-2-8: Moderated Mediating Effect.

Table 4-3-4: Moderating Effect of AI as a Latent Variable (4)

			Estimate	S. E.	Est./S.E.	Two-Tailed P-Value
AI		BY				
AI	AI 1		0.842	0.131	6.427	0.000
	AI 2		0.838	0.217	3.862	0.000
CS		BY				
	CSR 1		0.837	0.112	7.473	0.000
	CSR 2		0.851	0.104	8.183	0.000
BI-4		BY				
	BI-4-1		0.773	0.117	6.607	0.000
	BI-4-2		0.787	0.121	6.504	0.000
BI		ON				
	AI		0.840	0.174	4.827	0.000
	CSR		0.844	0.162	5.21	0.000
	AI * CSR		0.717	0.108	6.639	0.000
CFP		WITH				
	AI		0.827	0.151		0.000

Note: P<0.05 indicates the presence of an interaction effect.

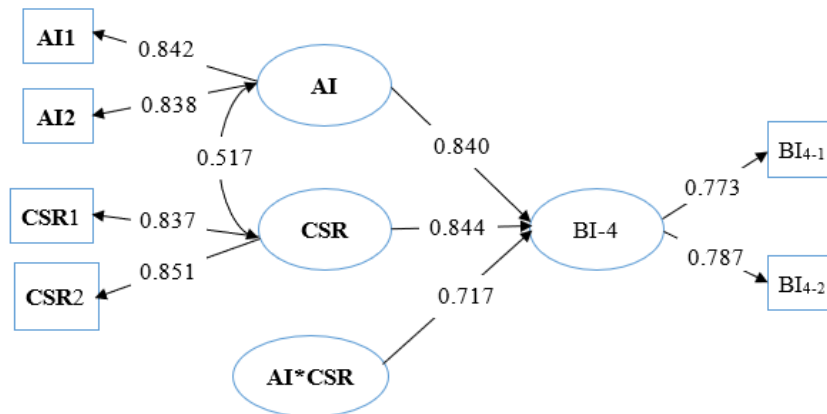


Figure 4-2-7: Moderating Effects of AI as a Latent Variable (4)

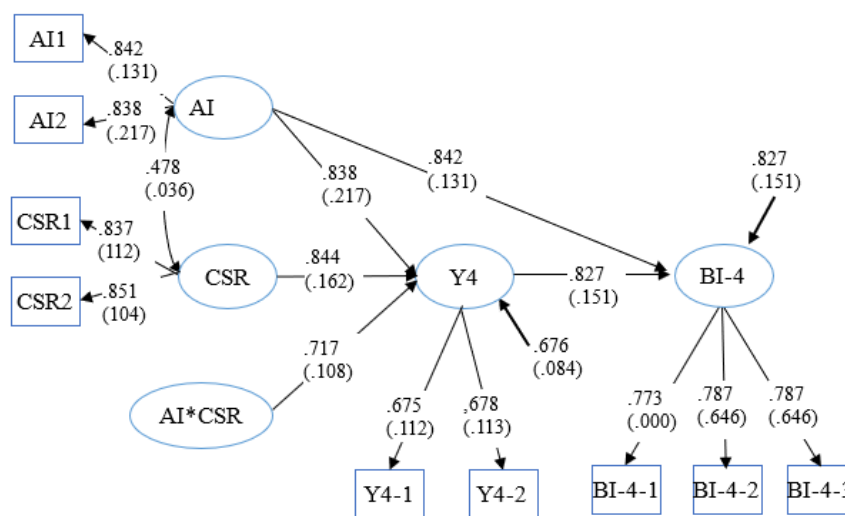


Figure 4-2-8: Moderated Mediating Effect- Plot 4

Based on the above tables, graphs and analyses, this study derives the following results on the hypotheses:

- (1) Corporate strategy has positive and significant influence on Corporate financial performance (fully accepted).
- (2) Corporate strategy has positive and significant influence on corporate organizational capability (fully accepted).
- (3) Corporate organizational capability has positive and significant influence on Corporate financial performance (fully accepted).
- (4) Corporate strategy has positive and significant influence on corporate social responsibility (fully accepted).
- (5) Corporate social responsibility has positive and significant influence on Corporate financial performance (fully accepted).
- (6) Artificial intelligence and corporate organizational capability have positive and significant influence on Corporate financial performance (fully accepted).
- (7) Artificial intelligence and Corporate strategy have positive and significant influence on Corporate financial performance (fully accepted).
- (8-1) Artificial intelligence and Corporate strategy have positive and significant influence on corporate social responsibility (fully accepted).
- (8-2) Artificial intelligence and corporate social responsibility have positive and significant influence on Corporate financial performance (fully accepted).

In summary, the testing conducted by the abovementioned research method (bias corrected or percentile) on H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, H<sub>4</sub> and H<sub>5</sub> in the model constructed by this study indicates that corporate organizational capability and corporate social responsibility have a “partial” dual mediating effect.



Meanwhile, as  $H_6$ ,  $H_7$ ,  $H_{8-1}$ , and  $H_{8-2}$  are accepted, it suggests that Artificial intelligence has quadruple interference effects. The abovementioned suggests good Mo-Me model fit.

Therefore, the development and application of quantum technology and Artificial intelligence is mostly driven by large multinational corporates under the strong policy support from the government. International top-notch professionals are recruited to conduct research work. In the meantime, the general public and professionals in various industries only need to learn how to operate or apply AI technologies and products.

## **V. CONCLUSIONS AND SUGGESTIONS**

### **5.1 Research Conclusions**

Based on the above data analysis and results, this study derives the following specific conclusions and management implications:

- (1) Corporate strategy has positive and significant influence on Corporate financial performance.  
This finding is consistent with Chen (2018).
- (2) Corporate strategy has positive and significant influence on corporate organizational capability.  
This finding is consistent with Chen (2018).
- (3) Corporate organizational capability has positive and significant influence on Corporate financial performance (fully accepted).  
This finding is consistent with Chen (2018).
- (4) Corporate strategy has positive and significant influence on corporate social responsibility (fully accepted).  
This finding is consistent with Chen (2018).
- (5) Corporate social responsibility has positive and significant influence on Corporate financial performance (fully accepted).  
This finding is consistent with Chen (2018).
- (6) Artificial intelligence and corporate organizational capability have positive and significant influence on Corporate financial performance.  
This is one of the results in this study.
- (7) Artificial intelligence and Corporate strategy have positive and significant influence on Corporate financial performance.  
This is one of the results in this study.
- (8-1) Artificial intelligence and Corporate strategy have positive and significant influence on corporate social responsibility.  
This is one of the results in this study.
- (8-2) Artificial intelligence and corporate social responsibility have positive and significant influence on Corporate financial performance.  
This is one of the results in this study.

Based on the aforementioned, both “corporate organizational capability” and “corporate social responsibility” in the model constructed by this study exhibit “partial” dual mediating effects. The managerial implication is that a large multinational company with slack resources and good competitive strategy can enhance its Corporate financial performance by using its organizational capabilities such as innovation and marketing and by fulfilling both proactive and reactive corporate social responsibility. Furthermore, “Artificial intelligence” has quadruple moderating effect (positive and reinforcing interaction) on the relationships among the four constructs, i.e., corporate organizational capability, Corporate strategy, corporate social responsibility, and Corporate financial performance. The managerial implication is that a large multinational company with slack resources and good competitive strategy can ultimately create sustainable operations and development if it is able to master the application of cutting-edge Artificial intelligence technology and align with national policies and strong support.

The abovementioned indicates suggests good fit of the Mo-Me model constructed by this study.

Built on the above conclusions and managerial implications, this study develops the following recommendations:

### **5.2 Research limitations and suggestions for future research directions**

- (1) Due to the difficulty in obtaining samples, this study surveyed employees (including managers) of a multinational company listed in Taiwan and used snowball sampling for this population. Interested researchers in the future are suggested to adopt different sampling techniques, expand the sampling scope, and use different statistical software packages for verification.
- (2) The application and research of Artificial intelligence is handled by large international corporates with

strong capital and ample resources. Top-notch talents are recruited for R&D under the government's policy guidance and strong support. While the upstream supply chain (industry engine) of the Artificial intelligence related sectors are driving the development of Artificial intelligence, certain products or components related to these large corporates may be phased out. Therefore, the companies at risk (especially small-and-medium enterprises in relevant mid/downstream sectors) must rely on the assistance from the government's forward-looking policy to ensure self-reliance and seek survival and development (transformation). Meanwhile, large international corporates with strong capital and ample resources in the upstream sectors must also, based on the concept of "corporate social responsibility", make collective and reasonable contributions to humanity, especially by cooperating with policies launched by the governments of host countries to eliminate threats to basic survival of lower-income groups in the society. This will enable all people in the world, different countries and societies to make the best use of their talents and preserve their basic right to survival!

- (3) The application of Artificial intelligence allows resource-rich large multinational corporates to increase production efficiency, reduce production costs, and enhance operational performance. Therefore, these large multinational corporates should establish public welfare funds with part of accumulated substantial profits and incorporate these funds into public welfare accounts to fulfill corporate social responsibility (CSR). This is a win-win because it helps disadvantaged groups (helping others) and achieves tax reduction (helping the companies).
- (4) The development of Artificial intelligence should be geared towards high-end products for tasks beyond physical capabilities of humans (such as robots for handling nuclear fuel rods). To the extent possible, the development of low-end products (e.g., robotic waitresses in the restaurant) that replace tasks humans can easily handle should be avoided. In other words, the development of low-end products that compete with disadvantaged citizens for "survival jobs" should be avoided as much as possible.
- (5) The research and development of Artificial intelligence (professional and cutting-edge technology) should be carried out by large international companies in the upstream in accordance with government policies and amid a fully integrated supply chain. End users can share the benefit of the achievements, and various industries can use AI technologies and products to assist their business development. Of course, high-end AI products will replace and threaten related products in some industries. For most small and medium-sized enterprises or certain companies at risk, this is down to how to respond. (It is suggested that government authorities should also think about disadvantaged businesses.) In conclusion, the development and application of Artificial intelligence is a global trend with benefits outweighing the drawbacks!

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