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**Facilitating global talent management and lateral knowledge transfer: The mediating role of
headquarters involvement**

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Facilitating global talent management and lateral knowledge transfer: The mediating role of headquarters involvement

ABSTRACT

This study examines under what conditions global talent management (GTM) facilitates lateral knowledge transfer within the multinational corporations (MNCs), i.e. knowledge flow between a foreign subsidiary and other foreign subsidiaries. In particular, we focus on the mediating roles of HQ involvement, such as HQ attention, socialization mechanism, and performance evaluation criteria in the relationship between GTM and lateral knowledge transfer from the focal subsidiary to other foreign subsidiaries in MNCs. Drawing upon the social exchange theory, we develop a theoretical model and test it using a sample of 116 Japanese MNC subsidiaries in Asia and Europe. Our path analysis results indicate that the relationship between GTM and lateral knowledge transfer was fully mediated by HQ attention and performance evaluation criteria, while the socialization mechanism was not found to be a mediator. Thus, our findings underscore the crucial mediating roles of HQ involvement in implementing GTM at foreign subsidiaries for promoting lateral knowledge transfer within MNCs.

Keywords: Global talent management; social exchange theory, socialization mechanism; headquarter attention; performance evaluation criteria; lateral knowledge transfer

Investigating the Impact of the Strategic Tripod and Moderation of Experience on Equity Ownership in Japanese Trading Companies' Subsidiaries

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ABSTRACT

When examining internationalization strategies, there remains a dearth of research dedicated to analyzing Multinational Enterprises (MNEs) within the service sector, specifically focusing on trading companies (TCs). In light of the scarcity of investigations within this sector and the paramount importance of comprehending equity ownership strategies for accessing international markets, our study seeks to scrutinize the factors influencing the equity ownership structure of Japanese subsidiaries operated by TCs. Our objective is to enrich the existing body of literature by elucidating the factors that shape equity ownership structures within the framework of the Strategic Tripod. Additionally, we endeavor to assess how different experience levels moderate the relationship between the strategic tripod and ownership structures. Our research collected data from Japanese TCs' investments across 76 nations, yielding a dataset comprising 881 observations. We have employed robust multiple linear regression techniques to evaluate our hypothesized relationships empirically. Consequently, we aspire to augment the international business literature by enhancing our comprehension of the internationalization strategies of trading companies, considering the influence of sector, resource, and institutional dynamics on equity ownership structures.

Keywords: Internationalization; Japanese Trading companies; Service Firms; Strategy Tripod; Equity Ownership Structure; Experience; Japanese Subsidiaries.

Corporate Governance Reforms in Japan:

The Impact of Issuing Corporate Governance Code in 2015 on Firm Performance and Value

Abstract

This paper examines the impact of the corporate governance reforms in Japanese companies from 2010 to 2019, focusing on the Corporate Governance Code issued by the Japanese government and the Tokyo Stock Exchange in 2015. It estimates the effect of board composition changes on performance indicators: Return on Equity (ROE), Return on Assets (ROA), and Tobin's Q.

The results indicate that changes in the board composition, including the ratio of independent directors, showed a positive effect across all three performance indicators in the models without year and firm fixed effects. However, these statistical significances were lost when adjusting year and firm fixed effects. This fact suggests that the apparent impact of board composition change is the bias from firm and year effects. The increment of the independent director's ratio, which is this study's central interest, has a statistically negative effect on ROE and Tobin's Q. Moreover, the appointment of female directors does not associate with a positive impact on any performance indicators, regardless of model adjustments, and only showed a statistically negative impact on Tobin's Q. The findings of our study cast empirical doubt on the effectiveness of Japan's corporate governance reforms.

Keywords:

Corporate Governance, Independent Director, Firm Evaluation, Corporate Governance Code, Board of Directors

Corporate Governance Reforms in Japan:

The Impact of Issuing Corporate Governance Code in 2015 on Firm Performance and Value

1. Introduction

Independent directors on a corporate board do not directly engage in the company's operations. In the Corporate Governance Code (CGC), which was established for the first time in Japan in 2015, the expected roles and functions of independent directors are defined as: (1) providing advice on management policies and improvements, (2) overseeing management, (3) monitoring conflicts of interest, and (4) reflecting the opinions of stakeholders. Adams and Ferreira (2007) describe the roles of directors as monitoring and advising. However, for independent directors who are appointed from outside the company, it is required that they protect the interests of shareholders and stakeholders from an independent and objective standpoint, and provide effective oversight to management and other directors.

Before the Japanese government introduced the CGC, which effectively mandated the appointment of independent directors for listed companies, it was not standard practice to appoint independent directors in Japanese companies. As a result, it was believed that boards of directors were not adequately fulfilling their monitoring role, leading to insufficient protection of shareholders and stakeholders. To address these criticisms, the Financial Services Agency led the development of the CGC in 2015 the Tokyo Stock Exchange (TSE) has mandated compliance with the CGC as a listing rule, requiring listed companies to either comply or explain why they have not. The CGC consists of several articles, some of which mandate the appointment of independent directors.

The CGC expects the independent director to strengthen the monitoring function to benefit shareholders and enhance Japanese listed companies' performance and corporate value. However, there is limited empirical evidence regarding whether independent directors truly enhance corporate outcomes and

value. In contrast, some reports on major corporate scandals suggest that Japan's independent director system has a weak monitoring function and is ineffective.

For instance, Toshiba, a major Japanese electronics company, reported in 2015 that it concealed several US dollar losses due to accounting fraud. When this corporate misconduct was uncovered, some researchers pointed out that the function of independent directors' monitoring was weak and inadequate. Notably, some independent directors at Toshiba were prominent figures in the field of Japan's discourse on corporate governance. In the Toshiba case, the independent directors failed to monitor adequately and became part of a facade concealing corporate malpractice.

Japan is marked by a conflict between optimistic and critical perspectives regarding the role of independent directors. Optimistic advocates argue that the independence-based monitoring of these directors enhances corporate value. Theoretically, the presence of independent directors contributes to corporate value by improving governance monitoring. Conversely, severe critics challenge this view, arguing that the function of Japanese independent directors is too weak and insufficient to effectively monitor corporate governance, serving merely to mask the true nature of the company. Therefore, this study conducts a statistical analysis of data from Japanese listed companies from 2010 to 2019 to provide empirical evidence on the relationship between independent directors and corporate value.

The organization of this paper is as follows: Section 2 reviews the regulations on the independence of corporate boards in various countries and provides an overview of the appointment of independent directors in Japan. Section 3 reviews the impact of board composition on corporate value, focusing on how the exogenous introduction of independent directors influences this relationship. Section 4 reports the results of the empirical analysis examining the impact of the increased appointment of independent directors and other changes in board composition on ROE, ROA, and Tobin's Q between 2010 and 2019. Finally, Section 5 presents the conclusion.

2. Independent Directors: Comparison between Japan and Other Countries

2.1 Required number of independent directors

The CGC mandates the appointment of at least two independent directors or a third of the board. This minimum requirement for independent directors is relatively low compared to other countries. Miyajima and Saito (2020), referencing Fauver et al. (2017), point out that Japan was late in regulating board independence compared to other countries and also has a lower threshold for the number of independent directors. Specifically, in advanced countries like the United States, the United Kingdom, France, Australia, and in countries like South Korea and Thailand, which strengthened their corporate governance following the 1997 Asian financial crisis, and Malaysia, which established its corporate governance system immediately after the crisis, the requirement is 33% or more.

It must be said that the number of independent directors in Japan is low, not only compared to advanced nations but also to neighboring Asia-Pacific countries. This is believed to be due to the composition of the boards of directors. Until the establishment of companies with nomination committees in 2002, Japanese corporate governance was characterized only by companies with boards and statutory auditors.

Hirata (2003) argues that the board of statutory auditors, which serves as an auditing body for business execution, is a part of the board of directors system¹. The board of statutory auditors consists of the majority of independent auditors. Suppose you count the statutory auditors as independent directors. In that case, Japan is not significantly inferior to other countries. Japan strengthens the role of legal audits to prevent corporate scandals, such as window-dressing and collusion with corporate blackmailers or extortionists.

¹ The Japan Audit & Supervisory Board Members Association is diligently working to raise awareness of the functions of audit & supervisory board members abroad, as the audit & supervisory board system is a unique institution largely unparalleled in other countries, with some exceptions in parts of Asia.

From the aspect of legal audits, Japan has several strengths. The four-year term of statutory auditors is considerably longer than the one- or two-year term of directors in many countries. The system requires that independent statutory auditors constitute most of the board of auditors.

Concerning the responsibilities of directors and auditors, they still have the difference in authority and evaluation. Japan's board of statutory auditors does not select executive officers, while Germany does. This fact suggests that the authority of Japan's statutory auditors is relatively weak. They have a risk of improving board governance inadequately.

However, a discrepancy in status and evaluation between directors and auditors due to differences in responsibilities does exist. For instance, as long as the board of statutory auditors, like in Germany, cannot select executive officers, it is difficult to say that strengthening the authority of auditors has improved board governance.

2.2 Trends in Appointing of Independent Directors in Japan

Figure 1 shows the trend in appointing independent directors in listed companies from 2004 to 2019. Among TSE first section companies, the adoption rate of independent directors, which was 62.3% in 2013, surged to 74.3% in 2014 and 94.3% in 2015. This significant increase comes from the 2014 amendment of the Companies Act and the discussions held since 2010 by the Legislative Council's Company Law Subcommittee, as well as the influence of expert meetings on the TSE's listing rules and the formulation of the CGC.

Moreover, starting in May 2015, companies could transition to an audit and supervisory committee system. These companies satisfy the requirement for the number of independent directors if a majority of the audit and supervisory committee members are independent directors. This migration measure means the limit for the number of external officers in these companies is less than that in traditional companies with a board of auditors. As of July 14, 2016, 17.8% (349 companies) of the companies listed on the first section of the TSE had completed the transition to the audit and supervisory

committee system. TSE has several markets including the first section as stated. 18.2% (637 companies) of all the listed companies across the markets had completed at that time. Figure 1 illustrates this transition.

3. Prior Research on Impact of Board Composition on Corporate Value

3.1 Prior Research on Independent Directors in Countries Outside Japan

Several studies have focused on the exogenous introduction of independent directors and their impact on corporate value. Notable examples include the Sarbanes-Oxley Act of 2002 in the United States (hereafter, SOX Act), the Cadbury Report of 1992 in the United Kingdom, and the corporate governance reforms (CG reforms) following the 1997 IMF assistance in South Korea.

In the United States, the New York Stock Exchange (NYSE) requires all listed companies to appoint at least two independent directors². In 2003, it became mandatory for all US companies listed on the NYSE and NASDAQ to have a majority of independent directors on their boards. The 2003 reform presented an opportunity to analyze the relationship between independent directors and corporate performance.

However, the results of numerous empirical analyses do not uniformly show that an increase in independent directors is effective for corporate performance. Duchin et al. (2010) revealed that the effectiveness of independent directors depends on the company's information acquisition costs, using analysis based on ROA, Tobin's Q, and stock returns. Linck et al. (2009) reported that board reforms significantly increased board-related costs for listed companies, especially burdening smaller companies, and argued that the costs of enhancing board monitoring do not necessarily lead to better governance.

² Takeshita, C [1993] p.2

Lu and Wang (2018), analyzing board composition from 1996 to 2007, reported that the increased independence of boards positively impacted innovation in large companies, in traditional industries not requiring cutting-edge technology, in less competitive industries, and with high leverage.

Similarly, in the United Kingdom, the 1992 Cadbury Report recommended the appointment of at least three non-executive directors (with a majority being independent directors)³. Dahya and MacConnell (2007) demonstrated the positive effect of independent directors on corporate performance following this regulatory reform.

In South Korea, Black et al. (2006) reported a causal relationship between the independence of boards and rising stock prices following the CG reforms after the Asian financial crisis. More recently, Fauver et al. (2017) analyzed the impact of board reforms driven by exogenous factors in 41 countries, finding that reforms enhancing the independence of boards and audit committees increased corporate value.

These empirical analyses on the exogenous increase of independent directors show positive impacts on corporate performance and value in the UK and South Korea, while in the US, a clear causal relationship is not evident. The country's context and history may explain this conflicting result. The US already had advanced board independence earlier, so the researcher could not identify the relationship between independent directors and firm performance. In contrast, in the UK and South Korea, independent directors did not constitute a majority of boards before regulatory introduction. Because of this earlier situation of the lack of supervisory function in these countries, the researchers found that independent directors positively impact firm performance.

3.2 Prior Research on Independent Directors in Japan

³ In addition, for all publicly listed companies in the UK, it is required that for annual reports and financial statements for fiscal years ending after June 30, 1993, they must disclose their compliance status with specific regulations and, if not in compliance, the reasons for non-compliance. This disclosure requirement has been requested to be included in the listing rules of the London Stock Exchange.

In Japan, the introduction of independent directors can be considered exogenous around 2015, following the enforcement of the revised Companies Act and the adoption of the CGC by the TE. Miyajima and Saito (2020) examined the impact of an increase in independent directors on corporate performance for TSE first section companies over five years from the fiscal year ending in 2014 to 2019.

According to their findings, the increase in independent directors did not statistically affect ROA, ROE, or Tobin's Q. However, they also demonstrated that companies with a lower foreign shareholding ratio, where capital market discipline is relatively weak, experienced more significant performance improvements with the addition of independent directors. For instance, for every 10% decrease in the foreign shareholding ratio, the improvement effect on ROA of appointing two additional independent directors increased by 0.6%.

Additionally, they reported that a 10% higher management shareholding ratio resulted in a 1.7% higher improvement effect on ROE three periods later when a company appointed two additional independent directors, indicating a significant performance improvement effect of independent directors in companies with solid management involvement, such as family businesses.

Morikawa (2019) analyzed the impact of an increase in independent directors in the fiscal years 2014 and 2015 on investment behavior and management outcomes up to 2016. The analysis did not observe an increase in corporate investment in equipment or R&D, nor an enhancement in management outcomes such as ROA or total factor productivity. Miyajima and Saito (2020) reported similar results regarding corporate investment behavior.

Furthermore, Ito et al. (2017) conducted an event study for two periods around 2015, targeting TSE-listed non-financial companies that use Japanese accounting standards and have a fiscal year-end in March. Their analysis also did not find statistically significant impacts of the independent director ratio on ROE, ROA, or Tobin's Q. However, they observed a significant positive impact on ROE and ROA for companies that newly appointed an independent director in response to the CGC. They also noted that while the initial introduction of an independent director increased capital productivity, increasing the

number of independent directors from one to two to comply with the CGC did not contribute positively to corporate performance.

Other empirical studies examining the impact of autonomously introduced independent directors on corporate performance in Japan include works by Miyajima and Nitta (2006), Miwa (2010), Miyajima (2011), Saito (2011, 2015), Uchida (2012), Miyajima and Ogawa (2012), Saito et al. (2016), Arikawa et al. (2016), and Ito et al. (2017).

In summary, Japanese studies suggest that the exogenous introduction of independent directors in 2015 did not significantly impact corporate performance. By contrast, companies with weak external governance experienced performance improvement. Family-owned companies, which appointed independent directors for the first time, also experienced performance improvement. They do not necessarily prioritize the capital market discipline.

3.2 Prior Research on Compositions in Board Directors

Harrison and Klein (2007) argue that in studies on organizational diversity, heterogeneity, and related concepts, there are hardly any consistent conclusions. Additionally, Richard et al. (2004) contend that the relationship between diversity and performance depends on the level of diversity and the way it is managed. In this paper, we delve into three specific dimensions of board diversity: gender composition, board size, and the average age of directors, to understand their impact on corporate value.

Regarding the influence of female directors, studies show mixed results. Matsumoto (2019) analyzed the ratio of female directors to ROA & Tobin's Q in the TOPIX 500 from 2007 to 2013, finding the correlation statistically insignificant once industry and endogeneity were controlled. Similarly, Adams and Ferreira (2009) found that while female directors contribute to stronger governance structures, the direct impact on corporate value, as measured by Tobin's Q & ROA, was significantly negative after controlling for endogeneity. However, in different contexts, Nguyen et al. (2015) in Vietnam, and Tanaka (2019) and Sakurada (2023) in Japan, observed positive correlations between female director ratios and

corporate performance metrics like Tobin's Q and ROA, suggesting that outcomes may vary significantly across different cultural and economic environments.

Turning to board size, classical theories like those proposed by Jensen (1993) suggest that smaller boards are more effective, positing an optimal range of 7 to 8 members. This viewpoint is somewhat supported by Adams and Ferreira (2009), who observed a significant negative relationship between board size and ROA in U.S. firms, although their findings on Tobin's Q were not statistically significant. Coles et al. (2008) noted that while larger boards can benefit complex businesses by providing diverse advice, smaller boards were more beneficial in simpler business environments. Similarly, Uchida (2011) found no performance improvements in Japanese firms that reduced their board size, despite regulatory encouragement.

Regarding the average age of directors, the influence on corporate performance also varies. Tejerina-Gaite and Fernández-Temprano (2021) reported that while the age of internal directors in Spanish-listed companies did not significantly impact corporate performance, the age of independent directors had a negative effect. Conversely, Rose (2005) found a younger average board age to be significantly positive for Tobin's Q in Danish companies, suggesting that younger boards may be more dynamic and possibly more responsive to technological advancements and market changes.

These mixed findings across different dimensions of board diversity underscore the complexity of the relationship between board composition and corporate performance. They highlight the importance of context, including cultural, regulatory, and economic factors, in determining the effectiveness of board diversity initiatives.

4. Hypothesis Building

4.1 Ratio of Independent Directors in Board

Research from both international and Japanese studies on the impact of independent directors shows varied results, indicating that the influence is still unclear. This variation in findings can be attributed to differences in the era of empirical analysis, objectives, metrics, and approaches used. Some studies report that in Japan, an increase in independent directors - especially in companies with weak capital market discipline or those appointing a new independent director - leads to improved corporate performance (Miyajima and Saito, 2020; Ito et al., 2017). However, for companies that already had independent directors, further increases following the CG reforms did not show statistically significant effect on corporate performance indices (Ito et al., 2017).

Prior research on the increase in independent directors in Japanese CG reforms generally focuses on the period from 2014 to 2019, surrounding the implementation of the CGC, and analyzes the impact of changes in the number of directors on corporate performance. At the time of 2014, the year before the introduction of the CGC, the average number of directors in companies listed on the first section of the TSE was 8.61 person⁴. However, it is considered important to assess the impact on management not only by the number of directors but also by the ratio of directors within the entire board. Therefore, Hypothesis 1 focuses on the ratio of independent directors and extends the period back to 2010, examining the impact of changes in the ratio of independent directors from 2010 to 2019 on corporate performance.

<Hypothesis 1: On Ratio of Independent Directors in Board Directors>

Hypothesis 1: An increased ratio of independent directors positively affects corporate value indicators.

4.2 Compositions in Board Directors

One of the primary focuses of the CG reforms is the effectiveness of the board of directors. Moreover, diversity along with independence is a key issue in ensuring the effectiveness of the board. Iriyama (2019) notes that diversity includes demographic diversity, such as gender, race, and age, as well

⁴ Tokyo Stock Exchange [2015] p.20

as task diversity, which encompasses knowledge, abilities, experience, and values. According to Taniguchi (2016), the inclusion of task diversity in the definition of diversity has led to a paradigm shift, evolving diversity into a management issue that confers competitive advantage.

In the board reform efforts, the appointment of female directors is emphasized as a symbol of diversity. Globally, the proportion of female directors in Japanese companies remains relatively low. Governments, business sectors, and institutional investors have actively promoted this initiative. The Japan Business Federation (Keidanren) aimed to achieve a 30% ratio of female executives by 2030, according to their report on the New Growth Strategy for 2020⁵. The government, in its "Priority Policies for Women's Active Participation and Gender Equality 2023," announced a target of over 30% female directors in prime-listed companies by 2030⁶. Institutional investors also request the appointment of female directors in their shareholders' meeting voting policies. Moreover, proxy advisory firms like ISS and Glass Lewis have included the appointment of female directors in their voting guidelines⁷.

The emphasis on appointing female directors currently stems not only from the goal of providing equal opportunities without gender restrictions but also from the need to bolster the female labor force in response to a declining working population and economic power due to low birthrates and aging. Although prior research on the impact of female directors on corporate performance have shown varied results, these studies did not include the period from 2015 to 2019. Given that the number of female directors in our country has increased following the CG reforms, this paper anticipates deriving new insights from its analysis. Based on the discussions above, this study hypothesizes that female directors contribute to corporate value and therefore proposes the Hypothesis 2a.

⁵ Not limited to directors under the Companies Act, this also includes executive officers or those holding equivalent positions.

⁶ In the context of the Companies Act, officers refer to directors, audit & supervisory board members, and executive officers. If audit & supervisory board members are included, the percentage was 5.8% in 2019 and 13.4% in 2023.

⁷ ISS recommends opposing the appointment of top management in cases where there are no female directors, while Glass Lewis advocates for at least 10% of directors to be of diverse genders, specifically targeting companies listed in the Prime Market.

<Hypothesis 2a: Diversity in Board Directors>

Hypothesis 2a: From the perspectives of fairness, flexibility, and agility in management, the appointment of female directors is significantly positive for corporate value indicators.

Considering the prior research, the impact of board size on corporate performance depends on the business model and the choice of performance indicators. However, in management contexts where timely decision-making is required, it is assumed that a smaller board size can lead to quicker decision-making. In light of the CG reforms, this study aims to examine the effect of board size on corporate performance in Japanese companies by testing the following hypothesis.

<Hypothesis 2b: Agility in Board Directors>

Hypothesis 2b: From the perspectives of fairness, flexibility, and agility in management, a smaller number of directors is significantly positive for corporate value indicators.

Considering the importance of diversity, the age composition of a company's board of directors warrants attention. In Japan, the lifetime employment system often creates a management 'old boys' club,' with undeniable benefits in terms of experience and established human networks. However, in today's rapidly changing business environment, it is crucial to evaluate whether boards benefit more from extensive experience or from a fresh perspective that aligns with current market dynamics. This study aims to assess the impact of the board's average age on corporate performance and market perception.

<Hypothesis 2c: Ages in Board Directors>

Hypothesis 2c: From the perspectives of fairness, flexibility, and agility in management, a younger average age of directors is significantly positive for corporate value indicators.

This section will conduct a multiple regression analysis to test these hypotheses. The sample for analysis includes 785 companies from the TOPIX 1000 constituents as of December 2019, with 12 months

of fiscal data available for analysis. The analysis period covers ten years, from 2010 to 2019. Considering prior research, ROE and ROA as profitability indicators, and Tobin's Q as an evaluation from the stock market are used as corporate value indicators. The term "corporate value" is synonymous with "corporate performance" in the analysis of ROE and ROA. For ROA, "net income before taxes" accommodates different accounting standards and industries (including financial). Other variable definitions are as per Table 1. The board data and financial information were obtained from Nikkei Value Search and stock market-related data from Bloomberg.

The difference from prior research is the inclusion of the period from January 2010 to December 2019 for analysis, encompassing the period when the CG reforms were strongly promoted under the "Japan Revitalization Strategy" initiated in 2013. The analysis is attempted using OLS before adjustment (1, 3, 5) and after adjustment (2, 4, 6) for time effects (year effects) and individual effects (firm effects). The next section will provide an overview of the appointment of independent directors in the sample companies, followed by the analysis.

4.3 Descriptive Statistics: Trends in Appointing Independent Directors

The appointment status of independent directors during the analysis period is shown in Table 2. As of 2015 (fiscal year ending in December 2015), the average number of independent directors is 2.25, with a median of 2.00. The average ratio of independent directors is 23.73%, and the median is 20.00%. In comparison, the overall situation for all companies listed on the TSE first section during the same period shows an average of 1.99 independent directors and a median of 2.00, with the ratio being 23.43% and 20.00%, respectively. The sample, drawn from the higher market capitalization TOPIX 1000, has slightly more independent directors than the average for the TSE first section, but overall, the appointment status of independent directors is not significantly different. Notably, at the 2015 point in the sample, there are 13 companies with zero independent directors and 173 with one independent director.

Table 3 presents the changes in the number of independent directors from 2011 to 2019. It shows the number of companies that increased their independent directors from one number to another, categorized by the overall sample and the type of organizational design. The years with more companies increasing their independent directors are represented in darker green shades.

According to this data, within the entire sample, the most common increase was from zero to one independent director in 2014, with 85 companies doing so. The period with the highest increase from one to two independent directors was 2015, with 149 companies. This indicates that many companies had completed their compliance with the CGC's requirement of appointing at least two independent directors during the fiscal year from January to December 2015.

Companies with a Board of Auditors constitute over 73% of the sample. The option to transition to a company with an Audit & Supervisory Committee became available on May 1, 2015, making 2015 the first transition year. It has been noted that external statutory auditors often transition to directors serving on the audit & supervisory committee, but this paper does not detail this trend, though the results do suggest such lateral appointments.

At the 2015 point, there were 13 companies in the entire sample that had not appointed any independent directors. Of these, nine had their fiscal year end before enforcing the revised Companies Act in April 2015, so they were not required to explain why it was "inappropriate" to appoint independent directors under the revised law⁸. Subsequently, six companies transitioned to having an Audit & Supervisory Committee in the following fiscal year.

Since discussions and considerations for mandating the appointment of at least two independent directors began around 2014, the appointment of independent directors in the sample companies advanced between 2013 and 2015.

⁸ Applicable from the fiscal year undergoing an audit after May 1, 2015, the enforcement date of the amended Companies Act.

4.4 Empirical Analysis: Impact of Board Composition on Corporate Value

This section analyzes the impact of changes in board composition from 2010 to 2019 on ROE, ROA, and Tobin's Q. The dependent variables used in the analysis are ROE, ROA, and Tobin's Q. The explanatory variables include the ratio of independent directors, total number of directors, average tenure, average age, term stipulated in the articles of incorporation, presence of female directors, industry, and the type of governance structure implemented.

The changes in the ratio of independent directors at each time point (Table 4) and the regression model, as well as the main analysis methods, are outlined below:

Regression Model :

$$\begin{aligned} \text{Performance Indicator} = & \beta_0 + \beta_1 \text{REXD} + \beta_2 \text{NBOD} + \beta_3 \text{TENURE} + \beta_4 \text{AGE} + \beta_5 \text{BODDurD} \\ & \beta_6 \text{FBODD} + \beta_7 \text{MFD} + \beta_8 \text{AUDD} + \Sigma \text{FirmDummies} \\ & + \Sigma \text{YearDummies} \\ \text{Performance Indicator} \in & \{ \text{ROA}, \text{ROE}, \text{Tobin's Q} \} \end{aligned}$$

The construction of variables is as follows.

Dependent variables:

Performance Indicator: The performance indicator is one of these firm performances: ROA, ROE, and Tobin's Q. Each indicator has different meanings in terms of firm performance.

ROA: Return on Assets

ROA measures efficiency relative to total assets. One of the objectives of the board of directors is to promote sustainable growth and improve corporate performance. Given that one of the roles expected of independent directors is to provide advice on management improvement, ROA can be considered an

indicator of the board's effectiveness. Dahya & MacConnell (2007) evaluated the post-Cadbury report institutional reforms in the UK using ROA.

ROE: Return on Equity

One of the roles of independent directors is to protect shareholder interests, and ROE is a key investment metric for shareholders. ROE, which indicates profitability relative to shareholder equity, can be seen as a measure of how well independent directors are participating in management from a shareholder's perspective.

Tobin's Q:

Tobin's Q, which includes market capitalization in the numerator, is an effective indicator for measuring corporate performance. Many overseas studies, including Fauver et al. (2017), have used Tobin's Q for analysis.

Independent variables:

RIND: Ratio of Independent directors

This variable indicates the ratio of independent directors in the board. This variable is calculated by the number of independent directors divided by the total number of directors.

NBOD: Number of board directors.

This variable indicates the number of directors in the company board. It is the number of directors during the fiscal year of the financial report. As of 2020, the average number of directors in companies listed on the TSE first section is 8.94 persons. (TSE, 2021)

TENURE: Average Tenure of Directors

This variable indicates the number of directors in the company board. As of 2019, the average tenure of directors in Japanese companies is 5.0 years, while for outside directors, it is 3.3 years. (Yamada, 2022)

AGE: Average Age of Directors

This variable indicates the average age of directors. As of 2018, the average age of directors in listed Japanese companies was 59.5 years old. (Nikkei, 2018)

BODDurD: Director Tenure as Stipulated in the Articles of Incorporation

This variable indicates the tenure of directors within a company. Companies with audit committees can select a director's term of either one or two years. In recent times, as a response to the evolving business landscape and to enhance management accountability and secure the confidence of shareholders annually, there has been a noticeable trend among companies with audit committees to adopt a one-year director's term. In this analysis, out of the 785 companies being studied, 576 have audit committees.

FBODD: Presence or Absence of Female Directors

This variable indicates the presence of female directors. If a company has appointed at least one female director, it is assigned a value of 1; otherwise, it is assigned a value of 0. The reason for not using the female director ratio is that there were few companies in Japan with two or more female directors during the analysis period. As of 2019, the proportion of women among all directors in companies listed on the TSE first section was 5.7%. Of these, 80% were independent directors, and 20% were internal directors (Nikkei, 2019).

MFD: Manufacturing Industry Dummy

This variable indicates is used to identify industry characteristics. If a company belongs to the manufacturing industry, it is assigned a value of 1; otherwise, it is assigned a value of 0. In this analysis, 358 companies belong to the manufacturing industry.

AUDD: Auditor Dummy

This variable is used to verify the organizational form. In Japan, listed companies can choose from three organizational structures: companies with a board of corporate auditors, companies with an audit and supervisory committee, and companies with a nominating committee, etc. Companies with a nominating committee, etc., were established in 2003, and companies with an audit and supervisory committee were established in 2015. Therefore, companies with a board of corporate auditors are the oldest form and have been chosen by many companies. In this analysis, there are 576 companies with a board of corporate auditors, 163 with an audit and supervisory committee, and 46 with a nominating committee, etc.

Firm Dummies:

This variable represents firm fixed effects. This study uses firm dummies in regression models to adjust the firm heterogeneous effect. The number of firm dummies is up to the number of companies - 1. The companies come from TOPIX 1000 on TSE, and the number of companies in this dataset is 824 due to the data availability.

Year Dummies:

This variable represents year fixed effects. This study uses year dummies in regression models to adjust the year heterogeneous effect. The number of year dummies is 10, representing 2010 to 2019.

Analysis Method

	Analysis 1 Same Year Model		Analysis 2 Lead Year Model	
Dependent variable period	2010 to 2019		2011 to 2019	
Independent variable period	2010 to 2019		2010 to 2018	
Adjustments for year and firm effects	No	Yes	No	Yes

Table 5 presents the results of Analysis 1's regression. Clear differences emerged between the models before adjustment (1, 3, 5) and after adjustment (2, 4, 6) for time effects (year effects) and individual effects (firm effects). In the pre-adjustment model, an increased ratio of independent directors showed a significant positive effect at the 1% level on all three dependent variables. Additionally, for ROA and ROE, a smaller number of directors, longer average tenure, younger average age, and a one-year term as per the articles of incorporation were statistically significant. These results align closely with the government's intended outcomes and institutional investors' expectations. However, in the post-adjustment model, these statistical significances disappeared, and the ratio of independent directors showed a significant negative effect on ROE and Tobin's Q. The coefficient for ROA also turned negative, though it was not statistically significant. The results for the number of directors and average tenure being opposite to those in the OLS model are intriguing. This fact suggests that after adjusting for time and individual effects, a lower ratio of independent directors, larger board size, and shorter average tenure are associated with positive effects on ROA, ROE, and Tobin's Q. Intriguingly, the appointment of female directors, regardless of adjustments, is suggested to have a negative impact on each performance indicator. The adjusted R-squared in the post-adjustment models is higher than in the pre-adjustment models, with strong explanatory power for ROA (0.736) and Tobin's Q (0.823).

Regarding Tobin's Q, these variables have a statistically positive effect: a lower ratio of independent directors, shorter tenure, the older average age of directors, and a two-year term as per the articles of incorporation. A non-manufacturing industry without female directors has a positive impact. The result that a board composition with a lower ratio of independent directors and without female

directors positively affects Tobin's Q is a finding that contrasts with the general expectations of institutional investors.

The results of Analysis 2, which considers the value of the dependent variable in the year following the independent variables, are presented in Table 6. The results are largely consistent with those of Analysis 1, showing that the outcomes generally expected from the CG reforms are significantly demonstrated before adjusting for time and individual effects. However, in the post-adjustment model, particularly for the accounting performance indicators ROA and ROE, the significance disappears, and the coefficients are contrary to expectations.

Differences from Analysis 1 include that in Analysis 2, ROA and a one-year term as per the articles of incorporation have a positive relationship, significant at the 10% level. For ROE, the negative effect of the ratio of independent directors is no longer statistically significant. Additionally, although not significant, the appointment of female directors shows a positive effect in both pre- and post-adjustment models.

Regarding Tobin's Q, Analysis 2 essentially confirms the results suggested in Analysis 1. A notable difference is that in the post-adjustment model, although not significant, the coefficient for the independent director's ratio turns positive. While it was significantly negative at the 10% level in Analysis 1, the positive value in Analysis 2 suggests that a higher ratio of independent directors is favorably evaluated in the stock market, aligning with the expectations of institutional investors and the CG reforms. Moreover, like in Analysis 1, a one-year term as per the articles of incorporation is significant in the pre-adjustment model, but in the post-adjustment model, a two-year term is significant at the 1% level. The increased negative value for the appointment of female directors, still significant at the 1% level, is a point that requires further verification as it differs from intuitive expectations.

From these results, Analysis 2 in the post-adjustment model with a higher adjusted R-squared suggests that neither the ratio of independent directors nor the appointment of female directors statistically brings a positive impact, and being in a non-manufacturing industry is estimated to have a preferable influence.

4.5 Estimation Results

Based on the results of Analyses 1 and 2, the estimation results related to the hypotheses are as follows.

For Hypothesis 1, concerning the impact of an increased ratio of independent directors on corporate value indicators, the pre-adjustment model showed that an increased ratio of independent directors significantly and positively affected ROA, ROE, and Tobin's Q at the 1% level. However, in the post-adjustment model, no positive statistical impact was confirmed. Analysis 1 showed that the ratio of independent directors had a negative impact on both ROE (at the 1% level) and Tobin's Q (at the 10% level), indicating a negative impact on both accounting performance indicators like ROE and market performance indicators like Tobin's Q.

Regarding Hypotheses 2a related to the positive impact of appointing female directors, Analysis 1 revealed negative coefficients across all performance indicators, and Analysis 2 showed negative values for ROA and Tobin's Q. There was no significant positive effect even in the one instance where a positive coefficient for ROE was observed in Analysis 2. This result, suggesting that the appointment of female directors does not contribute to corporate value, aligns with findings from Adams and Ferreira (2009), who reported that companies with more female directors improve monitoring indicators while experiencing decreased company performance. Gregory-Smith et al. (2013) also found no significant relationship. Siegel and Kodama (2011) reported that in manufacturing industries in Japan, the presence and number of female executives increase ROA, but no such effect is seen in service industries.

One possible explanation for this discrepancy between government and institutional investor expectations is that, up to 2019, many female directors were external, often professionals like lawyers or accountants. Moreover, in industries where female directors were prevalent, their numbers were usually limited to one, indicating that female directors, being minorities in terms of gender and background, likely had limited influence on board decision-making due to their limited expertise about the company.

Recently, many listed companies have started promoting females to management positions as a non-financial KPI, and the number of internally promoted female directors has increased. With a female set to become the president of Japan Airlines Co., Ltd. in April 2024, the skill set of female directors has diversified compared to the 2010s. Further analysis considering the latest appointment situations and the differences between internal and external appointments of female directors is necessary to understand their impact on corporate value.

Regarding Hypothesis 2b, which posits that a smaller number of directors contributes positively to corporate value, both Analyses 1 and 2 showed that a smaller number of directors had positive significance at the 1% to 5% range across all three performance indicators in the pre-adjustment model. However, in the post-adjustment model, all coefficients reversed, suggesting that a larger number of directors might be beneficial, although not significantly so. This result contrasts with the current global best practice of governance, which advocates for a small, monitoring-focused board separate from executive management. However, it aligns with Uchida (2011), who concluded that reducing the board size does not substantially impact corporate value. Furthermore, the argument that increasing the number of directors is beneficial for complex companies (Coles et al., 2008) also supports these findings.

For Hypothesis 2c, regarding the potential positive impact of the younger age of directors on corporate value indicators, opposite results were shown in the pre-and post-adjustment models, similar to other diversity hypotheses. Both Analyses 1 and 2 indicated that the younger age of directors had positive significance across all performance indicators in the pre-adjustment model, but this trend disappeared in the post-adjustment model. Statistical significance was only found in Tobin's Q, and contrary to the hypothesis, a higher average age of directors was significant at the 1% level.

Adams et al. (2018) showed a positive correlation between the number of skills and the age of directors, suggesting that older directors are likely to have a broader range of experiences. Additionally, Rose (2005) indicated that only the average age of the board of directors has a significant negative impact on performance. Considering that a larger number of directors is a positive factor for Tobin's Q, it can be assumed that the overall experience and expertise of the board influence this indicator.

5. Conclusion

This paper conducted an empirical analysis of the impact of the exogenous introduction of independent directors and board structures into Japanese companies, brought about by the revised Companies Act and the CGC, on corporate performance and value. While results of prior research, both domestic and international, vary depending on the context of the country and companies at the time of analysis, it has been confirmed that a smaller number of independent directors can improve corporate performance indicators like ROA. Additionally, stock market participants tend to view improvements in corporate governance positively, as evidenced by numerous reports of increases in Tobin's Q.

The results from Analyses 1 and 2 supported the set hypotheses in models before adjusting for time and individual effects, showing statistical significance. However, after adjustments, coefficients reversed, and statistical significance was lost, failing to prove the hypotheses.

It was also clear that the results for accounting performance indicators (ROA and ROE) and Tobin's Q, which includes market valuation in its numerator, differed. Specifically, the ratio of independent directors, average tenure, average age of directors, and terms as per the articles of incorporation varied. Prior research on the impact of board composition on corporate performance often use Tobin's Q as a performance indicator.

Governments, companies, and institutional investors seek to contribute to accounting performance indicators through the CG reforms. In corporate value estimation, an increase in ROA and ROE is expected to enhance future cash flows, ideally leading to higher multiples and market capitalization. However, this analysis period implies that changes in board composition due to the CG reforms have not contributed to accounting performance.

This study focused on board composition as a governance mechanism, considering external governance's role in disciplining corporate performance. This research revealed the limited impact of

board composition changes on corporate performance up to 2019, especially in the more explanatory post-adjustment model.

A future challenge is to conduct research using more detailed data on board compositions and governance styles that affect corporate value. In particular, the impact on corporate value of board compositions adapted to business models and the structure of key corporate governance mechanisms, such as nomination and compensation committees, needs to be examined. Since this analysis is based on data up to 2019, further analysis using more recent data is necessary.

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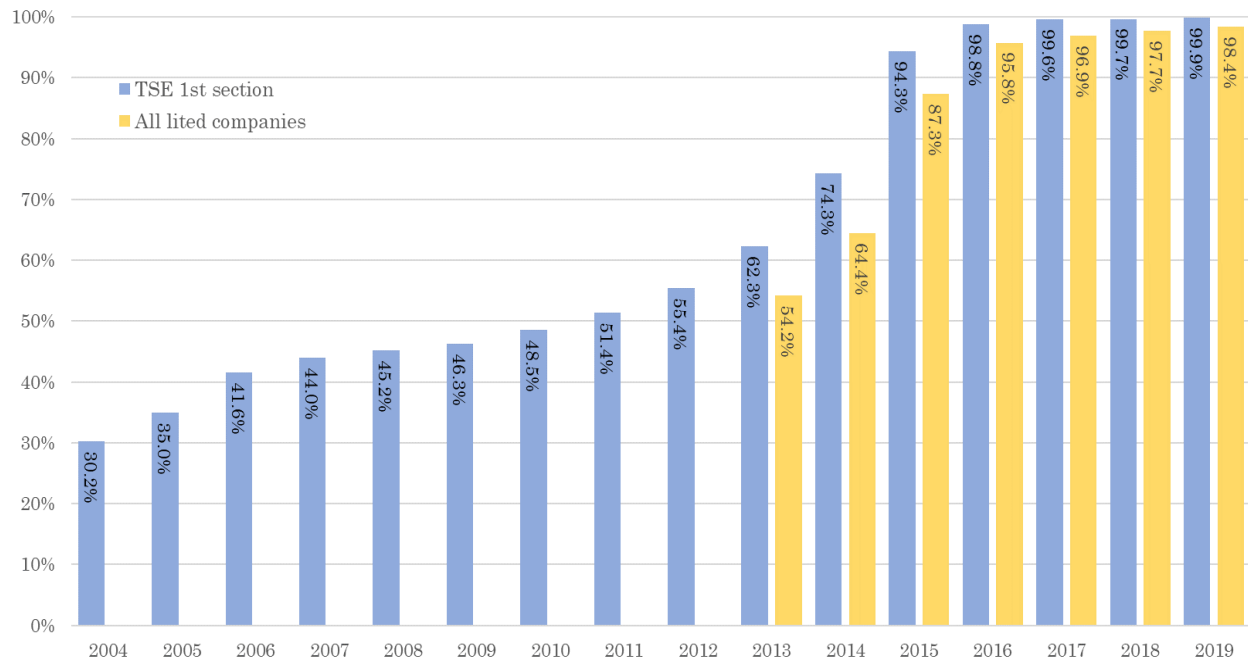
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Figure 1: Companies at least one independent director



Source : TSE

Table 1: Definitions of Performance Indictors

$$ROE = \text{Net income} / (\text{Net Assets} - \text{Stock acquisition rights} \\ - \text{Minority Shareholders' interests})$$

$$ROA = \text{Earnings before taxes} / \text{Total assets}$$

$$\text{Tobin's } Q = (\text{Market capitalization} + \text{Liabilities} \\ + \text{minority shareholders Interests}) / \text{Total assets}$$

Table 2 : Descriptive statistics: Trend of Appointment Independent Directors

		2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of Directors	Mean	9.79	9.66	9.59	9.70	10.04	10.26	10.22	10.17	10.03
	Median	9.00	9.00	9.00	9.00	9.00	10.00	10.00	10.00	10.00
	Std Dev.	3.84	3.51	3.44	3.36	3.34	3.23	3.11	3.00	2.95
Number of Independent Directors	Mean	1.21	1.30	1.46	1.67	2.25	2.63	2.79	2.95	3.18
	Median	1.00	1.00	1.00	1.00	2.00	2.00	2.00	3.00	3.00
	Std Dev	1.46	1.44	1.43	1.34	1.19	1.14	1.14	1.18	1.33
Ratio of Independent Directors (%)	Mean	12.98	14.01	15.79	18.01	23.73	27.26	28.85	30.36	32.90
	Median	9.09	10.00	12.50	14.29	20.00	25.00	27.27	28.57	33.33
	Std Dev.	15.38	15.50	15.46	14.59	13.02	12.25	11.87	11.97	12.18
Observations		785	785	785	785	785	785	785	785	785

Source : Nikkei Value Search

Table 3: Independent Directors Appointment Trend

All companies: 785

Y-1	Y0	2011	2012	2013	2014	2015	2016	2017	2018	2019
0	1	22	32	65	85	60	2			
	2	6	6	12	14	40	7	1	1	
	3			1	2	9	2			
	4					3				
	5		1							
	6									
1	2	14	7	24	34	149	94	29	8	5
	3		2		2	22	27	5	2	1
	4				1	9	4	1		1
	5					1				
	6		1				1			
	7									
2	3	8	14	12	14	34	52	41	50	69
	4		1		2	2	8	8	5	3
	5					2	4	5	2	5
	6							1	3	1
	7									
	8									
3	4	5	5	8	6	21	13	12	22	28
	5	1			1	5	3	1	2	7
	6		1		1		1	1		4
	7									
	8									
	9									
Total		56	70	122	162	357	218	105	95	124

Companies with a Board of Company

Auditors: 576

Y-1	Y0	2011	2012	2013	2014	2015	2016	2017	2018	2019
0	1	18	19	52	68	48	1			
	2	3	5	8	12	26	2			
	3			1	2	2				
	4									
	5		1							
	6									
1	2	11	5	20	26	132	91	28	7	5
	3		1		2	8	4	2		1
	4				1					1
	5									
	6									
	7									
2	3	5	7	11	11	27	43	35	42	63
	4		1		1	1	2	4	2	3
	5							1		1
	6									
	7									
	8									
3	4	4	4	6	3	14	9	8	17	21
	5								1	3
	6									1
	7									
	8									
	9									
Total		41	43	98	126	258	152	78	69	99

Companies with an Audit and Supervisory

Committee: 163

Y-1	Y0	2011	2012	2013	2014	2015	2016	2017	2018	2019
0	1	4	13	12	17	12	1			
	2	3	1	3	2	14	5	1	1	
	3					7	1			
	4					3				
	5									
	6									
1	2	2	2	3	8	16	3	1	1	
	3		1			15	23	3	1	
	4					8	4	1		
	5					1				
	6						1			
	7									
2	3	3	6		2	6	8	6	8	6
	4					1	6	4	3	
	5					2	4	3	2	3
	6							1	3	1
	7									
	8									
3	4			1	1	3	3	3	5	7
	5					3	3	1	1	4
	6						1			2
	7									
	8									
	9									
Total		12	23	19	30	91	63	24	25	23

Companies with a Nominating Committee,

etc.:46

Y-1	Y0	2011	2012	2013	2014	2015	2016	2017	2018	2019
0	1			1						
	2			1						
	3									
	4									
	5									
	6									
1	2	1		1		1				
	3								1	
	4					1				
	5									
	6		1							
	7									
2	3		1	1	1	1	1			
	4				1					
	5							1		1
	6									
	7									
	8									
3	4	1	1	1	2	4	1	1		
	5	1			1	2				
	6		1		1			1		1
	7									
	8									
	9									
Total		3	4	5	6	9	2	3	1	2

Source : Nikkei Value Search

Table 4: Year-over-Year Change in the Ratio of Independent Directors

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Change Rate	2.7%	3.5%	4.3%	4.9%	8.7%	5.8%	3.2%	3.4%	5.0%
Number of Changes	230	240	325	352	522	456	382	369	399

Source : Nikkei Value Search

Table 5: Analysis 1 - Same Year Model

	ROA		ROE		Tobin's Q	
	(1)	(2)	(3)	(4)	(5)	(6)
Ratio of Independent Directors	0.045*** (0.012)	-0.015 (0.015)	0.055*** (0.019)	-0.104*** (0.033)	1.652*** (0.278)	-0.451* (0.252)
Number of Directors	-0.004*** (0.0004)	0.0001 (0.001)	-0.002** (0.001)	0.001 (0.002)	-0.027** (0.013)	0.0002 (0.011)
Average tenure	0.004*** (0.0004)	-0.0005 (0.001)	0.003*** (0.001)	-0.001 (0.001)	0.049*** (0.010)	-0.019** (0.009)
Average age	-0.005*** (0.0003)	-0.0004 (0.001)	-0.005*** (0.001)	0.001 (0.001)	-0.084*** (0.008)	0.044*** (0.010)
Tenure	-0.018*** (0.005)	-0.005 (0.004)	-0.028*** (0.008)	-0.012 (0.010)	-0.087 (0.115)	0.394*** (0.076)
Female Director Dummy	-0.004 (0.004)	-0.004 (0.003)	-0.0005 (0.006)	-0.002 (0.008)	-0.250*** (0.083)	-0.190*** (0.057)
Manufacturing Industry Dummy	0.012*** (0.003)	-0.085*** (0.019)	-0.004 (0.005)	-0.052 (0.043)	-0.092 (0.072)	-1.109*** (0.324)
Company Auditors Dummy	0.022*** (0.004)	0.004 (0.004)	0.030*** (0.007)	0.010 (0.010)	0.369*** (0.097)	-0.017 (0.076)
Firm dummies	No	Yes	No	Yes	No	Yes
Year dummies	No	Yes	No	Yes	No	Yes
Observations	1,614	1,614	1,614	1,614	1,614	1,614
R2	0.235	0.773	0.110	0.421	0.138	0.848
Adjusted R2	0.231	0.736	0.105	0.327	0.134	0.823
Residual std. Error	0.061	0.036	0.095	0.083	1.382	0.624
F Statistic	61.534***	20.980***	24.734***	4.477***	32.121***	34.376***

Note: All explanatory variables in t fiscal year and independent variables in t fiscal year.

The upper figures represent coefficients, and the lower figures in parentheses represents standard errors.

Significance levels: *** 1%, ** 5% , * 10%

Table 6: Analysis 2 - Lead Year Model

	ROA(t+1)		ROE(t+1)		Tobin's Q(t+1)	
	(1)	(2)	(3)	(4)	(5)	(6)
Ratio of Independent Directors	0.050 *** (0.013)	-0.008 (0.016)	0.082 *** (0.020)	-0.034 (0.037)	2.007 *** (0.308)	0.187 (0.259)
Number of Directors	-0.004 *** (0.0004)	0.0001 (0.001)	-0.002 ** (0.001)	0.003 (0.002)	-0.029 ** (0.014)	0.0004 (0.012)
Average tenure	0.004 *** (0.0004)	-0.001 (0.001)	0.002 *** (0.001)	-0.001 (0.001)	0.053 *** (0.010)	-0.014 ** (0.009)
Average age	-0.005 *** (0.0004)	-0.001 (0.001)	-0.005 *** (0.001)	0.00002 (0.001)	-0.097 *** (0.009)	0.015 *** (0.010)
Tenure	-0.022 *** (0.005)	-0.009 * (0.005)	-0.032 *** (0.008)	-0.016 (0.011)	-0.211 * (0.120)	0.287 *** (0.077)
Female Director Dummy	-0.003 (0.004)	-0.002 (0.004)	0.001 (0.006)	0.005 (0.008)	-0.292 *** (0.093)	-0.266 *** (0.058)
Manufacturing Industry Dummy	0.014 *** (0.003)	-0.084 *** (0.020)	-0.002 (0.005)	-0.046 (0.046)	-0.077 (0.081)	-1.257 *** (0.320)
Company Auditors Dummy	0.019 *** (0.005)	0.001 (0.005)	0.022 *** (0.007)	0.006 (0.011)	0.299 *** (0.107)	-0.082 (0.076)
Firm dummies	No	Yes	No	Yes	No	Yes
Year dummies	No	Yes	No	Yes	No	Yes
Observations	1,416	1,416	1,416	1,416	1,416	1,416
R2	0.240	0.774	0.114	0.417	0.159	0.885
Adjusted R2	0.236	0.733	0.109	0.310	0.154	0.864
Residual std. Error	0.061	0.036	0.093	0.082	1.436	0.575
F Statistic	55.603 ***	18.622 ***	22.721 ***	3.886 ***	33.197 ***	41.947 ***

Note: All explanatory variables in t fiscal year and independent variables in t+1 fiscal year.

The upper figures represent coefficients, and the lower figures in parentheses represents standard errors.

Significance levels: *** 1%, ** 5% , * 10%

Governing Technology-driven Manufacturing in Japanese Automotive Industry: A Literature Analysis

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Abstract

The Japanese automotive industry is renowned for its keiretsu system, a collaborative framework that facilitates innovation through shared mutual trust and knowledge among member companies. This system has been instrumental in the development and deployment of cutting-edge technologies and products. However, the industry is currently facing pressures from globalization and intense competitive pressures, coupled with demands for reduced production costs and improved governance structures. This has prompted a reconsideration of the role and contribution of the keiretsu system. For instance, Nissan and Mazda have been more open to other suppliers, whereas Toyota has maintained its long-term relations with suppliers. This literature study discusses and proposes questions regarding the continued advantage of the current organizational structure in the automotive industry for developing technology-driven corporations. It examines the current changes in terms of complex relational cooperation in the automotive industry in Japan, how values and information are shared, and how changes in technology and product innovation are dealt with. This study employs supply chain governance as its theoretical framework to identify factors in supply chain mechanisms and models that may differentiate the business processes of inward/closed keiretsu and outward keiretsu in managing technology and product innovation within the automotive industry in Japan.

Keywords: Keiretsu, supply chain governance, automotive industry, electric vehicle, Japan

Introduction

The post-war Japanese economy was driven by the scarcity of natural resources and labor (Bartnik, et al., 2018). Companies then responded by developing long-term employment and relations with subcontractors, leading to the accumulation of coordinative abilities within and between manufacturing firms and suppliers. This resulted in Japanese automotive companies achieving high levels of productivity, characterized by numerous product and process innovations. This shows that economic development and competitive advantage depend on the social system that develops in a country (Onda, 1996). In the context of Japan, collectivism and Japanese

attitudes become particular social dimensions that shape indigenous social structures, including relationships among business organizations known largely as keiretsu (Watanabe, 2018).

There are various English terms used to define keiretsu. It refers to 'enterprise group' that refers to corporations engaged in commercial transactions, or 'inter firm alliances', 'network of industrial organizations or relationships or related companies (Daidj, 2009). Nakamura (2006) and Ikeuchi et al. (2019) use the term 'interfirm relationship', referring to the relationships among industrial organizations by which they shared a small but not negligible amount of equity ownership. The intercorporate networks involve taking an intermediate position and serve to coordinate individual companies at national and international levels (Watanabe, 2018).

There are two different types of keiretsu: financial or bank-based horizontal keiretsu and industrial or production-based vertical keiretsu (Nakamura, 2006; Daidj, 2009; Ikeuchi et al., 2019). The first type is more complex, involving diversified firms resembling pre-war zaibatsu conglomerates but operating as quasi-holding companies. The second type is ownership by non-financial industrial firms. The most common goals include controlling suppliers in vertical production relationships and influencing the business decisions of other companies. Among them, large industrial companies act as "roofs" and supervise suppliers and contractors (Nakamura, 2006; Daidj, 2009). In the post-World War II era, the keiretsu included Canon, Daihatsu, Fujitsu, Hitachi, Honda, Isuzu, Mazda, Nissan, Sharp, Suzuki, Toshiba, and Toyota (Tomeczek, 2022). Since the literature review focuses the analysis on the organization of the automotive industry, this study focuses on the second type of keiretsu.

According to Ikeda & Nakagawa (2001) the keiretsu supplier system is a distinctive feature of the Japanese auto industry. The production keiretsu, which is a vertical structure of intercorporate equity holdings, is controlled by large manufacturing companies in the automobile, steel, and electronic industries. This control extends to affiliated suppliers along with the production and value chain (Daidj, 2009). The suppliers and their main customers are affiliated and consider themselves a 'corporate community'. In Japan, the automotive industry boasts a close transactional relationship between final assemblers and parts makers. This coordination ensures that parts specifications, delivery schedules, and other business processes are executed seamlessly (Ikeuchi et al., 2019).

Production-based vertical keiretsu allowed companies to achieve a competitive edge and played a significant role during the high-growth period of the Japanese economy before the 1980s, as concluded by previous studies (Matous & Yasuyuki, 2015). Japanese industrial networks have primarily based their competitive advantage on cost-reducing vertical integration strategies, as described by (Daidj, 2009). Vertical keiretsu managers must understand that value creation occurs in the supply and distribution

chains. One of the prominent aims of keiretsu is to develop a set of inter-organizational links and relationships necessary for creating products and services. Automotive industries adapted more successfully to changes in the global market under vertical keiretsu. Large conglomerates with internalized value and supply chains are a key feature of the Japanese industrial system. Large conglomerates with internalized value and supply chains are a key feature of the Japanese industrial system. Large conglomerates with internalized value and supply chains are a key feature of the Japanese industrial system. They have enabled Japanese firms to expand their production capacities, competitiveness, and performance (Tomeczek, 2022; Daidj, 2009; Matous & Yasuyuki, 2015; Abe, 2019).

However, the bursting of the economic bubble in the 1990s led to a lack of economic growth for Japanese firms and households (Nakamura, 2006). As a result, Japanese banks faced massive bad-loan problems, causing many Japanese firms to experience a lack of traditional bank financing and face severe global competition, in addition to challenges from the rapid technological and globalization of value and supply chains. The phenomenon has led to the decline of significant presence and advantages of keiretsu through the 2000s (Tomeczek, 2022; Ikeuchi et al., 2019).

After the economic boom of the 1990s, there are several events that challenge the significant role of intercorporate networks. First is the innovation and development of digital communication technology (Bartnik et al., 2018). It had led the manufacturing industries to shift their business processes from a coordination-intensive to a coordination-efficient pattern. The entry of Chinese companies as low-cost competitors left Japanese television manufacturers with significant shortfalls. Secondly, globalization and the challenges of competitive advantages have pushed the automotive industry to shift their strategy by integrating suppliers and involving them in the innovation process. Lastly, there was an urge to evaluate the efficiency of the Japanese corporate governance system and its relational stakeholder model to deal with innovation. According to Abe (2018), agile management became the preferred approach, implicitly criticizing long-termism in favor of fluid management structures and emphasizing market principles over organizational coordination. This approach has proven successful in adapting to changing market conditions and driving growth. Consequently, horizontal keiretsu momentum has declined, while vertical keiretsu face criticism for their slow adaptation and exclusivity. Large firms' management structures are also criticized for their slow restructuring.

Up to recently, scholars in Japanese organization studies have had different arguments whether the inter-corporate networks are still relevant architecture as the Japanese management style. Particularly in the automotive industry, in which vertical keiretsu takes place, there have been major changes in the automotive industry in terms of both technology and transaction relationships in recent years (Ikeuchi et al., 2019). What has changed with time in Japan is inter-firm networks and corporate governance (Watanabe,

2018). Is keiretsu still relevant to enhance innovation in Japanese automotive industries? Does the change in organization structure have impacts on Japanese automotive industry competitiveness? The Japanese automotive industry becomes the suitable locus of study because the carmakers are the leading players in automotive manufacturing and innovation, along with the Chinese and Korean automotive manufacturers. They dominate the list of global innovators, including in the field of automotive battery systems (Bartnik et al., 2018).

The purpose of this article is to provide a literature analysis focusing on whether previous studies can conclude that inter firm and internal-based cooperation provide more advantageous frameworks that allow firms to create innovative and sustainable products, such as electric vehicles, compared to more open and market-based cooperation. The literature review article results propositions that provide basic academic relevant arguments before the authors empirically examine the different features of the two organizational environments. The authors aim to use Toyota and Mazda as examples of large firms that maintain close interfirm cooperation, and Nissan as examples of open cooperation frameworks.

The organization of this study is as follows. The first section explains supply chain corporate governance in Japan and its current development. It becomes a business setting that determines and comprehends contextual subjects of our investigation. The next section shows discussion based on previous studies and theoretically raises propositions related to whether the organizational structure is advantageous for developing technology-driven corporations. Particularly, the section discusses what are the current changes in terms of complex relational cooperation in automotive industry in Japan, how are they sharing values and information, and how are they dealing with changes in technology and product innovation. The last section provides concluding remarks.

Theoretical Foundation

a. Supply Chain Governance Theory

This article discusses vertical keiretsu in Japanese automotive companies using the concept of supply chain (SC) governance as a theoretical foundation. According to Ning et al. (2023), SC governance focuses on the formulation of inter-organizational transaction rules and the norm of subject relations in the SC environment and has a significant role in the reconstruction of the main rules and the voice of means, the promotion of reform, and the management of network relations of autonomous actors. Through long-term institutional arrangements, SC governance demonstrates competence and expertise in managing complex supply chain networks. In short, the theory focuses on the mechanisms that balance interests and conflicts between enterprises to enhance performance.

This study posits that keiretsu represents a distinctive pattern of supply chain governance that originating in Japan, following Miyajima et al. (2004), Kobayashi (2005), and Nakamura (2006). Keiretsu facilitates the sharing of ownership between non-financial industrial firms, enabling them to influence supplier firms within vertical production relationships (also known as vertical or capital keiretsu). This mechanism is achieved through exerting influence on the business decisions of other firms. Other studies refer it as relational governance (Ning et al., 2023), or contractual governance (Gilson & Roe, 2005). As contractual governance, the mechanism has focused on the companies' ability to provide incentives making the interests of owners and employees compatible and on enforcing implicit contracts among related firms.

A supply chain governance mechanism, particularly in the automotive industry, is defined as the capacity of such assembly firms to exert a considerable degree of influence, for instance, on their suppliers' production decisions, on an on-going basis, in such strategic areas as quality control, just-in-time production system and new product development (Nakamura, 2006). Another practices of governance principles that through keiretsu, the corporate groups have encouraged investment by reducing asymmetric information and keeping top managers free from the pressure of external markets. Keiretsu may provide a risk-sharing mechanism to member firms as well (Miyajima et al., 2004).

Gilson & Roe (2005) explained that networks among companies were aimed to maximize efficiency and minimize opportunism, particularly by developing two types of governance: contractual and organizational orientation types. Through precise contracts, the entrepreneur assumes the role of a middleman and structures production. These contracts specify the terms under which the entrepreneur can purchase goods and services from other factors under all possible future circumstances. The perfect contract anticipates and deals with every contingency, and the terms of the contract will be enforced by the courts without significant friction. In the same vein, Ning et al. (2023) describe two types of SC governance mechanisms that exist: formal and informal governance. Formal or incentive governance comprises goal alignment, incentive governance, coordination structures, and contractual agreements. The informal type relies on relational governance, including commitment and trust.

According to Gilson & Roe (2005), SC governance in Japan is hybrid, falling between the continuum of contractual and relational mechanisms. Japanese industries use open-ended relational contracts, in which parties commit to developing long-term relationships to produce goods but leave to the good intentions of the parties how the terms of trade for relational assets will respond to unforeseen changes in conditions. By doing so, the parties in the vertical cooperation can maximize productive efficiency as well as to minimize risks of

opportunism. A study by Cusumano & Nabeoka in 1992 described that the Japanese suppliers of automotive makers were willing to share the costs in engineering parts up to 51%, while the US and European firms shared up to 14% and 32%, respectively. Ning et al. (2023) also explain that companies may use both incentive and relational governance mechanisms complementary, although it might create conflict that the improvement of the level of one mechanism would lead to an inhibitory effect on the other. The article suggests the need to establish a balanced strategy to coordinate such potential conflicts.

b. Recent development of keiretsu

There is recent development of keiretsu, in which keiretsu main banks undertake mergers and create super-keiretsu. The future of Japanese horizontal networks lies in the vast super keiretsu, which appears to be well equipped to face global competition (Irawati & Charles, 2010; Tomeczek, 2022). In production-based vertical networks, long-standing keiretsu relationships in the automotive industry are gradually breaking down as the supply network for components becomes increasingly globalized. One example is Nissan, which is developing an international alliance with Renault and beginning to modularize along European lines (Watanabe, 2018; Takeishi & Noro, 2017; Ikeda & Nakagawa, 2023). Meanwhile, Toyota also takes modularization efforts by tightening its several suppliers of the same keiretsu and working jointly from the product development stage. It describes that while Nissan had resolved its Japanese keiretsu and developed international networking, Toyota developed a more powerful supply chain with its keiretsu. Takeishi & Noro (2017) mention Toyota's relationships with its suppliers as 'inward keiretsu or closed keiretsu' which has no or limited transactions with other automakers, while Nissan and mazda are more 'outward keiretsu' in which the latters have transactions with other automakers.

To comprehend how the changes in how production-based collaboration between firms creates efficiencies, consider the factors of production of automobile manufacturers. In the early model of keiretsu, suppose there are five parties, consisting of a distributor, two parts suppliers, a bank, and an assembler. They have negotiated a cooperative structure for producing cars. Efficient production requires all parties to make substantial investments in relational capital. Workers at the assembly plant must learn flexible production methods and skills specific to that plant and its team of workers. Suppliers may relocate their production facilities near the assembler. The subcontractors must work with the assembler to establish design and quality standards and procedures, as well as just-in-time delivery, all specific to the parties and the item. After all, the supplier of capital secures short-term fluctuations in the business cycle for those who are not able to diversify their relation-specific investments. The scheme is possible since the parties are connected through extensive cross-ownership.

However, the benefits of relational investing are not without costs: once one factor has been invested, the other factors may appropriate the gains from collaboration. Thus, the challenge of industrial organization is to design a structure that provides incentives for parties to make optimal investments in relationship-specific assets. The risk of opportunism arises because efficiency requires loose, long-term relational investments. The desire to survive in tough economic times in the 1990s and the quest for efficiency have led companies to rethink the contribution that inter-company collaboration helps them to gain competitive advantage primarily on cost-reducing vertical integration strategies (Tomeczek, 2022; Watanabe, 2018). It becomes a part of explanation why keiretsu transactions were the major Japanese economic feature up until the early 1990s.

Recent studies about keiretsu state that the role has been declining since the 2000s for two reasons (Ikeuchi et al., 2019). The first is economic globalization, regulatory shifts and changing corporate governance. The second is technological change, particularly the shift from integrated manufacturing systems that require customized parts and components to modular architectures based on standardizing products and using common parts. The standardized interfaces between parts allow the final product to be assembled by combining independently developed parts. Collectively, these factors have had a profound impact on the keiretsu system. However, Takeishi & Noro (2017) explain that although Nissan has restructured its keiretsu, it is simply a discontinuation of equity relationships. The relationship with suppliers is still maintained and reinforced in its essence.

Research Method

The study conducts literature search using peer-reviewed academic journals, theses and research institute reports written by Japanese scholars in English version, and available electronically. The authors prioritize articles and reports published in 2005 or later using the following terms in the title or abstract such as: 'keiretsu', 'Japanese automotive industry', 'Japanese governance system', 'Japanese innovation', and 'electric vehicle in Japan'. The focus of the searches was on literature that examines the contribution of current shape of institutional supporting system in the Japanese automotive industry to support the development of electric vehicle in Japan.

The search prioritizes to include English-based articles written and published by Japanese authors. The authors believe that Japanese authors have favorable resources to access wider reports even in Japanese language released by companies, industries, or research institutions. Therefore, the articles are assumed to have updated and reliable data and information.

The focus of the searches was on literature that examines the presence of current keiretsu and its contribution to innovation-related products in automotive industry in Japan. The authors also search articles that describe the similar phenomenon under

resource-based theory and transaction-cost theory, and supply chain governance theory. The study included a total of twenty-five articles which met the above criteria in the literature review.

Discussion: Governing Technology-driven Manufacturing

Recent developments in how the production-based vertical keiretsu in the automotive industry has responded to the economic crisis and the need to reduce production costs provide an interesting business setting to explore how such automakers-suppliers relationship structure plays a role in accommodating innovation and realizing the latest developments in automotive technology, including electric cars. This section discusses academic arguments on whether recent governance mechanisms provide supporting systems to the development of technology-driven manufacturing in the context of the Japanese automotive industry. The discussion is partly divided into features in keiretsu that may allow the recent technology-based product developments including complex relational cooperation, shared values and information flows, and response to the changes in technology and product innovation.

a. Do they build complex relational cooperation but more efficient supply chain governance system?

Keiretsu functions as elaborately structured institutional frameworks and becomes one prominent of four Japanese-style corporate management, along with personnel and employment, internal decision-making, and corporate governance (Watanabe, 2018). It allows the companies to maintain cooperation and communication with other companies and develop a dense network of relationships (Matous & Yasuyuki, 2015). The related parties integrate their primary decision-making units and achieve higher values and competitive advantages, because the assemblers allow intermediaries to set high price margins to assure the quality of the products.

The underlying assumption is that firms primarily create relational contracts due to the presence of unknown contingencies, or complexity of the required response to such circumstances, which makes it challenging to define precise performance standards (Kobayashi, 2005). As firms accumulate transactional experience with several related firms, they will gain the ability to identify and respond to contingencies as they materialize. Firms may be able to write discrete contracts more cost-efficiently, and they will want to reflect their transactional experience in their future contracts. Nakamura (2006) states the assembler firm in a well-functioning vertical keiretsu can produce their final products at lower cost than a large vertically integrated firm with the corresponding size.

During the 1990s and 2000s, there was Japanese corporate governance reform laws that required industrial companies adopting new business practices. The companies adopted market-driven US-style corporate governance practices and

mixed them with existing Japanese practices, particularly those involving interfirm (keiretsu) relationships. The reforms, firstly, require companies to disclose relevant information to their investors, introducing Western standards in accounting transparency and investor protection. Secondly, the Japanese government urges corporations to establish market-oriented corporate governance and monitoring mechanism (Nakamura, 2006). However, the reformation seems not only in the business process. Instead, it involves the changes in the ownership structures of the companies, which means the interfirm network and cooperation (Matous & Yasuyuki, 2015). In 2001, Ahmadjian & Lincoln have acknowledged that Japanese auto assemblers have taken advantages of keiretsu since it allows the industry remain lean and flexible while maintaining control over suppliers. However, in early 2000s, there was a shift in the keiretsu networks toward arms-length contracting and top-down administration. Matous & Yasuyuki (2015) describe that the keiretsu model has become outdated for a modern economy in which the challenge is not anymore to get access to resources and maximize production, but rather to compete for limited demand by efficiency and price. It was also reported that some Japanese manufacturers started allowing or even recommending their suppliers to develop new links with customers from other industrial groups and not to rely on their old clients.

Another way of adapting to changing business environments and creating organizational ambidexterity is modularization. The strategy is considered efficient to manage variations in production quantities and reduces product development and innovation costs (Bartnik et al., 2018). Modularization allows automakers or assembler firms have direct substitution of parts from different suppliers (Matous & Yasuyuki, 2015). While German automakers have led modularization effort since 1996, years later Japanese automotive manufacturers regard modularization as an innovative way of reducing costs, which goes beyond improving the production system in the traditional sense (Ikeda & Nakagawa, 2001). According to the latest article, production-based vertical keiretsu takes two types of modularization strategies, international modularization as shown by Nissan, and keiretsu-based modularization as taken by Toyota.

Takeishi & Noro (2017) explain that long-standing relationships between automakers and suppliers are relational skills. It refers to the ability of suppliers to respond efficiently to the specific needs of the automakers. There are two layers of relational skills: the surface and basic layers. The surface layer is built on the accumulated knowledge gained through transactions with automaker, while the basic layer represents the underlying technological capabilities that support the surface layer and enable the company to respond to the customization demands of various automakers. The article also explains that outward keiretsu relationships, in which the supplier has the capacity to enhance relational skill at the basic layer,

thereby facilitating expansion with other automakers, are more likely to persist. In contrast, inward keiretsu relationships, which permit the development of such skills solely at the surface layer, result in limited business scope, with transactions confined to those involving the keiretsu automaker. In essence, outward keiretsu would persist, while inward keiretsu would cease to exist.

Ikeuchi et al. (2019) explains that there has been a gradual shift towards a more open buyer-supplier relationship in the business environment of the Japanese automotive industry. The article also discusses how there are differences in productivity levels between manufacturers working with multi-client suppliers and those with single-client assemblers. Therefore, open or multi-client suppliers may be easier to develop new networks and cooperations, while single-client assemblers tend to maintain stable buyer-supplier relationships. In terms of supply chain governance, developing networks with open and independent supplier firms might reduce information asymmetry and involve less agency costs than of a large integrated assembler firm (Nakamura, 2006).

Here propositions related to recent development on Japanese business networks in automotive industries in terms of complex relational cooperation.

1. There are new suppliers that help current keiretsu develop new links with customers from other industrial groups.
2. Complex relational cooperation within the current keiretsu-modernized governance system is more efficient and helpful to maintain low-cost production level at the automotive industry.

b. Do they accommodate sharing values and information among interrelation firms?

Studies in the 1990s concluded that during the high-growth period of the Japanese economy the keiretsu procurement system was characterized by a small number of densely interconnected suppliers with little turnover and intensive interactions. This system was highly effective in information sharing, cost reduction in monitoring, and keeping generated revenues within a narrow circle of companies (Matous & Yasuyuki, 2015). Relational governance enables companies to improve communication between partners and openly exchange useful information and ideas (Ning et al., 2023). Relational governance creates the conditions for equitable development and improved incentive programs among partners.

The current article posits that the altered dynamics between automakers and suppliers will necessitate adjustments in the flows of sharing values and information. In the past, the structure of keiretsu facilitates smooth flow of information by having many technological meetings and joint research and

development to reduce coordination cost (Ichiba, 2015). Recent studies indicate that the dynamics of keiretsu partnerships are undergoing a transformation, with some firms seeking to circumvent the traditional intermediaries in their supply chains and gain direct access to upstream component manufacturers (Matous & Yasuyuki, 2015). In accordance with the findings of Takeishi & Noro (2017), the sharing of value and information occurs when the automakers-suppliers relationship in the surface layer accumulates information and knowledge, which then spills over into the basic layer. At the basic layer, suppliers develop technological capabilities. Conversely, technological capabilities facilitate repeated transactions with automakers at the surface layer. Nevertheless, there is a possibility that high-level capabilities acquired at the basic layer may be utilized by suppliers to initiate further transactions with other automakers.

To what extent does the current supply chain system in the automotive industry facilitate automakers in sharing values and information with their suppliers? Pohl and Yarime (2012) posit that the advancement of fundamental and generic technologies, such as batteries and fuel cells for electric vehicles, has been facilitated by governmental initiatives. However, at the firm level, it is noteworthy that Honda and Toyota maintain close relationships with their suppliers and have adopted a strategy of developing core knowledge in-house. This indicates a strong commitment to share values and information with its networks. Building upon the findings of Ikeuchi et al. (2019), the current study posits that single-supplier networks facilitate the sharing of product know-how (tacit knowledge) among automakers. Conversely, automakers that rely on multi-suppliers tend to exchange more common or explicit information.

Below are some propositions related to shared value and information.

1. The current keiretsu procurement system in the automotive industry maintains and allows the member parties to effectively share values and information.
2. Intermediaries in the supply chain in the current automotive industry gain access to the upstream component manufacturers.

c. Do they facilitate and manage technology and product innovation?

The automotive industry is famous for its efficient generation of incremental innovations (Pohl & Yarime, 2012). One such larger potential shift and innovation is vehicle electrification, which has been an issue since the internal combustion engine (ICE) gained a dominant position at the beginning of the 20th century. The article mentions that Toyota, Honda, and Nissan are the largest Japanese automakers with the most pronounced activities in terms of vehicle electrification. The phenomenon raises basic question: ‘how do current automaker-suppliers relationship facilitate changes in technology and product innovation?’ Pohl & Yarime

(2012) suggest that due to its history, the industry has matured, therefore, its product development is decided and carried out within the firms.

In 1990s, Japanese firms were more dependent on suppliers than the US or European manufacturers (Cusumano & Nabeoka, 1992). The companies relied on suppliers to perform detailed engineering for components whose functional specification they developed in-house. However, recent rapid changes in automotive technology mean that companies must be able to evolve and innovate to manage changes in production cost structures. Japanese companies had to respond faster and take more risks, which contradicted the way most keiretsu operated (Tomeczek, 2022). For example, previously, Matous & Yasuyuki (2015) explained that the largest Japanese manufacturers increased the number of direct supply connections to each other, as well as the overall supply network density. Later, in 2018, Bartnik et al. explain that globalization, innovation in information technology, and product development have increased competition in the automotive industry. It requires a more dynamic variety in the number of vehicles produced in each period by a manufacturing plant. The circumstances allow automotive industries to take different paths in their vertical integration to stay ahead of the competition and maintain a strong market position.

In their 2017 study, Takeishi and Noro distinguished three modes of supplier involvement in the innovation of technologies and products: in-house production, keiretsu suppliers, and independent suppliers. The study employed a comparative analysis of the procurement ratio before and after 1999, utilizing data from 1984 to 2008. The data revealed a notable decline in the procurement ratio from keiretsu suppliers, which fell to 27% in 2008. In contrast, the ratio from independent suppliers exhibited an increase, reaching 68%. The proportion of in-house production gradually declined to approximately 5% in 2008. The study demonstrated that keiretsu was gradually losing its influence, beginning in the late 1990s and continuing into the late 2000s. The study demonstrated that the decline in procurement ratios from keiretsu suppliers for Nissan and Mazda commenced in 1999, while the increase in ratios from independent suppliers, including those based overseas, commenced at an earlier date. Conversely, procurement ratios for Toyota and Honda increased to approximately 70% and 50%, respectively, in 2008.

This study then employs the aforementioned procurement data to forecast the flows of innovation management at the firm level. Ahmadjian & Lincoln (2001) note that the transformation of purchase-supply relationships contributes to the change in technology, along with the alteration of global markets and governance practices. As Pohl and Yarime (2012) observe, the automotive industry presents a significant challenge for new entrants due to the prevalence of technological innovations. Consequently, the primary focus of new technology development and application occurs within the existing automotive industry. This implies that internal firm factors

play a crucial role in integrating the functions of the technological innovation system and its management. The subsequent strategies employed in innovation management are contingent upon the firm's core capabilities. The firm's capabilities determine whether it chooses in-house innovation management or externally developed knowledge (firm-external development), with the involvement of knowledgeable suppliers being a key factor in this decision. In accordance with the findings of Ikeuchi et al. (2019), the current trend is towards a more open buyer-supplier relationship and the utilisation of multi-client suppliers. This has led to automakers relying on their technology and product innovation and development in the hands of independent suppliers, rather than vice versa.

From previous studies, this study suggests that the changes in the automotive industry business landscape have several consequences. Firstly, with less control from the keiretsu, Japanese car manufacturers may move away from the strategy and bypass the middlemen, reaching out across network cliques and increasing the number of direct suppliers. Second, the strategy could have a positive impact on automakers' performance. It reduces waste in the supply chain. Thirdly, dealing directly with otherwise unconnected partners, especially low-volume partners, can be advantageous in terms of bargaining power. This article recommends that supply chain management transformation may be easier from a technical perspective, as the automotive industry is becoming more modular, allowing parts from different suppliers to be interchanged.

Under the industry-typed vertical networking, this article predicts that product innovation and other changes in product development is more quickly addressed by the automotive industry. There are two reasons for the proposition. Firstly, it is possible since Toyota undertakes selections and screening its keiretsu suppliers to reduce the production costs and maintain the quality of the products. For example, for the seat component, seat track adjuster, liner and metal frame, Toyota conducted market research and created basic designs. Toyota then selects assemblers from several potential keiretsu seat makers to build seats in cooperation with some seat makers and using parts from designated specialty part makers. The second factor is because the keiretsu system incentivizes suppliers to achieve the best quality products. According to Matous & Yasuyuki (2015), Japanese manufacturers or assemblers trust the middlemen to set a high price range because it guarantees the quality of the product. Todo et al. (2016) describe buyer-supplier relations between firms provide new knowledge to their suppliers when seeking to procure high-quality products. Also, supply chain ties are associated with research collaboration for the development of new intermediates and it promotes knowledge diffusion between suppliers and buyers. Later, it improves productivity and innovation capability in both parties. Bartnik et al. (2018) suggest that inter-firm networks enable integration of suppliers into the innovation process.

Following the arguments above, here are several propositions related to the subject: how do current business networks deal with changes in automotive production technology and innovation. These propositions become fruitful research agenda in the future.

1. The automotive industry still relies on old intermediaries in the supply chain and trading companies to carry innovation and to develop new products.
2. Combining the current keiretsu governance system and modularization strategy would create faster response to new product innovation, including electric vehicles.

Table 1. Summary of literature reviews

Types of supply chain governance	Inward/closed keiretsu	Outward keiretsu
Relational skills (information spillover)	Develop relational skills at surface layer	Suppliers has the capacity to enhance relational skills at basic layer
Ability to develop new networks	Limited business scope	More facilitating expansion
Types of relationship	Stable/single buyer-supplier relationship	Multi/open buyer-supplier relationship
Modularization	Keiretsu-based modularization	International modularization
Dominant knowledge exchange	Know how (tacit or core knowledge)	Technical information
Suppliers' willingness to share costs of engineering	Greater costs percentage	Lesser costs percentage
Innovation management	In-house production, keiretsu suppliers	More independent suppliers involved
Examples of keiretsu	Toyota, Honda	Nissan, Mazda

Research Limitation

The literature study is conducted based on English version of previous studies that focus their analysis on supply chains in automotive industry in Japan. It is acknowledged that researchers who rely on English-language references may loss of nuance, since translation process faces challenges to keep its quality due to differences in linguistic structures, cultural nuances, and the need for accuracy (Danielsen et al, 2015). That is why this study aims to primarily take references written by Japanese scholars in attempt to retain the intended meaning and cultural contexts for achieving validity in the analysis. In addition, several references were published over a considerable period. They may result in a disadvantage due to possible biased or distorted perspectives when discussing and analyzing the current version of the Japanese automotive industry.

Further research is required to provide a more comprehensive analysis of the role of keiretsu. It is necessary to compare this situation with that of non-keiretsu companies. It is also important to note that there are few, if any, previous publications on non-keiretsu in the automotive industry. The study then turns to the distinguishing characteristics of automotive manufacturers in Japan. It compares those that maintain their close relationship with their long-term suppliers with those that adopt a more open strategy towards multiple or independent suppliers.

Concluding Remarks

This literature review develops propositions related to the contribution of the current keiretsu as a typical Japanese inter-firm network in the automotive industry in supporting and managing innovation in products and processes. The keiretsu, a traditional Japanese organizational structure, is characterized by specific governance practices that are unique to Japan. In automotive industries that adopt a production-based vertical keiretsu structure, the network combines contractual and relational supply chain governance mechanisms. Nevertheless, there is some evidence that the long-term relationships between automakers and suppliers have undergone a transformation to maintain the industry's competitiveness. The study defines the two current types of supply chain governance in the industry: inward/closed and outward keiretsu. It determines their characteristics, including their potential capacity to build complex relational cooperation, their ability to accommodate automakers and suppliers to exchange values and information, and their ability to facilitate and manage technology and product innovation.

The study aims to provide theoretical contributions to the field of organizational theory, specifically in relation to the institutional system observed in Japan. This study enriches the supply chain governance framework by demonstrating how specific structural characteristics and network mechanisms can facilitate distinctive innovation dynamics and management strategies. The flow and types of knowledge spillovers among players may differ between insiders and outsiders. The types of supply chain governance may influence the management of innovation, given that the mechanisms of knowledge sharing between the actors may vary. It would be beneficial to investigate whether the performance of these types of supply chains differs. Nevertheless, a study on the adoption of electric vehicles, which is still in progress and undergoing rapid development, is subject to a limitation: the outcome of the technological adoption is unknown. Further studies should be conducted to confirm the progress.

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Why do migratory birds stir up trouble?

Abstract

This study investigates language issues inside foreign subsidiaries of multinational enterprises. Particularly, it explores how the English proficiency of local managers in foreign subsidiaries causes them to resign from the subsidiaries in a short time. This study divides English competence into two dimensions: general English competence and workplace English competence. The analysis of the data collected from foreign subsidiaries operating in Japan demonstrates that low workplace English competence causes local managers' early resignation, while general English competence does not affect their early resignation. In addition, it finds that low communicative competence and attachment to an expatriate in-group lead local managers to early resignation. The findings of this study imply that when local managers do not have the competence to use English appropriately in the workplace context, they tend to leave the workplace in a short time. This study suggests that early resignation is indicative of local managers' malfunction rather than career-related benefits.

Keywords: communicative competence, early resignation, Japan, language barrier, workplace English competence.

The Role of Individual Creation Experience and Network Metrics in Driving Design Innovation

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ABSTRACT

This study focuses on the creative experience of individuals in an era of widespread team design and finds that designers leverage their positions in designer networks based on their individual design experience to generate design innovations. Moreover, this study addresses the research question of what characteristics designers who create design innovations possess. Focusing on the period of 1994 to 2018, covering 25 panels in the transportation equipment industry of Japan, this study analyzes 22,966 design rights registered during this period, involving 3,079 creators. The analysis revealed that designers with extensive individual creation experience were more likely to produce design innovations when they were in positions where information could be easily acquired in the designer network. Conversely, designers with less individual creation experience tended to produce more design innovations when collaborating with designers who were not interconnected. This study focuses on the individual creative experiences of designers and network metrics, offering mechanisms to promote design innovation, thereby making a theoretical contribution to design research and providing insights into the development of designers and team formation strategies.

Keywords: Strategy, Human resource management, Management, Design right, Design innovation

INTRODUCTION

The importance of product strategy in generating design-led innovations for companies to gain competitive advantage has been highlighted (Moon et al., 2013). Product design can create brand awareness, enhance corporate value (Borja de Mozota, 2002), and improve the value of a product for customers (Karajalainen & Snelders, 2009). This is especially true in markets with intense international competition where product differentiation strategies are crucial (Ardayfio, 2000). However, a mechanism for generating innovation through design has not yet been established (Qiu et al., 2022).

The term “design” is broad and has various meanings, leading to diverse definitions in previous research. For example, Crawford and Di Benedetto (2007) define it as “the synthesis of technology and human needs into a manufacturing product.” Freeman (1983) noted that design ideas not only arise in the realm of creativity but also connect technical possibilities with market potential, playing a crucial role in product innovation. Product design encompasses three characteristics— aesthetics, functionality, and symbolism (Homburg et al., 2015), and incorporates both artistic and engineering perspectives (Ikeuchi & Motohashi, 2022). As such, industrial product design, which is often significantly revised to meet consumer needs (Moon et al., 2013), is largely dependent on individual sensibilities, making the continuous production of innovative designs challenging. Rubera and Droge (2013) state that design becomes an innovation only when it captures consumer interest and becomes widespread in the market. Industrial designers aim to create market-dominated designs, thereby generating innovation. However, the process of creating design innovations is subjective and implicit, making it difficult to observe them from the outside (Verganti, 2009; Byron et al., 2023).

The evaluation of design creativity has not been studied despite its importance, compared to other factors influencing creativity. (Cascini et al., 2022). In previous studies regarding the evaluation and measurement of design creativity, various methods have been proposed however, most of these methods only focus on identifying novelty and do not pay attention to its degree (Sarkar & Chakrabarti, 2011). Sarkar & Chakrabarti (2011) conducted a study that focuses on creativity, defining it as a combination of process novelty and usefulness. They calculated creativity by analyzing the product's significance, adoption rate, frequency of use, and duration of use. This study is one of the few that delves into this aspect of creativity. However, such indicators require individual assessments of importance, adoption rate, etc., for each product, making it difficult to ensure objectivity and generality, and challenging to comprehensively compare different product groups. It is important to assess design innovation and its extent in a simpler and more general manner, but there

doesn't seem to be any prior research that meets these criteria. This study aims to address this issue by examining design rights from an external perspective. This study focused on design rights to solve this problem. Design rights, as recognized by the Japan Patent Office (2016, 2023), are exclusive rights granted to designs that feature new functions or are unprecedented. In each country, the government provides the data as a database with patents, making it easy for anyone to obtain comprehensive data. While traditional innovation studies on technology often analyze patents (e.g., Rosenkopf & Nerkar, 2001), this study aims to quantitatively measure design innovations using design rights data.

The research questions are as follows: What types of designers create design innovation? This study focuses on Japan's automotive industry. According to F&I Tools USA (<https://www.factorywarrantylist.com/>), the Japanese automotive industry ranked third in global sales by 2022, with Toyota leading for three consecutive years, making it a significant industry worldwide. Cars, which require designs that appeal strongly to consumers and improve functionality through engineering and fluid dynamics, demand high levels of design innovation (Ardayfio, 2000). Japanese automobile manufacturers' worldwide manufacturing plants customise not only the functionality but also the design of vehicles for local markets. Thus, there is a need for a global response in car design, and in order to produce superior designs, Japanese automobile manufacturers need to be able to design automobiles that respond to the complex needs of these different countries. Such knowledge is interdisciplinary, and it is challenging for a single designer to possess all the necessary knowledge and skills. Therefore, sharing and exchanging knowledge, information, and techniques among designers with different characteristics is crucial for creating innovative designs.

Team-based design creation has become popular in recent years, and much previous research has focused on team-based innovation. (Cascini et al., 2022). However, the team is composed of designers, and the team is required to consider the experience and capabilities of the designers. Byron et al. (2023) conducted a meta-analysis focusing on teams comprising diverse organizations, researchers, and students, demonstrating that the diversity in members' job histories and educational backgrounds contributes to a broadening of perspectives and refinement of information, thereby fostering team innovation. While this study focuses on the characteristics of individual designers, the measurement is the innovation produced by the combination of designers in a team. However, designers join different teams as required. In terms of design innovation, design teams with certain characteristics or those working solo may be more likely to produce innovative designs than teams with varied composition. Therefore, this study focuses on individuals rather than teams. Thus, this study empirically demonstrates how designer characteristics such as design creation experience and

network position impact the creation of design innovations. Specifically, it focuses on Japan's automotive industry, capturing the connections between designers based on design rights in a network, and visualizing information sharing and learning to demonstrate the mechanism behind the emergence of design innovations.

THEORY AND HYPOTHESES

Design Innovation Driven by Individual Creation

The creation of industrial designs requires knowledge and cooperation from different fields (Dell'Era et al., 2018). Specifically, it involves not only artistic and engineering knowledge related to design but also includes the management of tasks and collaboration with various departments. These departments include design conception, alignment with engineering and manufacturing divisions, directing public relations teams to communicate the design allure, and working with the staff involved in registering design rights. Recently, designs have been developed as a team effort. As a result, a broader range of knowledge is required in design, making the process more complex and increasing the need for specialization (Goldschmidt, 1995). Owing to these influences, individual creation requires designers to possess a broader range of knowledge. In team-based creation, even if an individual designer has limited knowledge, the team's collective knowledge can enable design creation. However, team creation is challenging. Unlike individual creation, a team involves individuals with diverse knowledge, potentially leading to differing evaluations of the design based on each member's unique understanding, making it harder to coordinate the overall design compared to individual efforts. Therefore, a designer who connects the team members is necessary for team creation. An individual with broad but shallow knowledge of each team member's expertise can understand and connect different ideas. Even designers who have only individually designed parts, such as wheels, instead of larger designs, such as the entire car, learn the overall process and the necessary knowledge for designing at different stages. If each designer has such experience, it enables better communication and easier integration of ideas. Thus, the following hypothesis was derived:

Hypothesis 1: Designers with extensive experience in individual creation are more likely to produce design innovations.

Design Innovation Driven by Eigenvector Centrality

Collaboration among designers can be visualised by designer networks, represented by ties that

connect designers who have collaborated on design rights using lines.. In such a network, in which designers are nodes, all participating designers are influenced by their connections and interactions with other designers based on trust (Burt, 1992). Designers can access the information, knowledge, and expertise shared within the network, which are inaccessible to those outside the network, and apply them to design creation (Harjoto & Wang, 2020). Specifically, designers can access knowledge and information about design through networks, mutually influence and inspire each other, and enhance their performance and competitive advantage.

To benefit from a network, designers must increase their network centrality, which can be measured using various metrics (Borgatti, 2005; Stephenson & Zelen, 1989). This is because a designer's position or status becomes an asset in the exchange of information, knowledge, and skills within a network (Burt, 2009). The high network centrality of a designer not only signifies various influences on other designers in the network but also leads to increased trustworthiness. Therefore, other designers are more likely to actively interact with the central designers (Podolny, 1993; Podolny, 2001; Reinholt et al., 2011).

Among various centrality measures, eigenvector centrality is a prominent indicator of a node's importance within a network (Podolny, 1993, 2001; Powell et al., 1996). Eigenvector centrality evaluates not only the number of connections to many nodes but also the importance of these nodes within the network (Bonacich & Lloyd, 2001; Kim et al., 2017). In other words, a higher value may be attributed to connections with a few highly central and important nodes, rather than to connections with less significant nodes. Previous research used eigenvector centrality as an indicator of CEO prominence in emerging company networks and the quality of connections between nodes (Conti & Graham, 2020; Harjoto & Wang, 2020), which are known to enhance organizational performance and social influence (Kim et al., 2017). Especially in product development and innovation studies, higher network centrality among corporate networks is thought to facilitate knowledge absorption and enhance new product development and innovation performance. Eigenvector centrality is considered one of the indicators of knowledge network centrality because it indicates active knowledge exchange with other nodes (Dong & Yang, 2016). Dong and Yang (2016) demonstrate that network centrality among companies in the US pharmaceutical industry, as captured by a patent citation network, enhances new product development performance. Additionally, Arranz et al. (2020) showed that information exchange at positions closely connected with other high-centrality nodes in a network, considering previous studies that suggest such positions offer advantageous access to abundant and valuable information (Uzzi, 1996), enhances project performance in collaborative R&D projects. This study posited that similar principles apply to designer networks. Designers with high eigenvector

centrality can acquire diverse information and knowledge and use it for design creation through their connections with the central designers in the network. Moreover, a higher eigenvector centrality allows a designer to influence information dissemination and exchange within the network more significantly (Harjoto & Wang, 2020), potentially gaining a competitive edge. Based on these insights, we propose the following hypotheses:

Hypothesis 2: Designers connected to important network positions in a designer network are more likely to produce design innovations.

What impact does this have on design innovation when a designer with extensive experience in individual creation occupies an important position in a designer network? To maintain a highly competitive advantage, it is crucial to analyze market information including demographic trends, past sales data, competitors' sales performance, and specific customer demands. Designers often conduct market research by visiting sales regions and directly interacting with customers to understand their values and living environments. However, predicting future market requirements using this approach alone is challenging. One solution is to communicate with the designers of other projects or companies. Established companies can efficiently produce characteristic designs through their accumulated tacit knowledge and standardized design methods, enabling consumers to recognize a company through its designs. However, tacit knowledge can hinder innovation (Dong & Yang 2016). Although it is a source of innovation, tacit knowledge is difficult to manage and integrate with formal knowledge because it is unarticulated (Pérez-Luño et al., 2019). Established companies are at risk of abandoning highly regarded past designs for entirely new designs, potentially damaging their well-crafted images. This inhibits design innovation.

An example is Honda's collaboration with SONY to create a new EV, AFEELA, which was announced at CES 2023. AFEELA features a simple surface design with minimal contours, which is a challenging concept for Honda designers, as expressed by Mr. Toriyama, a former Honda exterior designer (Shizuka, 2023). In car body design, character lines are typically added to create a definition, a practice that allows designers to add them unconsciously. Mr. Toriyama reportedly struggled to explain the purpose of these lines when questioned by a designer from SONY.

By setting aside previous experiences and removing elements for vague purposes, a novel and simple design emerged. The collaboration allowed for a fresh perspective on the accumulated designs (Shizuka, 2023).

Designers with high centrality in a designer network through various collaborative projects are

likely to possess vast amounts of information. They not only have market information but also a wealth of tacit knowledge from overcoming similar challenges, allowing them to provide advice from different angles. Individual design creation requires knowledge ranging from design planning to registration. Hence, if a creator requires knowledge outside their expertise, easy access to knowledgeable designers in the network facilitates quick knowledge acquisition. Therefore, having communication channels with central designers in a network leads to design innovation.

Hypothesis 3: Designers with extensive experience in individual creation, when connected to designers in important network positions within a designer network, are more likely to produce design innovations.

Design Innovation Driven by Ego Network Clustering

Within a designer network, a designer's network clustering coefficient increases when designers collaborate to form locally dense networks (Borgatti et al., 2002; Newman et al., 2002). This implies that designers with high clustering coefficients formed highly homogeneous groups within their ego networks. Consequently, designers may have less knowledge diversity, which can hinder design innovation. Uzzi and Spiro (2005) and Guimera et al. (2005) analyzed a network of 2,092 individuals involved in musical production and revealed that the success of new musical works is influenced by the balance between new members and veterans in the team, as well as the extent to which team members have previously worked together. However, they also showed that overly dense networks reach a “bliss point” after which the effectiveness in fostering innovation and collaboration diminishes. This phenomenon suggests that excessive connections in a network can reduce the introduction of new perspectives and diverse ideas essential for creativity, potentially inhibiting innovation.

In the world of designers, those who are strongly connected within the same community are likely to share experiences with common projects and successes. In team-based creation, in addition to collaborative relationships in a single design, being closely aware of one another's capabilities can promote individual skill improvement through a competitive spirit. When such designers create a team, a certain level of collaboration can efficiently handle a large volume of work; however, excessive collaboration can lead to design homogenization or unknowingly proceed with homogenized designs owing to being bound by past successes. This is known as “Design fixation,” a cognitive bias observed in creative work (Cascini et al., 2022), where designers tend to respond to design demands with familiar methods.

In practical examples, Honda, an automobile manufacturer, has design departments for both four- and two-wheel vehicles and conducts job rotations among designers across different divisions. This was an attempt to prevent design fixation by intentionally including designers with fewer connections in teams, thereby accelerating design innovation (Honda Motor Co., 2015).

Based on these insights, the following hypothesis is formulated:

Hypothesis 4: Designers with sparser networks within the designer network are more likely to produce design innovations.

Designers with more individual creation experience are likely to have a greater ability to handle the entire design process independently and incorporate a diverse range of knowledge, enabling them to understand and collaborate effectively with new designers. Conversely, designers without individual creation experience may find it challenging to comprehend explanations from designers with different knowledge levels, thus preferring to work with familiar designers with whom they have clear role divisions and collaborative experiences. Therefore, it can be inferred that designers with extensive individual creation experience face fewer disadvantages when working collaboratively with various designers, and can more readily foster design innovations by integrating diverse knowledge.

In addition, car manufacturers have in-house designers who create as employees and contract designers who create under contract to the firm on an annual basis.. Contract designers who move between various companies rely on their personal accumulation of tacit knowledge, rather than on the collective tacit knowledge of a single corporation. Designers, such as contract designers, who have rich individual creation experience, tend to have sparser networks because of their mobility across companies. It is conceivable that allowing employees to work individually, rather than integrating them into a team within a company's scheme, could be more conducive to innovation.

Based on this reasoning, the following hypothesis is proposed:

Hypothesis 5: Designers with extensive experience in individual creation are more likely to produce design innovations when they have sparser networks within the designer network.

Design Innovation Driven by Betweenness Centrality

Designers occupying positions with high betweenness centrality in a network play a crucial role in mediating the flow of information. According to Newman (2005), these positions enhance the

efficiency of information transmission and network integration. Furthermore, Freeman (1977) noted that nodes with high betweenness centrality have significant influence within the network and occupy strategic positions. Previous research has utilized this concept to explore the flow of knowledge between technical fields within networks (Lim & Park, 2010), and to identify trends in technological innovation in patents (Yoon et al., 2011). Betweenness centrality measures whether a designer is on the shortest path of information exchange between two other designers in the network; this measurement is taken for all possible pairs of designers. In other words, designers who occupy these shortest paths more frequently have greater opportunities to access the diverse information flowing through the network. Additionally, they can potentially modify the information passing through them, thereby exerting significant influence, for better or worse, on the information flow within the network. Brandes (2001) states that such nodes can accelerate the spread of new information and innovations. Hence, we can infer that similar dynamics are at play within designer networks, leading to the following hypothesis:

Hypothesis 6: Designers who bridge communication and information flow within a designer network are more likely to produce design innovations.

Individual design creation requires knowledge, ranging from design planning to registration. Therefore, if creators require knowledge outside their area of expertise, easy access to other designers with the required knowledge enables its quick acquisition. Designers with extensive experience in personal production are likely to require different types of knowledge in the design process. Moreover, if designers actively share the knowledge gained through individual creation experiences with others, they may receive new knowledge. Ganguly et al. (2019) focused on the role of sharing tacit knowledge internalized through personal experience in nurturing an organization's innovation capability. Their research highlighted the norms of reciprocity in organizational knowledge-sharing networks, where individuals not only expect knowledge sharing from others but also reciprocate by sharing knowledge in return.

Therefore, designers in positions that facilitate the flow of information within the network can efficiently disseminate their unique knowledge gained from individual creation, while also acquiring the diverse knowledge provided by many other designers. This makes them more likely to engage in design innovations. Based on this understanding, the following hypotheses are proposed:

Hypothesis 7: Designers with extensive experience in individual creation are more likely to

produce design innovations as they facilitate communication and information flow within the designer network.

METHODS

Data and Analysis

The data for this study were sourced from PatentSQUARE using design rights data. Compared to patents, design rights are characterized by lower registration and maintenance costs. Similar to patents, design rights include information about rights holders, co-creators, and references. References are cited when an examiner considers other designs in relation to those being applied. Therefore, the characteristics of design rights data make them suitable for design innovation research, similar to the use of patent data in many prior studies. This study focuses on design rights in Japan's transportation equipment industry by analyzing the level of individual designers.

Social networks and network analyses have been widely used in prior research to understand innovation (Borgatti & Halgin, 2011). Based on this, the initial analysis creates a designer network using the co-creation of designs as ties. The designer network is an undirected graph that connects designers who have co-created design rights over 10 years. This network was analyzed using the network analysis software Gephi to calculate the network metrics for each designer. The 10-year period for the design rights data to construct one network was chosen because the development of the sales cycle for automobiles can take four to ten years, depending on the company and the new technologies being developed (Montenegro, 2023). Network metrics from the last year of each 10-year period were used for the time-series analysis. For example, the 2000 panel used network metrics calculated from the designer network of design rights registered from 1991 to 2000. Design rights data from 1985 to 2023 were used to create network data, with the oldest network covering 1985 to 1994 and the latest from 2009 to 2018, totaling 30 panels of network metrics.

Next, these calculated network metrics were used for time-series analysis in STATA using a fixed-effects model, with the unit of analysis being the designer. A Hausman test was conducted for model selection, and a fixed-effects model was chosen because it was statistically significant ($p < 0.01$). The time-series analysis covers 25 panels from 1994 to 2018, analyzing 22,966 design rights data entries created by 3,079 designers during this period.

Dependent variable

The dependent variable was design innovation, represented by the number of design rights owned by a designer cited by the examiners five or more times. For instance, if a designer has ten design rights and two of them have been cited five or more times by examiners, then the design innovation score is two. This approach is in line with prior patent studies, in which innovation is often represented by the number of citations a patent receives (Rosenkopf & Nerkar, 2001). The threshold of five citations is used because design rights cited five or more times comprise approximately 10% of all cases. Additionally, there is typically a time lag from when a design is created to when it is registered as a design right and subsequently cited by an examiner, with the average period from application to registration being seven months (Japan Patent Office, 2023). Therefore, the dependent variable incorporates a one-year lag and is log-transformed owing to its left-skewed distribution.

Independent variables

The independent variables were the total number of solo creations, eigenvector centrality, clustering coefficient, and betweenness centrality.

The total number of solo creations is an indicator of the cumulative experience of individual design rights creation and is calculated as the total number of individual design rights creations for each designer up to the year of the panel.

Eigenvector centrality, clustering coefficient, and betweenness centrality are network metrics calculated using network analysis. Owing to their large values, they were uniformly divided by 100,000. Eigenvector centrality, which was used to test Hypothesis 2, measures the extent to which a designer is connected to an important position in the network. Designers with a high eigenvector centrality have rich connections with other important designers, allowing them to benefit from the convergence of diverse knowledge and information.

The clustering coefficient used to test Hypothesis 3 is calculated using Latapy's (2008) Gephi algorithm. This is a measure of the density of triads in a network (Opsahl & Panzarasa, 2009). A designer network indicates how often designers connected to a particular designer (A) are also connected (B and C), forming triads. A higher clustering coefficient suggests that the designer has formed more triads and is part of a dense community.

Betweenness centrality, which was used to test Hypothesis 4, measures the extent to which a designer is crucial to the flow of information in a network. Following Li et al. (2020), it's adapted from patent networks to designer networks, measuring the proportion of times a node appears on the shortest path between two other nodes (Freeman, 1978). A higher value indicates a node's strategic position in controlling information exchange between other nodes (Freeman, 1978).

Interaction effect

The variables used to measure the interaction effects were solo creations \times eigenvector, solo creations \times clustering, and solo creations \times betweenness. Solo creations \times eigenvector is the product of the total number of solo creations and eigenvector centrality. Solo creations \times clustering is the product of the total number of solo creations and the clustering coefficient. Solo creations \times betweenness is the product of the total number of solo creations and betweenness centrality.

These interaction terms were designed to explore how the combination of individual creation experiences (solo creations) and different aspects of a designer's position in the network (eigenvector centrality, clustering coefficient, and betweenness centrality) influences design innovation. Multiplying these variables creates new variables that capture the joint effects of a designer's creative experiences and network characteristics.

Control Variables

The control variables consisted of two groups of variables that explained the creative experience and environment of the designer. The group of variables explaining the designer's creative experience included the number of years of creative experience, number of creations, number of first design holders, maximum number of citations, team creation experience ratio, and total team creativity. The variables representing environmental influences are the Great Hanshin-Awaji earthquake dummy, Sumatra earthquake dummy, Lehman shock dummy, Great East Japan earthquake dummy, and Greek crisis dummy.

The number of years of creative experience, creations, and first design holders were used to consider the impact on design innovation creation and designers' past experience and capabilities. The number of years of creative experience is the number of years from the first design-right registration to the current year. The number of creations refers to the number of design rights created in the current year. The number of first design holders is the number of design rights in which the designer is the lead creator in the team creation, excluding those in which the designer is the sole creator.

The maximum number of citations represents the highest number of examiner citations for any design right created by the designer up to the current year, indicating an individual's design capabilities.

Team-creation experience ratio and total team creativity are indicators of a designer's experience in team design. The team creation experience ratio was calculated by dividing the number of team

creations up to the current year by the total number of registered design rights. The total team creativity is the cumulative count of team creations divided by the total number of registered design rights up to the current year.

The Great Hanshin-Awaji earthquake dummy, Sumatra earthquake dummy, Lehman shock dummy, Greek crisis dummy, and Great East Japan earthquake dummy represent environmental changes. They were used to control the impacts of major disasters and economic crises, factoring them into the background influences for the respective periods. The dummy variables were set to 1 for the year of the event (e.g., 1 for 1995 for the Great Hanshin-Awaji Earthquake dummy) and 0 for other years.

RESULTS

Table 1 presents the basic statistics and Table 2 lists the correlation table. The highest correlation among the control and independent variables was 0.596 between the number of creations and first design holders. To ensure no multicollinearity issues, the Variance Inflation Factor (VIF) was checked for all control, independent, and interaction variables, with a maximum value of 1.90, well below the threshold of 10, indicating no multicollinearity problems (Belsley et al., 1980).

Table 3 presents the results of the time-series analysis using the fixed-effects model. Model I was a baseline model with only control variables, whereas Model II was a full model with all the independent variables for testing the hypotheses. The coefficient of determination (within) for all the models was above 0.3, indicating a high fit. Furthermore, the coefficients of determination (within), (between), and (overall) in Model II were higher than those in Model I, suggesting increased explanatory power.

Model II shows that the total team creative experience ratio ($p < 0.01$) has a positive effect on design innovation, supporting Hypothesis 1 that designers with extensive individual creation experience produce more design innovations. Eigenvector centrality ($p < 0.01$) also positively impacts design innovation, supporting Hypothesis 2 that designers connected to important network positions in the designer network are more likely to produce design innovations. Additionally, the interaction effect of solo creation \times eigenvector was statistically significant ($p < 0.05$), as depicted in Figure 1. The Y-axis represents the predicted value of design innovation based on the analysis model, and the X-axis represents the eigenvector centrality. The high total number of solo creations was the mean plus two standard deviations, and the low total number was minus two standard deviations. Based on this graph, Hypothesis 3 was supported.

Furthermore, clustering ($p < 0.01$) negatively impacts design innovation, supporting Hypothesis 4.

The interaction effect of solo creation \times clustering was statistically significant ($p < 0.01$), as analyzed based on the graph in Figure 2. The Y-axis represents the predicted value of design innovation and the X-axis represents clustering. A high total number of solo creations is three standard deviations above the mean and three standard deviations below. The graph indicates that designers with sparse networks within the designer network create more design innovations. However, Hypothesis 5 is not supported because there is no significant change in design innovation with varying clustering coefficients for designers with extensive individual creation experience. However, designers with less individual creation experience produce more design innovations with sparser networks, as shown in Figure 2.

Betweenness centrality ($p < 0.01$) positively affects design innovation, thus supporting Hypothesis 6. The interaction effect of solo creation \times betweenness was also statistically significant ($p < 0.01$), as illustrated in Figure 3. The Y-axis represents the predicted value of design innovation and the x-axis represents betweenness centrality. A high total number of solo creations is two standard deviations above the mean, and a low number is two standard deviations below. This graph supports Hypothesis 7, which states that designers with extensive individual creation experience produce more design innovations when they bridge communication and information flows within the designer network.

Discussion

This study aims to empirically demonstrate the mechanism by which a designer's characteristics, influenced by their design-creation experience and network position, affect the generation of design innovation. It became clear that designers with rich experience in individual creation or who hold important positions within the network are more likely to produce design innovations. Furthermore, this study revealed that designers with less individual creation experience can generate design innovations by collaborating with designers who possess a diverse range of knowledge.

This study makes three contributions. First, it contributes to the design research. This study conducts an analysis at the designer level using archival data on design rights. Considering the difficulty of evaluating designs, although action research-based studies on design innovation (Price et al., 2021), empirical studies using objective data are rare. Following previous studies that measured innovation using patents, this study uses design rights to measure design innovation. Design rights citations by examiners were the focus because frequently cited designs were considered widespread. Generally, imitation of designs should be prevented, however, in this study, imitated designs are considered to be diffused designs, and design diffusion is used as an indicator of design innovation.

This is an indicator that is reproducible, easy to use, versatile, and comparable across product groups due to its use of publicly available data. Previous studies have had difficulty in ensuring objectivity and versatility because of complex calculation methods and the need to evaluate each product individually (Sarkar & Chakrabarti, 2011; Shah, Smith, & Vargas-Hernandez, 2003). We believe that this study contributes to design research by quantitatively presenting an index that can more easily capture the elusive nature of design in a more generalized way.

Second, the study analyzed multiple network metrics—eigenvector centrality, clustering coefficient, and betweenness centrality—combined with individual design experiences to demonstrate the mechanism of design innovation creation. This responds to Dong and Yang's (2016) call to examine the impact of various network centrality indicators on innovation. This study uniquely focuses on individual creation experiences in an era in which team design is prevalent (Wuchty et al., 2007), revealing that designers utilize their position in the designer network based on their individual design experience to generate design innovations. Both the eigenvector and betweenness centralities, which are important for acquiring knowledge in prior studies, show that designers with greater network positions are more likely to produce design innovations. An interaction analysis combining individual creation experiences showed that designers with more individual experience were more likely to innovate effectively using their network positions. This suggests that designers with extensive individual experience actively connect with a diverse range of designers and that cultivating such designers can be valuable for companies.

Finally, the study demonstrates that a high clustering coefficient, which increases when designers collaborate, leads to design innovation. However, when considering individual creation experience, less experienced designers produce more innovation when they are not bound by connections within the community, whereas experienced designers are not affected by the homogeneity of their team members. This highlights the importance of team building tailored to individual experiences. Prior theoretical studies suggest that human resource development, which brings value through resources and capabilities, can be a source of sustainable competitive advantage for organizations (Collins & Clark, 2003). This study's empirical results in the transportation equipment industry suggest that developing designer talent in organizations, through knowledge acquisition and sharing in designer networks, can bring value to companies and enhance their competitive advantage.

However, this study has some limitations. First, the analysis of design rights data targets the transportation equipment industry. Designers who registered their design rights in other industries were excluded from the analysis. Future studies should analyze other industries to verify whether the results are universal. Second, this study did not address the impact of designers bridging structural

holes and gaps between disconnected communities in the designer network. In a contemporary context, where designers often contract with various companies, future research could explore how to utilize independent designers and the impact of disconnected designer communities within organizations. Finally, while this study focused on individuals, considering the increasing scale and speed of design, analyzing the impact of team design on design innovation could be an important perspective for future research. Despite these limitations, the contributions of this study were significant.

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Table 1. Descriptive statistics

No Variables	Mean	Std. dev.	Min	Max
1 Design innovation	0.465	0.644	0.000	3.497
2 Number of years in creative experience	9.319	5.825	1.000	25.000
3 Number of creations	1.066	2.717	0.000	107.000
4 Number of first designs holder	0.295	1.377	-11.000	74.000
5 Maximum number of citations	7.529	3.752	0.000	33.000
6 Team creation experience ratio	0.092	0.225	0.000	1.000
7 Total team creativity	0.738	0.350	0.000	1.000
8 Great Hanshin-Awaji earthquake dummy	0.003	0.057	0.000	1.000
9 Sumatra earthquake dummy	0.033	0.178	0.000	1.000
10 Lehman shock dummy	0.054	0.225	0.000	1.000
11 Great East Japan earthquake dummy	0.065	0.247	0.000	1.000
12 Greek crisis dummy	0.079	0.269	0.000	1.000
13 Total number of solo creations	4.026	13.707	0.000	333.000
14 Eigenvector centrality	0.025	0.081	0.000	1.000
15 Clustering	0.371	0.378	0.000	1.000
16 Betweenness centrality	0.055	0.239	0.000	5.627

Observations = 22,966 Number of designers = 3,079

Table 2. Correlations

No Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Design innovation	1															
2 Number of years in creative experience	.263	1														
3 Number of creations	.233	-.065	1													
4 Number of first designs holder	.128	.003	.596	1												
5 Maximum number of citations	.390	.143	.079	.051	1											
6 Team creation experience ratio	-.047	-.325	.356	.248	-.026	1										
7 Total team creativity	-.046	-.010	-.042	.059	.036	.220	1									
8 Great Hanshin-Awaji earthquake dummy	-.020	-.074	.021	.011	-.032	.020	-.015	1								
9 Sumatra earthquake dummy	-.049	-.075	.025	.011	-.047	.037	-.003	-.011	1							
10 Lehman shock dummy	-.010	-.034	.026	.015	.003	.041	.010	-.014	-.044	1						
11 Great East Japan earthquake dummy	.018	.023	-.027	-.009	.007	-.028	.005	-.015	-.049	-.063	1					
12 Greek crisis dummy	.054	.095	-.010	-.002	.061	-.026	.003	-.017	-.054	-.069	-.077	1				
13 Total number of solo creations	.272	.182	.215	.034	.095	-.088	-.336	.008	-.001	-.006	-.004	.003	1			
14 Eigenvector centrality	.148	.054	.079	.052	.047	.000	.187	.017	-.039	-.025	.000	.032	-.050	1		
15 Clustering	-.145	-.118	-.095	-.070	-.012	.118	.422	-.004	-.011	.003	.007	-.002	-.150	.012	1	
16 Betweenness centrality	.125	.119	.093	.089	.055	-.007	.052	-.010	.029	-.013	.002	.008	.015	.144	-.095	1

Observations: 22,966 Number of designers: 3,079

Table 3. Results for fixed effect models

No Variables	Design innovation					
	I	II	III	IV	V	VI
2 Number of years in creative experience	0.032 *** [0.001]	0.028 *** [0.001]	0.028 *** [0.001]	0.028 *** [0.001]	0.028 *** [0.001]	0.028 *** [0.001]
3 Number of creations	0.008 *** [0.001]	0.009 *** [0.001]	0.009 *** [0.001]	0.010 *** [0.001]	0.009 *** [0.001]	0.009 *** [0.001]
4 Number of first designs holder	0.002 [0.002]	0.001 [0.002]	0.001 [0.002]	0.001 [0.002]	0.001 [0.002]	0.002 [0.002]
5 Maximum number of citations	0.043 *** [0.001]	0.040 *** [0.001]	0.040 *** [0.001]	0.040 *** [0.001]	0.040 *** [0.001]	0.040 *** [0.001]
6 Team creation experience ratio	0.026 *** [0.010]	0.007 [0.010]	0.008 [0.010]	0.007 [0.010]	0.007 [0.010]	0.007 [0.010]
7 Total team creativity	-0.107 *** [0.023]	0.024 [0.023]	0.023 [0.023]	0.032 [0.023]	0.024 [0.023]	0.033 [0.023]
8 Great Hanshin-Awaji earthquake dummy	0.072 ** [0.031]	0.095 *** [0.031]	0.094 *** [0.031]	0.095 *** [0.031]	0.093 *** [0.031]	0.093 *** [0.031]
9 Sumatra earthquake dummy	-0.009 [0.010]	-0.016 [0.010]	-0.016 [0.010]	-0.016 [0.010]	-0.016 [0.010]	-0.015 [0.010]
10 Lehman shock dummy	0.003 [0.008]	0.004 [0.008]	0.004 [0.008]	0.004 [0.008]	0.004 [0.008]	0.004 [0.008]
11 Great East Japan earthquake dummy	0.025 *** [0.007]	0.026 *** [0.007]	0.026 *** [0.007]	0.026 *** [0.007]	0.026 *** [0.007]	0.026 *** [0.007]
12 Greek crisis dummy	0.019 *** [0.007]	0.019 *** [0.007]	0.019 *** [0.007]	0.019 *** [0.007]	0.020 *** [0.007]	0.019 *** [0.007]
13 Total number of solo creations		0.010 *** [0.000]	0.010 *** [0.000]	0.009 *** [0.000]	0.010 *** [0.000]	0.009 *** [0.000]
14 Eigenvector centrality		0.270 *** [0.042]	0.241 *** [0.045]	0.268 *** [0.042]	0.277 *** [0.042]	0.237 *** [0.045]
15 Clustering		-0.071 *** [0.010]	-0.071 *** [0.010]	-0.088 *** [0.010]	-0.071 *** [0.010]	-0.090 *** [0.010]
16 Betweenness centrality		0.065 *** [0.009]	0.064 *** [0.009]	0.064 *** [0.009]	0.042 *** [0.011]	0.043 *** [0.011]
17 Solo creations X Eigenvector			0.016 ** [0.008]			0.020 ** [0.008]
18 Solo creations X Clustering				0.004 *** [0.001]		0.004 *** [0.001]
19 Solo creations X Betweenness					0.004 *** [0.001]	0.004 *** [0.001]
Constant	-0.094 *** [0.018]	-0.153 *** [0.018]	-0.153 *** [0.018]	-0.152 *** [0.018]	-0.152 *** [0.018]	-0.150 *** [0.018]
Observations	22,966	22,966	22,966	22,966	22,966	22,966
R-squared	0.322	0.348	0.348	0.348	0.348	0.349

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Standard error in []

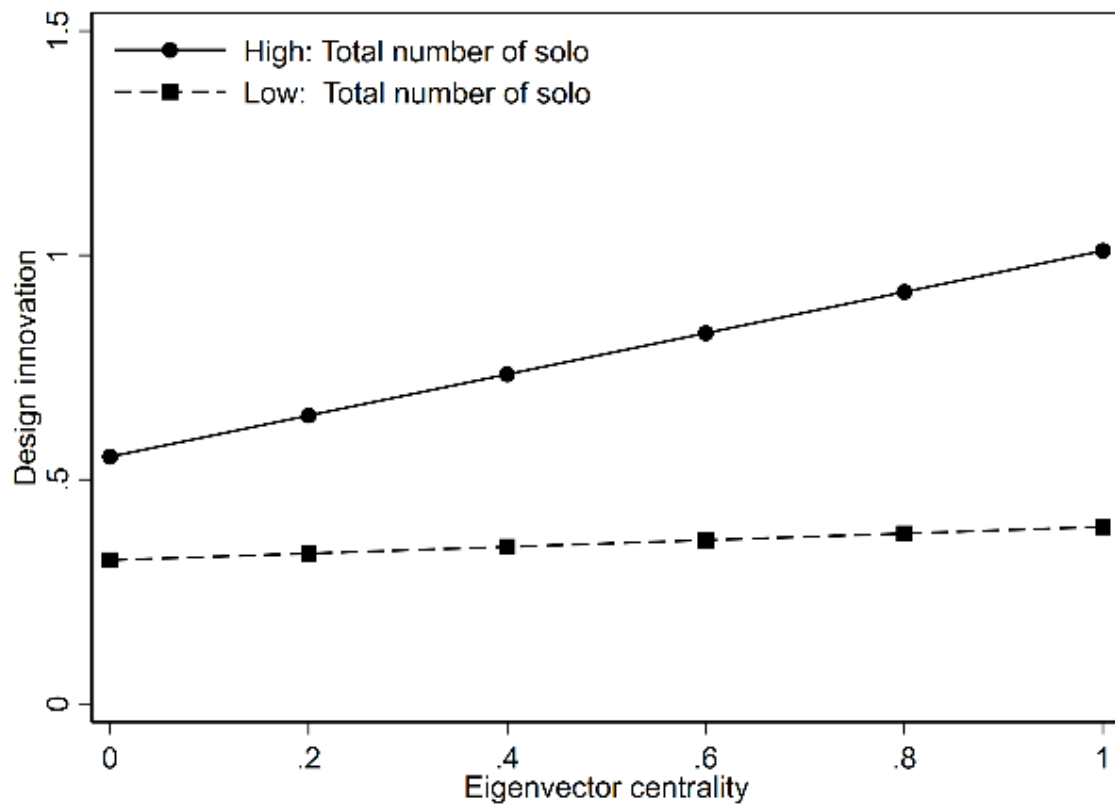


Figure 1 Interaction effect of total number of Solo and eigenvector centrality (2 S.D.)

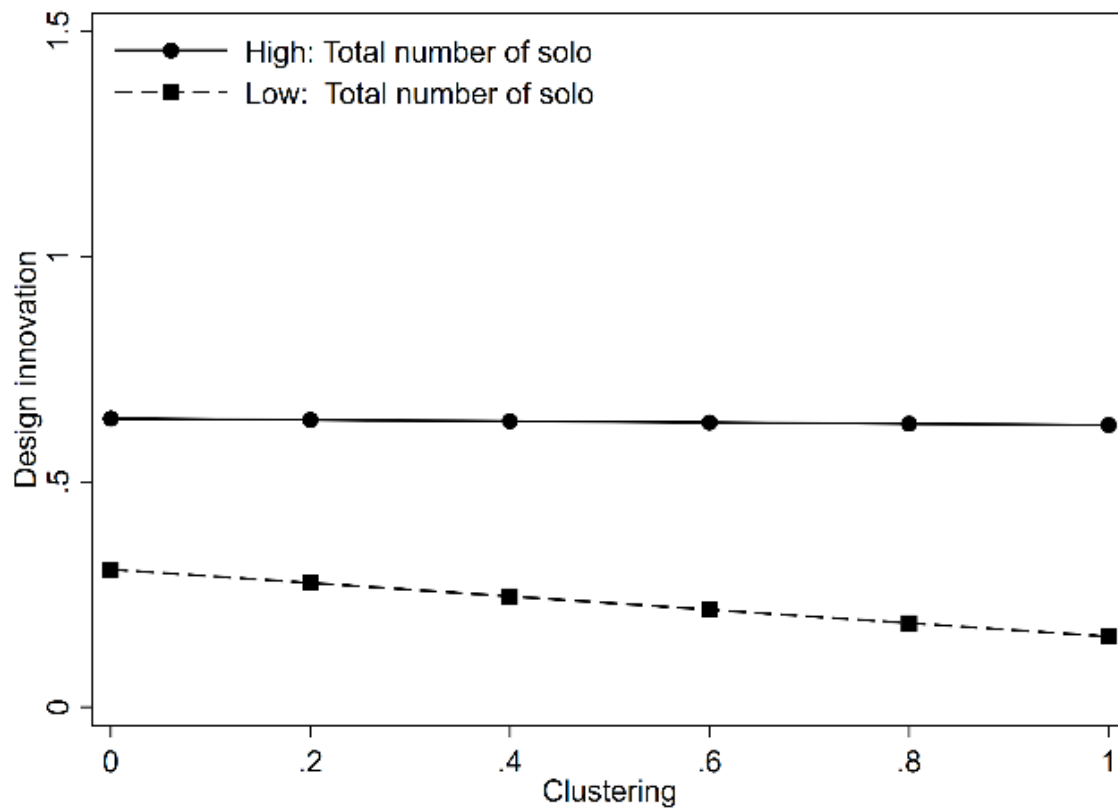


Figure 2 Interaction effect of total number of Solo and clustering (3 S.D.)

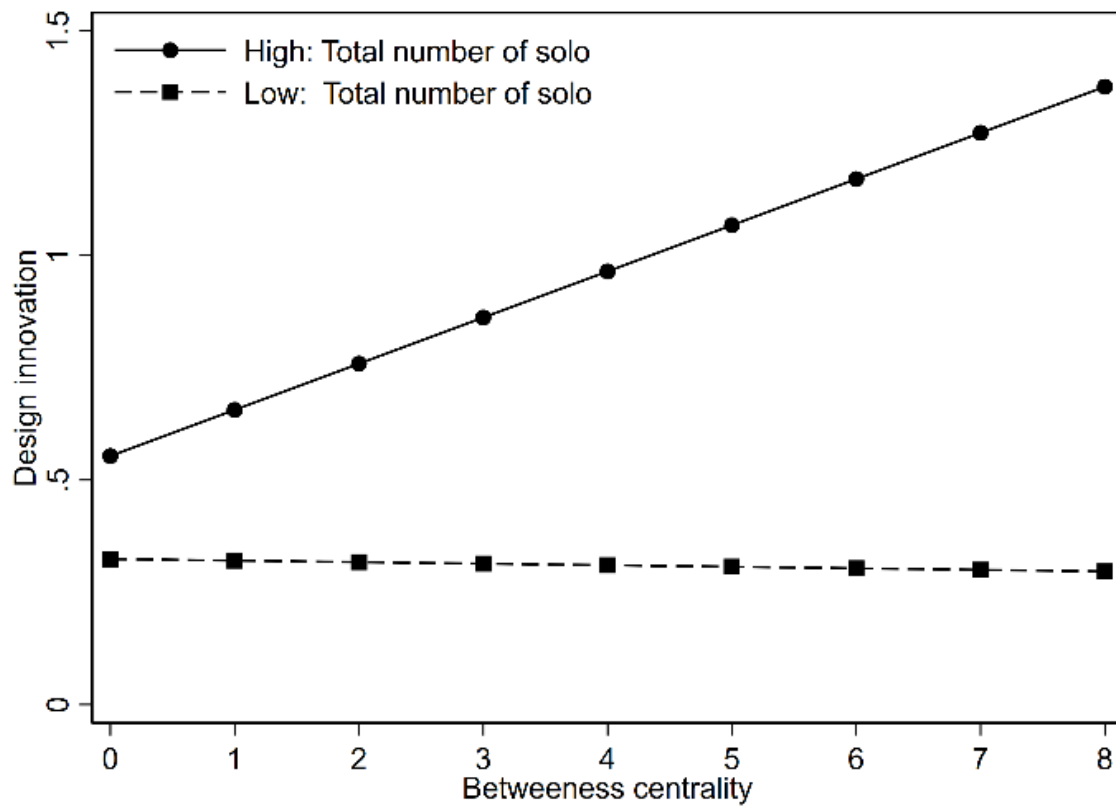


Figure 3 Interaction effect of total number of Solo and betweenness centrality (2 S.D.)

Social Alliances Network Boosting Corporate Social Performance: The Empirical Research of the Japanese Manufacturing Sector

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ABSTRACT

This study poses a research question about the impact of social alliances on firms' practice of Corporate Social Responsibility (CSR) activities. This study aims to demonstrate empirically how firms' enthusiasm for CSR activities and their position in a network established through social alliances affect corporate social performance (CSP). Therefore, a network analysis and multiple regression analysis were conducted on 239 publicly listed manufacturing firms in Japan. The analysis revealed that active financial investment by firms in social contribution activities and positioning within the social alliance network, which facilitates easy access to fresh information, significantly enhanced CSP. Additionally, this study suggests that firms can strategically improve CSP by combining enthusiasm for financial investment in CSR activities with closeness centrality within the social alliance network. This study contributes to CSR research, inter-organizational alliance studies, as well as decision-making and strategy regarding CSR in firms by presenting methods to achieve greater CSP, focusing on a firm's enthusiasm for social contribution activities and network metrics within social alliances.

Keywords: Management, Organizational Behavior, Strategy, CSR, Social Alliance Network

INTRODUCTION

With population growth, urbanization, and climate change leading to intense environmental changes, new social issues have emerged worldwide. These global environmental changes are expected to continue, and social issues will increase and become more complex (Ballesteros & Gatignon, 2019). These societal challenges, which encompass environmental issues, global problems, and domestic concerns, present formidable resolution difficulties (Bryson, Crosby & Stone, 2006; Murphy, Arenas & Batista, 2015). In response to these challenges and the growing awareness of the need for a sustainable society, firms are aiming for sustainable growth by creating economic value through businesses that contribute to solving social issues and by creating social value through Corporate Social Responsibility (CSR) activities and social contributions (Van Marrewijk, 2003). Amid a plethora of concepts and definitions advocating a more humanitarian, ethical, and transparent business approach in academic research and practical business environments (Van Marrewijk, 2003), CSR has garnered attention in recent years. While various concepts and definitions exist for CSR (Runhaar & Lafferty, 2009), this study defines CSR as “actions that appear to further some social good beyond the interests of the firm and that which is required by law” (McWilliams & Siegel, 2001, p. 117). For firms, CSR activities are viewed as a strength in meeting customer expectations and satisfaction, enhancing profitability and competitive advantage, and thereby increasing their strategic importance in management (Runhaar & Lafferty, 2009; Valdez-Juárez, Gallardo-Vázquez & Ramos-Escobar, 2019). Considering the intensified competition among firms, strengthened government regulations, and the emergence of consumers with a high awareness of society and the environment, numerous firms worldwide, including those in Japan, are engaging in CSR activities (Leonidou, Eteokleous, Christodoulides & Eduardsen, 2023). Recently, interest in strategic CSR and CSR strategies for sustained and effective CSR activities has also grown. A CSR strategy is defined as “the organizational plan of action related to a CSR initiative designed to achieve a desired level of financial and social value (i.e., shared value) creation” (Aronson & Henriques, 2023, p. 714). Like CSR, strategic CSR and CSR strategies have various interpretations and views, accelerating discussions on the social issues firms should address and how to develop and implement CSR strategies (Aronson & Henriques, 2023). In recent years, an approach based on the organizational learning theory in CSR strategy has been considered (Valdez-Juárez et al., 2019), suggesting that firms’ strategic consideration and practice of CSR activities can lead to the construction of a competitive advantage, underscoring the increasing necessity of such engagement (Galbreath, 2009).

This study specifically focuses on CSR activities conducted through social alliances. Social alliance is defined as the collaboration between for-profit and nonprofit organizations (Liu, Ko & Chapleo, 2018, p. 497). As for-profit organizations, firms engage in social contribution activities through social alliances with nonprofit organizations as part of their CSR activities. When for-profit firms engage in social contribution activities, they risk not only neglecting their core business but also the possibility of losing their expertise in activities other than their primary operations. One solution to this problem is to collaborate with nonprofit

organizations that have social contribution activities as their primary goal.

This study poses the research question: What is the impact of social alliances on the practice of CSR activities by firms? This study empirically demonstrates how firms' enthusiasm for corporate social responsibility (CSR) activities and their position in a network established through social alliances affect corporate social performance (CSP). Specifically, through network and multiple regression analyses of publicly listed manufacturing firms in Japan, this study clarifies that a firm's investment in social contribution activities and high closeness centrality within the social alliance network enhance CSP. This contributes to CSR research, inter-organizational alliance studies, and CSR practices and strategies in firms.

THEORY AND HYPOTHESES

Corporate Enthusiasm in CSR and Social Contribution Activities

Firms' CSR activities are known to result in competitive advantages. Previous studies have focused on the causal relationship between CSR and corporate performance, particularly investigating the impact of CSR on financial performance (Galbreath, 2009; Valdez-Juárez et al., 2019), which has been increasing in recent years. However, few studies have examined the impact of CSR on the creation of social value (Aronson & Henriques, 2023; Whiteman, Walker & Perego, 2013). Therefore, this study focused on CSP as an indicator of corporate performance that reflects social outcomes. CSP is defined as "a business organization's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relationships." (Bouslah, Kryzanowski & M'Zali, 2018, p. 643; Wood, 1991, p. 693). With the growing importance of CSR, the relationship between CSP, CSR, and corporate behavior has been gaining interest; however, empirical studies on the relationship between CSP and profitability, financial performance, risk, and future returns have yielded varied results and are inconclusive (Bouslah et al., 2018; Waddock & Graves, 1997; Wood, 1991).

Regarding the causal relationship between commitment to CSR and financial performance, various research results suggest a positive, negative, or no relation, although there is no unified view, and many prior studies indicate a positive effect (Bouslah et al., 2018; Saeidi, Sofian, Saeidi, Saeidi & Saeidi, 2015). Similar to the results of previous research on this causal relationship, the causal relationship between commitment to CSR and CSP may also have a positive impact. Among firms' CSR commitments, social contribution activities can contribute and return to various stakeholders, such as local communities, residents, consumers, employees, and business partners. When firms engage in social contribution activities through financial investments, they demonstrate a proactive attitude toward fulfilling their CSR toward society and stakeholders, which could lead to greater social outcomes. Therefore, we propose the following hypothesis:

Hypothesis 1: The higher the firms are enthusiastic about investing in social contribution activities, the higher the CSP.

Social Alliance and Social Alliance Network

Firms are generally engaged in various alliances. An alliance refers to a close inter-organizational relationship in which participating organizations start to engage in joint actions based on arrangements between the firms (Heide & John, 1990). The processes that influence an alliance, such as its form and criteria for partner selection, are decided based on the firm's goals and strategies, making alliances significant for the firm and its strategy (Koka & Prescott, 2008). A social alliance is one of the alliances that firms implement. The social alliance in corporate CSR activities that this study focuses on is considered an activity in which a firm and a nonprofit organization (NPO), which normally operate with different objectives, cooperate toward the common goal of social contribution. Furthermore, a social alliance, which forms a partnership between firms and nonprofit organizations without competitive intentions, fits into non-competitive collaborations within inter-organizational alliances (Huang & Yu, 2011). In non-competitive collaborations, partner organizations do not intend to compete in the same market rather, they work toward enhancing their skills or strengthening their position in their respective markets, making the alliance more likely to succeed and benefit both participating organizations (Huang & Yu, 2011; Liu & Ko, 2011). Organizations can internalize and acquire skills traded with partner organizations (Hamel, 1991). Furthermore, for firms, an alliance is a means to utilize resources that were previously unavailable (Koka & Prescott, 2008). In the field of strategic alliances, an alliance is considered an effective opportunity for firms to gain unique knowledge from their partners and exchange hard-to-obtain knowledge and expertise that are not easily acquired through market transactions (Howard, Steensma, Lyles & Dhanaraj, 2016). From these perspectives, we consider that firms and nonprofit organizations can share, leverage, and learn from each other's knowledge, information, expertise, and capabilities through social partnerships.

The connections between firms through alliances can be visualized by an alliance network that links all the firms involved in the alliance. A network is defined as "a set of nodes and the set of ties representing some relationship, or lack of relationship, between the nodes" (Aarstad, Ness & Haugland, 2015, p. 1668; Brass, Galaskiewicz, Greve & Tsai, 2004, p. 795). Given the increase in inter-organizational relationships, including alliances, incorporating a network perspective to understand firms' actions and performance becomes necessary (Gulati, Nohria & Zaheer, 2000). Organizations in a network are defined as valuable sources of knowledge and information that can be accessed through the network, and they can utilize network resources that affect firm and organizational performance (Dyer & Hatch, 2006, p. 702). Network resources, such as information and knowledge obtained through network ties, are known to impact firm strategy and performance, and the importance of considering networks in firm analysis has been highlighted in prior research (Aarstad et al., 2015; Dyer & Hatch, 2006; Uzzi, 1997). Particularly in alliance networks,

the impact on firm performance is often positive and of great interest, leading to various discussions in prior research (Koka & Prescott, 2008). Particular attention has been paid to the different relative positions of nodes within a network, with many prior studies demonstrating the valuable benefits of network positions, making positioning within an interfirm network important for firms (Burt, 2009; Gulati et al., 2000; Zaheer & Bell, 2005). As resources such as information, knowledge, and capabilities within an alliance network spread through network connections, a firm's network position within an alliance network can also be considered an indicator of the benefits that a firm can access through alliance relationships (Koka & Prescott, 2008). Therefore, the impact of a firm's position in an alliance network on its performance and the processes that influence it are major research themes in organizational and strategic studies (Koka & Prescott, 2008).

The Importance of Information Obtained through the Social Alliance Network

Koka and Prescott (2008) presented several network positioning strategies. One such strategy, network prominence, involves firms pursuing a network strategy that aims for a central and prominent position in the network (Koka & Prescott, 2008). Establishing relationships with numerous partners facilitates access to vital information within the network and the capacity to influence these partners, thereby enhancing a firm's performance (Koka & Prescott, 2008).

Similar considerations can be applied to social alliance networks. In the social alliance network discussed in this study, nodes represent firms or nonprofit organizations, and ties represent the social alliance relationships between firms and nonprofit organizations. In a social alliance network, all participating organizations are influenced by their connections and interactions with other organizations (Burt, 1992) and can utilize information that is inaccessible unless they participate in the network (Harjoto & Wang, 2020). In particular, firms can not only gain and learn knowledge and skills useful for solving social issues through interactions with partner nonprofit organizations in social alliances but also access information about the activities of other firms and non-partner nonprofit organizations through connections in the social alliance network, thereby enhancing their CSR capabilities and CSP. Additionally, firms connected to organizations in a central position within the network can easily access a variety of information and knowledge flowing within the network. Moreover, firms that occupy a central position within the network can influence other organizations in the exchange of information within the network (Harjoto & Wang, 2020), gaining competitive advantages and enhancing their CSP. Therefore, we consider firms with a central positioning in a social alliance network can enhance their CSP, leading to the following hypothesis:

Hypothesis 2: The higher the firms occupy a network position with easily obtaining information through connections with other organizations that occupy a central position in the social alliance network, the higher the CSP.

Fresh Information Available through the Social Alliance Network

The focus is on the quality of information obtained through social alliances and networks. Even if the information is easily accessible, its value diminishes if it is outdated, making freshness particularly important to the quality of the information. For firms, social alliances can provide an opportunity to acquire fresh information on CSR activities and social issues from nonprofit organizations engaged in various social contribution activities. We propose firms can achieve better results by utilizing fresh information obtained through interactions and partnerships with nonprofit organizations in their social alliances and CSR activities. Additionally, firms positioned to easily access fresh information within the social alliance network can quickly obtain information from other firms and nonprofit organizations, staying updated on the latest trends in CSR and social contribution activities. By discerning other firms' CSR actions through connections in a social alliance network, a firm can also differentiate its CSR activities from those of others and demonstrate CSP. Therefore, firms that can easily acquire new information through social alliances can expect improvements in CSP.

Furthermore, firms that strategically focus on CSR activities by combining investments in the aforementioned social contribution activities with their positioning in the social alliance network can achieve greater social outcomes and enhance CSP.

Based on these considerations, we propose the following hypotheses:

Hypothesis 3: The higher the firms occupy a network position with easy access to fresh information in the social alliance network, the higher the CSP.

Hypothesis 4: Firms that proactively invest in social contribution activities and occupy a network position in the social alliance network that facilitates easy access to fresh information are more likely to have a higher CSP.

METHODS

Data and Analysis

The CSR data for each firm were obtained from the FY2011 and FY2015 editions of the CSR Company Handbook of the Toyo Keizai Digital Content Library of Toyo Keizai Inc. The FY2011 edition of the CSR Company Handbook contains CSR data for 2009, and the FY2015 edition contains CSR data for 2013. Financial data were obtained from the EOL database of company information. The analysis targeted manufacturing firms listed in Japan. The manufacturing industry was chosen for this study as it was considered to have a significant impact on the environment and society, with CSR activities being especially emphasized (Saeidi et al., 2015). We used the CSR Company Handbook data for 269 firms from FY2011 and 305 firms from FY2015. Out of these, valid data from 239 firms listed in both the FY2011 and FY2015

editions of the CSR Company Handbook were analyzed.

The analysis involves network analysis followed by multiple regression analysis. Network analysis focuses on the social alliance network formed by the alliance relationships between firms and nonprofit organizations in CSR activities, which is conducted using R. Network analysis that allows the calculation of various network metrics based on the structural features of the nodes' network positions (Aarstad et al., 2015). These calculated network metrics are then used in multiple regression analysis. The multiple regression analysis is performed using the statistical analysis software STATA. As the dependent variable is close to a normal distribution, an OLS model is chosen for the analysis.

Dependent Variable

The dependent variable is *CSP*, representing CSP. In prior research, the CSP indicator is the sum of dummy variables created from several items in the CSR data of US firms provided by Kinder, Lydenberg, and Domini (KLD) (Muller & Kräussl, 2011; Saeidi et al., 2015; Waddock & Graves, 1997). Following Waddock and Graves (1997), this study creates dummy variables representing the five attributes considered to significantly impact corporate strategy and uses their total as *CSP*. First, dummy variables corresponding to the five attributes are created from the CSR data listed in the CSR Company Handbook and firms' financial data. The five dummy variables are "Community," regarding donations and contributions to the local community; "Diversity," related to efforts in employing and promoting women and sexual minority talents; "Employee relations," about corporate-wide efforts respecting employees; "Environment," concerning environmental initiatives; and "Product," on comprehensive product quality programs. The "Community" dummy was created based on whether the donations are at least 1.5% of the pre-tax profit. This study follows the same approach. We assume that the amount of donations in the previous study corresponds to "social contribution expenditure," which is the total amount of donations and matching gifts for social contribution purposes. Matching gift is a system where a firm contributes additional donations to an employee's charity (Hase, 2012), and this can be also considered a donation. Considering this, the community dummy is set to 1 if the social contribution expenditure is more than 1.5% of the pre-tax profit; otherwise, it is 0. For "Diversity," the existence of specialized departments that promote the use and promotion of diverse human resources is assessed, and a diversity dummy is prepared as 1 if there is one and 0 if not. The "Employee relations" dummy is based on whether internal or external reporting and whistleblowing contacts are established, with 1 indicating presence and 0 otherwise. The "Environment" dummy is created based on the existence of environmental accounting, with 1 for presence and 0 otherwise. "Product" considers ISO9000S certification; the product dummy creates 1 for certified firms and 0 otherwise.

These five dummy variables are used as *CSP*. Considering that *CSP* is a variable to verify the final impact of CSR activities, following prior research, a four-year lag is applied, and data from 2013 is used (Cassely, Ben Larbi, Revelli & Lacroux, 2021; Saeidi et al., 2015).

Independent Variables

The independent variables are *CSR activity expenditures to sales*, *eigenvector centrality*, *closeness centrality*, and *CSR activity expenditures to sales* \times *closeness centrality*. *CSR activity expenditures to sales* is the independent variable for testing Hypothesis 1, measured by dividing the amount spent on social contribution activities by sales. The social contribution expenditure used is an item from the CSR Company Handbook, defined as the sum of corporate donations and expenditures on social contribution projects. Sales have been used in prior research as an indicator of firm size and have been shown to influence a firm's CSR and performance (Muller & Kräussl, 2011).

Eigenvector centrality and *closeness centrality* are network centrality metrics calculated through network analyses of social alliance networks. Network centrality is an indicator of how important a node's position is within a network, with various types existing (Borgatti, 2005; Stephenson & Zelen, 1989). *Eigenvector centrality*, the independent variable for testing Hypothesis 2, is a metric that evaluates centrality based on a node's connections with other important nodes (Bonacich & Lloyd, 2001; Kim, Kwon & Lee, 2017) and is particularly suitable to indicate occupying a central position in the network (Koka & Prescott, 2008).

Closeness centrality is an independent variable for testing Hypothesis 3. Closeness centrality is a measure that focuses on a firm's average network path length, or "closeness," to reach all other firms in the network (Aarstad et al., 2015; Freeman, 1978; Freeman, 1979). It assumes a higher value when the distance to all other connected nodes is small, making it a metric for evaluating the rapid acquisition and efficient propagation of information. Nodes with a high closeness centrality benefit from the ease of accessing fresh information and the advantages of efficient information access because of their close relationships with connected nodes.

CSR activity expenditures to sales \times *closeness centrality* is the interaction effect variable for testing Hypothesis 4, calculated by multiplying *CSR activity expenditures to sales* with *closeness centrality*.

All three independent variables standardized. For the interaction effect variable, we used the product of two independently standardized independent variables.

Control Variables

Of the 17 control variables, eight were obtained from the firms' financial data: *return on equity (ROE)*, *current net income*, *capital stock*, *firm age*, *number of years elapsed since listing*, *slack resources*, *profitability*, and *leverage*. *ROE* is an indicator of a firm's financial performance. Prior research reveals that firms' financial performance is related to CSR, and *ROE* has been used to indicate the same (Bansal, 2005; Saeidi et al., 2015; Valdez-Juárez et al., 2019). *Current net income* has been used in prior research as an indicator of firm size and financial performance (Orazalin & Baydauletov, 2020; Saeidi et al., 2015). Firm size is known to affect a firm's competitiveness, performance, innovation, etc. (Li, Eden, Hitt & Ireland, 2008; Valdez-Juárez et al., 2019), and in the field of CSR, prior research has indicated that it influences a

firm's CSR activities, philanthropy, social performance, environmental performance, etc. (Muller & Kräussl, 2011; Orazalin & Baydauletov, 2020). This study also used *capital stock*, which has been used in prior research, as a variable representing firm size (Sun & Govind, 2022). *Firm age* is a variable that represents the number of years a firm has existed and the accompanying accumulation of experience and knowledge. Prior research has indicated that firm age affects a firm's CSR activities, organizational performance, ESG performance, and so on (Li et al., 2008; Saeidi et al., 2015). The *number of years elapsed since listing* has also been used in prior research as an indicator of firm age (Sun & Govind, 2022), measured by the number of years since the firm was listed. *Slack resources* are the ratio of current assets to current liabilities. Prior research has considered it a factor influencing a firm's willingness to engage in CSR activities, its decision-making capacity, and its ability to invest, and it has been used in the analyses (Bansal, 2005; Strike, Gao & Bansal, 2006). *Profitability* is measured as the ratio of net income to sales. Prior research reveals it to be related to a firm's social contribution activities (Muller & Kräussl, 2011). *Leverage*, also known as debt ratio, is the proportion of debt to total assets. In the field of CSR, prior research has used this indicator under the notion that it is difficult for social contribution activities to predict returns, and firms with debt are likely to restrain their engagement in such activities (Muller & Kräussl, 2011).

The following eight control variables: *CSR director dummy*, *CSR procurement dummy*, *social contribution department dummy*, *environment director dummy*, *consumer and business partner support dummy*, *disclosure of overtime hours dummy*, *number of female directors*, as well as *risk and crisis management policy dummy*, were created from the CSR items in the FY2010 editions of the CSR Company Handbook of the Toyo Keizai Digital Content Library of Toyo Keizai Inc. The *CSR director dummy* is based on the "CSR officer" item, creating a dummy variable where the presence of an officer responsible for the CSR department is coded as 1, otherwise 0. This is used to consider the impact of the director's positive emotions and the board's CSR orientation on the firm's CSR strategy and CSP, as indicated in prior research (Shaukat, Qiu & Trojanowski, 2016; Wang, Lin, Jiang, Yang & Zhao, 2023). The *CSR procurement dummy*, based on the "CSR procurement implementation" item, is a dummy variable where the implementation of CSR procurement, including environmental measures, human rights, employment, legal compliance, ethics, safety, and health, is coded as 1, otherwise 0. This is used because of its impact on a firm's commitment to CSR activities. The *Social contribution department dummy*, referring to the "social contribution department" item, is a dummy variable where the presence of a department directly responsible for social contribution projects is coded as 1, otherwise 0. It is used because of its influence on the firm's social contribution activities and the "Community" component of the dependent variable *CSP*. The *Environment director dummy*, based on the "Environment officer" item, is a dummy variable where the presence of an officer responsible for environmental measures is coded as 1, otherwise 0. In addition to its expected impact on the "Environment" component of *CSP*, it is used to consider the influence of the board's CSR orientation on environmental performance, as mentioned in prior research (Shaukat et al., 2016). The *Consumer and business partner support dummy*, based on the "Consumer and business partner support department" item,

is a dummy variable where the presence of a responsible department is coded as 1, otherwise 0. It is used because of its potential impact on the “Product” component of *CSP*. *Disclosure of overtime hours dummy*, based on the “overtime hours” item, is a dummy variable where reporting average monthly overtime hours per employee is coded as 1, and non-response or a dash is coded as 0. It represents the firm’s stance on appropriate information disclosure in CSR and is used owing to its impact on the “Employee relations” component of *CSP*. The *number of female directors* is measured by the number of female directors and is used to consider the impact of gender diversity, known to enhance environmental performance and *CSP* (Orazalin & Baydauletov, 2020), on the “Diversity” component of *CSP*. The *Risk and crisis management policy dummy*, based on the “basic policy on risk management and crisis management” item, is a dummy variable where the presence of a basic policy is coded as 1, otherwise 0. It is used because of its potential impact on the “Employee relations” component of *CSP*.

Another control variable, *betweenness centrality*, is a network centrality metric measured through a network analysis of the social alliance network. It is quantified based on the proportion of times that a node falls on the shortest path between two other nodes (Freeman, 1978). Betweenness centrality values nodes that lie on paths connecting other nodes more highly, and nodes in positions that can control the exchange of information between other nodes score better (Freeman, 1978). The importance of node organizations (firms and nonprofit organizations in this study) is employed to consider the flow of information within the social alliance network. Of these 17 control variables, we standardized *current net income*, *capital stock*, *slack resources*, *profitability*, *leverage*, and *betweenness centrality*.

RESULTS

Tables 1 and 2 present the basic statistics and correlation tables, respectively, for the variables used in the analysis. Furthermore, in Table 2, the correlation coefficient between *profitability* and *disclosure of overtime hours dummy* is -0.0004. The highest correlation coefficient among the control and independent variables was 0.536 between *firm age* and *number of years elapsed since listing*. To check for multicollinearity, the maximum Variance Inflation Factor (VIF) was examined and found to be 1.66 for Model I and 1.87 for Model II, both below the threshold of 10, indicating no multicollinearity issues (Belsley, Kuh & Welsch, 1980).

[Insert Tables 1-3 and Figure 1 here]

Table 3 presents the results of the analysis based on the linear regression models using robust estimation. Model I is the baseline model with only control variables; Model II adds independent variables to test Hypotheses 1, 2, and 3 to Model I; and Model III adds the interaction effect variable to test Hypothesis 4

to Model II. The R-squared is above 0.3 for all models, indicating a high degree of fit. Furthermore, Models II and III presented a lower AIC and higher R-squared value than Model I, indicating greater explanatory power.

In Model II, *CSR activity expenditures to sales* ($p < 0.01$) positively impact *CSP*. This strongly supports Hypothesis 1, indicating that firms that are more active in investing financially in social contribution activities have a higher *CSP*. The impact of *eigenvector centrality* ($p > 0.10$) on *CSP* was not statistically significant. Therefore, the results do not support Hypothesis 2, which proposed that firms that are in a better network position within the social alliance network, where they can easily obtain information through connections with other organizations that occupy a central position, have a higher *CSP*. Additionally, *closeness centrality* ($p < 0.05$) positively affected *CSP*. This supports Hypothesis 3, suggesting that firms that are in a better network position within the social alliance network, where they can easily obtain fresh information, have a higher *CSP*.

In Model III, the impact of *CSR activity expenditures to sales* \times *closeness centrality* ($p < 0.05$) on *CSP* was statistically significant, leading to the illustration of the interaction effect in Figure 1. In Figure 1, the Y-axis represents the predicted values of *CSP* calculated based on the analysis results of Model III, and the X-axis represents the *closeness centrality*. High *CSR activity expenditures to sales* are calculated as the overall average plus two standard deviations and low expenditures are calculated as two standard deviations less. Figure 1 supports Hypothesis 4, indicating that firms that proactively invest in social contribution activities and occupy a network position in the social alliance network that facilitates easy access to fresh information are more likely to have a higher *CSP*.

DISCUSSION

This study aimed to empirically demonstrate how firms' enthusiasm for CSR activities and their position in a network established through social alliances affect *CSP*. In response, network and multiple regression analyses were conducted using a linear regression model. The results revealed that firms' enthusiasm for social contribution activities and their positioning in social alliance networks enhanced *CSP*. Firms can exhibit *CSP* more effectively by engaging in CSR activities that utilize social alliances.

The contributions of this study are twofold. First, it focuses on social alliances within a firm's CSR activities. This study empirically demonstrates that differences in a firm's network position within a social alliance network affect its corporate performance. While collaborative research is gaining attention in the field of business, studies on social alliances are scarce, especially empirical studies (Koka & Prescott, 2008; Murphy et al., 2015). Most existing empirical studies are either qualitative, based on case studies, or use survey data, pointing to the need for methodological advancement and further research (Murphy et al., 2015). Furthermore, although network-based research such as social network theories is increasing in

business studies, this is not the case in CSR research, particularly in studies focusing on the impact of network ties on CSR practices (Briseño-García, Husted & Arango-Herera, 2022; Shipilov, Greve & Rowley, 2010). CSR research often focuses on the relationship between a firm's CSR activities and its financial performance or competitiveness (Valdez-Juárez et al., 2019). In this context, this study's consideration of social alliances in corporate CSR activities from a network perspective and its empirical demonstration of their impact on CSP using archival data respond to these research calls and are considered novel. Additionally, this study responds to the research request by Dong and Yang (2016) to examine the structural characteristics of network centrality other than degree, closeness, and eigenvector centralities, which have been demonstrated to affect New Product Development performance, suggesting that it makes theoretical contributions to CSR research and inter-organizational network studies. Thus, this study makes a theoretical contribution to the literature on CSR and inter-organizational networks. In addition, this study illustrates that firms can achieve superior CSR performance not only through financial investment in CSR and social contribution activities but also by implementing social alliances with nonprofit organizations and participating in social alliance networks. This study provides practical contributions to the management of CSR activities and the implementation of social alliances for for-profit and nonprofit organizations.

Second, this study reveals the possibility of exhibiting CSP more efficiently by combining two CSR actions: proactive investment in social contribution activities and the execution of social alliances. According to Figure 1, which depicts the interaction effect graph from the analysis results of Model III, CSP tends to increase less as closeness centrality in the social alliance network increases for firms with high CSR activity expenditures on sales. By contrast, for firms with low CSR activity expenditures on sales, CSP tends to increase more as closeness centrality rises. The slope of the graph reveals that for firms with high CSR activity expenditures on sales, the difference in CSP owing to variations in closeness centrality is relatively small because of the gentle slope. However, for firms with low expenditure, increasing closeness centrality can significantly improve CSP, as indicated by the steeper slope. This suggests that firms can efficiently achieve higher CSP while reducing their investment in CSR activities if they are positioned to enhance closeness centrality in the social alliance network. This finding suggests that combining financial investment with strategic positioning in a social alliance network is an effective strategy for improving corporate performance. These findings broaden the scope of strategy and organizational behaviors related to CSR, aid in decision-making, and provide theoretical contributions to CSR research and the CSR strategy field, as well as practical contributions to the implementation of corporate CSR.

Although these contributions are significant, this study had some limitations. First, it focused on listed manufacturing firms in Japan that are included in the CSR Company Handbook. As perceptions of social responsibility and cultural backgrounds vary by country, region, and era (Tashman, Marano & Kostova, 2019), the expectations of stakeholders and the measures of social performance expected from firms may also differ accordingly. Moreover, considering the specificity of firms, including their listing status, prior

research suggests differences in CSR between listed and unlisted firms and family businesses (Sun & Govind, 2022; Niehm, Swinney & Miller, 2008; Déniz & Suárez, 2005). Therefore, analyses involving firms with different characteristics such as country, region, size, and industry should be conducted to verify whether universal results can be obtained. Next, this study focuses on the impact of two network centrality indicators, eigenvector centrality and closeness centrality, on CSP. Network indicators vary and are calculated differently depending on the structural features and network position of the focused nodes (Aarstad et al., 2015). Similarly, numerous corporate performance indicators exist, including organizational, financial, and environmental performances. Further exploration of different network indicators and corporate performance metrics, as well as factors influencing CSP beyond social alliance network metrics, can elucidate the mechanisms that promote firms' CSR activities and social alliances. Additionally, this study used data from 2009 and 2013 for Japanese-listed firms, empirically examining four years. Considering the recent increase in interest in CSR and social issues, with corresponding growth in firms' CSR activities and initiatives (Valdez-Juárez et al., 2019), future research should include data from recent years and before 2009 and conduct time-series analyses using multiple time points or panel data to clarify the evolution and overall mechanisms of firms' CSR activities. However, these limitations do not detract from the contributions of this study.

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Table 1. Descriptive statistics

No.	Variables	Mean	Std. dev.	Min	Max
1	CSP (t+4)	2.90	1.27	0.00	5.00
2	ROE	1.60	11.91	-111.36	59.52
3	Current net income #	0.00	1.00	-4.66	7.27
4	Capital stock #	0.00	1.00	-0.63	6.81
5	Firm age	75.50	16.33	45.00	128.00
6	No. of years elapsed since listing	53.11	2.38	26.00	60.00
7	Slack resources #	0.00	1.00	-1.11	7.46
8	Profitability #	0.00	1.00	-5.24	5.68
9	Leverage #	0.00	1.00	-0.51	14.04
10	CSR director dummy	0.80	0.40	0.00	1.00
11	CSR procurement dummy	0.60	0.49	0.00	1.00
12	Social contribution department dummy	0.97	0.16	0.00	1.00
13	Environment director dummy	0.96	0.20	0.00	1.00
14	Consumer and business partner support dummy	0.85	0.36	0.00	1.00
15	Disclosure of overtime hours dummy	0.79	0.41	0.00	1.00
16	No. of female directors	0.11	0.37	0.00	3.00
17	Risk and crisis management policy dummy	0.99	0.09	0.00	1.00
18	Betweenness centrality #	0.00	1.00	-0.25	9.60
19	CSR activity expenditures to sales #	0.00	1.00	-0.19	12.65
20	Eigenvector centrality #	0.00	1.00	-0.27	5.13
21	Closeness centrality #	0.00	1.00	-0.57	1.76

is standardized.

Observations = 239.

Table 2. Correlations

No	Variables	1	2	3	4	5	6	7	8	9	10	11	12
1	CSP (t+4)	1											
2	ROE	-.002	1										
3	Current net income #	.064	.501	1									
4	Capital stock #	.374	-.028	.181	1								
5	Firm age	.080	.014	.004	.119	1							
6	No. of years elapsed since listing	.240	-.008	.069	.290	.536	1						
7	Slack resources #	-.026	.126	.125	-.126	-.077	-.147	1					
8	Profitability #	.062	.496	.340	-.004	.018	.109	.295	1				
9	Leverage #	-.042	-.078	-.108	.027	.024	-.009	-.240	-.104	1			
10	CSR director dummy	.279	-.011	.014	.175	.174	.164	-.110	.017	-.073	1		
11	CSR procurement dummy	.430	-.037	.024	.327	.066	.142	-.083	.076	-.100	.325	1	
12	Social contribution department dummy	.157	.055	.037	.064	-.034	.072	-.004	.062	.020	.257	.087	1
13	Environment director dummy	.215	.072	-.318	.090	-.013	.052	-.071	.049	.054	.317	.170	.367
14	Consumer and business partner support dummy	.097	-.027	-.023	.028	.016	-.101	-.004	.022	.021	.204	.085	.007
15	Disclosure of overtime hours dummy	.243	-.032	.005	.109	.051	.075	-.097	-.000	.096	.102	.157	.047
16	No. of female directors	.078	-.090	.033	.150	.002	.035	-.033	-.063	-.022	.067	.113	-.024
17	Risk and crisis management policy dummy	.029	-.018	-.001	.015	-.006	-.010	-.017	-.007	.026	-.046	-.075	-.015
18	Betweenness centrality #	.150	.057	.163	.221	.086	.134	-.069	.033	-.018	.067	.159	.040
19	CSR activity expenditures to sales #	.201	.002	.051	.021	.050	.109	-.015	.332	-.056	.077	.121	.030
20	Eigenvector centrality #	.170	-.164	.079	.074	.063	.070	-.037	-.050	.003	.079	.174	.044
21	Closeness centrality #	.361	-.057	.057	.269	.152	.149	.007	.109	-.061	.211	.372	.093

No	Variables	13	14	15	16	17	18	19	20	21
13	Environment director dummy	1								
14	Consumer and business partner support dummy	-.030	1							
15	Disclosure of overtime hours dummy	.146	.009	1						
16	No. of female directors	.007	.066	-.035	1					
17	Risk and crisis management policy dummy	-.019	-.039	-.048	.028	1				
18	Betweenness centrality #	.053	.050	.096	.093	.023	1			
19	CSR activity expenditures to sales #	.035	.056	.073	.082	.007	.114	1		
20	Eigenvector centrality #	.057	.054	.080	.038	-.195	.316	.074	1	
21	Closeness centrality #	.120	.107	.155	.223	-.054	.440	.200	.478	1

is standardized.
Observations = 239.

Table 3. Results for linear regression models

No.	Variables	CSP (t+4)					
		I		II		III	
2	ROE	0.002	[0.008]	0.009	[0.008]	0.009	[0.008]
3	Current net income #	- 0.021	[0.080]	- 0.028	[0.067]	- 0.026	[0.066]
4	Capital stock #	0.265***	[0.076]	0.265***	[0.077]	0.257***	[0.076]
5	Firm age	- 0.005	[0.005]	- 0.007	[0.005]	- 0.007	[0.005]
6	No. of years elapsed since listing	0.025**	[0.013]	0.026**	[0.012]	0.025**	[0.012]
7	Slack resources #	0.092	[0.074]	0.103	[0.071]	0.102	[0.070]
8	Profitability #	- 0.016	[0.111]	- 0.125	[0.099]	- 0.141	[0.104]
9	Leverage #	- 0.024	[0.038]	- 0.011	[0.035]	- 0.009	[0.035]
10	CSR director dummy	0.240	[0.209]	0.211	[0.210]	0.209	[0.208]
11	CSR procurement dummy	0.715***	[0.166]	0.600***	[0.165]	0.581***	[0.165]
12	Social contribution department dummy	0.396	[0.302]	0.336	[0.311]	0.324	[0.314]
13	Environment director dummy	0.529	[0.400]	0.490	[0.401]	0.485	[0.401]
14	Consumer and business partner support dummy	0.259	[0.192]	0.222	[0.185]	0.220	[0.183]
15	Disclosure of overtime hours dummy	0.482**	[0.190]	0.424**	[0.189]	0.423**	[0.187]
16	No. of female directors	0.020	[0.188]	- 0.099	[0.188]	- 0.097	[0.185]
17	Risk and crisis management policy dummy	0.914***	[0.229]	1.120***	[0.167]	1.104***	[0.171]
18	Betweenness centrality #	0.023	[0.066]	- 0.083	[0.060]	- 0.080	[0.059]
19	CSR activity expenditures to sales #			0.179***	[0.052]	0.413***	[0.118]
20	Eigenvector centrality #			0.062	[0.059]	0.058	[0.059]
21	Closeness centrality #			0.196**	[0.076]	0.195**	[0.076]
22	CSR activity expenditures to sales # × closeness centrality #					- 0.157**	[0.067]
	Constant	- 1.081	[0.716]	- 0.918	[0.700]	- 0.814	[0.700]
	Observation	239		239		239	
	AIC	732.939		724.150		722.833	
	BIC	795.516		797.156		799.833	
	R-squared	0.325		0.365		0.374	

is standardized.

Robust standard errors are in [].

* $p < .10$, ** $p < .05$, *** $p < .01$

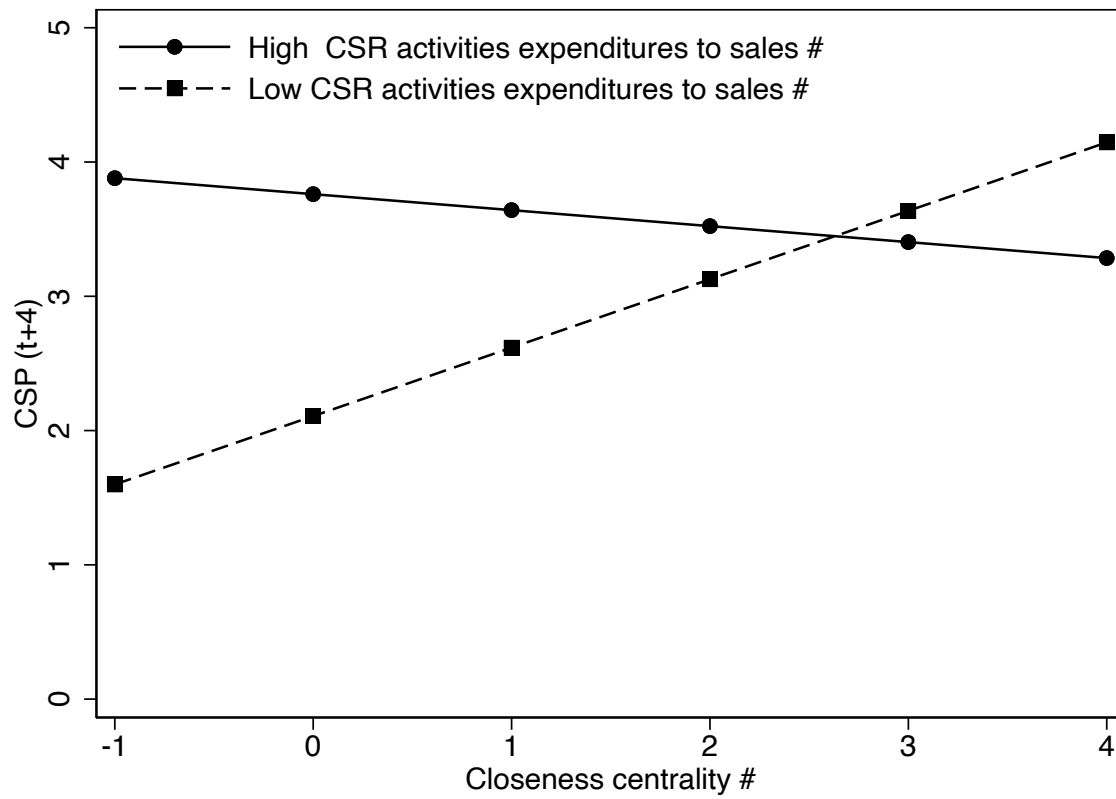


Figure 1. Interaction effect of CSR activity expenditures to sales \times closeness centrality (2 S.D.)

Exploring the Rise and Fall of Markets: The Empirical Study of Inter-Market Networks in the Japanese Chemical Industry

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ABSTRACT

This study addresses the research question of what causes the rise and fall of markets by focusing on the state of multimarket contact among competing firms entering multiple markets simultaneously. The objective is to demonstrate the impact on market legitimacy and the mechanism by which inter-market networks connecting markets with identical firms entering each other can affect market legitimacy. We conducted network analyses for 287 markets held by 1,422 Japanese chemical industry firms and a time-series analysis for 1,554 cases in seven periods in 222 markets. The results show that markets with ego networks negatively impact market legitimacy because of increased knowledge homogeneity. However, when the market was a market where information and knowledge were easy to gather, the market with a dense ego network was found to have greater market legitimacy. Conversely, the study also showed that when the market is a market where information and knowledge are difficult to gather, the market with a dense ego network has the lowest legitimacy. This study contributes theoretically to network and legitimacy research and practically by providing suggestions for building firms' management strategies.

Keywords: Management, Organizational behavior, Strategy, Legitimacy, Multimarket contact

INTRODUCTION

The rise and fall of markets has been a topic of major interest in numerous theoretical studies. For example, the organizational ecology theory considers a set of entities, such as a market or population, and the relationship between the increase in the number of organizations in the population and the birth rate of the organizations is described as an inverted U-shaped relationship (Carroll & Hannan, 1989). The market is one of the external environments of a firm, and firms have difficulty understanding and predicting its rise and fall because they do not have direct control of the market. In addition to sellers and buyers, market components include brokers and legal constraints. Previous research has demonstrated that the characteristics of market participants and transactions affect the market structure (Farboodi, Jarosch, & Shimer, 2023). Specifically, the many elements that comprise a market interact with one another, resulting in inherent market uncertainty (King & Tucci, 2002; Mitchell & Singh, 1992). In light of the debate on market uncertainty's impact on firms' market-entry decisions (Stathakopoulos, Kottikas, Painesis, Theodorakis, & Kottika, 2022), the situation of multiple firms' permanent entrance in many markets can be seen as a result of firms' continuing lack of confidence about exiting (Dowell & Killaly, 2009); due to market uncertainty, firms might have difficulty predicting the rise and fall of the market and delay their exit decisions for longer than they should. Assuming this is the case, the delay in firms' decisions to exit the market may be a contributing factor in market decline. Moreover, when firms continue to enter the market when they should be exiting, their performance declines, and if this dynamic were spread to all market entrants, the overall performance of the market would also decline. Thus, the research question investigated in this study was, "What causes the rise and fall of markets?"

Shugan and Mitra (2014) find that changes in the market environment affect the rise and fall of a market. The market gradually changes as firms experience repeated successes and failures; the market metabolizes as successful firms are eliminated. Other factors, such as collective action, social movements (Lee, Struben, & Bingham, 2018), the intensity of competition between firms in the market (Suddaby, Bitektine, & Haack, 2017), and the number of foreign firms in the market were also found to influence the rise and fall of the market (Zeng & Xu, 2021). All these studies focus on the behavior and state of firms within the market but do not consider the environment surrounding the market, which is created by the behavior and conditions of the firms within the market.

This study focuses on market legitimacy which is the external environment. Prior research has concentrated on the institutional aspects and legitimacy of markets. Suchman (1995, p. 574) defines legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions". Changes in socially constructed norms, values, beliefs, and definitions are posited to lead to the loss of market legitimacy due to, for instance, increasing awareness of corporate social responsibility (CSR; Matten & Moon, 2020).

Gaining and maintaining legitimacy, information, and knowledge from other markets is crucial for a market to perceive and adapt to environmental changes. Firms that enter multiple markets play a role in transferring information and knowledge from one market to another, facilitating intermarket communication. This study aimed to empirically demonstrate impacts on market legitimacy and the mechanism by which intermarket networks, which connect markets in which identical firms are entering, can affect market legitimacy.

THEORY AND HYPOTHESES

Organizing the Concept of Legitimacy

While many studies have focused on organizations and firms as subjects of legitimacy, interpretations of legitimacy vary. Aldrich and Fiol (1994) categorized legitimacy into two types: cognitive and socio-political. Suchman (1995) further classified legitimacy into three types: pragmatic, moral, and cognitive. However, a critical perspective suggests that pragmatic legitimacy merely indicates the extent of organizational learning (Aldrich & Ruef, 2006; Suddaby et al., 2017).

Suddaby et al. (2017) conducted a systematic review of previous research on legitimacy and pointed out that the concept is often misused because of its ambiguity and the wide range of research fields in which it has been applied. Furthermore, they propose that research on legitimacy should focus on three key questions: "What is legitimacy?" "Where does legitimacy occur?" and "How does legitimacy occur?". Using these questions, they categorized the study of legitimacy into three aspects: property, process, and perception (Suddaby et al., 2017).

The first focus is on the aspect of legitimacy as a *property*. In many prior studies, legitimacy has been interpreted as something that can be quantified as tangible. Suchman (1995, p. 576) referred to legitimacy as a "operational resource" of firms and subsequent research treats it as something firms acquire and lose (George, Chattopadhyay, Sitkin, & Barden, 2006). Legitimacy is regarded not as something evaluated by people's opinions but as something that exists in society (Suddaby et al., 2017) and is treated as a property, asset, or resource (Bitektine & Haack, 2015).

The second focus shifts from viewing legitimacy as a static thing to focusing on the *process* by which dynamic legitimacy arises (Suddaby et al., 2017). Early research focusing on the legitimacy process captured a particular firm's trading networks and traced temporal changes in its legitimacy (Human & Provan, 2000). Later, the focus shifted to thresholds for considering acquired legitimacy (Fisher, Kotha, & Lahiri, 2016) and the loss of legitimacy or acquisition of illegitimacy due to the actions of firms or individuals (Hiatt, Sine & Tolbert, 2009; Maguire & Hardy, 2009). Studies focusing on the process of legitimacy regard it as something fluid, continuously changing, and built through ongoing relationships with various components of society, including individuals and organizations (Hoefer & Green, 2016).

The third focus is on the *perception* aspect of legitimacy. In contrast to the first focus, which views

legitimacy as a physical asset like a ‘thing,’ this approach deals with legitimacy as an evaluation of the appropriateness of organizational practices and characteristics (Suddaby et al., 2017), focusing on the perceptive aspect of legitimacy as a property (Bitektine & Haack, 2015; Tost, 2011). Although this includes the process of legitimacy, as in the second focus, it concentrates not only on the process of acquiring legitimacy but also on the process of judging legitimacy. Legitimacy is macro in the sense that it is determined by society; however, individuals make the actual judgment and act accordingly; hence, the macro effects are the result of a chain of individual judgments (Hofer & Green, 2016). Therefore, unlike the other two classifications, this one emphasizes a micro perspective, focusing on the role of individuals in the social construction process of legitimacy (Suddaby et al., 2017). Legitimacy is viewed as a social process that crosses from micro to macro, from the evaluator's perception of the object of legitimacy to the judgment of legitimacy and, finally, to the actions based on that judgment.

Each of these three focal points of legitimacy research has several limitations. Viewing legitimacy as a *property* assumes that socially constructed norms, values, beliefs, and definitions are universal and that organizations subject to legitimacy are culturally and socially adapted to the world (Suddaby et al., 2017). Given the significant changes in the perception of corporate social responsibility (Matten & Moon, 2020), it's likely that social environments are not universal in modern society, making it challenging to capture legitimacy solely from the property perspective. Research focusing on the *process* of legitimacy pays attention to how legitimacy arises from relationships between legitimate actors. Therefore, it often excludes evaluators who determine the presence or absence of legitimacy, failing to consider the necessary interactions among people, firms, and local communities to construct legitimacy (Bitektine & Haack, 2015; Tost, 2011). Additionally, there is criticism that many case studies focus on institutions that influence legitimacy and lack generalization through empirical research (Suddaby et al., 2017). Research that captures the perception process of legitimacy emphasizes that legitimacy judgments are made by individuals (Hofer & Green, 2016). However, there is a possibility that the mechanism of legitimacy judgment at the individual level may not apply to macro perspectives, such as between firms or markets.

In this study, the legitimacy of markets is perceived as encompassing three aspects: the *property* aspect as the network each market possesses, the *process* in which interactions between firms, among markets, and between markets and firms render a market legitimate, as well as society's *perception* of legitimacy, are all thought to influence the rise and fall of markets. While many studies tend to focus on a single aspect of legitimacy, we comprehensively addressed all three focal points of legitimacy research—property, process, and perception—and aimed to focus on the mechanism of changes in market legitimacy while compensating for the shortcomings inherent in each perspective.

Impact of Legitimacy on the Mechanism of Market Rise and Fall

Legitimacy targets organizations with inertia to continue doing the same things based on past success. Despite this, organizations change for a reason. The institutional theory states that changes in organizational

behavior and organizational systems occur due to a gap between cultural norms and societal beliefs (Zhao, Fisher, Lounsbury, & Miller, 2017). Firms review whether their practices conform to the surrounding social beliefs in an attempt to adapt to society and if they gain legitimacy by making changes.

Firms must act legitimately to gain legitimacy. However, in today's rapidly changing social environment, the behavior of firms that society deems appropriate is changing rapidly, and firms are often not knowledgeable enough to judge whether a certain behavior is justified. Bounded rationality is a cognitive limitation that arises as problems become more complex (Simon, 2013). Firms have marginal rationality, which means that even if they attempt to acquire information and knowledge and respond to environmental changes, their limited cognitive range makes it difficult for them to make optimal decisions, and they are not always able to make rational decisions (e.g., Amit, 1993; Selten, 1990). Moreover, when Lieberman and Montgomery (1988) examined firms' market entry order and risk, they found that pioneers are more likely to fail, and early firm entry into markets with high uncertainty is risky. Meanwhile, following the early entrants is less risky, as firms can learn from the failures of earlier entrants. Few firms attempt to enter markets with few predecessors because of the high risk involved. Firms that overcome risk and successfully enter the market may be recognized by society as legitimate because of their ability to overcome organizational difficulties. While firms are free to choose the market they wish to enter, they cannot easily exit once they have entered, and predicting the future of the market is difficult. Therefore, a firm that wanted to enter a market but did not act because of the risks involved would have a good reason to choose that market for its stakeholders if its business in the market in which it entered was evaluated as legitimate. Legitimacy is easier to acquire by emulating the market entries of firms that have already entered and succeeded (DiMaggio & Powell, 1983). Consequently, the number of firms in the market continue to increase. This growth is due to the high uncertainty of the market, which makes it difficult for firms to decide to exit the market, and the difficulty of explaining to stakeholders why firms would exit a market that has gained legitimacy. Subsequently, as the number of firms entering markets continues to increase, those markets that comprise several firms become increasingly legitimate (Suddaby et al., 2017). Not only is the act of entering the market in question itself considered legitimate, but the market itself gains legitimacy.

Firms are willing to practice what is socially and culturally correct to acquire legitimacy (Suddaby, 2013). Therefore, when an organization's goals are ambiguous or the environment surrounding the firm is uncertain, it imitates other organizations (DiMaggio & Powell, 1983). In other words, firms without clear business goals are more likely to perceive that market entry with high legitimacy has much higher entry benefits than risk and may follow suit when entering a relevant market. Other consequences include an increase in the number of firms in the market that follow without clear organizational goals. Such imitations of behavior and forms of behavior that are not suited to the firm itself have also been shown to be detrimental to firm performance (Barreto & Baden-Fuller, 2006), and the legitimacy of the market and of firms entering the market can be detrimental to firm performance. Imitation can lead to poor firm

performance, in turn leading to poor overall market performance, resulting in competition among firms in the market, such as low-price competition, and ultimately loss of legitimacy in the market. Firms may attempt to exit the market in response to non-negligible performance, causing a further reduction in legitimacy and decline of the market as the number of firms decreases. This is one of the mechanisms through which markets rise and fall.

Mutual Forbearance among Competing Firms

What factors allow a market to continue to grow at a certain level even when the number of firms in the market increases? We believe that one of these factors is multimarket contact. Multimarket contact refers to a situation in multiple markets in which firms entering multiple markets encounter the same firm in each market. For example, if firm A enters markets α and β and firm B enters markets α , β , and γ , then firms A and B are entering the same market in markets α and β .

Firms in multimarket contact meet the same competitors in multiple markets, so even if they lose to competition in one market, they have the opportunity to win over the competition in another market (Kang, Bayus, & Balasubramanian, 2010). On the other hand, aggressive behavior toward competitors in one market increases the likelihood of retaliation from competitors in another market (Jayachandran, Gimeno, & Varadarajan, 1999). To avoid losses in the overall market due to aggressive competition, firms engage in mutual forbearance, thus reducing competition (Baum & Korn, 1996; Karnani & Wernerfelt, 1985; Scott, 1991). This is because firms prioritize long-term growth and healthy interfirm relationships over short-term profits. In addition, multimarket contact creates opportunities for competing firms to become aware of each other's behavior in the market (Jayachandran et al., 1999), gain information about their competitors, and understand the competitors' capabilities (Chuang, Dahlin, Thomson, Lai, & Yang, 2018). This process may result in an indirect information exchange between competing firms entering the same market.

Thus, multimarket contact firms that participate in multiple markets may play a role in information transfer between different markets by passing information from one market to another. This study focuses on the market-to-market linkages brought about by firms entering multiple markets and captures the process using which information affects the legitimacy of markets.

Gathering of Information and Knowledge and Market Legitimacy

In the intermarket network formed by multimarket contact, information and knowledge are brought to each other between markets where the same firms participate. However, information and knowledge are also indirectly transmitted to markets where firms do not participate at the same time and have no direct linkage. Markets are recognized as legitimate by society when regulations, standards, and norms exist for them to be socially correct. To maintain its legitimacy, the market must continue to acquire new information and knowledge to maintain socially appropriate regulations, standards, and norms, such as the growing awareness of CSR (Matten & Moon, 2020), in today's ever-changing world of what is perceived as

appropriate, new information must be constantly flowing in. However, if the amount of information to be interpreted exceeds processing capacity, it may not be interpreted appropriately (Huber, 1991). Therefore, we believe that when a large amount of information is gathered, organizing it becomes difficult, which may have a negative impact on its legitimacy.

Hypothesis 1: In the inter-market network established through multimarket contact, the propensity for information and knowledge aggregation positively influences the legitimacy of the market.

Hypothesis 2: In the inter-market network established through multimarket contact, the propensity for information and knowledge aggregation has an inverted U-shaped impact on the legitimacy of the market.

Decline of Markets Resulting from Dense Market Structures

In an intermarket network formed by multimarket contacts, the denser the ego network of the market in question, the more homogeneous the information becomes (Guimera, Uzzi, Spiro & Amaral, 2005; Uzzi & Spiro, 2005). In addition, because many firms enter more than one market simultaneously, competition increases both within and outside the market, and information about firms entering multiple markets flows within the market. As a result, firms may seek to gain additional legitimacy by not only entering the market in question but also imitating the market entry of successful firms that have entered another market (DiMaggio & Powell, 1983). If this occurs in a chain of events within the network formed by multimarket contacts, the market in question will form an even denser ego network, and the information and knowledge flowing within the market will become more homogeneous.

Additionally, firms entering multiple markets try to innovate by bringing in knowledge from other markets (Katila, 2002), and the knowledge possessed by the market in question may flow to various markets, making it impossible to create novelty within the market. However, there is the advantage of a large amount of knowledge and information flowing into the market, resulting in the creation of new knowledge combinations that may lead to innovation and a more prosperous market. However, a market that generates active participation in other markets may also indicate firm dissatisfaction. In such cases, the attempt to innovate in other markets rather than generate innovation in those markets will ultimately lead to an exit from those markets, which may lead to a decrease in the legitimacy of those markets. Based on the above, we propose the following hypothesis:

Hypothesis 3: In the inter-market network established through multimarket contact, markets with more densely connected networks positively impact the legitimacy of the market.

The Rise and Fall of Markets Arising from the Aggregation of Information and Knowledge in Dense Market Structures

In an intermarket network formed by multimarket contacts, what is the relationship between the information and knowledge of other markets brought to a market with a dense ego network and the network position in which information is likely to be gathered? Both markets are similar in that they bring a large amount of information and knowledge. However, the major difference between the two is the degree of homogeneity of the information and knowledge. A dense ego network brings large amounts of information and knowledge to the market; however, the homogeneity of the information and knowledge is high (Guimera et al., 2005; Uzzi & Spiro, 2005). However, in a network position where information is easily gathered, the quality of information and knowledge is not necessarily homogeneous, and a variety of information may be brought to the market.

In other words, in a market with homogenized information and knowledge, owing to a dense ego network, a market located in a network that brings diverse information will bring both homogeneity and diversity to information and knowledge in the market. However, market homogeneity will increase if a dense ego network does not provide access to diverse knowledge and information. Therefore, if diverse knowledge and information are not available, a sparse ego network will bring about market development; if they are available, a dense ego network will bring about market development. Based on the above, we propose the following hypothesis:

Hypothesis 4: In the inter-market network established through multimarket contact, markets with access to a diverse range of knowledge and information see an increase in legitimacy in proportion to the sparsity of their ego networks, while markets with limited access to diverse knowledge and information experience an increase in legitimacy as their networks become denser.

METHODS

Data and Analysis

This study chose the chemical industry as its subject of analysis, considering that it frequently handles hazardous materials, questions its legitimacy in market sustainability, and many firms within it are in a state of multimarket contact. The chemical industry in Japan is research-intensive, with the second largest R&D expenditure by industry. Many chemicals use other chemicals as intermediate inputs. Thus, intra-industry transactions are large, chemical firms are both competitors and recipients, and the flow of information and knowledge is more active in chemical firms than in other industries. Therefore, they were superior targets for analysis in this study.

The data for this study were sourced from the function-based "New Chemical Index" published by Chemical Daily Co., Ltd. In this function-based index, chemical products and substances, including intermediate products, are linked to the firms that handle them. Each function was considered a separate market, and data on the markets entered by firms were collected for eight years, from 2001 to 2008 (The Chemical Daily Co., Ltd., 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008). The analysis targeted 1,422 firms in 287 markets listed in the function-based the "New Chemical Index." Additionally, upstream and downstream market data were compiled based on the "Chemical Business Information MAP," also published by Chemical Daily Co., Ltd. (2022).

The analysis consisted of two stages: network analysis and multiple regression. In network analysis, a node is a market, a firm's entry into the market is the string connecting the nodes, and the size of a node is the number of strings coming out of the node. Markets connected by firms' market entry are assumed to be undirected graphs that do not consider the direction of the edges, as the direction of information flow in and out cannot be determined since information flows in and out of each other. In the case wherein several firms enter both market α and market β , the line is weighted. Network indicators were calculated using statistical analysis tools R and Gephi.

Multiple regression analysis was performed using the statistical analysis tool STATA, and time-series analysis was performed with a variable effects model. The analysis uses the VCE option as a parameter for alternative variance estimation (Huber, 1967; White, 1980, 1982). For the eight periods of panel data from 2001 to 2008, the number of panels in the analysis was reduced by one to seven because of the presence of variables created by taking a one-year time difference. Of the 287 markets, 222 remained in existence for eight years; thus, the final number of data points was 1,554.

Dependent Variable

The proxy variable for legitimacy has been debated. While legitimacy is difficult to measure (Bozeman, 1993; Low & Johnston, 2008; Suchman, 1995), it has been held that legitimacy is an organizational characteristic or capability that cannot be directly observed but can be measured by proxy.

Several prior studies have focused only on the property characteristics of legitimacy and have used population density as a proxy variable for legitimacy (Baum & Singh, 1994; Carroll & Hannan, 1989; Fligstein, 1985). Based on the assumption that the number of firms in a market increases as market legitimacy rises and that the greater the number of firms in a market, the greater the market legitimacy (Suddaby et al., 2017), they use the *number of firms in the market* as a proxy indicator of market legitimacy (Carroll & Hannan, 1989), while there are criticisms of using the number of firms as a proxy variable for legitimacy (Zucker, 1989). Many interpret this as a *property*. They assume that the social environment of socially constructed norms, values, beliefs, and definitions is universal and that organizations subject to legitimacy are socially and culturally adapted (Suddaby et al., 2017). In other words, it assumes that the organizational structures and behaviors of all firms in a given market are consistent with the norms, values, and beliefs of that market and are, thus, unanimously perceived as legitimate; however, this assumption is not appropriate in today's rapidly changing world.

Therefore, we use the network indicator eigenvector centrality for market legitimacy. The more central and connected a market is in the intermarket network, the higher the market's value. We consider that central positions have higher legitimacy (Liao & Yu, 2012) and that legitimacy spills over because of direct connections (Kostova & Zaheer, 1999).

Independent Variables

There are two independent variables. One is standardized using information centrality, which indicates the ease of gathering information in the market network in Hypothesis 1. Information centrality is higher for markets in network positions, meaning that a large amount of information flows through the market because of its proximity to other markets in the network and its presence in the center of the network.

The other was standardized using the clustering coefficient, which indicated the dense linkages in Hypothesis 3

The inverted U-shaped effect of information centrality for Hypothesis 2 was calculated by squaring standardized information centrality.

The interaction effect variable for Hypothesis 4 was calculated by multiplying standardized information centrality by the clustering coefficient.

Control Variables

The control variables are as follows: The rate of increase in firms is calculated as the percentage increase in the current year compared with the number of firms in the previous year. This indicates the degree of market activity and positively impacts legitimacy (DiMaggio & Powell, 1983). The rate of firm decrease is calculated as the percentage decrease in the number of firms in the current year compared with the number of firms in the previous year. This rate indicates competition in the market, which negatively affects legitimacy (Suddaby et al., 2017). The upstream and downstream market dummies, indicating the

market's cross-supply chain nature, were set to “1” if the medium-classified product offered by the market was divided into two of the four chemical product manufacturing processes and “0” if it was not. The number of classifications is the number of subcategories within the market classified as medium. The year dummy for 2007 is introduced as a variable to control for time. 2007 was a year in which the legal system for chemical substance management changed and expanded significantly in response to international trends owing to the growing awareness of environmental issues. This year was controlled for because of its significant impact on the chemical industry.

RESULTS

Table 1 summarizes the basic statistics and correlation tables. The highest correlation between variables was -0.631, between standardized information centrality and the standardized clustering coefficient. However, with a VIF of 1.87, it is below the threshold of 10, indicating no issues (Belsley, Kuh, & Welsch, 1980).

[Insert Tables 1–2 and Figures 1–2 here]

Table 2 shows the results of the time-series analysis using the variable-effects model for hypothesis testing. We include only control variables in Model I, control and independent variables in Model II, a squared term of standardized information centrality in Model II for Model III, and an interaction term of two independent variables in Model II for Model IV. In Model V, we included all variables.

In Model II, information centrality (standardization) ($p < 0.10$) positively impacts market legitimacy, while the clustering coefficient (standardization) ($p < 0.01$) negatively impacts it. Thus, Hypothesis 1, which states that the ease of gathering information positively impacts market legitimacy, and Hypothesis 3, which states that standardized information negatively impacts market legitimacy, are supported.

In Model III, the square of information centrality (standardized; $p < 0.01$) had an inverted U-shaped effect on market legitimacy (Figure 1). Thus, Hypothesis 2 is supported by the simulation results, which show that the likelihood of information gathering has an inverted U-shaped effect on market legitimacy.

In Model IV, the information centrality (standardized) \times clustering coefficient (standardized) is statistically significant ($p < 0.01$). In Figure 2 of the simulation results, the y-axis represents market legitimacy, and the x-axis represents information centrality. The clustering coefficient was calculated by adding and subtracting two standard deviations from the mean. The results show that, for standardized information, the more information flows into the market, the more positive the impact on market legitimacy. This finding supports Hypothesis 4.

DISCUSSION

This study empirically demonstrates the impact on market legitimacy and the mechanism by which intermarket networks, which connect markets with identical firms entering each other, can affect market legitimacy. The analysis showed that in the intermarket network formed by multimarket contacts, markets that were more likely to gather information and knowledge gained more legitimacy, but the effect was limited. Furthermore, markets with dense ego networks have a negative impact on market legitimacy because of the increased homogeneity of knowledge. However, when the market was a market where information and knowledge were easy to gather, the market with a dense ego network was found to have greater market legitimacy. Conversely, when information and knowledge were difficult to gather, a market with a dense ego network was also shown to be the least legitimate.

This study makes five main contributions to the literature. First, we analyzed markets rather than firms as the units of analysis. A single market is composed of many firms, and each is an aggregate of these firms. This study draws a market-level network based on information on the multimarket contacts of firms belonging to each market and uses this indicator for analysis. Network analysis at the market level provides a macro perspective on day-to-day management activities, which is difficult to depict and imagine. Therefore, the mechanism of the rising and falling of markets is revealed from a different perspective compared to previous studies. Specifically, we focused on the differences in information and knowledge gathered in the market using network indicators, showing that the knowledge and information brought about by network positions that are easy to acquire knowledge and information and those brought about by dense ego networks have different properties and that their combination has an important impact on changes in the legitimacy of the market. Few empirical study has focused on intermarket networks by analyzing networks that consider many markets as nodes. While most network studies have focused on firms, this study makes a theoretical contribution to network studies by taking a new macro perspective on markets and demonstrating their rise and fall mechanisms using network indicators.

Second, based on the theory of legitimacy, the network indicator eigenvector centrality was used as a proxy variable to objectively evaluate the legitimacy of the market. First, we capture market legitimacy based on three properties of legitimacy (Suddaby et al., 2017) and quantitatively assess legitimacy from two of these perspectives: property and process. While most previous studies use the number of firms as a proxy indicator of market legitimacy, this study uses eigenvector centrality. This is a theoretical contribution to legitimacy research, in not only demonstrating the use of the process perspective—which has been the subject of a few empirical studies—but also responding to the demand of previous studies that it is necessary to use new methods and link the multiple characteristics of legitimacy (Haack, 2012).

The impact of the market on legitimacy from a macro perspective is then demonstrated through network analysis. The uniqueness of this network analysis is that the market, rather than the firms, was used as the unit of analysis. Many previous studies have dealt with inter-firm linkages, such as business relationships and strategic alliances among firms, and the flow of human resources in and out of firms

formed by employees changing jobs. However, few papers refer to linkages among markets, and there are no empirical studies using network analysis with nearly 300 markets as nodes. While most network studies focus on firms, this research makes a theoretical contribution to network studies, as our demonstration is based upon a new and more macroscopic market perspective.

Furthermore, by considering the linkages between markets, this study demonstrates how markets can exist in any network position that retains a high degree of legitimacy. Firms can determine their market strategies based on the markets they would be better off entering. Thus, this study also makes a practical contribution, as forecasting the rise and fall of a market encourages firms to develop appropriate strategies.

Finally, our findings and conclusions provide firms with market strategy guidelines. The analysis revealed the markets in which network positions can retain or lose legitimacy through network indicators drawn from the information that is available to all. Additionally, we used interaction effects to demonstrate how dense ego networks can be exploited. The chemical industry is prone to the homogenization of information and knowledge because firms in the market have a relationship between receiving raw materials. The interaction effect revealed that, although this homogenization may only lead to a decline in the market, it may also lead to its development. Specifically, by visualizing the degree of homogenization of information and knowledge flowing within the market to which a firm belongs through network analysis, we can predict the rise and fall of a market and the potential market development that results from the change in its network position. Thus, firms can make predictions about new market entries and exits and determine their market strategies.

This study has some limitations. First, the *cognitive* aspect of legitimacy was not captured quantitatively. While the two perspectives of *property* and *process* were quantitatively demonstrated, the *cognitive* aspect was explained only by theory. If all three aspects of legitimacy are quantitatively captured and demonstrated, the theory of legitimacy can be further generalized by also quantitatively capturing cognitive aspects, such as the degree of evaluation by shareholders. Second, the study did not focus on unfairness. While some previous studies have considered legitimacy and unfairness to be continuous attributes with greater or lesser values and have taken less legitimacy as unfairness (Elsbach & Sutton, 1992), others have held that legitimacy and unfairness exist simultaneously and that a lack of legitimacy indicates an unfair situation (Hudson, 2008; Hudson & Okhuysen, 2009). This study quantitatively captures legitimacy by focusing only on it, based on the idea that legitimacy and unfairness are separate measures that exist simultaneously. Based on the idea that surviving markets have some degree of legitimacy, this study quantitatively demonstrates the legitimacy of markets by limiting its focus to markets that were still in existence during the analysis period. Future research should also include defunct markets in the analysis and consider the factors that affect market unfairness. We suggest that focusing on market unfairness allows for a more accurate understanding of a market's legitimacy. Increasing the number of analyses resulted in an 8-year time period for the analysis. If one can follow the rise and fall of the market for over 50 or 100 years, one can capture the apex of the market's legitimacy within the period covered. An analysis that

considers the fact that once the apex of legitimacy is exceeded, the market will decline because of competition among firms within the market would demonstrate the impact of market legitimacy on the rise and fall of the market. The importance of firms that aim to grow the market as a whole is another factor that requires a long-term perspective when studying markets.

CONCLUSION

This study demonstrated the mechanism by which a network position is conducive to the acquisition of information and knowledge, and the density of ego networks possessed by markets in a network of markets connected through the entry of a certain firm affects the legitimacy of the market and consequently brings about its rise and fall. In the analysis, a new attempt, not seen in previous studies, was made to calculate network indicators by depicting the entire Japanese chemical market as a network—using publicly available data that is available to all—from the macro perspective of a market network rather than the perspective of firms. Furthermore, after presenting a hard-to-visualize indicator of legitimacy in the multiple regression analysis, the authors analyzed the interaction effect of a combination of indicators on the rise and fall of the market and showed that the legitimacy of the market is highest when both coexist. These results provide a new perspective from which firms can make predictions regarding the rise and fall of markets in their strategies. The novelty of this study lies in its theoretical contribution to network and legitimacy research, as well as its practical contribution by providing suggestions for firms to construct their business strategies.

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Table 1. Descriptive statistics and Correlations

No. Variables	AVG	S. D.	MIN	MAX	1	2	3	4	5	6	7	8
1 Market legitimacy #	0.00	1.00	-1.62	2.64	1							
2 Firms' increasing rate	0.01	0.05	0.00	1.50	.017	1						
3 Firms' decreasing rate	0.01	0.04	0.00	0.65	-.028	-.021	1					
4 Up and downstream market dummy	0.32	0.47	0.00	1.00	-.152	.022	.120	1				
5 2007 dummy	0.14	0.35	0.00	1.00	.014	-.028	-.035	.000	1			
6 Number of classifications	2.17	2.38	1.00	16.00	.376	.052	.021	-.142	-.000	1		
7 Information centrality#	0.00	1.00	-2.78	2.07	.759	.047	-.022	.002	-.213	.262	1	
8 Clustering coefficient#	0.00	1.00	-2.18	2.14	-.673	-.046	.041	.119	-.002	-.365	-.631	1

Notes. # is standardized;

Observations 1,554 Number of markets 222

Table 2. Results for random effects model

		Market legitimacy#				
No. Variables		I	II	III	IV	V
2 Firms' increasing rate		0.514*** [0.069]	0.228*** [0.077]	0.195** [0.080]	0.239*** [0.082]	0.176** [0.078]
3 Firms' decreasing rate		-0.522*** [0.133]	-0.338*** [0.101]	-0.331*** [0.107]	-0.326*** [0.107]	-0.339*** [0.103]
4 Up and downstream market dummy		-0.212 [0.137]	-0.162 [0.107]	-0.195* [0.105]	-0.175 [0.109]	-0.195* [0.102]
5 2007 dummy		0.040*** [0.011]	0.071*** [0.015]	0.089*** [0.012]	0.071*** [0.013]	0.095*** [0.012]
6 Number of classifications		0.152*** [0.038]	0.090*** [0.029]	0.090*** [0.029]	0.097*** [0.031]	0.085*** [0.028]
7 Information centrality#			0.055* [0.032]	0.125*** [0.029]	0.072** [0.032]	0.132*** [0.029]
8 Clustering coefficient#			-0.378*** [0.072]	-0.314*** [0.064]	-0.329*** [0.072]	-0.334*** [0.059]
9 Information centrality#^2				-0.100*** [0.012]		-0.132*** [0.019]
10 Information#×Clustering#					0.069*** [0.026]	-0.056** [0.023]
Constant		-0.265** [0.114]	-0.151* [0.088]	-0.044 [0.089]	-0.119 [0.097]	-0.037 [0.085]
Observations		1554	1554	1554	1554	1554
Number of markets		222	222	222	222	222
Wald's chi-square		107.85	137.86	232.96	130.75	253.58

Notes. # is standardized * $p < .10$ ** $p < .05$ *** $p < .01$ [] is standard error

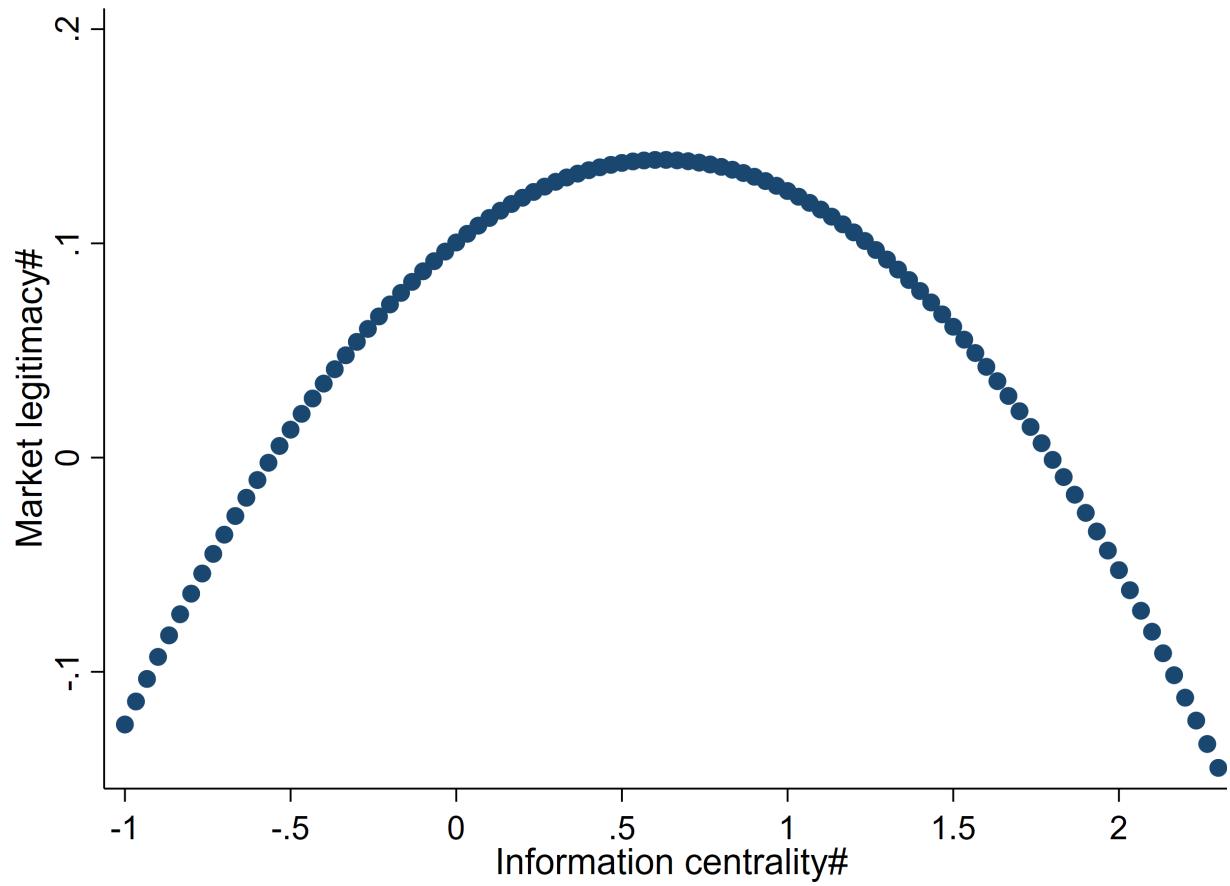


Figure 1. Inverse U-shaped impact of information centrality on market legitimacy.

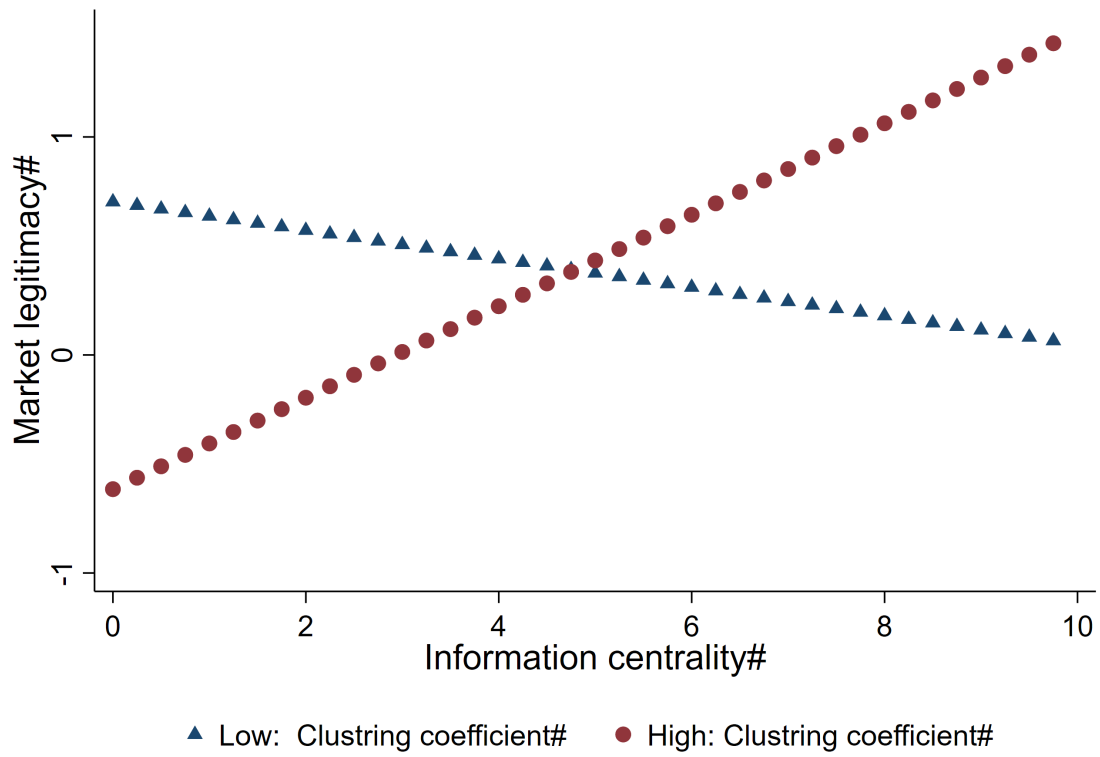


Figure 2. Interaction effect of information centrality and clustering coefficient (2 S.D.)

Green Alliances and Digital Partnerships between the EU and Japan, South Korea, and Singapore: Unveiling Strategic Business Expansion

Manuel Herrador (University of Jaen, Spain)

Abstract. This article examines the European Union's (EU) Green Alliances and Digital Partnerships with Japan, South Korea, and Singapore. The EU's 'Strategy for Indo-Pacific Cooperation' (2022), which intends to address global environmental challenges and align with the 'EU Green Deal' (2019), resulted in the development of bilateral instruments such as the 'EU-Japan Green Alliance' (2021) and the 'EU-Korea Green Partnership' (2023). Concurrently, digital partnerships between the EU with Japan, South Korea, and Singapore play an important role, following the 'EU Digital Compass Strategy' (2021), as a commitment to being digitally connected by 2030. This research provides an overview of policy and discusses the rationale for both green alliances and digital partnerships; then conducts a comparative study, considering the challenges, opportunities, and mutual benefits for the EU, Japan, South Korea, and Singapore. A key finding unveils the anticipated areas of collaboration among the EU, Japan, South Korea, and Singapore as they progress toward 2030. This study holds the potential to offer valuable insights for investors, policymakers, and scholars, serving as a guide for strategic business expansion.

1. Introduction

Climate change, sustainable development, and digitalization are some of the predominant global priorities driving states to bet on renewables, energy efficiency, and decrease greenhouse gas emissions (Ali and Anser, 2023; Bedair et al., 2023; Dou et al., 2023), needing global collaboration to tackle environmental concerns (Barouki et al., 2021).

The European Union (EU), Japan, and South Korea all have urgent environmental demands in areas such as waste management, air quality, and greenhouse gas emissions. In that sense, climate change issues endanger these countries' sustainable development, human well-being, and biodiversity, forcing them to focus on programs that promote renewables, circular and low-carbon economies, and renewable energy trade (Herrador et al., 2022).

Cooperation on green policy becomes critical in establishing a shared environmental viewpoint and guaranteeing a sustainable future. In that direction, the EU engages in bilateral cooperation across the world, focusing on effective governance, economic growth, and natural resource conservation (EU, 2023). The EU's overseas relationships are divided into twelve strategic areas, including "Climate, environment, and energy", with particular policy areas such as "Sustainable Energy" and "Oceans"¹. Sub-Saharan Africa, the Middle East, Asia, the Pacific, the Americas, the Caribbean, and Overseas Countries and Territories (OCTs)² are all involved in these collaborations. The EU's External Action³ division covers a wide range of policy topics, including the "EU Strategy for Cooperation in the Indo-Pacific" within the "Global Gateway" strategic framework.

¹ International Partnerships. Policies. https://international-partnerships.ec.europa.eu/policies_en

² International Partnerships. Countries. https://international-partnerships.ec.europa.eu/countries_en

³ The European Union for External Action. The Diplomatic Service of the European Union. https://www.eeas.europa.eu/_en

At the same time, digitalization is a key goal for the EU, Singapore, Japan, and Korea, referring to the conversion of analog processes into digital counterparts (Chwikowska-Kubala et al., 2023). Recognizing the importance of digitalization in economic growth, innovation, and global competitiveness, these regions use it to improve public services, connectivity via advanced broadband and 5G networks, data-driven decision-making, and crisis resilience, as demonstrated by the COVID-19 pandemic (Takeda et al., 2022). Adopting and improving digital technology is critical for these areas to succeed and lead in the global digital economy (Lau, 2023; Oloyede et al., 2023). Ongoing digital issues, such as trade agreements, digital trade rules negotiations (Chen and Gao, 2022), evolving data protection and privacy regulations, cybersecurity collaboration, initiatives promoting digital innovation hubs, efforts related to 5G and broadband infrastructure deployment, discussions on AI ethics and regulation (Palladino, 2023), smart city projects with a focus on sustainability, and initiatives to enhance digital skills and support startups, shape.

This work aims to unveil the EU's strategic business expansion on green and digital priorities.

2. Methodology

The motivation for this work stems from the need to identify how green and digital bilateral relationships might accelerate progress in sustainable development and strategic global economic prospects. This study employs a top-down technique (Figure 1), beginning with a brief introduction of (1) the EU Strategy for Cooperation in the Indo-Pacific, (2) the EU Digital Compass, and the EU Green Deal, to assess the EU, Japan, Korea, and Singapore's Green and Digital partnerships, which constitute the cornerstone of this article.

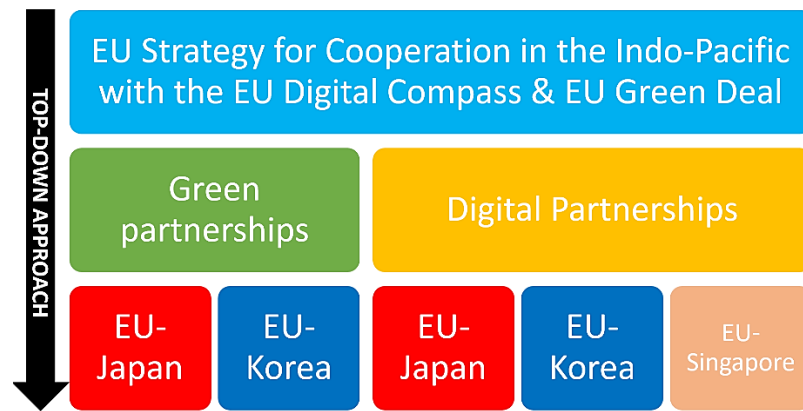


Figure 1. Top-down methodology for policy assessment and hierarchy

The method uses an approach that includes a review of policy documents and scholarly sources, following a top-down structure, driving the study from broad policies to specific partnerships. The study intends to use this strategy to elucidate the subtleties, similarities, and divergences among the discovered alliances, shining light on their implications for sustainable development and strategic global business prospects.

This study places additional significance on the EU Digital Compass Strategy (2021) and its integration with digital partnerships. The in-depth assessment of the EU Digital Partnerships, a research gap noted in the current literature, is a remarkable addition. This study not only shows their essential characteristics, distinctions, and disadvantages, but it also suggests future directions, accessing academic databases, applying inclusion and exclusion criteria, and evaluating abstracts and titles to select relevant sources.

Lastly, it is depicted a comparison between the initiatives by providing insights into their highlights, differences, flaws, and future directions. The research may yield useful results for investors, policymakers, and scholars to influence future research and policy development, resulting in a more nuanced knowledge of the alliances' emphasis and possible areas for improvement, being a guide for strategic business expansion on green and digital priorities.

3. Policy Rationale behind the EU's Green and Digital Collaborations

As shown in the Methodology, there is a hierarchy of diverse policies that will be briefly addressed next, beginning with the EU Strategy for Indo-Pacific Cooperation, the EU Digital Compass, the EU Green Deal, the Japanese Green Growth Strategy, and the Korean Green Deal. Then, with the appropriate context established, the EU-Japan Green Alliance and the EU-Korea Green Partnership, as well as the three EU digital collaborations with Japan, South Korea, and Singapore that will be evaluated.

3.1. Brief Assessment of the EU Strategy for Cooperation in the Indo-Pacific

With an emphasis on democracy, human rights, the 2030 Agenda, and the Paris Agreement, the overarching plan seeks to strengthen regional alliances while tackling global concerns and assisting economic recovery (Saccardo et al., 2023; Xin et al., 2023). Recognizing the region's growing significance, interconnected economies, and common concerns, the plan focuses on South Korea, Japan, and Singapore in particular (Chen et al., 2019). Key goals encompass seven major areas, with a focus on fair trade, investment, sustainable development, climate action, and socioeconomic growth.

The "Green Transition" priority is critical, underlining the necessity of green bilateral ties and alliances and mirroring the importance of the EU's "Green Deal" (Vela Almeida et al., 2023). This demonstrates a dedication to environmental responsibility and sustainability. Furthermore, the policy emphasizes "Sustainable and Inclusive Prosperity," which is consistent with the EU's wider environmental objective.

The strategy's multifaceted approach, however, goes beyond environmental issues. Notably, it aspires to strengthen the Indo-Pacific region's network of digital relationships, with inked agreements currently in place with Singapore, Japan, and Korea. Moreover, the digital element is strongly aligned with the EU Digital Compass strategy, which serves as a sister policy directly in sync with the wider EU Strategy for Indo-Pacific Cooperation. This holistic strategy seeks to foster synergies between green and digital projects, acknowledging the region's interrelated economic, environmental, and technical issues.

3.2. Brief Assessment of the EU Digital Compass

The EU Digital Compass policy is critical because it establishes a comprehensive and forward-thinking vision for the EU's digital future. It acknowledges that digitization is an important engine of economic growth, societal resilience, and global impact (EC, 2021). The strategy emphasizes the importance of the EU not just competing in the digital arena but also shaping global norms and values, encouraging a human-centered approach to digital transformation (Chatzistamoulou, 2023). The primary goals of the EU Digital Compass program focus on four key pillars:

1. **Skills:** intends to promote the development of digital skills, so the workforce has the necessary competence to succeed in the digital era (Santoalha et al., 2021).
2. **Infrastructure:** to foster innovation and connection between member states by enhancing digital infrastructure, especially high-speed internet access.
3. **Business Transformation:** It aims to encourage digital transformation in enterprises and public services to boost innovation and efficiency (Luo et al., 2023).

4. **Security and Resilience:** maintaining the security and resilience of digital supply chains is critical, particularly in light of rising cyber threats (Abazi, 2022).

Furthermore, the strategy emphasizes the ideals of a level playing field in digital marketplaces, cybersecurity, and online protection of basic rights. In this regard, the EU aspires to establish strong partnerships, particularly with the United States, and to build coalitions with like-minded partners to collectively advance its vision of a human-centric digital transformation (Brauner and Ziefle, 2022). The EU anticipates opportunities for businesses, improved digital commerce, and a global environment supportive of its digital goals by 2030, leading to a prosperous resilient digital future (Rahman and Rahman, 2022).

3.3. Brief Assessment of the Green Deal

The EU Green Deal is a comprehensive strategy for reaching climate neutrality by 2050 and supporting a resource-efficient and sustainable economy (Rivas et al., 2021). It includes efforts and strategies, such as lowering GHG emissions, boosting renewables, improving energy efficiency, and protecting biodiversity. The Farm to Fork (Cortignani et al., 2022) and Circular Economy Action Plan (Riazi et al., 2023) to reduce waste and promote recycling, the Renovation Wave (Kınay et al., 2023) to improve building energy efficiency, the Sustainable Mobility Strategy for eco-friendly transportation (Kuzey et al., 2022), and the European Climate Law imposing binding climate neutrality targets (Antimiani et al., 2023).

The Green Deal also includes supportive measures including research financing, assistance for transitioning workers, and guaranteeing an equitable and fair transition process (Thormann et al., 2023), such as supporting photovoltaic-green roof energy communities

(PGECS) (Cruz Torres et al., 2023). Since the EU Green Deal is viewed as a global plan (Smol, 2022), it is recommended that it be applied to the EU plan for Indo-Pacific Cooperation, notably the "EU-Japan Green Alliance" and the "EU-Korea Green Partnership" that will be investigated and contrasted in this paper.

4. Green Partnerships Assessment of the EU with Japan and South Korea

This section depicts the motivations from Japan and South Korea that preceded the green partnerships with the EU.

4.1. The Case Study of Japan

Japan declared its desire to achieve carbon neutrality by 2050 in 2020. Because carbon neutrality by 2050 cannot be attained by traditional means, it is important to significantly accelerate efforts to execute major changes in the energy and industrial sectors, as well as to make strong investments in innovation (Ozawa et al., 2022). In this regard, the Ministry of Economy, Trade, and Industry, in collaboration with other ministries and agencies, created the "Green Growth Strategy for Achieving Carbon Neutrality by 2050" (METI, 2020).

Because this Green Growth Strategy only identifies the need for new technologies that are not yet commercially accessible or whose applicability is unclear, and implies the potential of giving research and development subsidies, in 2021, issuing the "Report 2030: Green Recovery and a Roadmap to 2050 for Realizing Carbon Neutrality by 2030." This proposes an alternative to the Japanese government's existing energy and global warming policies, taking a different approach and setting more definite targets, such as ending the usage of coal-fired thermal electricity by 2030 (Asuka, 2022).

4.2. The Case Study of South Korea

The Korean Green Deal, announced in July 2020, presented a comprehensive national development strategy for recovering from the economic damage caused by COVID-19. The program's goals are to concentrate on renewable energy, green infrastructure, and the industrial sector (UNDP, 2021). It has two goals: (1) strengthening the social safety net and (2) guaranteeing manufacturing stability, both to expedite the transition to a low-carbon and environmentally friendly economy while expanding human resource investment to create new employment (MEF, 2020). It developed from the recognition that Korea's conventional economic development drivers, which rely on fossil fuel imports, play a significant role in the various circular economy programs (Herrador et al., 2020). Between 2023 and 2025, the government plans to invest €54.37 billion and generate 340,000 jobs. Furthermore, the "Korean Green Deal 2.0" was issued in 2021, with the emission reduction targets tightened and the government expenditure increased by 40% (Yeom, 2022).

4.3. Assessment of the EU-Korea and EU-Japan Green Collaborations

The Japanese Green Growth strategy is being marketed similarly to South Korea's, with both governments emphasizing hydrogen and offshore wind generation as important companies to expand. Korea's green policy must include both competition and collaboration with Japan in the framework of long-term technological cooperation. Both nations, in particular, have geographical limits in terms of domestic renewable energy and hydrogen energy development, necessitating international hydrogen energy co-development and global supply chain expansion (Kim, 2023). Overall, the objectives for EU-Japan and EU-Korea green

initiative partnerships include a common commitment to climate neutrality and environmental preservation toward sustainable and resource-efficient economies.

The Asia-Pacific region's growth rate is predicted to rise to 4.6% in 2023, up from 3.8% in 2022, although growth in Asia's advanced nations will decelerate to 1.6% in 2023. This is especially crucial for South Korea's and Japan's economies, which are in the process of developing policies to support green transformations and a swift post-COVID-19 economic recovery. In this regard, it will be important to evaluate how Japan and South Korea can effectively move toward their green goals through collaborative activities with the EU.

The roadmap followed by both green partnership projects is depicted in Figure 2.



Figure 2. Roadmap of the collaboration initiatives with tenders

4.3.1. Assessment of the EU-Japan Green Alliance

Overarching Goals

Both the EU and Japan have pledged to build climate-neutral, resource-efficient economies to achieve net-zero GHG emissions by 2050. They support green technological innovation, the deployment of renewable energy, and energy security while complying with international obligations such as the Paris Agreement. Both agree to integrate COVID-19 economic recovery goals with long-term environmental goals.

Recognizing the GHG effect of energy, they advocate for an unabated phase-out of coal capacity and non-discriminatory trade in low-carbon energy commodities. They intend to communicate knowledge on citizen empowerment, smart cities, and local decarbonization, with a focus on inclusivity and vulnerable communities.

Priority Cooperation Areas (6)

Unlike the Korean case study, which has eight key areas for collaboration, the Japanese effort has six priority areas for cooperation, which are as follows:

1. **Energy Transition Cooperation:** The EU and Japan both aspire to increase their policy, legal, and technological exchanges to achieve a cost-effective transition to sustainable energy systems. They pledged to collaborate on low-carbon technologies, such as offshore wind, energy system integration, energy market reform, smart grids, energy storage, batteries, hydrogen, and industrial decarbonization.
2. **Environmental Protection:** Both sides agree to broaden policy dialogue and collaboration on supply chain sustainability, circular economy, and resource efficiency to combat climate change and environmental degradation. They aim to promote sustainable product policy while also protecting biodiversity through protected areas and effective conservation activities. Furthermore, it is planned to focus on reducing plastic pollution and the burden on ecosystems.
3. **Regulatory and Commercial Cooperation:** The EU and Japan are collaborating to promote new environmental solutions, sustainable products, and low-carbon technologies. Commercial partnerships will be supported by organizations such as the EU-Japan Round Table and the EU-Japan Centre for Industrial Cooperation. It is hoped that it would

encourage nondiscriminatory trade and investment in low-carbon energy technology, as well as boost economic connections.

4. **Research and Development:** Both sides want to work together on low-carbon and decarbonization technology research, demonstration projects, and market deployment. The collaboration will benefit Horizon Europe Missions, Japan's Moonshot Goals, and the second phase of Mission Innovation. They also want to expand their collaboration in fusion and fission research, nuclear safeguards, security, and non-proliferation, as well as to investigate participation in the International Bioeconomy Forum.
5. **Sustainable Finance:** The EU and Japan intend to lead the International Platform on Sustainable Finance (IPSF) in sharing tools for identifying sustainable investment possibilities and developing standard sustainability-related disclosures. This strengthens their participation in international forums such as the G7, G20, and the Financial Stability Board, which aids in the harmonization of global sustainable investment.
6. **Ensure Global Integrity and Climate Action Stability:** Both parties commit to implementing domestic policies and steps to achieve carbon neutrality by 2050. While they are aware of potential design variations, they are committed to working together to achieve the goal. They understand the importance of balancing these policies with fair international trade and addressing carbon leakage. Furthermore, it is anticipated that other countries, particularly major emerging economies, will be urged to develop ambitious short and medium-term pathways, policies, and strategies in areas such as trade, finance, research, innovation, aid, and foreign investment that are consistent with the Paris Agreement and net-zero emission target.

Transition with Third-Party Countries

Both parties will collaborate to assist developing nations in achieving climate-neutral and resilient societies, share information on mitigation and adaptation aid, investigate third-country collaboration for renewable energy promotion, and expand clean energy access to achieve universal energy access by 2030. It has also promised to redirect public and private resources into Paris Agreement efforts, to stop new government subsidies for carbon-intensive foreign fossil fuel generation, and to halt unabated coal investments. Both sides seek to build a joint support program for the deployment of safe low-carbon technologies in Asia, to examine climate initiatives in the ASEAN area, and to sustain G20 engagement on the circular economy and marine plastic trash. It aims to increase scientific understanding of marine plastic debris, interact with foreign nations, and assist initiatives via the EU-Japan Centre for Industrial Cooperation.

4.3.2. Assessment of the EU-Korea Green Partnership

Overarching Goals

Both sides support a rules-based international order, as well as the Paris Agreement, the 2030 Agenda for Sustainable Development, and the Kunming-Montreal Global Biodiversity Framework (Shen et al., 2023). The goal is to improve collaboration under the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity to limit global temperature rise to 1.5°C. Both reiterated their commitment to green growth, enhanced efforts toward 2030 targets, and net-zero emissions by 2050 in their respective Green Deals. They prioritize rapid carbon reduction, renewable energy transition,

biodiversity restoration, circular economies, and global involvement as they realize unsustainable production and consumption. Clean energy technologies, sustainable finance, circular models, and digital solutions are all high on the priority list. It acknowledged the need to shift investments away from fossil fuels and advocated for long-term funding for climate and biodiversity initiatives. Collaboration with groups like GGGI, as well as social partner involvement, is highlighted as a way of achieving environmental sustainability and labor market outcomes.

Priority Cooperation Areas (8)

Unlike the Japanese case study, which had six priority areas for collaboration, the Korean initiative had eight priority areas for cooperation, as follows:

1. **Climate Action:** Both parties emphasize the need for carbon pricing, particularly Emission Trading Systems, as an economic development and emissions reduction driver. It has been decided to collaborate on carbon pricing mechanisms and information exchange, as well as to share lessons learned from emissions monitoring, reporting, and future policy modeling that are compatible with their better aims. It is intended to collaborate on climate resilience measures and align financial flows with the Paris Agreement.
2. **Environmental Protection:** as well as biodiversity conservation, circular economy, forest protection, and pollution reduction, are all priorities for both parties. Regular policy exchanges and high-level collaboration are planned for important environmental concerns. The collaboration's goal is to decrease plastic pollution and waste throughout the product's lifetime. The Kunming-Montreal Global Biodiversity Framework, which includes conservation goals, resource mobilization, and access and benefit sharing, is a

top priority. Supply chain sustainability, deforestation, the circular economy, and resource efficiency are key areas of collaboration as we work toward a Zero-Pollution.

3. **Transition to a Just and Clean Energy System:** Both parties are increasing their collaboration on renewable energy, hydrogen, energy efficiency, and clean technologies. Its goal is to move away from uncontrolled coal-fired power generation, promote green mobility, and collaborate on carbon capture, utilization, and storage (CCUS) and batteries. Energy market policies, innovation, and research, as well as safe nuclear power operation, advanced technological research and development, radioactive waste management, and decommissioning, are critical components of their coordinated efforts.
4. **Business Cooperation:** Both sides will collaborate to foster a fair and transparent business environment, invest in low-carbon energy technologies and projects, and ensure an equitable transition. Its goal is to establish global benchmarks for environmental solutions, sustainable goods, and clean technology, as well as to encourage circular and net-zero economies and mutual policy understanding.
5. **Sustainable Finance:** Both sides will aggressively promote debates on sustainable investments, taxonomies, and disclosures in international forums such as the G20 and the Financial Stability Board, in collaboration with key partners.
6. **Research and Innovation:** Both parties commit to working together on research, demonstrations, and commercialization of developing low-carbon technologies, including through Mission Innovation projects. Its goal is to look at Korea's relationship with Horizon Europe and improve collaboration on bio-economy research, therefore contributing to sustainable resource management.
7. **Sustainable Food Systems:** Both sides will work together to develop sustainable food systems by exchanging experiences and encouraging international collaboration.

8. **Employment and Social Implications:** Both parties will collaborate to construct an inclusive green economy within the framework of the SDGs, with a focus on poverty reduction, decent work, and social protection. To guarantee a seamless transition, the cooperation will address challenges such as re-skilling and upskilling workers.

Transition with Third-Party Countries

Both sides collaborate with rising economies (for example, ASEAN (Association of Southeast Asian Nations)) to aid in mitigation, adaptation, resilience, and transitions to sustainable energy and circularity. The G20's determination to raise sustainable energy development, a fair transition to a net-zero, circular economy and minimize plastic waste via real action in the Resource Efficiency Dialogue.

4.3.3. Comparison of the initiatives

COMPARISON	 EU-JAPAN	 EU-SOUTH KOREA
HIGHLIGHTS	<ul style="list-style-type: none"> • INNOVATION IN GREEN TECHNOLOGIES • FOCUS ON SUPPORTING COMPANIES • BASED ON GREEN GROWTH STRATEGY 	<ul style="list-style-type: none"> • AIMS TO REINFORCING SOCIAL SAFETY NET • SUPPORTS MANUFACTURING STABILITY • BASED ON THE KOREA GREEN DEAL
GENERAL OBJECTIVES	ENERGY TRANSITION, CIRCULAR ECONOMY, RESOURCE EFFICIENCY, AND BIODIVERSITY CONSERVATION	CARBON PRICING TOOLS, RENEWABLE ENERGY, HYDROGEN, AND COLLABORATION IN RESEARCH AND INNOVATION
AREAS FOR COOPERATION	<ol style="list-style-type: none"> 1. ENERGY TRANSITION COOPERATION 2. ENVIRONMENTAL PROTECTION 3. REGULATORY AND COMMERCIAL COLLAB. 4. RESEARCH AND DEVELOPMENT 5. SUSTAINABLE FINANCE 6. ENSURING GLOBAL INTEGRITY AND STABILITY OF CLIMATE ACTION 	<ol style="list-style-type: none"> 1. CLIMATE ACTION 2. ENVIRONMENTAL PROTECTION 3. TRANSITION TO A CLEAN & JUST ENERGY SYSTEM 4. COOPERATION IN BUSINESS 5. SUSTAINABLE FINANCE 6. RESEARCH AND INNOVATION 7. SUSTAINABLE FOOD SYSTEMS 8. EMPLOYMENT AND SOCIAL IMPLICATIONS
TRANSITION WITH 3RD COUNTRIES	<ul style="list-style-type: none"> • 10 COUNTRIES OF THE ASEAN REGION • G20 COUNTRIES 	
SHORTCOMINGS	<ul style="list-style-type: none"> • AIR POLLUTION/QUALITY MEASURES • VAGUE ENERGY TRANSITION GOALS • LACK OF JUST TRANSITION PLAN 	<ul style="list-style-type: none"> • MARINE POLLUTION AND SMART CITIES • INCOMPLETE CIRCULAR ECONOMY APPROACH • LACK OF JUST TRANSITION PLAN

Figure 3. Comparison between the initiatives

5. Digital Partnerships Assessment of the EU with Singapore, Japan and South Korea

This section depicts the motivations from Singapore, Japan, and South Korea that preceded the digital partnerships with the EU.

5.1. The Singapore case study

The EU-Singapore Digital Partnership seeks to empower individuals and enterprises to grasp digital possibilities while also guaranteeing digital safety and security. Both the EU and Singapore have developed digital transformation policies that focus on digital infrastructures, skills, business digital transformation, and digitalization of public services (Scholta and Lindgren, 2023).

In terms of the ASEAN organization, the relationship is crucial in that it will serve as a model for EU-ASEAN initiatives to improve region-to-region digital cooperation and connectivity. It also backs the EU-ASEAN Joint Ministerial Statement on Connectivity and the ASEAN Digital Masterplan 2025, both of which aim to create a frictionless ASEAN digital market. The collaboration emphasizes the significance of the WTO Joint Statement Initiative on Electronic Commerce as a critical venue for advancing global rule-making (ASEAN, 2021).

5.2. The Japan case study

The Japan-EU Digital Partnership intends to improve Japan-EU digital collaboration to achieve an inclusive, sustainable, and human-centered digital revolution. In this regard,

Japan's vision of Society 5.0 focuses on developing a human-centered society that combines economic growth with social issue resolution through the merging of the internet and physical space (Çipi et al., 2023).

The collaboration builds on the Japan-EU Strategic Partnership Agreement (SPA) (EC, 2019) and the Japan-EU Economic Partnership Agreement (EPA) (EC, 2019), as well as a long history of collaboration in the field of digital policy. Furthermore, the alliance will construct institutions for digital collaboration, allowing both parties to work toward real policy deliverables while expanding on current cooperation mechanisms (Xie and Jin, 2023).

5.3. The South Korean Case Study

The EU-Korea Digital Partnership intends to improve bilateral collaboration in addressing the Fourth Industrial Revolution and leveraging human-centric digitization (El Khoury et al., 2023). The updated Framework Agreement, the ROK-EU Free Trade Agreement (FTA), and long-standing collaboration in digital and research policy are the foundations of the alliance (EC, 2015).

The Korean government's digital strategy focuses on increasing digital competitiveness in sectors such as artificial intelligence and data, as well as advancing the "New York Initiative," which aims to use digital technologies to realize universal human values such as freedom, solidarity, and human rights (MSIT, 2023). The cooperation aims to empower individuals on both sides to study, work, explore, and realize their digital society objectives, enable companies to adopt new technologies and innovate, and strengthen digital trade linkages between Korea and the EU.

5.4. Assessment of the Digital Partnerships of the EU with Singapore, Japan and South Korea

The preceding policies define the EU's overall plan for strengthening international digital connections throughout the Digital Decade, which runs from 2021 to 2030. It understands that digitization is more than just an economic driver; it is also a critical component of global societal resilience (He et al., 2023).

Three guiding concepts drive the EU's approach: (1) ensuring a level playing field in digital markets, (2) safeguarding cyberspace, and (3) protecting basic online rights (Cocito and De Hert, 2023). With proposals to form an EU-US Trade and Technology Council to strengthen collaboration and define comparable standards (Blind and Müller, 2019), trade policies and agreements play a critical role in establishing global digital trade norms. The EU is likewise dedicated to active engagement in global forums, arguing for its human-centric digital agenda and harmonizing with international digital rights, particularly those specified in the UN Charter and the Universal Declaration of Human Rights (Custers, 2022).

The EU offers a toolset that includes regulatory cooperation, capacity building, skill development, international cooperation investment, and research collaborations. It pledges to produce digital economy packages for developing and emerging nations, with an emphasis on closing the digital gap, increasing digital connection, and promoting EU technologies and values (Aditya et al., 2023). The EU aspires to lead the establishment of a larger coalition of like-minded countries to collectively increase competitiveness, innovation, and digital commerce while maintaining a safe and ethical digital environment (Ferretti and Vayena, 2022). Finally, the EU hopes that these international digital collaborations will provide more

chances for European enterprises in the Indo-Pacific region to improve digital commerce and realize a human-centric digital transformation following its 2030 goals (ERIA, 2022).

Because of the EU's current stagnating level of development, the semiconductors industry will be one of the EU's future important strategic sectors, supporting innovation, economic growth, and technological sovereignty. The EU Chips Act (EC, 2023) connects the EU's digital partnerships with Singapore, Japan, and South Korea to (1) develop a stronger bilateral-based digital economy on a global scale, (2) improve the EU's position in this key area, and (3) gradually achieve strategic autonomy (Hancké and Calvo, 2022).

5.4.1. Assessment of the EU-Singapore Digital Partnership

The partnership comprises 75 points and sub-sections, which will be evaluated next.

The EU and Singapore have a strong alliance founded on ideals such as multilateralism, open trade, and a global order based on rules. Both will work together on a variety of issues, including climate change and cybersecurity, thanks to accords such as the EU-Singapore Free Trade Agreement (EUSFTA) (EC, 2019) and the EU-Singapore Investment Protection Agreement (EUSIPA) (EP, 2013).

The EU-Singapore Digital Partnership will strengthen digital connectivity, trade, legal clarity, and innovation to boost its digital footprint. This collaboration adapts to changing digital concerns, helping individuals, businesses, and trade links while also contributing to larger aims such as climate-resilient development and a circular economy (Kim et al., 2022).

The EU-Singapore Digital Partnership focuses action over the discussion, minimizing unnecessary red tape by leveraging existing collaboration mechanisms including EUSFTA

Committees and expert seminars. The "EU-Singapore Digital Partnership Council" provides oversight, with members from key ministries and commissioners conducting progress review and ministerial-level discussions. Without any legal or budgetary limits, EU Member States will contribute to ensuring optimal alignment between EU and national efforts, increasing stakeholder involvement, promoting efficiency, and retaining clarity (Eurocham, 2022).

The partnership prioritizes digital trade, connectivity, advanced technologies, data flow, cybersecurity, semiconductor supply chain resilience, AI governance, online platform governance, public sector interoperability, digital finance, SME digital transformation, digital education, and digital economy standardization. Their purpose is to foster cooperation, compatibility, creativity, inclusion, and the development of digital skills, with a focus on frequent evaluations.

After that, the EU and Singapore will be committed to expanding and improving their Digital Partnership over time, delivering real benefits to businesses and residents while addressing emerging issues, with a focus on achieving significant economic outcomes, promoting global digital economy compatibility, and receiving comprehensive reports to guide future actions that may reshape the objectives anticipated.

Joint actions

The EU-Singapore Digital Partnership includes several programs and aims targeted at improving digital collaboration. Its main goal is to develop global standards for digital commerce, such as paperless trade, e-invoicing, electronic payments, digital identification, online consumer protection, and cybersecurity. These standards serve as the framework for digital communication between the two institutions.

The cooperation aims to build an enabling environment for safe, robust, and sustainable digital infrastructure, such as data centers and undersea telecommunications cables, in the field of digital connection. This infrastructure enhances links between the EU and ASEAN, allowing for the smooth flow of data and information. The cooperation also takes a forward-thinking strategy, focusing on the telecommunications sector, collaborating on the development and standardization of 6G technologies, and conducting research in the framework of 5G and beyond, with 6G.

Cross-border data transfers and data protection are high priorities, with a significant emphasis on providing safe and trustworthy cross-border data flows while conforming to data protection rules. To facilitate collaboration, strategies include model data protection contracts and open government data projects. Another major worry is cybersecurity, with initiatives aiming at improving information exchange on regulatory frameworks, technical standards, and certification to create a safe ICT environment.

The EU-Singapore Digital Partnership covers a wide variety of issues in the growing digital world, with an emphasis on improving digital interoperability, trust, and innovation. This holistic strategy intends to benefit both companies and foster global digital collaboration.

5.4.2. Assessment of the EU-Japan Digital Partnership

The partnership consists of 83 points and various sub-sections, which will be evaluated next.

The Japan-EU Digital Partnership is a joint effort devoted to the development of a democratic digital economy and society based on fundamental human rights. This collaboration promotes legal clarity for businesses as well as a secure online environment for cross-border

digital transactions. It focuses on removing impediments and bridging the gap between online and offline operations.

The collaboration covers a wide range of digital transformation issues, including digital infrastructure, talent development, corporate digitization, public sector digitalization, and data flow facilitation. It promotes open data flow, consumer and company trust, and privacy and security norms. The primary purpose is to support a successful digital transition that benefits citizens and companies while adhering to the values described in the "Declaration on the Future of the Internet" Japan and Korea are members, but Singapore is not (EC, 2022).

Japan and the EU are both dedicated to supporting a human-centered approach to digitization, as well as actively engaging in international forums and campaigning for global digital commerce rules. This collaboration goes beyond the digital sphere, tackling climate change and fostering the green transition.

The alliance provides procedures to ensure effective collaboration by conducting frequent progress assessments and identifying future collaboration possibilities. Similarly to Singapore, the "Japan-EU Digital Partnership Council" (METI, 2023) functions as an important governance and guiding instrument, assessing progress, offering strategic direction, and coordinating initiatives. Its effectiveness is dependent on stakeholder participation and the integration of numerous cooperation streams into an annual cycle.

The Japan-EU Digital Partnership Council will play an important role in governance and decision-making, receiving monthly reports to assess progress and provide strategic suggestions for attaining partnership objectives. The active participation of EU Member

States is critical in maintaining smooth coordination between EU-level and Member-State-level projects, increasing synergy, and achieving the partnership's goals.

Joint actions

Japan and the European Union have established a comprehensive digital partnership to address a wide range of digital issues and opportunities. Both are committed to strengthening supply chain resilience, particularly in the semiconductor industry, and are eager to develop ways for collaborative monitoring, information exchange, early warning systems, crisis planning, and export control coordination to ensure a robust supply chain. The focus of this joint work will be chip design, automotive and power technologies, integrated photonics, and semiconductor technologies that allow future computer systems.

In the framework of 5G and 6G, sustainability and energy efficiency are emphasized. By exchanging data, security assessments, and testing facilities, both parties will promote the development and implementation of safe, energy-efficient, and long-lasting digital infrastructure.

The partnership also involves developing a shared global vision for 6G and promoting global 6G ecosystems. High-performance computing (HPC) and quantum technologies are critical in their collaboration, as they investigate mutual access to their supercomputing and quantum computing facilities, with a focus on optimizing HPC applications in biomedical research, material science, seismic/tsunami modeling, weather forecasting, and climate modeling.

Both sides are committed to increasing cybersecurity information exchange, particularly through Information Exchange and Analysis Centers (ISACs) and cybersecurity forums (Ezhei and Ladani, 2017).

AI concepts and global collaboration are also critical to their objectives. Both parties hope to strengthen mutual understanding of trustworthy and responsible AI concepts, as well as strategies to apply them in international forums such as the G7, G20, OECD, UNESCO, and international standards bodies.

Another area of focus is digital connectivity, with a focus on secure and long-term networking relationships. Both parties are looking at potential networking infrastructure options such as subsea and space links to improve their digital collaboration.

The cooperation aims to improve collaboration and information exchange in the sphere of online platform regulation to address challenges related to internet safety, competition, and fairness, including unlawful and harmful material, hate speech, and misinformation.

Data, particularly Data Free Flow with Trust (DFFT), is crucial for realizing the benefits of digitization. Both parties are committed to ensuring trustworthy cross-border data transfers while adhering to data protection regulations to increase their understanding of data intermediaries and stimulate knowledge sharing among government technical professionals (CSIS, 2023).

Digital trade, digital industrial transformation, standards, trust services such as digital identification and digital signatures, Digital COVID Certificates, digital education, and privacy-enhancing technology are all part of the cooperation. As a result, the primary goal will be to create a complete framework for cooperation that addresses the myriad difficulties and opportunities of the digital age.

5.4.3. Assessment of the EU-Korea Digital Partnership

The partnership consists of 72 points and various sub-sections, which will be evaluated next.

Korea and the EU share a commitment to leveraging information and communication technology for economic and social advancement while protecting democratic ideals and human rights, with a focus on a human-centered approach to the digital economy. Mutual efforts are being made to provide regulatory clarity, ensure internet safety, and remove trade obstacles to stimulate innovation (Wen et al., 2023).

The Korea-EU Digital Partnership includes infrastructure development, skill upgrading, corporate transformation, public service digitalization, and digital economy and commerce. It emphasizes the need to maintain privacy and security standards to promote confidence among customers and enterprises.

Beyond the digital arena, both sides acknowledge the critical importance of digital solutions in combating climate change and driving the green transition to significantly contribute to global sustainability programs via digital technology (Ma et al., 2023). The collaboration focuses on cutting-edge fields such as AI, cybersecurity, semiconductors, high-performance computing (HPC), quantum technologies, 5G and beyond, digital standards, and more. It stresses collaborative research, access to essential resources, talent exchanges, and the creation of worldwide standards.

The term of this Digital Partnership is variable, lasting until both parties agree on its objectives or until one side decides to quit. EU Member States will play an important role in its implementation, ensuring that EU-level and member-state activities are aligned.

Joint Actions

Both parties have launched several joint initiatives targeted at improving their Digital Partnership. These efforts cover a wide range of critical areas, e.g., collaborative research in cutting-edge technologies such as HPC, quantum computing, 6G, and digital standards to examine research prospects for future cooperative research activities, including corporate collaborations, using Korea's national R&D programs and the EU's Horizon Europe funding.

Semiconductors are the most essential component of their cooperation, with both parties intending to provide a platform for semiconductor researchers. This forum will facilitate discussion on current semiconductor technology and trends. Furthermore, the ROK and the EU want to collaborate to anticipate potential gaps and disruptions in the global semiconductor supply chain, as well as to share information on industry strategy and coordinate export rules. Following the current EU Chips Act (EC, 2023), their partnership might grow to multilateral projects such as global standards for secure semiconductors and chip security.

Collaboration in HPC and quantum technologies is a priority to increase the availability of their respective HPC and quantum infrastructures to researchers, engineers, and students with HPC processing, quantum sensing, quantum communication, quantum materials, supply chain management, quantum expert exchanges, and participation in international standardization projects ensuring the reliability of both technologies (Netti et al., 2023).

Another critical area of cooperation between Korea and the EU is cybersecurity and trust, with the Korean Ministry of Science and ICT (MSIT) and the European Union Agency for

Cybersecurity (ENISA) considering collaboration in capacity building in third countries, possibly through a Memorandum of Understanding.

The ultimate goal is to develop a single international 6G standard. A program focusing on skills, mobility, and digital inclusion is planned for young ICT researchers. Korean educational institutions may participate in the European Union's "CodeWeek" project, which aims to teach coding (EC, 2023). Another major area of focus is AI, intending to share experience on AI legislation, systems, definitions, use cases, and actions to coordinate their opinions on AI governance in important international forums and standards organizations (Wu et al., 2020). In the online platform economy, more collaboration and information exchange are envisioned to ensure safety, fairness, and competitiveness, as well as to investigate structural enforcement cooperation while keeping regulatory power (Amariles and Baquero, 2023).

Data policies and procedures are essential for digitization. Both parties understand the need to ensure open and reliable data transit across borders to collaborate to improve international data flows, standardize data protection standards, and establish data policies to aid the data economy. Digital identification solutions and trust services, such as electronic signatures, are also on their partnership agenda (Careja and Tapus, 2023).

Understanding the digital economy in a highly digital society such as South Korea would demand study into crucial areas such as paperless commerce, online consumer protection, and protection against foreign digital protectionism. As a result, the digital partnership will be beneficial in addressing new challenges, such as post-quantum cryptography for 5G and IoT (Chawla and Mehra, 2023; EC, 2023), because the EU proposed a related €23,4M Horizon Europe funding opportunity (EC, 2023).

5.4.4. Comparison of the initiatives

COMPARISON	EU-SINGAPORE	EU-JAPAN	EU-KOREA
HIGHLIGHTS	E-BUREAUCRACY & E-PAYMENTS	6G, HPC, AI & QUANTUM	SEMICONDUCTORS, HPC, 6G & AI
Digital Trade	✓	✓	✓
Digital Connectivity	✓	✓	✗
Beyond 5G	✓	✓	✓
Data Free Flow with Trust	✓	✓	✗
Semiconductors	✓	✓	✓
Artificial Intelligence (AI)	✓	✓	✓
Online Platforms	✓	✓	✓
Digital ID	✓	✓	✓
Digital SMEs	✓	✓	✗
Digital Skills	✓	✓	✓
Digital Financial Sector	✓	✓	✓
Standardization	✗	✓	✗
HPC and Quantum	✗	✓	✓
Cybersecurity	✗	✓	✓
Digital COVID certs.	✗	✓	✗
Privacy Enhancing Tech.	✗	✓	✗
Collaborative Research	✗	✗	✓
Data on Laws & Systems	✗	✗	✓

Figure 4. Comparison of the initiatives

6. Discussion

Starting with the EU's Green Partnerships, the EU-Japan Green Alliance and the EU-Korea Green Partnership both share a commitment to sustainable development and climate action. The EU-Japan Green Alliance prioritizes green technology innovation, energy transition, circular economy, and biodiversity protection. The EU-Korea Green Partnership, on the other hand, lays a strong focus on carbon pricing measures, renewable energy, hydrogen, and joint research. A further examination shows significant variations, such as Japan's methodical transition to a net-zero emissions economy and South Korea's remarkable emphasis on forest protection.

However, close investigation reveals several flaws in both techniques. The EU-Japan Green Alliance lacks clear policies to combat air pollution, industrial emissions, and air quality improvements. The EU-Korea Green Partnership, on the other hand, fails to specifically include collaboration on Smart Cities or marine pollution reduction. Furthermore, both solutions take insufficient approaches to a just transition, which is critical for guaranteeing justice as we transition away from fossil fuels.

Moving on to partnership tactics, both efforts rely on a shared tool—sister Calls for proposals in the form of tenders—offering up to €4M per project over four years. While the EU-Japan Green Alliance is expected to begin in May 2024, the EU-Korea Green Partnership is expected to begin in December 2023.

Additional financing mechanisms have been found in addition to this basic tool. Together with the International Platform on Sustainable Finance (IPSF), the EU's "NextGenerationEU", "Fit for 55", and "REPowerEU" programs represent a worldwide perspective on sustainable investments. Japan is considering utilizing the "Moonshot" initiative for disruptive ideas, but South Korea's "New Green Deal 2.0" with additional funding offers significant assistance. To bridge gaps and optimize synergies, a trilateral Japan-EU-Korea finance arrangement is proposed.

The EU has connections with Singapore, Japan, and Korea, easily transitioning to the subject of digital collaborations. These digital projects highlight each country's distinct capabilities and goals in an ever-changing digital ecosystem.

The emphasis of Singapore's Digital Partnership is on digital commerce standards, infrastructure development, and cutting-edge technology. Uniform standards for paperless

trade, e-invoicing, electronic payments, and cybersecurity are all important aims. Singapore has emerged as a leader in supply chain resilience, semiconductors, artificial intelligence governance, and digital education.

Japan's Digital Partnership includes 5G and Beyond 5G technologies, with an emphasis on sustainability and energy efficiency. Collaboration in semiconductors, artificial intelligence regulation, and digital communications is consistent with Japan's commitment to cutting-edge research. The precise achievements of the cooperation cover a wide range of themes, from public infrastructure and business growth to digital education and internationally compatible standards.

Korea's Digital Partnership prioritizes cutting-edge technology research and development, such as HPC, quantum computing, 6G, and digital standards. Collaboration in semiconductors, AI governance, and cybersecurity demonstrates Korea's commitment to technological progress. The cooperation is intended to be dynamic, adjusting to changing technology and geopolitics through regular communication on semiconductor supply chains and the development of new cooperative areas.

Differences in legal regimes, restricted interoperability, and intellectual property rights difficulties are among the criticisms leveled at these digital collaborations. While the highlighted flaws serve as roadblocks, they also offer potential for growth and collaboration.

As the focus shifts from green to digital efforts, the seamless integration of these policies presents a comprehensive picture of the EU's strategy. The EU sees itself as a collaborative and forward-thinking actor, effortlessly integrating environmental sustainability and

technical innovation. The synergies between green and digital activities highlight the interdependence of environmental and digital concerns.

The strategies extend to relationships with Japan and Korea, where, whether green or digital, a commitment to long-term engagement, flexibility, and progress assessment is essential. The investigation of trilateral funding options adds another degree of complexity, encouraging closer collaboration and bridging gaps across programs.

The EU's dual approach to green and digital partnerships is a complete policy that understands the worldwide interplay between sustainability and technical progress. The EU hopes to push a harmonic transition toward a more sustainable, technologically advanced future by smoothly combining green and digital activities.

Lastly, it is expected that each of the countries and regions involved could build additional synergies to unveil strategic business expansion across the wide areas covered with the green and digital transition.

7. Conclusion

This paper presented the EU's Green Deal policy expansion to Japan and South Korea, as well as digital relationships with Singapore, Japan, and South Korea, were examined in this research. The Green Partnerships are intended to promote environmental protection, climate change mitigation, and green growth, whilst the Digital Partnerships are intended to improve worldwide connectivity and correspond with the EU Digital Compass Strategy.

The Japanese Green Collaboration prioritizes green technology innovation, circular economy, resource efficiency, and biodiversity protection. The Korean Green Collaboration, on the other hand, focuses on carbon pricing, renewable energy, hydrogen, and energy efficiency. The Paris Agreement, the 2030 Agenda for Sustainable Development, and the Kunming-Montreal Global Biodiversity Framework are all supported by partnerships.

The digital collaborations with Singapore, Japan, and South Korea have common aims but differ in method. Singapore is a digital commerce leader, Japan is concerned with supply chain resilience and sustainability, and South Korea stresses cutting-edge research and technology development. All three nations want to strengthen their digital relations with the EU, displaying their dedication to addressing various facets of the digital economy and fostering innovation.

Despite variations in focus and strategy, the Green and Digital Partnerships are projected to make a substantial contribution to global efforts to limit global average temperature rise to 1.5°C and develop net-zero, nature-positive, circular, and resource-efficient economies by 2050. The collaborations provide new market opportunities for digital firms, stimulating trade and investment while also fostering economic development and job creation.

Future studies should look at the evolution and effects of these relationships at the halfway (2025-2026) using desk research and field interviews to better understand the progress, challenges, and implications. Furthermore, new reciprocal synergies between the three projects are advocated to assist development and bridge gaps not addressed in the alliances, such as short missions or extra Horizon Europe financing opportunities.

The Green and Digital Partnerships highlight the value of international cooperation in tackling global issues and promoting sustainable and digital prosperity. Policymakers and stakeholders may better organize their efforts and maximize the potential advantages for all parties involved by knowing the individual priority areas and tactics of each collaboration.

It is expected that each of the countries and regions may benefit indirectly by understanding the goals, needs, and prospects of each other to unveil strategic business expansion on the green and digital transition.

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Unlocking potential: The effect of female leadership on psychological capital and innovative work behavior in East Asia

Abstract

Amidst an escalating interest in female leaders and their roles in organizations, their leadership style and the substantive effects remain largely underexplored. This study describes the potential organizational advantages associated with female leadership, particularly examining its influence on innovative work behavior (IWB) and its internal psychological process in Japan and Korea. Drawing from survey data collected from 599 employees - 306 from Japan and 293 from Korea – findings reveal that female leaders' opening behaviors significantly increase employees' psychological capital, which subsequently foster IWB. In contrast, closing behaviors exhibit negligible effects on these outcomes. Moreover, the finding indicates the contingency effect of the female leadership; specifically, the positive effect of opening behaviors on psychological capital is stronger in Japan than in Korea, whereas the negative effect of closed leadership is greater in Japan. The results substantially deepen the understanding of female leadership dynamics and highlights the importance of fostering organizational environment conducive to the development and advancement of female leaders.

Keywords:

Female leadership; ambidextrous leadership; opening and closing behaviors; psychological capital; innovative work behavior; East Asia

Strategic HRM for Internationalizing Japanese SMEs

Abstract:

This research aims to provide understandings to international workers in Japanese SMEs, how the management practices of Japanese SMEs shape the work experiences of international workers, and how these practices and process influence the strategic development of SMEs. Through a qualitative study, this research empirically investigated the interactions between Japanese SMEs and their foreign employees (including low-skilled technical interns and self-initiated expatriates) and extends the IHRM research into Japanese traditional SMEs. A framework on effective management of international workers in SMEs is proposed. The findings contribute to the understanding of global mobility issues in SME sector, which has been largely neglected in managerial studies.

Keywords:

Japanese SME, internationalization, migrant workers, self-initiated expatriates, technical interns, HRM in SME

Strategic HRM for Internationalizing Japanese SMEs

1. Introduction

Recently, a growing number of International Business (IB) and International Management (IM) studies have paid attention to global mobility issues and recognized that internationally mobile workers are important human resources for innovation and knowledge transfer and can provide access to international opportunities (Hajro et al., 2021). Existing studies on multinational firms have shown successful cases on strategic staffing contributing to organizational learning and improved performance in international arena. However, it is still a question on how Small and Medium-sized Enterprises (SMEs) can effectively and strategically utilize international human resources.

It is widely known that SMEs play a vital role in sustainability and prosperity in many economies, nevertheless IB and IM scholars often tend to avoid management issues on SMEs (Nolan, 2017). Many advanced economies are experiencing ageing workforce and have relied on foreign migrant workers to tackle the problems of labor shortage and shrinking domestic market. In OECD countries, SMEs are at the forefront of integration of foreign migrant workers. However, as SMEs are resource-constrained, and apparently, small, a hard HRM approach towards foreign workers is widely identified in SMEs in U.K. and Asia (Connell & Burgess, 2013; Forde & Mackenzie, 2009). Under this hard HRM style, is a cost-oriented staffing approach in SMEs that could not attract local young workers with better pay and attractive working environment, particularly, in manufacturing and service sector.

In Japan, the number of enterprises employ international workers has increased significantly in the past decade. SMEs are the major employers of foreign migrant workers, especially small firms with employee numbers less than 30 persons (MHLW, 2023). Currently, the two largest groups of international workers in Japanese SMEs are Technical Interns (TI) and Self-initiated Expatriates (SIE). The management approach of TI was described as ‘hard’ and ‘paternalist’ (Suolinga & Kim, 2020; Yoshida, 2021). However, a few studies have reported cases on effective utilization of foreign migrant workers for successful FDI (Suolinga & Kim, 2020; Suolinga, 2022).

Table 1 Types of international workers in Japanese SMEs

	Definitions
Technical Interns (TIs)	Young foreign labors that are employed in Japanese SMEs through the Technical Intern Training Program for three to five years. TIs are often young and considered as low-skilled temporary labors.
Self-initiated Expatriates (SIEs)	Internationally mobile workers who move abroad on their own initiatives to seek work.

The aim of this study is to empirically examine how international workers – that is, TI and SIE, are employed and managed in Japanese SMEs, and how these HRM practices influence the internationalization of SMEs. To examine the above-mentioned research questions, a qualitative design is adopted. Based on multiple case studies on five Japanese SMEs that have effectively utilize international workers for overseas expansion, two staffing approach were identified: cost-oriented and strategic. HRM practices under the abovementioned two staffing

approach were shown and compared. The findings from this study provide understanding to the strategic motives of internationalizing SMEs in employing migrant workers and provide a framework for strategic HRM in internationalizing SMEs.

2. Literature Review

In existing literature on expatriate and foreign workers in Japan, expatriates are known for being ‘boundary-spanners’ in international companies, while TIs are seen as labors to take over jobs that were often dangerous and hard. In this section, we review managerial studies on self-initiated expatriates (SIEs) and TIs in Japan. Then, we provide reviews on strategic HRM and human capital in SME sectors.

2.1 Studies on SIEs in Japan

The scholarly attentions on SIEs in Japan have surged in the past decade. Very recently, the topic also received domestic attentions from management scholars. While assigned-expatriates (AE) were found important in influencing performance of the subsidiary and knowledge-transfer between headquarters and subsidiaries of multinational corporations, empirical studies on SIEs in Japan have focuses more on SIEs’ work experiences, career development and higher adjustment level than those of AEs (Kim & Kim, 2022; Yorozu, 2020, 2023).

Expatriates’ adjustment is one of the most popular streams in IHRM, because it is believed that expatriate adjustment is related to job satisfaction, assignment outcome and subsidiary performance (Froese & Peltokorpi, 2011). Peltokorpi and Froese (2009) found that SIEs in Japan had a higher adjustment level than organizational AEs, even though AEs could receive more assistance and support with adjustment in work and life (Peltokorpi & Jintae Froese, 2009). SIEs were found particularly better at adjustment to interactions with Japanese host country nationals, because of their own expatriate motivations and higher frequencies in cross-cultural interactions. Kim & Kim (2022) investigated the roles of Korean SIEs in Japanese IT companies and explained how they developed career paths by utilizing their skills and human capital (KIM & KIM, 2022). However, SIEs in Japan might encounter issues such as discriminatory recruitment practices and limited job opportunities with certain jobs.

A few studies based on Japanese multinational firms found out that many Japanese firms have not been ready to accept and work with international workers, and that Japanese management styles and work cultures were hard for SIEs to fit in (Peltokorpi and Froese, 2009; Furusawa and Brewster, 2016; Yorozu, 2020). Studies also have shown employers’ concerns about the inability of international workers to adapt to the Japanese workplace (Yukawa, 2021), and how international workers were disappointed to the training provided by Japanese employers (Tsuji, 2017). The long period of training and ‘job segmentation’ between Japanese employees and foreign employees were discouraging for many SIEs. Yukawa (2021) suggested that Japanese employers should give more considerations to the skills and work experiences of international workers instead of using a same criterion for Japanese newly graduates.

2.2 TIs in Japan

The empirical studies on TIs uncouned a boom since 2000. These studies have shed lighted on the importance of TIs as a crucial workforce that take over essential jobs in manufacturing, construction, and agricultural sectors. At the same time, a lot of issues related to the employers’

questionable management approaches and cases of mistreatment and harassment were also revealed (Hansen, 2010). The management approach of TI was described as ‘hard’ and ‘paternalist’ (Suolinga & Kim, 2020; Yoshida, 2021).

Siu and Koo (2022) examined the different migration experiences and outcomes of Chinese and Vietnamese TIs and explained how the labor regimes and policy orientations of sending countries had resulted in the failure of stated objective of TITP – international skill transfer (Siu & Koo, 2022). Recently, a few studies have attempted to look at the aftermath of technical training by investigating the employment conditions of returnees who have completed three-year technical training and returned home country (e.g. Nishigawa, 2019; Nishitani, 2021).

A growing number of studies have attempted to discover the important roles international workers who have been neglected by management scholars. For example, it is found that sending host-country nationals (including SIEs, TIs and foreign students) who have studied or worked in Japan to foreign subsidiary can contribute to overseas operations and expansions, providing evidence for using a new pool of talents for international expansion (Hamamatsu, 2017; Suolinga, 2022; Suolinga & Kim, 2020).

In addition, one of the distinct features about managing TIs in Japanese SMEs is the strong reliance on intermediary organization. Intermediaries such as recruitment company, international labor companies, temporary staffing company and brokers play a crucial role in the cross-border labor markets. In Japan, the emergence of such employment brokers and intermediaries have become more active in recent years because of the national labor shortage problems and implementation of Technical Intern Training Program. Many SMEs employing TIs have outsourced the most parts of recruitment and pre-departure training, such as pre-screening and selection, to these intermediaries. Intermediary organizations have shaped the cross-border labor markets and facilitated both skilled migration and labor migration to Japan by reducing search costs, ensuring quality control in recruitment process, providing information and trainings to employees and Japanese employers (Conrad & Meyer-Ohle, 2018; Muranaka, 2022). The use of employment brokers is particularly important for Japanese SMEs, which lack knowledge and resources for securing desired workforces (Muranaka, 2022).

2.3 Strategic HRM and internationalizing SMEs

According to the existing literature, (international) HRM activities and human capital development are of great importance for internationalizing SMEs, especially firms that adopts an accelerated internationalization strategy (Onkelinx et al., 2016). However, most of the work have focused on human capital attributes, such as education, experience, knowledge, and skills of the founder or CEO of SMEs. It has long been argued that international entrepreneurial orientation and international experiences of CEOs are critical for SME internationalization. Although scholarly discussions on employees’ human capital and (international) HRM are inadequate, it is not hard to observe SMEs attempting to utilize their foreign workers for strategic growth such as boosting international business.

Suolinga (2022) discovered two roles of foreign migrant workers in facilitating the internationalization process of Japanese SMEs through a qualitative case study: catalyst and social glue. The study showed how TIs, SIEs and former foreign students in host country help CEOs to identify business opportunities in developing Asian markets, and further trigger a series of networking and learning activities for building firm specific capability for overseas

expansion. However, the exploratory study could not provide explanations on the relationship between these two roles and specific HRM approaches and activities.

In sum, previous work on foreign workers in SMEs or human capital in SMEs has focused on the human capital at the top but provide less understanding to how resources such as knowledge and networks are strategically built, leveraged, and deployed through HRM policies domestically and internationally. We need to carefully investigate how SMEs identify business opportunity and strategically align their internationalization strategy with HRM policies.

3. Methodology

This study aims to empirically investigate how case firms have utilized foreign workers for successful internationalization in depth and propose a theoretical framework. Given the current research status and our lack of knowledge, a qualitative approach was adopted for this study (Miles et al., 2014). Particularly, explanatory case study research is chosen to answer the how question that deal with process over time in this study, rather than mere frequencies or incidence (Yin, 2017).

Purposeful sampling method was adopted. The case companies were deliberately selected from twenty firms that the researcher has interviewed and visited in preliminary studies period. The selection criteria are as follows: (1) SMEs with less than 300 employees in Japan; (2) SMEs at least has hired one foreign employee; (3) SMEs have established at least one overseas subsidiary. All the case firms in this study were recommended by researchers and professors in management field and business experts of Japanese SMEs. The sample of case firms were not intended to be diverse or homogenous in industry, structure, or location. Instead, the five case firms were selected because they were typical and representative in showing how foreign worker-facilitated internationalization have taken place. See Table 2 for case firm and interviewee information.

- Case firm: M1

M1 manufactures precision machinery in Osaka. M1 established a Vietnamese subsidiary in 2017. Currently, there are 75 full-time employees in M1, including 25 Vietnamese SIEs and TIs. The subsidiary of M1 in Vietnam (M1-sub) has 40 local employees, among which 8 people are returned SIEs and 2 are returned TIs who have worked in the factory of M1 in Osaka for more than 3~7 years. The CEO of M1-sub was also an ex-employee of M1.

- Case firm: M2

M2 produces metals products and locates in Kyoto. B-co owns two subsidiaries in Suzhou, China (2002; 2012) and one subsidiary in Istanbul, Turkey (2015). Two top managers of Chinese subsidiaries have worked in M2 in Kyoto for five to eight years. The top manager of Turkish subsidiary is an expatriate with Japanese nationality from M2. M2 is the only company that does not employ TIs.

- Case firm: M3

M3 also is a metal part manufacturer in Sendai. C-co owns a farm in India. The director of the Indian farm was an intern of M3. He brought up the idea of investing in dairy farm in India and made the CEO of M3 realize the huge potentials in India. With the help of another Taiwanese SIE, M3 successfully established a farm in India in 2019. The Indian

employee was repatriated to India to run the operations of new farm. M3 also hired TIs from South Asia.

- Case firm: C1

C1 is a construction company from Kesennuma. D-co set up its first joint venture in Indonesia in 2015, and established its Indonesian subsidiary in 2016. C1 is a famous local enterprise not only for its reputation as a builder, but also for its contribution to the local community by building infrastructure and promoting diversity and inclusion. The CEO offered jobs for returned TIs in their Indonesian company. Currently, they have 9 TIs from Indonesia working in C1.

- Case firm: F1

F1 is a company from Ishinomaki City that produces, processes, and sells marine products such as oyster and scallops. Three years after the Great Tohoku Earthquake and Tsunami in 2011, F1 has recovered its export business and sold their products to over ten countries and regions (e.g., Thailand, Hong Kong, U.S.A, United Arab Emirates). It was not until 2019 F1 has successfully established its Vietnamese in Ho Chi Minh City. The international expansion was largely due to the help of two former international students who have studied in Japanese universities. At the beginning, these two former international graduates (FIGs) returned to their home countries – Thailand and Vietnam, and utilized their bilingual and even trilingual language ability and cross-cultural knowledge to help F1 with only export business. Gradually, the partnership became stronger. Thai FIG partnered with F1 and opened a new company that specialized in importing and overseas marketing. While the Vietnamese F1 became the CEO of the newly established Vietnamese subsidiary of F1 (F1-sub) that not only sells and imports, but also produces and grows oysters in local sea. Meanwhile, F1 has been hiring TIs for many years, and by the end of year 2022, they were hiring six Thai TIs.

3.1 Data collection

Qualitative data were collected from 20 semi-structured interviews with five CEOs and their international employees including six TIs and three SIEs during 2019~2024. Interviews were recorded and transcribed based on consents from the interviewees and firms. Interviews were mainly in Japanese. Chinese language was used when interviewing Chinese and Taiwanese SIEs. Each interview last around 1 to 2 hours. Interviews with CEOs covered organizational policies on managing foreign workers, motivations of hiring foreign workers, the reasons and strategy of exploring overseas markets and the internationalization process. Interviews with foreign employees concentrated more on work experiences in Japan, expatriation motivations, career issues, and management issues on work conditions. In addition, supplementary data were collected from site observations and articles and information from company websites, news, and online interview clips for data triangulation.

Table 2 Case firms and interviewees

Case firm	Industry	International workers employed	Location of foreign subsidiary and	Interviewees (# of interviews)
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			Est. year	
M1	Machine manufacturing	Vietnamese TIs and Vietnamese SIEs	Vietnam (2017)	CEO (2)
M2	Metal and machine manufacturing	Skilled SIEs from China, India, Turkey	China (2002; 2012), Turkey (2015)	CEO (2), 2 Chinese employees (2)
M3	Metal parts manufacturing	SIEs from Taiwan and India; TIs from Thailand	India (2020)	CEO (2), 1 Taiwanese SIE (3)
C1	Construction	TIs from Indonesia	Indonesia (2016)	CEO (2), 6 TIs (6)
F1	Fish farming and processing	Thai TIs and former foreign students graduated from Japanese universities from Vietnam and Thailand	Vietnam (2019)	CEO (1)

3.2 Data analysis

The qualitative data analysis for this study is an iterative process that requires researcher to go back and forth between data and literature. Data was coded in three steps. Transcribed data was first categorized into themes using manual coding. HRM policies on staffing, selection, training, compensation & benefits, and expatriation & repatriation were identified. Among staffing policies, two different approaches were identified: cost-oriented and strategic. Second, data on internationalization processes of five firms were analyzed and organized to understand the sequential activities in the process. Three clustered themes: country-specific factors, firm-specific factors, and learning activities of internationalizing SMEs, were identified and categorized. Finally, thematic analysis and interpretations were structured by extracting conceptual relationships between the clustered themes (country-specific factors, firm-specific factors, and learning activities) with HRM activities.

4. Findings

The findings are presented in sequence of data analysis. HRM policies of five firms will be presented. Descriptions and explanations on how internationalization activities were facilitated or accelerated by effective management of international workers will be provided, after which a framework will be proposed.

4.1 HRM policies of case firms

Although we found no existence of HRM department in any of each case firm, managers have introduced and explained various policies and practices they have adopted for managing foreign workers. HRM practices in SMEs were found to not only affect the employment conditions, cultural adjustment, and well-being of international workers, but also provide opportunity for CEO and firm to acquire new knowledge and build networks in international arena.

4.1.1 Staffing approach of case firms: cost-oriented and strategic

Two types of staffing approach emerged from interviews with CEOs: cost-oriented and strategic. Under the cost-oriented approach, TIs were hired primarily because there is no other source to secure a stable and relatively cheap labors who are willing to work in construction sites or factories in rural area. In other words, SMEs who adopt a cost-oriented staffing policy rely on TIs as a source of labor supply for domestic operations and productions. When wage level in one sending country increased, Japanese employers using cost-oriented staffing policy tend to source TIs from other countries where wage level is still low, so the salary of TI jobs in Japan are more attractive to the workers there. Under the strategic staffing approach, foreign workers (TIs, SIEs and other types of foreign workers) were hired because of their Japanese and foreign language skills (e.g. Chinese, Vietnamese), and other expertise in IT, engineering or international business experiences. What's more, strategic approach staffing can focus on foreign workers from one particular country, often where the subsidiary locates in.

Although these two approaches can largely determine the types (e.g., TI or SIE; low-skilled or skilled), and nationality of international workers needed, the two approaches are not mutually exclusive to each other. Four case firms (M1, M3, C1 and F1) have used a hybrid staffing policy. And all the case firms, except M2 who only hire international employees for strategic reasons, have hired TIs from developing economies because they could not hire local young workers who are willing to work for them. All CEOs have expressed a strong concern about the declining domestic workforce and shrinking domestic markets. However, at the beginning, M1, M3 and C1 didn't have any intention to explore overseas business opportunities. It was only after CEOs have personally researched about the local market and communicating with their international employees (TIs and SIEs) and other experts, had they start to develop idea and strategy in linking their international human resources with overseas expansion goals. In other words, strategic staffing policy is gradually developed alongside the cost-oriented approach to sustain a stable and affordable labor costs.

4.1.2 Selection

Under the cost-oriented staffing approach and wage rise in China, more and more SMEs are becoming reliant on labor supply from Southeast Asian countries such as Vietnam and Thailand. In interviews, several CEOs showed appreciation for incoming TIs and praised their "hard working" and "adventurous" attributes, in despite of some problems due to cultural differences. It is no longer a problem for TIs to not be able to speak Japanese, as long as they can demonstrate good attitudes towards jobs and life in Japan. A very common pattern for selecting TIs in case firms, is that intermediary organization such as broker, international labor agency or vocational training school, will perform pre-departure training and at least one round of screening before company interviews. The CEO of M1, M3 and F1 even were not involved in selection process of TIs at all, instead, they accepted TIs who were selected and recommended by intermediaries whom they have previously cooperated with.

However, ways of selecting SIEs are various, and is often done by CEO and company managers, formally or informally. M1, M2 and M3 utilized relationships with local Japanese university and foreign universities in India and Vietnam, personal friends, current employees and domestic recruitment agent and government related trade organization (e.g., Japan External Trade Organization) to recruit foreign talents or fresh graduates. The CEO of M2, asked his Indian employee to join him in a job fair held by Japan External Trade Organization (JETRO)

in an Indian university to deliver a presentation about M2, so that local Indian students can better understand the business, company vision, and possible benefits of working in M2 effectively. The following excerpt shows how the CEO of M2 hired two new Indian employees at the job fair with the help of this Indian employee.

"I let him (the Indian SIE) do the presentation, and it turned out to be a correct decision. On that day, there were other Japanese firms (at the job fair) as well, including the big Japanese bank! Each firm only had about 10 minutes for presentation. And our company stood out from others because our presenter is an Indian and audiences felt close to him. Many local students showed interests and we had a lively discussion. We interviewed three students and decided to hire two. One is a fresh graduate, and another one is changing job".

Although Japanese proficiency in SIEs is not mandatory in all case firms, most of the firms prefer SIE to be familiar with Japanese language and culture. Especially in companies that have been hiring SIEs for several years such as M1, M2 and M3, communications with new SIEs or who cannot speak Japanese can be done in English or other Asian languages through other bilingual or trilingual SIEs. In this way, the superior English language skills or other Asian language skill (e.g. Vietnamese, Thai, Hindu, Chinese) of some SIEs enable them to serve as 'boundary spanners' within firms or to customers, or external parties such as government officials or local business partners in host country.

4.1.3 Training

Because the employment relationship between the case firms and TIs are often short-term, and that SMEs do not have many resources to put into employee training, the training offered by case firms are mostly focused on technical training and language training. Even TIs of M1 can choose to work in the Vietnamese subsidiary after they return to Vietnam, the work assigned to TIs are simpler and more menial compared to work assigned to their SIE peers. On the contrary, M1, M2 and M3 provided more HR development opportunity and career choices for SIEs who possess better skills and have outstanding performance. For example, the CEO of M1 and M2 had aimed to develop their subsidiary's managers into independent leaders and business partners who can survive and expand in the host country with less help or guidance from headquarter. What's more, a few SIEs can even negotiate for better packages. In M3, the Taiwanese SIE negotiated during job interview and required M3 to sponsor her MBA study after getting onboard.

There was a common feature in training delivery found in all case firms, which is, senior foreign employees (*senpai*) are in charge of educating and communicating the junior employees who have less work experiences. Japanese CEOs believe that it is more efficient and effective to let foreign employees to teach new employees because there would be no language barriers. For example, in both headquarter and subsidiary of M1, senior Vietnamese employee who takes up manager position or has longer work experiences are in charge of training the newcomers. However, the CEO of M1 revealed concerns about lack of communication between the new Vietnamese workers with local Japanese employees. C1 tried to solve this issue by mixing Japanese and Indonesian TIs at sites and holding intercultural events in local city.

4.1.4 Compensation & benefits

As the SIEs are regular full-time employees, they tend to be in a better financial and institutional position than the TIs. SIEs are entitled with higher salaries, bonus, and other benefits such as maternity leave and parental leave. And they can also negotiate for their benefits, though negotiating ones' packages and benefits with employer were not common in traditional Japanese enterprises. On the other hand, it is common for TIs to receive salary close to minimum wages. Since Japanese government has tightened the regulations to protect TIs, there were less reported cases on abuses or mistreatment. Although TIs can not bring family to Japan, TIs are also entitled to health insurance and pension program. During the interviews, six Indonesian TIs of C1 stated they were very satisfied with the job and had great memories in company trips. They stated they were happy for their company because the boss and Japanese coworkers were supportive and *yasashii* (kind) not only in work but also help with daily personal problems.

4.1.5 Expatriation & repatriation

The last, but not the least noteworthy pattern emerged from this study is the expatriation and repatriation of foreign employees to subsidiary in their home country. In M1, M2 and M3, senior foreign employees (especially SIEs) were often given greater exposure to the range of challenges of dealing with international customers, educating, and communicating with junior foreign employees. For example, M1 repatriates Vietnamese SIEs and TIs to their subsidiary after 3-7 years (provided they accept the offers). The CEO believed it is more effective to let Vietnamese employees to take charge of the subsidiary, thus provided manager positions to Vietnamese SIEs or graduated TIs. The CEO revealed that their foreign subsidiary in Vietnam has been contributing to positive company profits continuously from the first year of establishment, and they are planning to establish a new factory in Da Nang City. In M2, two Chinese SIEs were repatriated to Suzhou, China to build and manage the Chinese subsidiary in 2002 and 2012. The CEO of M2 stressed the importance of local networks and cultural knowledge, he believed it is much more efficient and effective to delegate local operations and management to the local leaders.

On the other hand, the delegation of responsibility and leadership roles were less common in TIs. It not only highlights the extent to which TIs or SIEs can gain and possess autonomy in their jobs, but also reflects what roles and skill level TIs and SIEs are expected by the employer of Japanese SMEs. SIEs with more autonomy can place themselves in a less vulnerable position vis-à-vis their TI coworkers.

Table 3 HRM Policies of Case Firms

Case firms	Staffing policy	Selection	Training	Compensation & benefits	Expatriation & repatriation
M1	Cost and strategic	Vietnamese nationality, motivations, attitudes, technical skills (not mandatory) in TIs and SIEs	Technical training for TIs and SIEs by senior Vietnamese employees	Salary, paid leaves and vacations, health insurance and pension	Repatriation to Vietnamese subsidiary after 3-7 years
M2	Strategic	Technical skills, tertiary	Technical	Salary, paid	Repatriation of

		degree in Engineering, Japanese proficiency (not mandatory) in SIEs	training for SIEs by Japanese or senior foreign SIEs	leaves and vacations, health insurance and pension	Chinese employees to Chinese subsidiary as subsidiary's managers after 5~8 years
M3	Cost and strategic	Attitudes in TIs; tertiary degree, motivations, technical skills, Japanese proficiency (not mandatory) in SIEs	Sponsoring MBA study for SIE at management position	Salary, paid leaves and vacations, health insurance and pension, bonus for SIEs	Repatriation of Indian SIE to Indian subsidiary after 1-2 years
C1	Cost and strategic	Indonesian nationality, motivations, and attitudes in TIs	Technical training and Japanese language training for TIs	Salary, paid leaves; company trips, restaurant, dormitory, health insurance, pension	Offer full-time employment to graduated TIs in Indonesian subsidiary
F1	Cost and strategic	Attitudes in TIs; Japanese proficiency, communication ability and business-related knowledge in Vietnamese manager in the subsidiary	Technical training for TIs	Salary, paid leaves and vacations, dormitory, health insurance and pension	-

4.2 Suggested framework

Based on the literature review and qualitative data from five Japanese SMEs, linkages were found between internationalization process and strategic HRM on international workers. The pattern emerged from this study reveal insights into the mechanism of effective strategic HRM in Japanese SMEs for overseas expansion. As is shown in Figure 1, strategic HRM activities of SMEs are determined by country-specific factors in overseas markets, firm-specific factors, and learning activities of firms. Meanwhile, firm-specific factors and learning activities of firms can determine and influence HRM activities and policy adopted by SMEs.

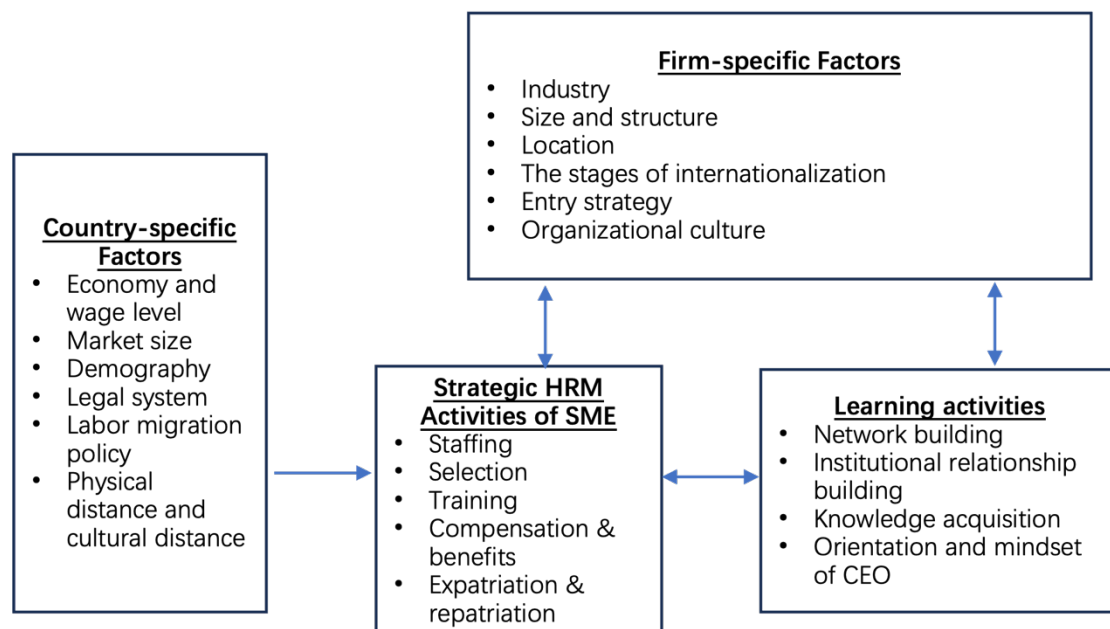
Firm-specific factors are internal factors that are specific to the individual SME and influence its response to a given situation and thus internationalization process and HRM activities. The type of industry is very important in terms of staffing choices and internationalization strategy. For construction company C1, the needs for low-skilled workers or TIs who can take up work that are not desired by locals are larger than needs for highly skilled SIEs. Size, structure, and location can decide the attractiveness of firm to foreign workers. Stages of internationalization and entry strategy (export or FDI) largely determines staffing policy and expatriation & repatriation policy. F1 used to only hire TIs in Japan, and export occasionally to foreign markets. However, when the CEO decided to build a foreign subsidiary for not only exporting but also local production in Vietnam, he hired and assigned a former Vietnamese student as CEO of local subsidiary. M1 and C1 provided job offers to TI graduates to work in their overseas subsidiaries. M2 and M3 assigned and repatriated Indian and Chinese employees (SIEs) to run the operations of foreign subsidiary in India and China, respectively.

While the suggested framework focuses on learning behaviors and firm-specific factors, it is important that the contextual variables of external environment of host country (overseas market) is also taken into consideration. For SMEs, especially the manufacturing SMEs like case firms in this

study, population and economy of host country largely determine the potential market sizes. And relatively lower wage levels in host country can ensure SMEs secure workforce with minimum personnel costs. Legal system and labor migration program determine a SME's staffing policy. Physical and cultural distance also determine HRM policy and staffing choices.

Country-specific factors, firm-specific factors and learning activities of firms largely determine the IHRM activities, at the meanwhile, IHRM activities can hugely influence firm-specific factors and learning activities. Organizational culture can reveal the international orientation of firms and CEOs. For example, A-co and D-co encouraged local Japanese employees to learn more about culture of host country by creating incentives for employees to learn about Vietnam (M1) and holding cultural exchange activities between foreign and local employees (C1). These activities reflected the attitudes and ambitions towards both human capital development and internationalization strategy.

Figure 1 A framework on strategic HRM for internationalizing SMEs



5. Discussion

By examining and comparing the HRM of international workers in five case firms, this study attempts to conceptualize the pattern identified in the case analyses and propose a framework, which links external country-specific factors, internal organizational factors, learning activities with company's approach to foreign worker management.

This study seeks to make three contributions to the literature on SME internationalization. First, it explored the relationship between international HRM approaches and internationalization strategy, showing the impacts of international workers on learning activities in internationalization process. The proposed framework captures the complexity and dynamics of HRM arrangements within the internationalizing SMEs. Drawing on the Uppsala Internationalization Model, the role of 'learning' and 'commitments' are highlighted. In the latest work of Vahlne (2020), he argued 'the underlying processes of learning and commitments were not confined to the focal firm but happened also at the other end of the relationship.' Different from the existing findings where SMEs overcome the barriers in early phase

of internationalization by leveraging the local- or national-level networks (Kalinic & Forza, 2012), this study demonstrated how company can proactively discover business opportunity and acquire international knowledge and networks through in-house developed human resources. This framework also provides practical implications. SMEs with international expansion intentions can adopt international human resource development approaches that focus on nurturing the foreign employees' technical skills, cultural skills, and leadership skills. And CEO should create an organizational culture that encourages learning. To attract more foreign workers to Japan, and even better retain these international talents and increase their employee engagement, it is useful to provide choices and career prospects to continuously work in the subsidiary in their home country.

Second, the context of Japan and a multiple case study on five SMEs (three from manufacturing sector, one construction company and one seafood company) added empirical understandings to the traditional SMEs' demographic challenges and more importantly, the responsive behaviors of these firms to actively look for and utilize international resources.

Last, but not the least, this study explored the SME employers' pivotal roles in shaping the international labor markets, an issue that has largely been ignored in the existing IHRM and migration research. Japanese SMEs played important roles in skill construction of international workers and retention of international human resources. The findings of this study suggest that TIs can utilize their skills learnt in Japan and earn better salaries in their home country when they can continue to work in the foreign subsidiary. SIEs and other highly skilled migrant workers can become the managers in the subsidiary. However, unlike large firms where number of management positions are more than those in small firms, the 'glass ceiling' of foreign workers cannot be overlooked. TIs can be treated differently than SIEs, while some SIEs who could not be promoted to manager position have decided to change jobs to other Japanese firms after they have gained experiences and career capital.

This study is limited in the following aspects. This study is based on a qualitative design in Japan context and can encounter problems in terms of generalization. It aims for theory building, rather than theory testing. It can only be offered as a suggested framework and explanations, and further work is required to develop and test the framework. For example, the variables in firm-specific and country-specific factors can be tested or further complemented by quantitative and qualitative studies.

To conclude, human capital is crucial for growth and strategic expansion of SMEs. Migrant labors provide opportunities for local SMEs who are facing with problems of shrinking domestic market and decreasing workforce. Although HRM in SME is often unsophisticated, a well-designed strategic HRM approach proves to be rewarding. SMEs should align their internationalization strategy with effective HRM policy.

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Unveiling the Post-IPO Ventures' Governance Changes in Japan: A Fuzzy-Set Analysis

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Unveiling the Post-IPO Ventures' Governance Changes in Japan: A Fuzzy-Set Analysis

Abstract

This study examined factors influencing the transformation of governance structures in venture firms post-IPO in Japan, focusing on the transition to boards centered around independent outside directors. Initially, most newly listed venture firms adopt a management board led by internal directors, but within a few years post-IPO, about half transition to a board structure with numerous independent outside directors. Using fuzzy-set qualitative comparative analysis, this study identified multiple causes combining due to strategic situations, organizational structures, and shareholder compositions to transform governance structures (conjunctural causation). It also uncovered multiple pathways leading to governance changes (equifinality) and highlighted the non-mirroring conditions between firms that adopt and those that do not adopt this new structure (causal asymmetry). The findings enhance understanding of how theoretical frameworks like agency theory and resource dependence theory apply to post-IPO governance changes, bridging entrepreneurship and corporate governance literature. Additionally, by focusing on each firm's "internationalization strategy" and the adoption of a "quasi-U.S.-style audit committee model," a typology consisting of four quadrants for evaluating this transformation was developed.

Keywords: Entrepreneurship, Corporate Governance, Japan, Venture, Fuzzy-Set Qualitative Comparative Analysis

Introduction

Dynamics of Corporate Governance on Post-IPO Venture Firms

There are several definitions of a venture firm. A new venture is generally an entrepreneurial firm that begins with a business idea, aiming to market products or services derived from that idea (Bhave, 1994). Additionally, a venture firm can be defined as a new organization established to exploit a repeatable and scalable business model, playing a key role in generating wealth, employment, industries, innovation and growth (Hemmert et al., 2022). When external funding is needed, venture firms are supported by angel investors and venture capitals (VCs). The primary research domain concerning the evolution of venture firms' corporate governance (CG) commenced in the mid-2000s, with examining threshold firms over the corporate lifecycle and presenting a conceptual framework (Filatotchev et al., 2006; Zahra & Filatotchev, 2004). For venture firms situated at the strategic threshold within the corporate lifecycle (Filatotchev et al., 2006), namely those traversing the pre- and post-IPO phases, it is imperative to acknowledge that these junctures necessitate substantive and discontinuous qualitative transformations in response to the burgeoning multitude of stakeholders. Consequently, the imperative for enhancement in CG becomes evident.

Most CG research thus far has focused on large publicly traded companies, necessitating a fresh research perspective for entrepreneurial firms (Bellavitis et al., 2023; Garg & Furr, 2017). While some CG researchers have explored venture firms at pre- and post-IPO thresholds within their research purview, they remain largely untapped and unexplored territory for researchers.

Turning our focus to Japan's venture economy, it is apparent that despite lagging behind Western countries, venture firms have been increasingly emphasized as drivers of innovation in recent years, and there is a strong demand for the expansion of their presence in the ecosystem. For example, as reported in

the Financial Times, Prime Minister Kishida is making efforts to awaken the “animal spirit” in Japan’s start-up scene (Financial Times, 2022). In November 2022, the Japanese government announced a five-year plan as part of its growth strategy, prioritizing the nurturing of start-up companies and presenting various support measures tailored to the lifecycles of enterprises (Cabinet Secretariat, 2022).

For venture firms to achieve sustainable and enduring growth, it is imperative that they establish and implement autonomous governance mechanisms that do not rely solely on government support. These mechanisms should strike an appropriate balance between growth and risk management while ensuring accountability to stakeholders. However, several challenges and peculiarities exist in establishing CG among listed venture firms in Japan.

First, it is essential to examine the historical context of CG in Japan. A central issue in Japanese CG is the role and positioning of independent outside directors on boards of directors. CG, primarily centered around independent outside directors, fundamentally constitutes a mechanism of regulation imposed by shareholders and other stakeholders on management, designed to ensure that management fulfills its role as a manager (Japan Association of Corporate Directors, 2023). However, CG has been viewed as a formality in Japan, and its original purpose of disciplining management has been subordinated. The management board structure has historically been used in many Japanese firms, with most board members being senior executive directors who are company insiders; outside directors are rare (Bradley et al., 1999). In fact, Japanese business federations such as Keidanren have historically opposed the legislation of corporate laws or Tokyo Stock Exchange (TSE) listing rules that mandate outside directors. At the pre-IPO stage, boards often comprise outside directors dispatched by investors, such as VC firms that exercise equity governance. However, these VC-dispatched outside directors resign before and after the IPO, resulting in a post-listing hollowing-out of governance in venture firms. In such a context, companies seeking to list on the TSE have prioritized meeting the formal requirement of appointing at least one

independent outside director or outside corporate auditor, as mandated by listing rules, rather than emphasizing the fulfillment of effective governance practices. In Japan, where even the appointment of independent outside directors has been a central issue in the business community, the adoption of a monitoring board where independent outside directors play a central role in overseeing management execution represents a revolutionary qualitative change for listed companies.

Second, it is crucial to consider the positioning of the CG Code (Tokyo Stock Exchange, 2015). The CG Code, a soft law, was applied to public companies in June 2015 to promote separation between management oversight and execution. However, the CG Code was designed primarily for large public companies, making direct application a significant burden for venture firms. The CG Code does not readily serve as a guideline for venture firms in constructing their CG mechanisms, thereby necessitating individual consideration by venture firms to establish their own CG frameworks.

Furthermore, a unique aspect of Japan's economic landscape emerges when discussing its impact on CG. The aging of managers experienced in business execution in large companies and the small number of large firms whose main business focuses on the Internet and information technology have created a shortage of suitable independent and non-executive outside directors for young technology venture firms. Additionally, Japanese venture firms are listed more easily on emerging stock markets than on other overseas markets. These venture firms are considered equivalent to venture firms supported by VCs at the unlisted stage in the US, or the so-called "series B/C" phase. Compared with other developed countries such as the US, Japan is unique in that venture firms are smaller and less mature, go public, and need to implement CG as listed firms.

Research Agenda

Regarding emerging stock markets, the TSE Mothers Market has historically had the largest presence as a market aimed at emerging companies, primarily venture firms (note that from 2022 onwards, the TSE Growth Market effectively succeeded the TSE Mothers Market because of market reform by the TSE). A management board structure was adopted for almost all venture firms newly listed on the TSE Mothers Market; thus, at the time of listing, most had only established CG at the level required by the listing criteria (that is, securing at least one independent director or corporate auditor). However, as we discuss later in this study, several years after listing, approximately half of the newly listed venture firms adopt a CG structure with a monitoring board, where independent outside directors comprise a significant proportion of the board and/or advisory committees are established to nominate directors and management.

The background for listed venture firms to establish CG centered on independent outside directors is not only to strengthen the supervisory function, but also to secure management resources such as know-how and networks of outside directors in response to changes in the business environment surrounding relevant firms, changes in management strategies, and explicit or implicit requests or pressures from stakeholders. However, the specific conditions and contexts under which CG qualitatively changes remain unclear.

Given this background, this study focuses on the CG of newly listed venture firms in emerging markets among pre- and pos-IPO threshold companies. As described later in this study, we present the research question: “What factors contribute to the qualitative transformation of CG structures, specifically the establishment of a monitoring board centered around independent outside directors, in Japanese venture firms newly listed on the stock exchange?” We begin by organizing prior research on CG in listed venture firms, delineating the role of independent outside directors, and conducting a theoretical examination of the factors contributing to the qualitative transformation of CG structures. Subsequently, a theoretical model is proposed. We then employ Fuzzy-Set Qualitative Comparative Analysis (fsQCA) to empirically

elucidate the combinations of factors that lead to the enhancement of CG in publicly traded venture companies. Finally, we discuss our findings and offer implications for CG research on entrepreneurial firms.

Literature Review and Theories

Research on the Changes of CG in Venture Firms

Zahra and Filatotchev (2004) addressed the role and dynamics of CG in young entrepreneurial threshold firms transitioning from early corporate existence to professional management. Filatotchev et al. (2006) applied a biological analogy to CG change in firms and presented a conceptual framework for board changes over the lifecycle from inception to IPO, maturity, and eventually decline.

Filatotchev et al. (2006) find that in the start-up phase, the role of governance in providing resources, especially those pertaining to knowledge, becomes important for increasing strategic flexibility and ensuring a firm's long-term focus on growth and survival. Transitioning to a young listed company following an IPO, changes in ownership structure, and the increasing importance of external stakeholders require greater accountability from management, as indicated by agency theory, and the monitoring function of governance becomes more critical. Depending on the corporate lifecycle stage, management and outside investors must find the right balance among the multiple CG functions. Garg and Furr (2017) conclude that very little research is available on board structure changes and operational processes during major firm transitions as unlisted venture firms transform into listed companies through IPOs.

As a company moves to a new stage following an IPO, its stakeholders increase, and the resources needed to manage the company change; thus, CG should be tailored to the company's stage. Agency

theory provides a sound theoretical mechanism for independent outside directors to monitor corporate management independently (Eisenhardt, 1989; Jensen & Meckling, 1976). However, skepticism exists regarding the function of outside directors in management itself. For example, Bhagat and Black (2002) find no correlation between board independence and firm performance.

In venture firms, the acquisition of management resources is often a more strategic issue for the board of directors than deterring dishonest acts by the CEO, hence the perspective of resource dependence is more emphasized in prior research on venture governance, maintaining a balance (Garg & Furr, 2017). Resource dependence theory (Hillman et al., 2009; Pfeffer & Salancik, 1978) provides insight into the significance of how firms connect with important economic resources through independent outside directors. The role of directors in providing resources includes offering strategic advice (Stiles, 2001), providing legitimacy (McHugh & Perrault, 2018), and working with outside organizations (Golden & Zajac, 2001). The characteristics of top management from diverse backgrounds contribute to management strategy selection and performance (for example, Hambrick, 2007; Hambrick & Mason, 1984), and corporate decision-makers' attention defines corporate behavior (Ocasio, 1997). Thus, outside directors play an important role, because they complement management and bring new knowledge and value to companies.

The bundle perspective suggests that the governance mechanisms and structures of a corporation should not be understood as single elements, but rather as combinations (bundles) of mutually related elements. From this perspective, it is believed that various factors such as board composition, shareholder rights, compensation systems, and internal control systems interact with each other to impact corporate outcomes. Rediker and Seth (1995) investigated the substitution effects between the monitoring function of independent directors and other internal governance mechanisms (such as monitoring by major shareholders, mutual monitoring by executive directors within the company, and incentive effects from

management's stock ownership), showing that strengthening one governance mechanism can reduce the necessity for others. Aguilera et al. (2008) compared CG systems in different countries, demonstrating that each system is shaped by adapting to specific economic and institutional contexts. This suggests that CG does not follow a single best practice, but can achieve effectiveness through different paths and non-linear trajectories. García-Castro et al. (2013) showed that there are multiple CG bundles leading to high corporate performance, and multiple CG practices can be complementary or substitutive. For venture firms just after an IPO, where the corporate phase changes discontinuously and stakeholders increase, it is presumed that the optimal CG is constructed based on the legal systems and customs of each country where the firm is listed and operates, tailored to each company's management environment and strategic direction.

However, within the context of Japanese management, appointing outside directors to the board goes against the historical CG arrangement (that is, a management board structure centered on internal executive directors). The insider orientation of Japanese CG is well-known (Bradley et al., 1999), and the founders and CEOs of small- and medium-sized companies are often reluctant to relinquish control of the companies they establish and appoint active outside directors (Bagley & Dauchy, 2008). Little is known about what motivates venture firms listed on the stock markets to appoint outside directors and change their CG after listing.

Institutional Factors of CG Changes

Institutional Theory provides a foundational framework in the study of CG, examining how corporate behaviors and practices are shaped by both formal and informal institutions (Meyer & Rowan, 1977). This theory underscores the operation of companies within a broad societal context that includes social,

cultural, and regulatory dimensions (Aguilera & Jackson, 2010; DiMaggio & Powell, 1983), which in turn influence the structures and practices of corporate governance.

In the context of corporate governance practices in Japan, formal institutions encompass the Companies Act and the listing rules of stock exchanges, which specifically mandate the appointment of outside directors. Effective March 1, 2021, the revised Companies Act requires companies with legal committees and certain listed companies to have external directors (Articles 2 of 399, 6 of 331, 1-3 of 400, and 2 of 327 of the Companies Act). Moreover, the Corporate Governance Code (CG Code), implemented in 2015 and subsequently revised, states that companies listed on the Tokyo Stock Exchange Mothers or Growth Markets should appoint at least two independent outside directors (Principles 4–8), while companies on the First Section or Prime Market are subject to all the principles of the CG Code, thus necessitating the appointment of at least one-third of the board as independent outside directors (Principles 4–8) and the establishment of a nominating and remuneration committee if independent directors do not constitute the majority of the board (Supplementary Principle 4–10(i)). The CG Code does not necessarily require listed companies to appoint a certain number or ratio of independent outside directors, and under the “comply-or-explain” approach, companies do not have to implement this principle if they can provide an adequate explanation.

Furthermore, informal institutions might include the prevalence of management strategies and organizational designs adopted by venture firms that achieve high corporate valuations and reputations. The culture and trends within the community of venture business managers and investors can influence the CG design of companies seeking legitimacy (Meyer & Rowan, 1977), potentially leading to a process of isomorphism (DiMaggio & Powell, 1983).

Research Gap on the Optimal CG Configuration in Venture Firms

Adams and Ferreira (2007) studied the optimal composition of boards of directors. They theoretically analyzed the trade-off between the monitoring and advisory functions of outside directors, demonstrating that a board comprised of outside directors who are friendly to the CEO would be optimal. Miyajima and Ogawa (2012) empirically verified that managers choose board composition to maximize their own gains and found that firms choose the optimal board composition depending on the complexity of the business, the need for monitoring, and management's bargaining power. Furthermore, they reported that firms facing intense capital market pressure are more likely to appoint outside directors when their performance deteriorates and, to a greater extent, choose a rational board composition in response to firm characteristics. However, research on the CG changes in post-IPO venture firms is insufficient. According to agency theory and resource dependency theory, the background for establishing advanced CG in listed venture firms can be that an increased number of stakeholders, due to growth after listing and particularities of the business environment, require outside directors who are capable of monitoring management and have a wealth of management experience and networks. However, no concrete implications were obtained regarding the factors involved, and factors that have not been previously investigated may be important.

Most extant CG research has focused on large publicly traded companies, necessitating a fresh research perspective for entrepreneurial firms (Bellavitis et al., 2023; Garg & Furr, 2017). CG research of pre- and post-IPO venture firms remains largely untapped and unexplored territory for researchers. Furthermore, Garg and Furr (2017), who conducted a narrative review of existing studies on venture boards, posited that deeper exploration into the composition and structure of boards in venture firms presents a promising research direction, and advocated for the expansion of research subjects beyond the U.S. to regions where major venture hubs are emerging, specifically highlighting China, India, the UK, and Israel as beneficial areas for study. In Japan, recent efforts by the government and business community to bolster startup

cultivation align with the context set by Garg and Furr (2017).

Newly listed companies, driven by external factors such as stock exchange listing criteria and societal and regulatory pressures, evidently undergo some level of “formal” CG changes, meeting at least the minimum standards required by regulations. In their systematic review of CG research on IPO threshold firms, Mori and Yamada (2023) posit that among venture firms listed in Japan, there exist companies that voluntarily implement more advanced CG practices beyond what is legally mandated. They note that substantial CG evolution tends to occur when independent outside directors meet competency criteria and certain quantitative requirements and make independent decisions in their decision-making processes, separate from the management team. This shift from a traditional management board to a monitoring board represents a qualitative change in CG and is a typical example of “implementing a more advanced level of CG than required by regulations”. Specifically, a monitoring board structure might involve appointing a majority of independent outside directors who are well-regarded executives in the industry, or establishing a discretionary nomination committee centered around independent outside directors, which serves as a significant advisory body to the board on nominations, thereby transferring significant portions of supervisory authority and director/executive officer nomination rights from the management team to outside directors. Under a monitoring board, the monitoring of management is intensified, and there is a heightened emphasis on acquiring valuable management resources and legitimacy through competent outside directors. Mori and Yamada (2023) proposed exploring the causal conditions for substantial CG evolution in publicly traded venture firms as a future research agenda.

Considering the above, we established the following research question:

“What factors contribute to the qualitative transformation of CG structures, specifically the establishment of a monitoring board centered around independent outside directors, in Japanese

venture firms newly listed on the stock exchange?”

In this research, the qualitative transformation of CG structures is defined as “the establishment of a monitoring-oriented governance centered around independent outside directors” (hereafter “IDG-ization,” from the acronym for “Independent Directors’ Governance”) in listed venture companies. Specifically, a firm’s CG is IDG-ized if one of the following conditions applies:

1. Independent outside directors comprise the majority (> 50%) of board members. Outside directors who are non-executive directors but are not reported as independent outside directors in each company’s CG report are not included in the definition of independent outside directors.
2. A minimum of one-third of a company’s board is independent of outside directors, and a nominating committee for directors and management is established. The committee’s name and legal form are irrelevant as long as they are reported as an organization equivalent to a nominating committee in the company’s CG report.

Theoretical Factors Assumed to Drive IDG-ization

In this section, considering the changing business environment faced by listed venture firms, we theoretically present specific factors believed to be included in the causal condition analysis of IDG-ization. These factors are considered from the perspectives of agency theory, resource dependency, and relevant regulatory frameworks. We then discuss the theoretical reasons and legal interpretations for their inclusion and how they are expected to affect IDG-ization.

Market capitalization (agency theory, resource dependency theory). The market capitalization level is generally proportional to the performance and growth potential of a venture firm, increasing the number of stakeholders, and is a proxy variable for a venture firm’s size and phase. IDG-ization is expected as a

firm's phase progresses because of factors such as inexperienced managers being supplemented by experienced outside directors (Kor & Misangyi, 2008) or legitimacy being required (McHugh & Perrault, 2018).

Well-capitalized (resource dependency theory). Appointing several highly qualified outside directors incurs additional personnel costs compared to whether a management board is in place (Goh & Gupta, 2016), as well as operating and maintenance costs for board operations. To bear such costs, a company must be well capitalized, either by posting sufficient profits or by having already secured funding. Therefore, the more capitalized a company is, the more likely it is to be IDG-ized.

Founding CEO (resource dependency, stewardship theory). Founding CEOs of venture firms often hold significant ownership stakes in their companies, and the increase in corporate value aligns with their personal economic success. Simultaneously, founding CEOs may feel that the company they started is "their venture" or "their baby" (Arthurs & Busenitz, 2003), leading to a psychological integration that extends beyond actual ownership. Appointing multiple competent outside directors to the board of a venture firm can be beneficial for founding CEOs as it not only secures scarce human resources but also enhances the legitimacy and value of the company. Additionally, founder CEOs may exhibit behaviors aligned with stewardship theory (Walters et al., 2010), potentially making them key actors in driving changes in corporate governance.

Furthermore, the qualitative transformation of the CG structure involves a power shift that transfers management's vested authority for nominating and setting remuneration to independent outside directors, which requires organizational and strategic decision-making and significant political power. In publicly

traded venture firms, after the VC investors exit, the founding CEO with the greatest influence (Daily & Johnson, 1997) is considered to be in charge of such strategic organizational decisions. Therefore, IDG-ization is expected in firms with intact founding CEOs.

Internationalization (resource dependency theory). Japan has the world's third-largest economic scale (GDP) and a sizable domestic market. Consequently, many venture firms operate primarily within Japan, and achieving a certain level of internationalization in their operations is considered a distinctive undertaking. The board's human capital is a valuable resource for a firm, and its breadth of knowledge, experience, and social connections provides opportunities to deviate from past strategies and industry norms (Haynes & Hillman, 2010). When venture firms internationalize their businesses with large foreign investments and large-scale overseas operations, board members and management need to have the experience and capabilities to manage a global company and expand overseas (Barroso et al., 2011; Chen, 2011), which may lead to the appointment of new outside directors with extensive international experience. Therefore, IDG-ization is expected in companies that have adopted internationalization as their corporate strategy.

Company with an audit and supervisory committee ("CASC") as its institutional design (agency theory, institutional theory, laws and regulations). Under the Companies Act, three types of institutional designs are permitted for listed companies. The first is a Company with a Board of Auditors, a historical system under the Companies Act of Japan. The second is a Company with a Nominating Committee that clearly separates management oversight and execution and is assumed to apply to large listed companies. The third is the CASC, which is an "intermediate institutional design" between the other two (Toyama &

Sawa, 2015). Among these, even listed venture firms rarely adopt a Company with a Nominating Committee design because of its heavy practical burden.

CASC is adopted as an institutional design to demonstrate the monitoring model's effectiveness by separating the functions of management supervision and audit from those of execution (Abe, 2022). Additionally, in CACS, there is the advantage of transitioning former corporate auditors to the role of outside directors, allowing for a reduction in the total number of directors and corporate auditors. This aligns well with venture firms seeking efficient governance operations. Therefore, it is anticipated that the adoption of a CASC institutional design will facilitate IDG-ization in venture firms.

VC-backed (resource dependency theory). Once a management team presents its growth prospects to the VC and the firm's competitive advantage is evaluated through due diligence, the VC provides funding and support to the firm (Fried & Hisrich, 1994). Firms backed by VCs with good reputations perform well after going public (Krishnan et al., 2011). IDG-ization is expected to occur because VC-backed venture firms seek to embrace higher-level management practices for sustainable growth after listing to obtain the advisory function of independent outside directors.

Pressure from capital markets (agency theory, institutional theory, laws and regulations). Capital market demand is a major source of pressure for board reforms in Japan. Since the CG and Stewardship Codes came into effect in 2015, listed companies subject to the requirements of both have been urged to increase their number of independent outside directors. Foreign institutional investors are pushing for greater board independence (Desender et al., 2016), and the pressure for IDG-ization is expected to increase when institutional ownership is substantial. In addition, when venture firms listed on the TSE

Mothers Market change to the TSE Prime Market, the CG Code is fully applied, which is expected to increase the pressure related to the expansion of independent outside directors and promote IDG-ization. Furthermore, if management engages in accounting fraud, CG could be absent, and shareholders will press for objective monitoring, which is expected to lead to IDG-ization (that is, the formation of a board of directors centered on independent outside directors).

The causal conditions mentioned above, believed to trigger IDG-ization, considering the perspective of bundles in CG (Aguilera et al., 2008; García-Castro et al., 2013; Rediker & Seth, 1995), suggest that not only individual factors but also their configurations are crucial. Furthermore, the weighting of these elements in the configurations that lead to IDG-ization may vary depending on the company's strategies and external business environment. Therefore, it is conceivable that multiple causal configurations may lead to these outcomes. Figure 1 illustrates a conceptual theoretical model of these potential conditions and their relationship to IDG-ization.

Figure 1 goes about here

Methodology and Analysis

Data

Venture firms, unlike traditional large publicly traded companies, require unique governance structures. This study explores the configurations of causal conditions under which newly listed companies in the stock exchange market for Japanese venture firms adopt different governance bundles. Given that "Japanese" and "newly listed venture firms" form a single cluster, no further segmentation within this cluster will be conducted in this research.

We collected data from 156 companies continuously listed on the TSE, excluding one foreign company and nine companies delisted, as of October 10, 2022 (the reference date for data acquisition). These 156 companies were selected from the 166 companies listed on the TSE Mothers Market from 2016 to 2018. The TSE Mothers Market was chosen for this study because of its relevance as a stock market for venture firms with high growth potential. To ensure uniformity in the governing laws, only Japanese companies listed on the TSE Mothers Market were included.

We initiated the data collection in 2016, considering it the starting year, as the introduction of the CG Code in 2015 marked a paradigm shift in CG regulations in Japan. Furthermore, recognizing that the advancement of CG typically requires a certain timeframe after listing, we included companies listed by the end of 2018. This ensured that they had at least 3.75 years of listing experience by the reference date of October 10, 2022, which served as the time point for data collection. To maintain reliability and reproducibility, our dataset was constructed solely on publicly available data.

Research Methods

Overview of fsQCA. In this study, instead of statistically verifying through regression analysis, we employ an inductive approach using fsQCA to explore combinations of causal conditions that lead to changes in CG and the adoption of different governance bundles. Cucari (2019), who conducted a systematic review of CG research using Qualitative Comparative Analysis (QCA), noted a rapid increase in the adoption of QCA-based research methods in governance research since 2013, with fsQCA and its variations being the most widely utilized methods. This approach allows the explicit identification of alternative combinations (configurations) of multiple factors that lead to a particular outcome without assuming additivity. We followed recent standard analytical procedures (Fiss, 2011; Ragin, 2008;

Schneider & Wagemann, 2012; Tamura, 2015) and conducted our analysis using fsQCA software version 3.0.

fsQCA is a method that can handle causal complexity, which is difficult to deal with in statistical analysis because it does not assume additivity, permanent causality, causal uniformity, or causal symmetry, which are assumed by ordinary statistical analysis (Yokoyama, 2017). Even when there are complex relationships among conditions, the method is suitable for case-based research in management studies because it can elucidate what configuration of conditions produces the results (Tamura, 2015). The characteristics of fsQCA include equifinality, conjunctural causation, and causal asymmetry. Equifinality means that different configurations of causal conditions lead to a similar result. Since it does not assume additivity and permanent causality, it can broadly address the configuration of different causal conditions that produce a particular outcome. Conjunctural causation means that a particular condition cannot produce an outcome on its own, but can produce an outcome in configuration with other conditions. In addition, causal asymmetry means that the causal conditions that produce a certain outcome and those that do not produce that outcome are different.

All of the above characteristics are naturally presumed phenomena in the real world of management, and since this study deals with the management phenomenon of CG changes, we believe that it is appropriate to employ the fsQCA methodology to elucidate the process of IDG-ization.

Calibration. In fsQCA, to determine the degree to which a particular condition and outcome are attributable to a fuzzy set, the variables and data must be calibrated such that the degree of attribution (membership score) of the variable falls between zero and one (Fiss, 2011). When the membership score is 0, the data are in a state of full non-membership of the fuzzy set, and when it is 1, the data are in a state

of full membership. A threshold of 0.5 is inappropriate because it implies a state of no information that cannot be attributed or is unattributed (Tamura, 2015). Therefore, we performed calibration using either a binary fuzzy set membership score (0, 1) or a four-value fuzzy set membership score (0, 0.33, 0.67, or 1).

The following criteria were used to calibrate the outcomes and causal conditions:

1. IDG-ization: We verified the ratio of independent outside directors and the presence of a nominating committee as of the reference date. We awarded a score of 1 to companies with IDG-ized boards and a score of 0 to companies not IDG-ized as of the reference date.

Of the sample companies, 47.4% became IDG-ized as of the reference date. In addition, we should note that only 4 out of 156 companies adopted IDG-ization at the time of the IPO, indicating that almost all companies in Japan's emerging stock markets employed a management board at the time of the IPO, and IDG-ization was implemented afterwards.

2. Market capitalization: We used the TSE Growth Market Cap ranking (corresponding to the former TSE Mothers Market) of the reference date. Fuzzy set scores: 1 for the top 10% (\geq JPY 28.8B or USD 195M at the reference date's exchange rate), 0.67 for the 75th percentile (\geq JPY 13.6B or USD 92M), 0.33 for the 50th percentile (\geq JPY 5.8B or USD 39M), and 0 below JPY 5.8B.
3. Well-capitalized: We calibrated this item using two subconditions: annual net income and accumulated fundraising since the IPO. Net income had three levels: <0 yen, 0–1 billion yen (USD 7 million), and ≥ 1 billion yen. Accumulated fundraising had three levels: <1 billion yen, 1–5 billion yen (USD 34 million), and ≥ 5 billion yen. Firms with ≥ 5 billion yen in fundraising or ≥ 1 billion yen in net income got a score of 1. Firms with a net income of <0 yen and fundraising of <1 billion yen received a score of 0. Firms with a net income >0 and <1 billion yen and fundraising of 1–5 billion yen received a score of 0.67; otherwise, they received 0.33.
4. Founding CEO: We awarded a score of 1 if the incumbent CEO was a founding group member and 0

otherwise.

5. Internationalization: We awarded a score of 0 to companies that had not internationalized at all, 0.33 to companies that had established overseas branches or subsidiaries or were engaged in certain sales or development activities overseas, 0.67 to companies that invested or loaned over 1 billion yen overseas, and 1 to companies that invested or loaned over 5 billion yen overseas or whose overseas sales accounted for over 10% of their total consolidated revenue.
6. CASC: We assigned a score of 1 for CASC and 0 for institutional design, using the Company with a Board of Company Auditors.
7. VC-backed: A score of 1 was awarded to companies in which VCs were shareholders at the time of the IPO; otherwise, a score of 0 was awarded.
8. Pressure from the Capital Market: In this study, “capital market pressure” refers to an external business environment with demand for IDG-ization originating from the capital market. It is calibrated using three subconditions: institutional investor ownership, the listing market, and financial misconduct. Institutional ownership exceeding 50% was assigned a value of 1; ownership exceeding 33.3% for special resolutions was 0.67; ownership exceeding 10% for dissolution claims was 0.33; and ownership below 10% was 0. However, when listed on the TSE Prime Market or in cases of financial misconduct, a value of 1 is assigned, regardless of institutional ownership.

Descriptive statistics and correlation coefficients for these variables are presented in Table 1.

Table 1 goes about here

Results

Necessary Condition Analysis

A necessary condition is one without which no outcome would occur (that is, a condition shared by all conditional patterns that lead to an outcome). For requirements that establish a specific causal condition or configuration as a necessary condition, most studies set the consistency threshold at 0.9 (Ragin, 2006; Schneider & Wagemann, 2012). In this study, the consistency did not exceed 0.9 for any causal conditions; therefore, there is no necessary condition for IDG-ization to occur.

Sufficient Conditions Analysis

Overall discussion of sufficient conditions analysis. Next, we analyzed the conditions that led to IDG-ization. To create a complete truth table using the truth table algorithm, thresholds must be set for consistency and the minimum number of cases. For consistency, previous studies often recommended a threshold of 0.75–0.8 (Fiss, 2011; Ragin, 2008; Tamura, 2015). Although there are no clear criteria for the “frequency threshold,” prior literature recommends setting it at 3 or higher when the number of cases exceeds 150 (Fiss, 2011; Pappas & Woodside, 2021). Therefore, we set the consistency and frequency thresholds at 0.8 and 3, respectively, and created a complete truth table. This table was subsequently employed to derive solutions through standard analysis (Table 2).

A parsimonious solution contains the fewest causal conditions and operators and has the lowest complexity. An intermediate solution is derived using only those causal conditions, or “easy counterfactuals,” that allow directional expectations among the many simplifying assumptions used in the parsimonious solution. Therefore, an intermediate solution is a subset of the parsimonious solutions (Tamura, 2015). Causal conditions included in both parsimonious and intermediate solutions are referred to as core conditions, whereas those that are not present in parsimonious solutions but only in intermediate

solutions are referred to as peripheral conditions (Fiss, 2011). The solution configurations used in this study are summarized in Table 2, according to Fiss (2011). Black circles (“●”) indicate the presence of a condition, and crossed-out circles (“⊗”) indicate its absence. The large and small circles indicate the core and peripheral conditions, respectively. Blank spaces in a solution indicate that IDG-ization is unrelated to the presence or absence of a causal condition.

Table 2 goes about here

Solutions for the presence of IDG-ization. We derived three solutions (patterns) for the causal pathway leading to IDG-ization by analyzing the presence of IDG-ization as the objective target variable. In truth table analysis, consistency represents the proportion of cases in which identical conditions yield the same outcome without contradictions, whereas coverage measures the extent to which a particular configuration of causal conditions accounts for the outcome. The analysis in this study resulted in a solution consistency of 0.77, surpassing the threshold of 0.75 recommended in previous studies (Pappas & Woodside, 2021; Ragin, 2006). The raw coverage for the three solutions was 0.12, 0.09, and 0.07, with an overall solution coverage of 0.23. Consequently, these three solution patterns can explain 23% of IDG-ized firms.

Internationalization is the core condition of the Solution Y1 pattern. The configurations here are large market capitalization, well-capitalized, a founding CEO, backed by VC, and under pressure from the capital market. Six companies fall into this category.

The pattern of Solution Y2 also designates internationalization as a core condition. As in Solution Y1, companies with large market capitalizations, well-capitalized, founding CEOs, and pressure from the capital market are also present. The difference from Solution Y1 is that while VC-backed is a neutral condition, the CASC institutional design is present. Five companies exhibit this pattern.

The pattern of solution Y3 represents a configuration characterized by the absence of a founding CEO, the absence of pressure from the capital market, and the presence of CASC as an institutional design. Five companies fall into this category.

Solution when IDG-ization does not occur. When IDG-ization did not occur, the only causal path derived was solution N1. The solution consistency was 0.92, which was sufficiently high. The solution coverage was 0.35, indicating that IDG-ization did not occur in 35% of cases. In this pattern, market capitalization is small, there is no internationalization, the institutional design does not follow the CASC, and no pressure is exerted by the capital market. The core conditions do not include the CASC design or pressure from the capital market. Twenty companies fall into this category.

Assessing the Robustness of the Solutions

To test for robustness, we examined the results against the choices of consistency and frequency thresholds (Ragin, 2008) as shown in Table 3. As a robustness test, the consistency threshold was validated by varying the threshold from the baseline of 0.8 to higher and lower levels. Changing the threshold to a more stringent level (0.85) did not change the number of solutions, whereas changing it to a less stringent level (0.75) slightly increased the number of solutions without IDG-ization. The frequency threshold was increased or decreased from the baseline value of 3, and tests were conducted at 2 and 4. Relaxing the frequency threshold to two cases slightly increased the number of solutions generated by one but had a limited impact on solution coverage. Increasing the frequency threshold to four cases reduced the number of solutions generated to one when IDG-ization was present, indicating a certain degree of sensitivity to the frequency threshold. However, because this study's sample size was only 156 cases,

which is close to the lower end of the three-case cutoff recommended in prior research (that is, 3 cases when the sample size is 150 or more, Pappas & Woodside, 2021), it is unsurprising that increasing the frequency threshold affects the solution.

Through these checks, we confirmed the overall robustness of the analysis results.

Table 3 goes about here

Discussion

Our analysis reveals multiple possible causal paths for IDG-ization in listed venture firms. This indicates that multiple configurations of causality are sufficient to produce the outcome of IDG-ization, which is an important empirical finding for a theoretical understanding of CG changes in listed venture firms. We also found a causal path for cases without IDG-ization. As is often the case in fsQCA studies, we found that the configurations that lead to IDG-ization are not in contrast to the opposite outcome (that is, the configuration that leads to the absence of IDG-ization).

To advance the theoretical understanding of venture governance, we developed a typology consisting of four quadrants to assess the presence or absence of IDG-ization. This typology is based on the core conditions derived from Table 2, specifically focusing on the “internationalization of the firm” and the “CASC as an institutional design.” The fundamental concept behind the CASC design is the transformation of audit members into directors, which grants them voting rights within the board. This transformation enhances the effectiveness of management oversight and audit processes, similar to the U.S. model. Therefore, in Figure 2, we represent the Y-axis as indicating “Internationalization Strategy,” while the X-axis signifies “Application of a Quasi-U.S.-Style Audit Committee Model.”

Figure 2 goes about here

In the lower-left quadrant (Solution Y1), we find a group of companies represented by leading Japanese publicly listed venture firms, such as Mercari, Inc.; Money Forward, Inc.; and RENOVA, Inc. These three companies introduced innovative business models, such as C2C matching platforms (Mercari), fintech and SaaS (Money Forward), and renewable energy development (RENOVA), which did not exist before the 2000s. They secured substantial funding from VCs during their pre-IPO phase, experienced discontinuous growth post-IPO through mergers and acquisitions, and launched new domestic and international businesses. Consequently, it attracted domestic and international institutional investors and transitioned from the TSE Mothers market to the TSE First Section within a few years. The occurrence of IDG-ization in this group, which aligns with multiple hypotheses outlined in Section 2.4, is theoretically consistent. In this study, we refer to this group as “Innovative Star Venture Firms.”

In the lower-right quadrant (Solution Y2), we find companies such as Chikaranomoto Holdings (IPPUDO Ramen) and Gift Holdings (Machida Shoten Japanese Ramen), which originated in Japan and expanded their food businesses to the United States and Asian regions. Both companies operate conventional business models, nurturing products and brands, steadily generating profits, and funding their business expansion primarily through self-capital. They transitioned from the TSE Mothers Market to the TSE First Section within a few years of their listing. Unlike the Solution Y1 group, they did not rely on funding from VCs. Venture firms with traditional business models may not receive substantial VC investments; however, as they grow, internationalize, and recognize the need for enhanced managerial resources and advanced oversight functions, they undergo IDG-ization. In this study, we refer to this group as the “New Faces of Japanese Seasoned Sectors.”

Interpreting the upper-right quadrant (Solution Y3) was challenging. Although it combines the absence of a founding CEO, the absence of capital market pressure, and the adoption of a CASC institutional design, the other causal conditions—market capitalization and internationalization—are neutral. Thus, the highs and lows of these conditions are mixed in the solution. Moreover, the consistency score in this solution remained at 0.60, indicating a mixture of companies with and without IDG-ized. Theoretically, among these companies, those with low market capitalization, no internationalization, and no pressure from the capital market do not need to become IDG-ized. Therefore, a crucial point that needs to be emphasized in interpreting this result is the high likelihood of companies in this category elevating their nominal corporate governance by formally reassigning outside corporate auditors (often with limited management experience) to the role of outside directors, as indicated by Toyama and Sawa (2015), as a means of meeting numerical requirements for higher board composition. We refer to this group as the “Formal Governance Good Companies.”

Finally, in the upper-left quadrant (Solution N1), we find small-scale publicly listed companies with low market capitalization, no internationalization, and no capital market pressure, which are often referred to as domestically focused small-cap listed companies. The absence of IDG-ization is theoretically expected in such companies, and this empirical study confirms this absence. In this study, we refer to this group as the “Domestically Focused Small-Cap.”

Conclusion and Research Limitations

In response to the research question, “What factors contribute to the qualitative transformation of CG structures, specifically the establishment of a monitoring board centered around independent outside directors, in Japanese venture firms newly listed on the stock exchange?”, the discussions up to the

previous section have revealed that a combination of factors related to the company's strategic situation, organizational structures, and shareholder compositions, mainly derived from agency and resource dependency theories, synergistically contribute to IDG-ization and the adoption of different governance bundles. The contribution of this study lies in constructing a theoretical framework for the changes of CG in Japanese listed venture firms and empirically demonstrating the existence of multiple configurations of causal conditions sufficient to result in IDG-ization. This study provides significant empirical insights into the conceptual framework proposed by Filatotchev et al. (2006), which posits a qualitative transformation in the governance mechanisms of entrepreneurial firms as they cross a critical threshold in their corporate lifecycle, such as an IPO, thereby enriching the literature on entrepreneurship and the CG lifecycle. Furthermore, it sheds light on the coexistence of two groups: companies with substantial CG changes, represented by solutions Y1 and Y2, and companies (solution Y3) that are likely to aim for nominal governance excellence, even in cases where the phenomenon of IDG-ization occurs. This offers a new perspective on CG research for publicly traded venture companies.

Moreover, given the importance of nurturing startups in the growth strategy outlined by the Japanese government and the increasing demand for enhanced CG in listed companies from both the Tokyo Stock Exchange and equity investors, this study makes a significant contribution to the business world. This study has three practical implications.

1. The public and private sectors should develop an environment that matches candidates for independent outside directors with extensive management experience in global business with venture firms planning to internationalize their operations.
2. For leading venture firms expected to sustain business growth and internationalization post-listing, VCs should offer guidance on the significance of advancing CG after listing and serve as a bridge to listed firms' governance before VCs exit, and governance is hollowed out.

3. Stakeholders should monitor whether nominal CG has been introduced in listed venture firms that adopt the CASC institutional design while focusing on domestic business or whether an excessive cost burden has been incurred in establishing a governance structure.

Similar to many other studies, this one has several limitations. First, it focuses on independent outside directors and measures and assesses IDG-ization by aggregating the number of independent outside directors reported in each company's CG reports. Therefore, a detailed examination of the qualifications, capabilities, and management experience of the independent outside directors in the sample companies was not conducted. Additionally, this study does not delve into other CG-related aspects (for example, the participation of the top management team on the board of directors or CEO duality). Future research could consider introducing measures related to the qualifications and capabilities of independent outside directors as well as examining the relationships between independent outside directors and directors belonging to the top management team to further refine the study of CG enhancement.

Second, the analysis conducted using fsQCA in this study merely revealed various configurations of conditions leading to the outcomes. Additional time-series analyses may be beneficial for elucidating the mechanisms of causation. Furthermore, detailed observations and analyses of changes in corporate activities and CG through case studies are necessary. In the future, it is conceivable that conducting multiple qualitative case studies involving the framework presented in Figure 2 and representative listed venture firms will help to qualitatively comprehend the dynamics underlying causality.

Finally, our analysis explains that only a quarter of the companies in the sample underwent IDG-ization. This suggests the existence of other causal conditions that contribute to IDG-ization. Subsequent research requires the development of theories and additional empirical studies to expand on the results of this study.

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Table

Table 1 Descriptive statistics and correlations

	Items	Average	S.D.	Max	Min	Mean	1	2	3	4	5	6	7	8
1	IDG-ization	0.47	0.50	1.00	0.00	0.00	1.00							
2	Market Capitalization (*1)	25,190	67,649	648,066	752	7,502	0.23	1.00						
3	Well-Capitalized	0.53	0.32	1.00	0.00	0.33	0.29	0.38	1.00					
4	Founding CEO	0.75	0.43	1.00	0.00	1.00	-0.01	-0.02	-0.04	1.00				
5	Internationalization	0.26	0.33	1.00	0.00	0.33	0.15	0.18	0.17	0.12	1.00			
6	CASC	0.44	0.50	1.00	0.00	0.00	0.33	-0.14	0.12	-0.06	0.02	1.00		
7	VC-backed	0.47	0.50	1.00	0.00	0.00	-0.03	0.01	0.03	0.07	0.30	0.02	1.00	
8	Market Pressure	0.54	0.41	1.00	0.00	0.33	0.36	0.27	0.42	-0.06	0.10	-0.01	-0.12	1.00

*1 Unit: yen in millions.

Table 2 Configuration of solutions for IDG-ization

Configurations of Solutions				
Causal Configuration	Presence of IDG-ization			No IDG-ization
	Sol. Y1	Sol. Y2	Sol. Y3	Sol. N1
Market Capitalization	●	●		⊗
Well-capitalized	●	●		
Founding CEO	●	●	⊗	
Internationalization	●	●		⊗
Company with Audit & Supervisory Committee		●	●	⊗
VC-backed	●			
Market Pressure	●	●	⊗	⊗
Raw Coverage	0.12	0.09	0.07	0.35
Unique Coverage	0.07	0.04	0.07	0.35
Consistency	0.84	0.88	0.60	0.92
Solution Coverage		0.23		0.35
Solution Consistency		0.77		0.92

** Truth table analysis of sufficient conditions at consistency > 0.8 and frequency = 3 (Intermediate solution).*

Table 3 Robustness test summary

Outcome	Consistency / Frequency Threshold		# of Configurations	Solution Coverage	Solution Consistency	Configuration Differences
Presence of IDG-ization	Baseline	0.8/3	3	0.23	0.77	-
	Changing Consistency Thresholds	0.85/3	3	0.23	0.77	None
		0.75/3	3	0.23	0.77	None
	Changing Frequency Thresholds	0.8/4	1	0.12	0.84	Decrease by half in coverage; increase in consistency; logical subset of the baseline solution
		0.8/2	4	0.27	0.75	Increase in coverage; slight decrease in consistency; one more configuration emerged (~Market Capitalization*Founding CEO*Well-capitalized*VC-backed*CASC)
Absence of IDG-ization	Baseline	0.8/3	1	0.35	0.92	-
		0.85/3	1	0.35	0.92	None
	Changing Consistency Thresholds	0.75/3	2	0.37	0.88	Slight increase in coverage; decrease in consistency; one more configuration emerged (~Market Capitalization*~Well-capitalized*~Internationalization*VC-backed*~CASC)
		0.8/4	1	0.28	0.92	Decrease in coverage; slight increase in consistency; causal conditions is similar to the baseline solution
	Changing Frequency Thresholds	0.8/2	2	0.34	0.93	Slight decrease in coverage; slight increase in consistency; logical superset of the baseline solution; one more configuration emerged (~Market Capitalization*~Market Pressure*~Internationalization*VC-backed*~CASC)

Figure

Figure 1 Conceptual theoretical model of the promotion of IDG-ization and its causal conditions

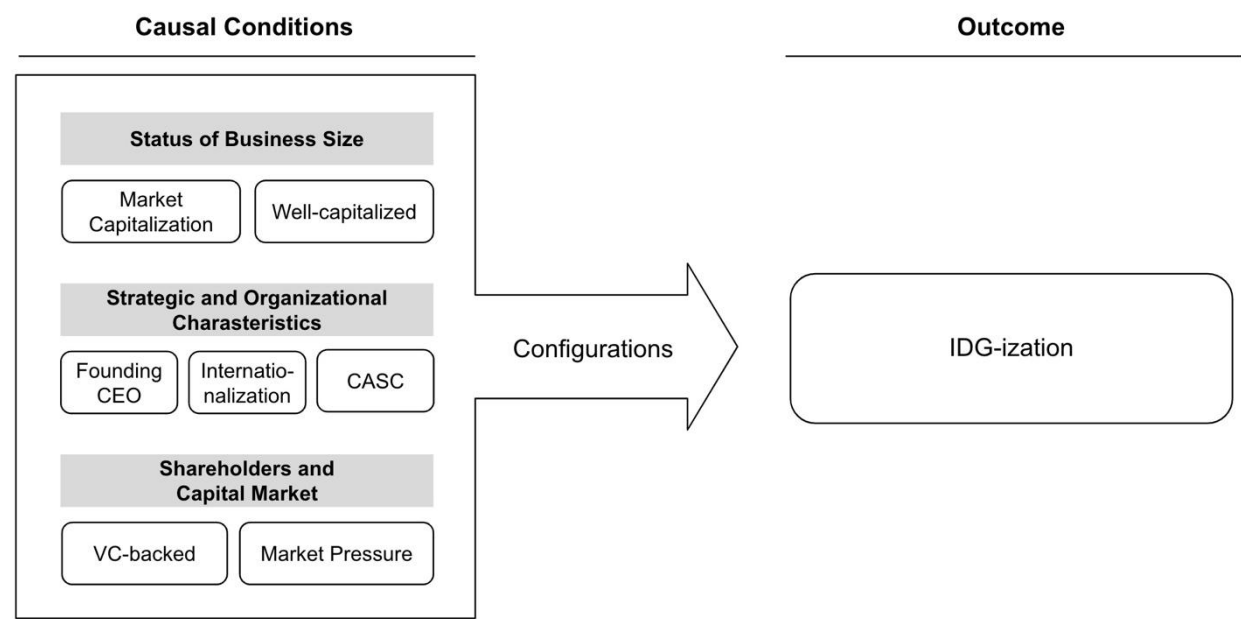
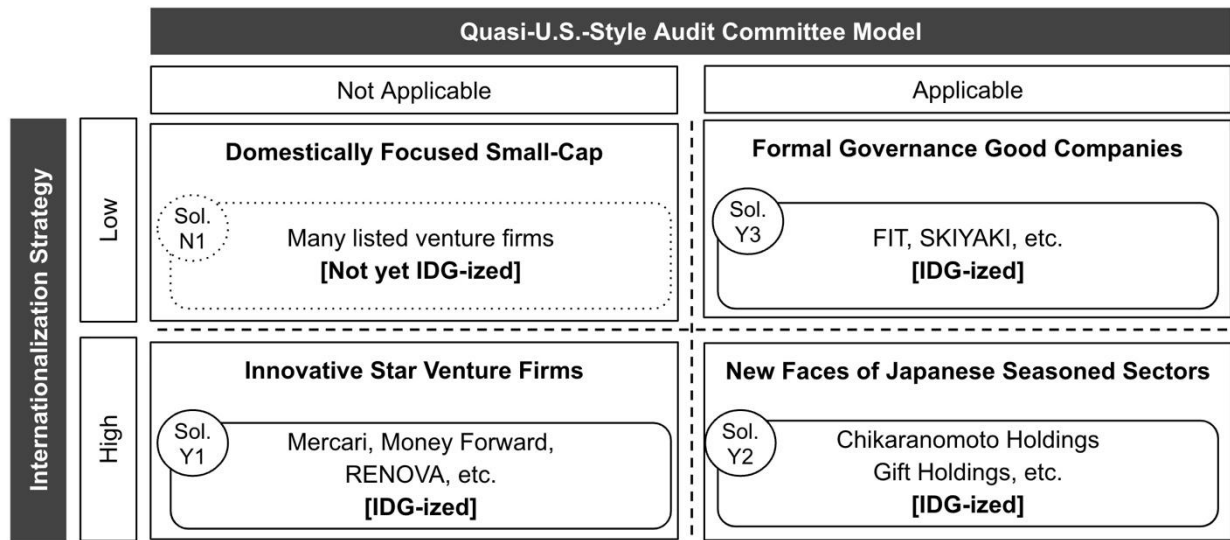


Figure 2 Conceptual framework for the presence or absence of IDG-ization in listed venture firms



Why is external knowledge absorption obstructed in the global R&D process? : A case of Japanese multinationals

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ABSTRACT

In recent years, global scaled innovation has been increasingly spread in the world. To adapt to this trend, multinationals have faced demand of expediting global R&D with utilizing external knowledge across the borders and companies. Considering these changes of circumstances of knowledge management, this study focuses on a case of global R&D of commercial aircraft by a Japanese multinational from the perspective of absorptive capacity. From the interview research to highly skilled professionals who were mainly from Europe and Americas, external knowledge absorption processes in ACAP have two obstructions, 1) knowledge dropping out and 2) knowledge dilution. And these obstructions were mainly observed in the communication between Japanese engineers and foreign aircraft development experts. According to the observation, this study suggests two measures preventing the external knowledge absorption, 1) creating a new role that focused on external knowledge absorption and 2) changing organizational practices to encourage existing employees to utilize external knowledge.

Key words: Knowledge management, Absorptive capacity, Global R&D, Aircraft development, Innovation

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報告応募論文 フェイスシート

Title:

Value chain management and IT system utilization in the era of digital transformation: Case of Japanese manufacturing companies

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Value chain management and IT system utilization in the era of digital transformation: Case of Japanese manufacturing companies

Abstract: This study investigates the challenges global manufacturing firms face in a turbulent market. Natural disasters, trade tensions, and a declining workforce impact sustainability and supply chains. COVID-19 further disrupted supply chains, emphasizing the need for digitalization to enhance manufacturing sustainability. Our study focuses on Japanese firms transitioning from hardware-centric to software/service-based models to optimize value chains. We explore how digital technologies improve value creation flow, highlighting the importance of aligning business strategies, IT systems, and organizational capabilities. Our study reveals how Japanese companies leverage digital technologies to improve operations within factories and supply chains. The impact of COVID-19 on logistics underscores the importance of resilient supply chains driven by digital technologies. The study identifies strategic shifts toward service-oriented businesses, emphasizing the difficulty of transitioning from goods-centric models. It highlights the necessity of utilizing IT systems for intra- and cross-functional integration and challenges in real-time and global information sharing and coordination among subsystems. The paper suggests the need to move from local to total optimization and addresses the complexities of aligning strategies, capabilities, and IT systems. Proposing an analytical framework, the study aims to link digital transformation strategy, IT system utilization, and value chain integration to performance.

Keywords: Competitive strategy; Digital transformation; Supply chain management, IT system; Japanese factories

Introduction

The recent market environment surrounding global manufacturing firms is increasingly turbulent and challenging. Dynamic environmental factors such as natural disasters, international trade tensions, fierce competition with firms from emerging economies, increasing product complexity, and declining working populations significantly impact the sustainability of manufacturing and global supply chains. More recently, the spread of COVID-19 caused global supply chain disruptions (e.g., semiconductor shortages and logistics stagnation). In some countries and regions, including Japan, as the birthrate is declining and the population is aging, the long-term trend is for the number of workers supporting factories and supply chains to decline. In these situations, continuing production activities and supply chain operations that rely heavily on manual labor while increasing productivity will be challenging.

To prepare for and adapt to these challenges, the successful implementation of digitalization of operations is essential for improving the sustainability of manufacturing and global supply chains. As supply chains are stretched far beyond domestic boundaries, visualizing the flow of material and information is crucial for mitigating global supply chain risk. Analyzing business activities focusing on value creation flow through cross-functional interfaces (e.g., new product development, production, purchase, and sales) will help understand these risks and improve the firm's operational performance. The globalization and digitalization of business activities have made the efficiency of supply chain management and company-wide information flow an urgent issue.

Many Japanese manufacturing companies try to respond to these situations and change their "hardware-based" business to "hardware and software/service" business (Digital Transformation, "Servitization"). Some companies are proceeding with an approach to developing and utilizing digital technology that can acquire and use real-time information related to "material and information flow" across the supply chain (SC) and engineering chain (EC). For example, Panasonic developed some business that solves customers' supply chain problems from the perspective of "total optimization" by utilizing "field" optimization knowledge and know-how cultivated through its own manufacturing experience of more than 100 years as well as by forming a strategic partnership with the world's largest supply chain management software company in May 2020¹. In addition to collecting and analyzing intra-

¹ Panasonic website. <https://biz.panasonic.com/jp-ja/gemba-process-innovation> and

factory production status/malfunction information, Daikin Sakai Factory has developed an IT system to link and share overseas base information in real time².

In order to survive in the era of digital transformation, Japanese companies need to utilize the IT system to support the sharing of "design information flow" to leverage the organizational capability of lean manufacturing and supply chain operations. Since the mid-1980s, Japanese manufacturers have served as the benchmark for lean production systems (Holweg, 2007; Shah & Ward, 2003, 2007; Womack et al., 1990), characterized as an organization that efficiently creates a value flow. Japanese companies have tended to demonstrate their competitiveness with products that have a coordination-intensive "integral architecture." Japanese companies have been implementing and operating enterprise IT systems to coordinate various activities related to value creation efficiently. The IT system is a crucial support tool to facilitate digital transformation and utilization of "genba" (field) data and to improve operational performance. The excellence of decision-making about IT system investment greatly influences Japanese firms' manufacturing capabilities and competitive advantage (Fukuzawa et al., 2020, 2022).

Existing studies revealed that operational and financial performance improves as supply chain/cross-functional integration increases (Bozarth et al., 2009; Enz & Lambert, 2015; Flynn et al., 2010; Frankel & Mollenkopf, 2015; Frohlich & Westbrook, 2001; Fukuzawa, 2019, 2020; Swink & Schoenherr, 2015; Thomé & Sousa, 2016; Turkulainen & Ketokivi, 2012; Williams et al., 2013; Zhao et al., 2011). Alignment among business strategy, IT system characteristics, and organizational capability is critical for high performance/outcome (Davenport, 1998; Fujimoto & Park, 2015; Fukuzawa et al., 2022). For firms and industries in today's uncertain industrial world, it is essential to gain sustainable competitive advantages in terms of productivity, lead time, and quality (i.e., the flow's effectiveness) in peacetime while achieving supply chain resilience (i.e., the flow's continuity) in emergencies such as natural/artificial disasters and pandemics (Fujimoto & Ikuine, 2018; Fujimoto & Park, 2014; Hong &

https://biz.panasonic.com/jp-ja/gemba-process-innovation_blueyonder-partnership#news

² Daikin sekai 90 koujyou IoT de musubu de-ta keishiki touitsu seisan setsubi wo hyoujunka [Daikin connects their worldwide 90 factories using IoT, unifies data format, and standardizes their manufacturing equipment] Nikkei Sangyo Shimbun, 2018, October 12 (in Japanese).

Park, 2020).

Although integration and alignment among business strategy, IT systems, and business processes (SC-EC) are essential issues, the accumulation of case studies and empirical analysis of Japanese companies have yet to progress sufficiently. Therefore, this study investigates the digital strategies in Japanese manufacturing firms, the actual status of integration of SC and EC in terms of digital technologies, and the IT system roles for value creation. For this purpose, this paper conducted an exploratory comparative case study analysis (Yin, 2018) focusing on four Japanese manufacturing companies. The cases were collected through interviews with practitioners, workshops, and secondary sources. The research questions are: (1) What is the actual state of digital transformation (DT) strategy and implementation in Japanese companies?; (2) What factors inhibit or make it difficult to achieve alignment with IT systems and SC-EC operations when trying to advance DT?; (3) What are the common (or unique) issues of each company?

Literature review

Studies on the digitalization of operations and supply chains

Concerning the digitalization of operations and SCM and digital transformations (DT), a lot of research has been carried out, and review papers and special issues have been published in academic journals (Buer et al., 2018; Holmström et al., 2019; Koh et al., 2019; Kipper et al., 2020; Liao et al., 2017; Ortt et al., 2020; Osterrieder et al., 2020; Pagliosa et al., 2021; Roscoe et al., 2019; Strozzi et al., 2017; Zheng et al., 2021). These researches suggest that successfully transforming business models based on digital technology is extremely important in considering a company's competitive advantage and strategy.

The focus of the empirical studies on the relationship between the digitalization of production sites and supply chains and lean management are summarized as follows (Fukuzawa et al., 2022). (1) The impact of the introduction of advanced manufacturing technology, enabling technologies for Industry 4.0 (e.g., IoT and MES), and enterprise information systems (ERP) on lean practices and operational performance. The impact of lean implementation on the relationship between advanced technology

adoption and operational performance. (2) The impact of IoT on supply chain management and the servitization of manufacturing firms. (3) Research on performance measurement systems in highly digitalized factories. These studies have provided valuable insights into the validity and effectiveness of performance measurement methods and indicators.

The remaining issues about the digitalization of operations and supply chains study as follows. (1) The actual status of DT strategy, IT system implementation, and SC-EC integration in Japanese companies have yet to be sufficiently investigated. (2) Empirical analysis of digitalization in Japanese companies will have academic and practical contributions. There are relatively few studies on Japanese companies, which can be the origin of lean manufacturing. Empirical research on how digitalization will progress in Japanese manufacturing sites, which have achieved a relatively high level of leanness. (3) Clarify what issues arise when further promoting digitalization in the high-level lean factories and SC-EC operation.

Studies on the IT system that supports and improves the “material and information flow” in the manufacturing firm

The studies about ERP system implementation success/failure have identified factors that contribute to the successful implementation and operation of packaged ERP systems and have focused on strategic factors, tactical factors, relationships with legacy systems, organizational culture, leadership, and implementation project management methods (Al-Mashari et al., 2003; Barker & Frolick, 2003; Barth & Koch, 2019; Dowlatshahi, 2005; Holland & Light, 1999; Hong & Kim, 2002; Loh & Koh, 2004; Powell et al., 2013; Ram & Corkindale, 2014; Vargas & Comuzzi, 2020; Yen & Sheu, 2004; Zhang et al., 2005).

Concerning the alignment of business processes with IT systems, Davenport (1998) suggested that in order to maximize the benefits of packaged ERP software, it is desirable to implement a "full package." However, if the priority is to align the software with the company's competitive advantage and strategy, it is effective to implement only the necessary modules or to customize the software. Morton and Hu (2008) found that the compatibility between organizational structure and ERP system affects the success

or failure of ERP implementation. Somers and Nelson (2003) found that the value of an ERP system will increase if the system (project organization management, degree of business process reengineering, use of IT vendors, etc.) is functioning effectively to match the current organizational state (competitive strategy, production strategy, manufacturing capacity) and the ERP system.

There are some empirical studies on ERP implementation in Japanese Firms. Yoshihara et al. (2003) analyzed the ERP implementation in Japanese firms in the 1990s. They found that the business processes assumed by overseas packaged ERP software are incompatible with Japanese-style management and that introducing packaged ERP into Japanese firms requires some elaboration. Sato et al. (2009a, 2009b) conducted an international and cross-industry questionnaire survey on the relationship between the actual status and utilization of information systems (ERP, CAD, etc.) and factory operational performance to clarify the actual level of integration between existing information systems and ERP. Sato et al. (2009a, 2009b) found that, as of 2002-2004, many functions of existing (proprietary) information systems were still in use.

Fukuzawa et al. (2020) researched IoT/ICT systems utilization in Japanese firms. They found that the actual state of the digitization of the supply chain and the facilitating and inhibiting factors are described. Even though the IoT system improves the flow of information in the supply chain, collaboration and coordination among departments, functions, and enterprises are not always carried out well.

The remaining issues about the IT system study are as follows. When implementing and utilizing IT systems, it is crucial to determine the alignment between the company's organization and strategy (the company's strengths and capabilities, the status of existing business processes, and the policy and orientation) and the characteristics of the IT system (the use of internally developed and packaged software, the functions, departments, and locations where the IT system is used, etc.).

The ideal state of the IT system is shown, but the realization of alignment between the IT system and SC-EC operations needs to be sufficiently investigated.

Limitations of existing studies

In order to successfully promote DT, the critical issue is to ensure integration and alignment between

the new strategy, the company's IT system, and existing organizational capabilities and business processes. However, the accumulation of case studies and empirical analysis on this process has yet to progress sufficiently. Existing research suggests that it is essential to achieve alignment among the three factors: DT strategy, IT systems, and SC-EC operations. However, the difficulties in achieving such alignment have yet to be sufficiently investigated. Therefore, it is necessary to elucidate what difficulties/issues Japanese firms with high operational capability face in advancing DT.

As a result of continuous discussions on our case study's findings through several workshops attended by practitioners and academics, the following comments were suggested as challenges in the digitization and integration of SC and EC in Japanese manufacturing companies. Practitioner's comment: (1) "We need to invest in digital technology; we know its importance, but we are not sure how it will be useful in the end."; (2) "Why has excellence in supply chain management, such as high competence at manufacturing sites and the ability to respond quickly to customers, not led to high profits?". These comments suggest an urgent need for an in-depth analysis of digital technology implementation and strategic changes.

Case study

Methodology

This study conducted an exploratory case study of four Japanese manufacturing companies (Firm A, Firm B, Firm C, and Firm D). An exploratory case study has a legitimate reason when the researchers do not have any propositions, have little or no control over behavioral events, and the research focus is a contemporary phenomenon (Yin, 2018). This type of case study is suitable for fact-finding and theory-building. Four Japanese companies that have global factories were selected based on the following considerations: (1) They are all representative Japanese firms with high brand recognition, advanced manufacturing systems, and global SC-EC operations; (2) They are all multinational enterprises running businesses on a global scale, which means their operations management issues are complex; (3) All the firms are developing broad product portfolios, implying that they have various production demands.

Table 1 presents an overview of the companies. Each company is a large Japanese company representing its respective industry, with a long history, many employees, and many sales.

We conducted semi-structured interviews with the case firms' senior managers responsible for production management, SCM, and information system implementation. Table 2 shows the research focus and items used in these interviews. We obtained responses from each company regarding their digital strategy, IT system development/ implementation, and integration of SC and EC. Interviews (online) were undertaken several times from 2021 to 2023, each lasting one to two hours. All interviews were recorded and transcribed within twenty-four hours, and then the content was checked for correctness by the authors and interviewees. Furthermore, based on the information obtained, several workshops were conducted with the participation of practitioners and academics to confirm, supplement, elaborate, and verify the interview data and our interpretations. In addition, the information was supplemented based on publicly available information from companies and secondary sources.

Table 1 goes about here.

Table 2 goes about here.

Case findings

The case study mainly focused on new business development of the company (e.g., servitization) and IT systems used (e.g., enterprise resource planning, manufacturing execution system, Internet of Things, and other IT systems) that promote the digitization and integration of SC and EC. The cases are summarized from the following four points: (1) Strategic changes (digital transformation, servitization); (2) IT system implementation for intra- and cross-functional integration; (3) Utilization of IT system for

integration of EC and SC; (4) Impact of COVID-19 on global logistics (Table 3). The summary of the case study's findings is as follows.

Table 3 goes about here.

STRATEGIC changes. Each company aims to increase the added value by adding services to superior "goods" (physical products) as a base. Changing from a goods-dominant business to an "integrated goods and service" business is difficult for respondent firms. This suggests the existence of the "Inertia of "goods/hardware" business. It is necessary to ensure that the resources and capabilities developed in the goods business can be used positively to make the services business successful.

IT system implementation for intra- and cross-functional integration. Japanese manufacturing companies are actively introducing and utilizing digital technologies to grasp the flow of materials and information within factories and the entire global SC. In order to understand these flows, all companies try to collect a large amount and variety of data (e.g., information on the operating status and defects of factories of the company and its suppliers, information on the progress of production and distribution, order information, etc.). Although the "flow of materials and information" in production activities is good with IT systems, there remains a problem of coordinating among functions, departments, and companies. For example, because the company's IT system is not sufficiently integrated across departments, even if the same IT system is used, the way it is operated differs among departments.

The implemented IT system significantly improved business operations and management efficiency. The main objective of this system implementation is to improve the factory's operational performance, such as quality, productivity, and lead time. These systems include manufacturing management dashboards, flow improvement, traceability, automation and labor-saving, visualization of energy-saving effects, and work improvement and training. There is a tendency to focus on streamlining the

factory's flow of materials and information (i.e., intra-functional integration). However, only some investments aim to improve coordination among plants and streamline the flow of materials and information throughout the global SC and EC. IT system investments utilized the manufacturing capabilities cultivated at the factory rather than the entire EC and SC. In order to make investments that will improve the global flow of EC and SC, it is necessary to devise suitable indicators for measuring the IT system's effectiveness.

The value flow was changed by the deployment and development of digital technology, and this caused coordination issues within and between organizations. Each company is renewing their IT systems to adapt to changes in their competitive strategies.

UTILIZATION of IT system for integration of EC and SC. The issues related to implementing and utilizing IT systems for integrating EC and SC are as follows: (1) The real-time information sharing of the entire supply chain has not yet been fully realized; (2) The lack of coordination among sub-systems requires manual work, resulting in time delays and data accuracy problems; (3) Integration of newly added systems such as IoT into the existing IT systems; (4) Development of IT systems that allow companies to take advantage of the competitiveness (core competence) of their genba while also benefiting from standardized systems.

Each firm gradually tries to shift its SC-EC from "local optimization" to "total optimization" because of its business transformation (i.e., servitization). If excellent organizational capabilities, business processes, and IT systems have already been established in each department or factory, building a system that actively utilizes them may be essential. A strategic resource allocation is crucial to developing such a system. It is necessary to create an IT system to maximize and optimize each department's capabilities and activity (local optimization) and integrate them (overall optimization). Although IT systems have improved the flow of materials and information in production activities, coordination among departments, functions, and companies still needs to be improved. For example, because the company's IT system is not sufficiently integrated across departments and global units, even if the same IT system is used, it differs.

IMPACTS of COVID-19 on global logistics. The COVID-19 pandemic had a tremendous impact on the firm's logistics and posed significant challenges, such as insufficient transportation capacity, higher costs, longer lead times, and increased uncertainty and complexity. Against this backdrop, Japanese companies tried to minimize the impact of the pandemic by taking proactive countermeasures at both the operational and strategic levels using digital technologies, which suggests that they succeeded in developing a highly resilient supply chain.

Discussion

Alignment between strategy, IT system, and SC-EC

Excellent SCM and operational capability are commonly found in case companies. They have excellent genba capabilities and can respond to customer requirements with immediate delivery, high quality, and low prices. When aiming to shift to service and solution businesses, existing SCM capabilities and IT systems also need to be changed because the flow of information will change. Case companies face two problems: (1) their strategies need to take full advantage of their SCM capabilities to gain high profits; (2) their SCM capabilities and IT systems need to match their targeted strategies (servitization/ solution business). These problems are also the cause of the difficulty in promoting digital transformation. In order to solve these problems, it is necessary to pay attention to the SC and EC (value chain) as a whole, accurately grasp where the bottlenecks in the flow of goods and information lie, and then allocate resources most effectively.

Integration of SC and EC is essential, and there is an urgent need to build IT systems to facilitate this integration. Modularization and standardization of design are also needed to respond to demand fluctuation and reduce cost and lead time. It is necessary to accurately collect customer and market information (sales, needs, and actual demand) and use this information as feedback for production planning and product development. Enterprise systems are not well integrated among each company's functions, divisions, and locations. Establishing an organization that manages the total SCM process is

essential, and cooperation between this department and the IT system division is also necessary. However, our case study suggests some difficulties in transforming the IT system: (1) The IT system fits into the existing strategy and business, this causes the problem of core capability becoming core rigidity (Leonard-Barton, 1992); (2) Inertia from legacy systems; (3) Interdepartmental barriers and "silo" phenomenon are the barrier to break out of "partial optimization."

Utilization of digital technology and total optimization

With the rapid development of digital technology, it has become possible to collect, process, analyze, and communicate diverse and massive amounts of data beyond time and space constraints. As this trend intensifies, the challenge of managing the diverse and massive flow of "materials and information" across various departments is increasing. Who should take the lead in promoting the "total optimization" of the flow, and how should it be coordinated? These questions need to be considered in the era of Industry 4.0, Smart Factory, and digital transformations.

Essentially, digital technology is expected to improve the flow of "information" and make it easier to achieve total optimization. However, there is a possibility that the use of digital technology will promote partial optimization, resulting in a "dysfunction of the flow-improving technology" (Fukuzawa, 2020) where conflicts between departments worsen. In this situation, interdepartmental barriers in the organization may be more prominent than technological barriers as factors that impede the information flow. When the value flows within and between organizations change due to digitization in the factory, organizational coordination might be difficult and crucial.

Digital technology is a "tool," and introducing advanced technology will not be efficient or necessarily produce better results if the team/organization does not have the skills to utilize it. What should be done to connect a series of development, production, sales, and marketing activities using digital technology and expand and create business through these activities? What kind of "technology" can solve coordination problems among individuals, teams, companies, and global locations? Empirical research and practical efforts to answer these questions will be necessary.

Analytical framework for elucidating the effect of SC-EC integration using digital technology

Based on the case study, this paper constructs and proposes an analytical framework for comprehensively clarifying the relationship between the "alignment among DT strategy, IT system, and SC-EC integration" and "performance," as shown in Figure 1. A comprehensive analysis of this relationship is important in practice and academic research. As shown in Figure 1, "DT strategy" and "resource allocation" are assumed to affect the "capability of IT system utilization" and the "organizational capability of existing production systems, supply chain and engineering chain management," and then these capabilities are assumed to affect the "effect of DT strategy (performance)." This analytical framework needs to be refined and tested through qualitative and quantitative research.

Figure 1 goes about here.

Conclusion

Our case studies underscored the strategic shifts, challenges, and efforts toward digitalization within Japanese manufacturing firms, emphasizing the ongoing need for seamless integration, adaptation, and strategic alignment of IT systems with evolving business models. The contributions of this study are as follows. First, this study elucidates the actual status and challenges of implementing and operating IT systems that promote the integration of EC and SC in Japanese companies and the IT roles for value creation. Second, this paper suggests difficulties/issues with the coordination and integration between SC-EC using IoT and IT systems and the factors that cause these difficulties. Third, this study proposes an analytical framework for a comprehensive analysis of the alignment among DT strategy, IT system, and SC-EC integration and performance.

The theoretical implications of the comprehensive study on Japanese manufacturing firms' digital

transformation and integration of supply chain and engineering chain operations are multifaceted.

First, the study underscores the criticality of aligning digital transformation strategies, IT systems, and operational capabilities across the supply and engineering chains. It reinforces the need for a cohesive approach where strategies and technologies complement organizational capabilities.

Second, the findings highlight the complex interplay between digital technology adoption and organizational dynamics. They reveal that while digital tools enhance information flow, challenges in interdepartmental coordination persist, indicating the need for adaptive organizational structures. Third, our study emphasizes the importance of strategic resource allocation for IT system development, specifically targeting global integration and total optimization across value chains. This aligns with the resource-based view theory, highlighting the strategic significance of IT investments.

Fourth, the case studies exemplify how digital technologies enhance crisis resilience. The pandemic-induced disruptions showcased the importance of adaptive capabilities in leveraging digital tools for effective crisis management within supply chains. Fifth, the integration of lean manufacturing principles with digital strategies emerges as a crucial theoretical implication. The study highlights the need to adapt traditional lean principles to accommodate digital transformations, emphasizing the role of IT systems in lean manufacturing.

Finally, the findings highlight the significance of efficient IT systems in streamlining intra- and inter-organizational operations. However, they also indicate persistent challenges in achieving seamless coordination, prompting the need for further theoretical exploration of effective integration methods. Overall, the study advances theoretical understanding by emphasizing the intricate relationship between digital strategies, IT systems, organizational capabilities, and supply chain integration. As we suggested, it accentuates the need for a comprehensive theoretical framework to navigate the complexities of digital transformations within manufacturing ecosystems.

This paper provides important insights for practitioners considering the IT system implementation project and the digital transformation from the perspective of integrating the entire value chain. It sheds light on the practical application of digital strategies within Japanese manufacturing firms. First, all case companies aimed to enhance value by incorporating services alongside their physical products. However,

transitioning from goods-centric to integrated goods and service models posed challenges due to inherent inertia in traditional hardware-based businesses. Second, these firms actively embraced digital technologies to track material and information flow within factories and across global supply chains. While these systems streamlined intra-functional processes, challenges in coordinating among departments and global units persisted.

Third, issues surfaced regarding real-time information sharing across supply chains, sub-system coordination leading to delays, and the integration of new systems like IoT. Efforts to shift from local to total optimization were visible, necessitating strategic resource allocation for effective IT system development. Finally, the pandemic significantly disrupted logistics, prompting proactive measures leveraging digital technologies. Japanese companies showcased resilience in managing pandemic-induced challenges, emphasizing the role of digital tools in maintaining robust supply chains.

The limitations of this study are as follows. First, since the number of surveyed companies is small, paying attention to the generalizability of the results obtained from the case study analysis is necessary. Second, the data used in the case study analysis is limited to interview results and secondary sources. Finally, comparative analysis needs to consider differences in business models, industries, and countries.

Future research directions involve quantifying the relationship between strategies, systems, and performance, focusing on interdepartmental coordination and organizational restructuring in the digital era. The following are future research directions. First, we need to construct the alignment metrics between DT strategy, IT system, and SC-EC integration and link them to actual measurements and performance. Second, investigate the differences in countries/regions, business models, and business/industry characteristics to the degree of alignment and their outcomes. Third, quantitative studies may test the analytical framework using larger samples. We expect to empirically clarify the relationship between DT strategy, IT system utilization, organizational capabilities (lean production, supply chain and engineering chain management), and performance.

Finally, based on this paper's findings, the following questions would be promising: (1) Who should take responsibility for the "total optimization" of value flow, how should it be coordinated, and what kind of mechanism should be developed?; (2) How do we solve the interdepartmental/ cross-functional

coordination problem (partial and total optimization)?; (3) If we know that the "silo" organization does not work well, why is it difficult to change them? Is this a top management problem or a problem of organizational design and incentives?; (4) How can we improve efficiency by using IT in each function (production, purchasing, development, sales, and logistics), and how can we create an IT system that promotes cross-functional collaboration and collaboration between genba and headquarters?; (5) How should the areas commonly evaluated and controlled by the head office and the areas to be evaluated and determined by each business unit with autonomy be set?; (6) How should the organization's scope of authority and responsibility in promoting digitization be set?

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Figures and Tables

Table 1: Overview of the studied companies

	Firm A	Firm B	Firm C	Firm D
Main products	Information processing devices	Inverter, Power generators	Factory automation devices	Sensing devices
Sales (FY2021, consolidated, approximate number, JPY)	2,000 billion	800 billion	600 billion	80 billion
Employees (FY2021, consolidated, approximate number)	70,000	25,000	28,000	3,000

Source: Authors

Table 2: Research items

Strategic changes	<ul style="list-style-type: none"> • Changes in business environment • Transition of business domain (core business) • New business development • “Servitization” of the “Hardware” business
IT system	<ul style="list-style-type: none"> • ERP system implementation • IT system integration (intra and inter firm)
SCM and ECM	<ul style="list-style-type: none"> • Demand management • Supply management • Impact of COVID-19 on global logistics • Integration and collaboration between SC and EC

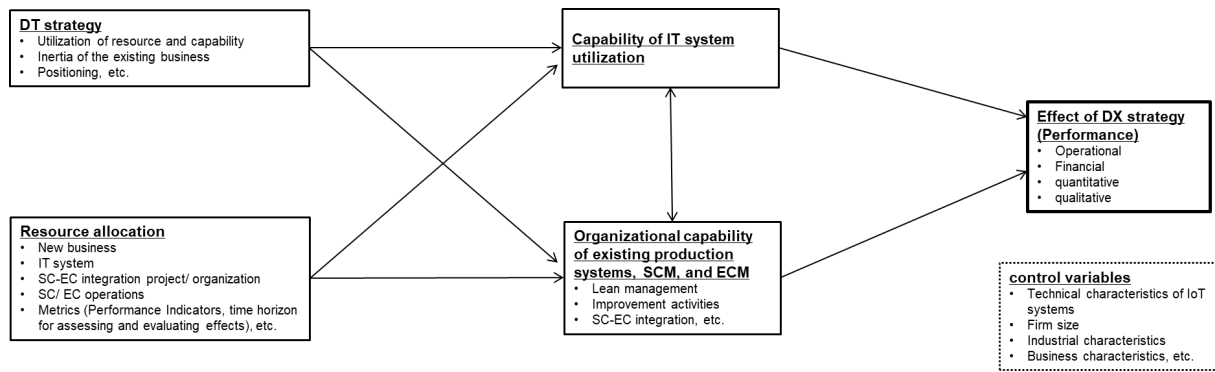
Source: Authors

Table 3: Summary of the cases

	Strategic Changes	IT system	SCM & ECM		
			Demand management	Supplier management	Coordination between EC & SC
Firm A	<ul style="list-style-type: none"> Corporate slogan: "Selling the service" From 2000: Hardware business and network solution business (secure network) From 2010: Solution and service business enlargement - e.g., Kaizen solution service 	<ul style="list-style-type: none"> From 2000: ERP system implementation - semi-customized system - original supply management system - remote service (customer site) From 2010: Sale force automation(SFA) implementation From 2020: New ERP system development suitable for solution business (on-going) 	<ul style="list-style-type: none"> Gathering demand information through Global VMI manager Utilize macro demand volume and large business meeting information in SFA input by individual salespeople. Involvement in the budgeting and product planning stages 	<ul style="list-style-type: none"> Based on the original supply management system (EDI) - cost down, streamlining ordering operations, BCP Organize the International Purchasing/Procurement Office (IPO) in Asian region. Reducing the number of suppliers 	<ul style="list-style-type: none"> Mass-customization - product variation, common parts/architecture - package size optimization - mass production of parts & customization in software Recycle and reuse friendly design/product Feedback system from plant IoT to R&D division
Firm B	<ul style="list-style-type: none"> Heavy electrical machinery → General electric machinery → Energy & environment-related business → Infrastructure solution service 	<ul style="list-style-type: none"> Mainly, original/scratch system are used. - low usage rate of global standard ERP Recently, original platform system are developed to facilitate the DX. - building the data base and data linkage system - preparing global ERP implementation 	<ul style="list-style-type: none"> In-house developed negotiation management and order arrangement system. Visualization of order information using the information PF. PSI (production-sales-inventory) management Focusing on forecasting and responding to operations months in advance 	<ul style="list-style-type: none"> EDI and manual operation remains. RPA (partially) Distributed or commonly managed depending on the task. Organize the IPO in Asian region to cost reduction, standardization, and Kaizen. Supply chain coordination is increasingly important to achieve carbon neutrality by 2050. 	<ul style="list-style-type: none"> Realizing the Smart factory through data linkage by PF and BOM linkage by PLM. Modulization of product design and equipment (on-going)
Firm C	<ul style="list-style-type: none"> Equipment control device → Sensing devices → Infrastructure system, healthcare, automobile → "Hardware plus solution" business (e.g., smart factory service) 	<ul style="list-style-type: none"> From 1990: ERP package implementation (domestic and foreign site) From 2000: PDM-PLM system implementation (linkage the e-BOM and m-BOM) From 2010: IT system reform (ERP package implementation, CRM) From 2020: Global IT System development suitable for DX (data-driven management) 	<ul style="list-style-type: none"> Understanding the industry and market trends and future customer demand and uses these information for production planning and parts arrangement. Challenges include (1) responding to highly volatile markets and customers, (2) responding to demand that greatly exceeds production capacity, and (3) understanding demand for new products 	<ul style="list-style-type: none"> Based on the original supply management system (EDI) Organize the IPO and VMI in Asian region. Risk management of suppliers (BCP). Development of the global supply management system (standardization) 	<ul style="list-style-type: none"> Multi-functionalization of products to reduce the number of product items and software variations using the same hardware. Reduction of variations by standardization of design and modularization. Component standardization
Firm D	<ul style="list-style-type: none"> Sensing devices → Electronic equipment (B to C) → Electronic equipment (B to B) → "Core products plus ICT service" 	<ul style="list-style-type: none"> From 2010: Global standard ERP and BI tool implementation (only in domestic and Asian region). Legacy system renewal and CRM/S & OP implementation (on-going) 	<ul style="list-style-type: none"> SCM and demand management system have not been able to change as the business changes. - inventory and lead time are increasing - Cross functional team is established Smart factory project (on-going) 	<ul style="list-style-type: none"> Based on the original supply management system (EDI) Ensure better cost and lead-time control Information exchange with suppliers 	<ul style="list-style-type: none"> Reduction of specifications and commonization of components (on-going) Reduction of engineering man-hours and improve accuracy by building PLM (on-going)

Source: Authors

Figure 1: An analytical framework that comprehensively investigate the alignment among DT strategy, IT system, and SC-EC capabilities.



Source: Authors

Information spillover effects in emerging economies: Japanese Consultants, Local firms and FDI

Kohei Mishima (Keio University)

Summary

How and why does foreign direct investment (FDI) in developing countries affect the growth of locally-owned firms? This study argues the following three points from a case study of Japanese consultants in the Thai auto parts industry. This study reveals that in order to do business with Japanese-affiliated firms, Thai local firms (1) obtained trading and learning opportunities by paying high compensation to Japanese engineers and (2) continued to learn and progressively improve under the guidance of Japanese engineers. Therefore, contrary to economics-oriented FDI studies, the case study in this paper showed that the local firms were proactive in investing and learning actively to obtain spillover effects from FDI.

How does collaboration between nascent intrapreneurs emerge?:

A case study from an incubator specializing in new business development teams in large companies

Abstract

The role of incubators in supporting new business development in existing companies has attracted attention. However, previous research has yet to fully elucidate how nascent intrapreneurs with limited experience find appropriate partners and build collaborative relationships in incubators. In this study, we investigate the process by which residents with limited experience search for partners and build collaborative relationships in an incubator specializing in a large company's new business development sector. In particular, the analysis of data focusing on residents' identity and behavioral characteristics revealed that individual psychological states and feelings, such as psychological temperature, openness, and equality in dialogue, are essential factors in the partner search phase. At the same time, the combination of tasks and resources and shared goal-oriented missions were essential factors in the cooperation-building phase. The study helps to understand the process of entrepreneurial collaboration at the micro level in the context of research on incubators, which constitute entrepreneurial ecosystem.

Keywords: Intrapreneurs, Japanese large corporations, new business development, collaborative relationships, incubator, sub-Entrepreneurial Ecosystem

1 Introduction

1.1 Challenges in New Business Development by Large Japanese Companies

Japan's GDP, which was the second largest in the world in 1993 (\$3.98 trillion), deteriorated to the fourth largest in the world in 2022 (\$4.23 trillion). One reason for this economic slump was the low level of entrepreneurship in Japan. Entrepreneurship is the process of pursuing opportunities, either individually or within an organization, regardless of the resources a person currently possesses.

Opportunity here is "a future situation that is considered desirable and feasible" (Stevenson et al., 2002). Shane (2003, p. 4) defines entrepreneurship as "the activity of discovering, evaluating, and exploiting opportunities to introduce new goods and services, methods of organization, markets, processes, and raw materials that did not previously exist through organizational efforts." Although definitions vary over time and in different social contexts, Schumpeter viewed entrepreneurship as a process by which new combinations move the entire economy forward. Entrepreneurship is also important for the growth and development of large companies (Burgelman, 1983).

The Global Entrepreneurship Monitor (2021) shows that Japan's total early-stage entrepreneurial activity (TEA) ranks 40th out of 47 countries, which is relatively low among the countries surveyed. This low TEA indicates that many Japanese prefer to work for large companies rather than starting their own businesses. According to the Ministry of Finance's "Survey of Corporate Business Statistics" (2023), the retained earnings of large Japanese companies reached a record high of JPY 555 trillion in 2022. This indicates that large corporations in Japan have talented employees and the

investment capacity required to create new businesses. In other words, large Japanese companies have the potential to create new businesses.

However, the ability of large Japanese companies to create innovations is declining (Yoshioka, 2023), and Aoshima and Kim (2023) showed that the excess resources accumulated by Japanese companies are gradually being redirected toward R&D and corporate venture capital (CVC). They also show, in an international comparison, that these investments have not led to positive results. This study argues that the declining trend in innovation creation by large firms is due to the poor quality of new business activities. One possible explanation is that many Japanese firms, under pressure from the recent new venture boom, invest in new ventures without fully vetting them. Alternatively, large Japanese companies may lack the ability to successfully nurture the seeds of new businesses.

Large Japanese companies and governments are beginning to understand the importance of quality innovations. Many large Japanese companies are now abandoning their commitment to self-focus and collaborate with startups to acquire the ability to identify and nurture new businesses. In response to this trend, several incubation centers have been opened in Tokyo, where there is a high concentration of large companies, for the new business divisions of large corporations.

1.2 External support organizations for new business development in large companies

Why do large companies need external entrepreneurial support organizations like incubators? It is because large companies have difficulty creating new businesses independently. Drucker (1987) was

the first to describe entrepreneurship in large companies as “intrapreneurship”. Entrepreneurship occurs when one or more entrepreneurs take the risk of creation, and intrapreneurship occurs when the members of a company identify and exploit their ideas (Bosma, 2013). The creation of new businesses by intrapreneurs is an important driver of corporate performance (Covin & Slevin, 1991).

However, while large firms prefer incremental innovation in existing businesses, they are not adept at innovation (March, 1991; Tushman & O'Reilly, 1996). In an environment of rapidly evolving digital technology, adherence to incremental innovation lags behind the pace of economic development. Tushman & O'Reilly (1996) found that both the exploitation of existing businesses and exploration of new businesses are necessary. They call a firm's ability to combine the exploitation of existing businesses with exploration of new businesses ambidexterity and argue that although acquiring ambidexterity is vital for the growth of large firms, it is extremely difficult to do so. This is because exploration is less likely to present a convincing case compared to the exploitation of existing businesses. After all, it often starts in low-end markets where profitability is low, small, uncertain, and future prospects are difficult to predict (Christensen, 1996). Another reason is that disruptive technologies require courage during their emergence because they initially appear to be minor threats and necessitate a focus on areas of interest that are different from those of existing customers that generate profits and cash (Christensen, 1996). Bower and Christensen (1995) argue that "organizations cannot simultaneously explore and deepen in the face of disruptive change, so the exploratory unit must be spun off." On the other hand, O'Reilly & Tushman (2021) argue that new

ventures should not be spun off because leveraging the assets of larger firms is essential to their success; even so, they should be physically separated at the outset.

The role of external entrepreneurial support organizations like incubators has gained attention as a means of addressing these difficulties in creating new businesses for large companies. Incubators for new business development divisions of large companies are sought after as "places that are physically separated from the deepening operations of the headquarters" (O'Reilly & Tushman, 2021).

Incubators, which bring together new business development departments of large companies, are also important places for open innovation (Chesbrough, 2003). Moreover, as discussed below, these entrepreneurship support organizations are sub-ecosystems of the Entrepreneurship Ecosystem (Mason & Brown, 2014) that promote entrepreneurship in a particular region, with individual accelerators and incubations serving as intermediaries that bridge a variety of relevant actors and connect them to other sub-ecosystems spread around them (Spigel, 2017; Theodoraki & Messegheem, 2017). However, as noted above, large companies may face unique difficulties when developing new businesses. In particular, it is difficult for new intrapreneurs with little previous business development experience and little knowledge of the development process to find other companies with complementary external resources or to form cooperative relationships for new business development. What processes do these intrapreneurs in large companies' new business development departments go through to form collaborations with other companies in entrepreneurial support organizations? What

kind of support do these intrapreneurs expect from the incubator's community managers? Therefore, this study seeks to elucidate the following RQs.

RQ1: How are collaborations formed among nascent intrapreneurs with little entrepreneurial experience in incubators?

RQ2: What role does incubator support play in the formation of collaboration among intrapreneurs?

Building on these questions, this study will provide a novel perspective on the process of collaboration formation among residents of Japan's first incubator, which is predominantly occupied by the new business development departments of large corporations. We will then delve into the role of the incubator as an external support organization for entrepreneurship, offering fresh insights into this crucial aspect of the entrepreneurial ecosystem.

2 Literature Review

In this study, we review related studies to identify the formation process of collaborative relationships among members of resident firms in incubation centers. First, we focus on the relationship between the entrepreneurial ecosystem and the incubator in entrepreneurship research 2.1. In particular, we review the position of the incubator as a subsystem of the entrepreneurship ecosystem and argue for the importance of the micro-level entrepreneurial ecosystem as a unit of

analysis. We then review studies focusing on the cooperative relationships among firms occupying incubators in 2.2 and point out the problems that arise when inexperienced firm members search for partners and build relationships with each other. Through this review of previous studies, we examine the research context and analytical perspectives targeted by this study and present a research framework.

2.1 Incubator in the entrepreneurial ecosystem

The concept of Entrepreneurial Ecosystem is gaining importance in entrepreneurship research. Mason and Brown (2014, p.5) define an entrepreneurial ecosystem as: “a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organisations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g. the business birth rate, numbers of high growth firms, levels of ‘blockbuster entrepreneurship,’ number of serial entrepreneurs, degree of sell-out mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment.” Other similar definitions are also considered. The entrepreneurial ecosystem is composed of economic actors and environmental factors that exist in a region, as influenced by geographical boundaries (Audretsch and Belitski, 2017; Morris et al., 2015; Spilling, 1996).

In recent research on entrepreneurial ecosystems, there has been a trend to use a multi-level approach that attempts to understand the Entrepreneurial Ecosystem at multiple levels to identify the smaller sub-ecosystems that make up the entrepreneurial ecosystem and the interrelationships among these sub-ecosystems (Letaifa et al., 2016; Spiegel, 2017). In a research approach that takes a multi-level view of the Entrepreneurial Ecosystem, incubators are not only a component of the entrepreneurial ecosystem but also a sub-ecosystem whose importance and uniqueness are attracting attention. Existing studies have also identified incubators as a key component of the entrepreneurial ecosystem (Spiegel, 2017), and have been positioned as an effective local economic development tool (Hackett & Dilts, 2004). Incubators are embedded in complex stakeholder relationships and surrounded by an ecosystem of actors that includes a diverse group of people and organizations, such as entrepreneurs, managers, policymakers, community members, VCs, universities, and research institutions (Engel & Teece, 2012). Incubators can also be viewed as "small Entrepreneurial Ecosystems" within which micro-level subsystems are formed where entrepreneurial networks, knowledge, and business opportunities interact, and where entrepreneurial support interacts with other subsystems.

In this line of discussion, Theodoraki & Messeghem (2017) focused their study on the entrepreneurial ecosystem in the Languedoc-Roussillon region of southern France. They present the entrepreneurial support ecosystem and the incubator ecosystem as sub-ecosystems that comprise the entrepreneurial ecosystem. The entrepreneurial support ecosystem is a meso-level sub-ecosystem of

the entrepreneurial ecosystem, an industry-based ecosystem that aims to promote entrepreneurship through business support. The incubator ecosystem is a micro-level sub-ecosystem of the entrepreneurial support ecosystem. This purpose-based ecosystem aims to provide entrepreneurial and management knowledge, business opportunities, and opportunities for collaboration among incubators. Similarly, Dagnino (2015; 83) describes incubators as "miniature entrepreneurial ecosystems" and advocates their importance and uniqueness as micro-level subsystems of the entrepreneurial ecosystem.

Based on the above discussion, this study considers the incubator a micro-level entrepreneurial ecosystem (Figure 1). Just as Clarysee et al. (2014) emphasized the importance and interest of an analysis that focuses on the interactions among actors within the incubator, this study will focus on how the resident members emphasize and let knowledge and business opportunities interact. In particular, we will focus on the process of partner search and collaborative relationship building, a vital indicator of an incubator.

-----Figure 1 goes about here-----

2.2 Collaboration among the residents of the incubator

2.2.1 Definition and types of incubators. Incubation is "a business support process that accelerates the development of start-up companies by systematically providing various resources and services" (National BI Association). Based on this definition, Horiike (2009) defined incubation as "the

development of comprehensive support activities (both hard and soft) for business activities in the start-up or early stage (sometimes including the middle stage) of a business and the eventual long-term sustainability of any business. Incubation is interpreted as "a mechanism (system) for creating all types of business (management) entities that can be maintained and sustained over the long term.

Incubation thus refers to a process or mechanism for accelerating the development of start-up companies and is often used to refer to a base as the entity responsible for these activities. The Ministry of Economy, Trade and Industry (2006) defines an incubator as a facility that (1) has offices and other facilities provided for entrepreneurs, (2) provides support by incubation managers and others (support staff in charge of start-up and growth), (3) has a limited number of tenants, and (4) has "graduated" and "other" exiting companies.

2.2.2 Typologies and Key Perspectives of Incubator Research.

So, what impact do incubators have on the local entrepreneurial ecosystem, including the companies that occupy them? Existing studies have examined the success and outcomes of incubators in various ways. For example, existing studies have examined the growth and innovative activities of resident firms, collaboration with other firms (Colombo & Delmastro, 2006), relationship building between incubator managers and resident firms (Rice, 2002), networking and collaborative behavior among resident firms (Soetanto & Jack, 2013; Theodoraki et al. 2020) as an essential outcome of

incubators. Therefore, we focus here on networking and collaborative behavior among tenant firms.

The reasons for this are as follows.

Saxenien (1994), citing Silicon Valley's active entrepreneurial activity as an example, cites "continuous human interaction" as a factor that promotes entrepreneurship in the region. Specifically, he argues that constant human interaction through social activities such as trade fairs, conferences, seminars, and get-togethers in the region promotes information exchange, idea generation, deal formation, and the creation and diffusion of new technologies. Spigel (2017) also identifies the entrepreneurial ecosystem in which high-growth ventures are continuously created. He presents social attributes as a core element, indicating the importance of people's interactions and interactions at the local level. It also shows the importance of people's interaction and interactions at the local level. Incubators, which are entrepreneurial ecosystems at the micro level, are working to promote networking among residents and with existing and external firms by hosting social events and seminars in their facilities and matching them with incubation managers. Managers and entrepreneurs in the early or preparatory stages of business establishment must face challenges in the hypothesis testing cycle for business creation. For managers and entrepreneurs facing such challenges, networks with other companies formed through incubators can help them search for and acquire knowledge and complementary resources to solve their business challenges and provide them with the psychological security of an advisor or mentor. For these reasons, the most critical impact of incubators on resident

companies is the search for partners who can connect them with knowledge and opportunities, as well as the development of collaborative relationships.

Soetanto and Jack (2013) find that there are specific patterns in the combination of the types of networking (internal/external) and knowledge (formal/tacit) to which incubator occupants have access. In a comparative analysis of the relationship between incubator strategy and performance, Theodoraki et al. (2013) argue that one of the roles of incubators is to provide a space for firms to collaborate. However, it is not easy to form cooperative relationships when there are differences in the resident companies' missions, expertise, and business stages. In particular, it will be more difficult for actors to form a collaborative relationship if the resident firms' members are a team of intrapreneurs from a large company with limited experience in new business development.

In such cases, how do members of resident companies form cooperative relationships? What role does the incubator management team's approach play in reflecting the incubator's strategy and policies? Based on this awareness of the issues, we set the following research questions.

RQ1: How are collaborations formed among nascent intrapreneurs with little entrepreneurial experience in incubators?

RQ2: What role does incubator support play in the formation of collaboration among intrapreneurs?

2.3 Analytical lens of this study

To answer these research questions, this study focuses on the networking of resident firm members (intrapreneurs from large companies) through an analytical lens. Networking activities require two steps, "search for appropriate partners" and "relationship building," in order to effectively form new networks (Birkinshaw et al., 2007). In particular, in the search for a suitable partner, the key is not only the use of boundary spanners and agents, but also the active search behavior of the networking actors themselves (Fang et al., 2015; Hallen et al., 2020; Hoang & Yi, 2017; Huang & Knight, 2017; Kaandorp et al., 2020; Rawhouser et al., 2017).

However, what personal characteristics are essential in searching for appropriate partners and relationship building for nascent intrapreneurs with limited entrepreneurial experience, and who still determines whom and what resources to seek? For example, Stoyanov (2018) shows the communication process through which collaborative networks are formed as peripheral actors, namely immigrants, acquire network-centricity in the host country. According to this paper, cultural distance is reduced as actors share and absorb each other's culture, norms, and values. Second, actors confirm the compatibility of each other's characteristics and experiences by demonstrating their expertise and business relationships and interpreting the organizational expectations behind them. Finally, the actors are aware of the mutuality and synergy of their potential partners, and the relationships are sorted so that the actors' personalities and identities are enhanced. Thus, it can be seen that there is a unique communication process that allows disadvantaged peripheral actors to network with other actors without prior knowledge or shared context. Murad et al. (2022) also argue that social identity

influences the behavior of nascent entrepreneurs. Their study examines nascent entrepreneurs' behavior in terms of three social identities, Darwinism, communitarian, and missionary, and finds that the missionary identity strongly influences nascent entrepreneurs' behavior.

Thus, nascent entrepreneurs' communication processes and identities may influence their networking and collaborative behavior.

Therefore, in this study, we investigated (1) the individual characteristics (e.g., identity, communication style) that influence the "appropriate partner search" and "collaborative relationship building" of nascent intrapreneurs (i.e., new business development teams from large companies) in incubators, (2) the role of incubator in influencing each phase (Figure 2).

-----Figure 2 goes about here-----

3. Methodology

As this study aims to elucidate research questions and processes that existing research has yet to identify, we chose a qualitative approach using case studies (Yin, 1994; Eisenhardt, 1989). The core of the analysis is the category and coding process, which is the same as data interpretation since coding itself is a procedure for data interpretation (Gioia et al., 2013). Since this is the very early stage of the study, we have yet to reinterpret the data within the framework of existing studies to avoid prior hypothesis bias. Therefore, this study extracts tentative concepts and models for future research development.

3.1 Research context

In this study, ARCH, an incubation center located in Toranomon, Minato-ku, Tokyo, was selected as the research context, and the companies that resided there were selected. The ARCH was selected as the research context for this study for three reasons. First, ARCH is the world's first incubation center dedicated to organizational units, whose mission is to create new businesses for large companies (ARCH HP). This makes it possible to examine the process of forming collaborative relationships among new business development teams of large companies, which is an issue raised in this study. Second, the timing of the opening of ARCH was appropriate for the purpose of this study; ARCH is a relatively new incubation center that opened in Tokyo in April 2021. Therefore, it is possible to observe the initial process of collaborative relationship formation among resident firms during the study period. Third, as is important in qualitative research, we were able to obtain cooperation from the ARCH management team for this study. An overview of the ARCH incubation center is presented in Table 1.

-----Table 1 goes about here-----

3.2 Data

In August 2021, the two researchers conducted several interviews with 6 members of ARCH management teams, and based on the list of occupied companies, they jointly selected 10 new business development teams from large companies that were deemed to have made significant

progress in forming inter-company collaborations. In this selection process, the knowledge of dedicated managers who mediate and coordinate communication between companies in ARCH is very important. They constantly communicated with members of the companies that had moved into ARCH and had a real-time understanding of the trends and issues facing the companies.

Following the case selection, two researchers conducted semi-structured interviews with target firm members from September to December 2021. The interviews covered (1) the background and purpose of moving into ARCH; (2) the affiliations, roles, and reasons for the selection of ARCH members; (3) the status of networking and collaboration at ARCH; (4) the role and effectiveness of the base communicators; and (5) the effectiveness and impact of the incubation center, as perceived after moving in. The format of the questions and answers was open-ended.

The questions were open-ended responses to open questions, but for (3) the status of networking and collaboration at ARCH, respondents were asked to select the appropriate answer from the options provided below. First, regarding the status of networking and collaboration, we showed the interviewees a list of companies that have moved into the incubation center and asked them to indicate the companies with which they have formed a relationship since moving in. They were then asked to rate the degree of their relationships on a scale of 1 to 3: 1) they knew each other, 2) they exchanged information for a collaborative project, and 3) they formed a collaborative project. For collaborative projects with companies that had progressed to the third stage of the relationship, the respondents were asked to rate the progress of each stage from 1 to 5: 1. Selection of area/theme, and

2. targeting and value design, and 3. hypothetical business model design, and 4. PoC, and 5. full-scale commercialization. Each interview lasted 60–90 minutes, with two researchers participating at all times. The interviews were recorded and transcribed into text using the online meeting tool Zoom, and interview transcripts were prepared within 24 hours of implementation.

3.3 Analysis

This analysis followed the procedure described by Gioia et al. (2013). First, open coding was performed using the interview data. The open coding process began with coding general, broad themes that were close to the interviewees' expressions, and then moved to more focused coding as specific themes began to solidify. During the initial coding process, the authors worked separately and reviewed each other's codings, paying particular attention to differences in interpretation during weekly research meetings. In addition, they iterated modifications to more appropriate coding that could account for multiple interview data and possible relationships between codes.

In more focused coding, we went back and forth between the interview data and the existing literature, noting similarities and differences between categories and labeling them as secondary themes. Similar themes were combined into higher-order aggregate dimensions. Note that because this study is still in the early stages of research, we did not go as far as reinterpretation within the framework of existing research to avoid prior hypothesis bias. Therefore, this is only a tentative extraction of concepts and models.

4. Results

4.1 Case Summary

The profiles of the case subjects of the new business development teams based on the interview data are shown in Table 2. Each team moved close to the time of the ARCH opening, with little difference in move-in time between cases. The case profiles indicate that all 10 teams moved into the incubator to network and collaborate with other companies. In addition, eight of the 10 teams already had a project for commercialization at the interview stage.

The interview data also revealed the degree of networking (based on the total number of networks) and degree of collaboration (based on the total number of collaborations) for each case; the progress level in commercializing collaborations (based on a comparison of progress before and after move-in) was rated on a scale of high, medium, and low compared to the average for the entire case (Table 3). The cases were plotted on two axes: the degree of collaboration and the progress level in commercializing collaborations (Figure 3). degree of collaboration and progress in commercializing collaborations are both high.

Figure 3 shows that there are two types of collaboration: new business development teams (Company 9, Company 10) with a high degree of collaboration and high progress level in commercializing collaborations, and teams with a low degree of collaboration but high progress level in commercializing collaborations (Company 9, Company 10). The new business development team (Company 2, Company 6) has a low degree of collaboration but a high level of progress in

commercializing collaborations, and the new business development team (Company 9, Company 10)

has a high degree of collaboration but a low level of progress in commercializing collaborations.

(Company 1, Company 3), and new business development teams with a low degree of collaboration

and low progress levels in commercializing collaborations (Company 4, Company 5, Company 8).

Company 5, Company 8), which had a low degree of collaboration and a low progress level in

commercializing collaborations.

-----Table 2,3 & Figure 3 goes about here-----

A possible team characteristic that affects the number of collaborations is whether they

network exploratively or intensively; companies 1, 3, 9, and 10 network while exploring

resources and opportunities within the incubator, so the number of collaborations is relatively

high. On the other hand, companies 4 and 6, which are intensively networking by narrowing

down their partners to a certain extent, have a low number of collaborations. Two

characteristics of the teams that influence the progress of the collaborations are whether they

had a project topic in advance and what the purpose of the networking was. For example,

progress was slow in cases with solid learning objectives, such as company 4.

4.2 Main findings

Tables 4 and 5 show the results of the analysis conducted according to the analytical procedures described in Section 1.3.

-----Table 4 & 5 goes about here-----

Table 5 shows the data structure for finding prospective partners and forming relationships with them. We extracted themes related to how the new business development teams of large companies that reside in ARCH and their team members communicate with members of potential partner companies during each phase of the project, their feelings and impressions of them, and the characteristics of the project. First, with regard to finding prospective partners, two themes were extracted: "openness and equality in communication" and "mutual harmonization of psychological temperature." As for forming relationship with prospective partners, "affinity of issues and complementarity of resources" and "shared purpose-oriented mission" were extracted.

4.3 Finding prospective partners and forming relationship with them

4.3.1 Openness and equality in communication. Disclosing ongoing projects may be uncomfortable and requires courage from a new business development team in a large company. However, to search for a promising partner for the team's project, several cases revealed the need to disclose information about who they are and what kind of project they are working on, and to actively communicate about the budget, deadline, and the size of the project they are aiming for.

4.3.2 Mutual harmonization of psychological temperature. Surprisingly, for the new business development team of a large company, what was necessary to meet a positive partner was, first, a psychological temperature that was in harmony with each other rather than the superiority or storage of resources possessed by the other party. For example, several cases confirmed that there was a disproportionate amount of passion and motivation for the new business project, that there was a gut feeling that something interesting might happen if they worked together on the project, and that they were at the same wavelength as their first impression.

4.3.3 Affinity of issues and complementarity of resources. Once a promising partner is identified and the stage is set to proceed to the formation of a collaboration, the specific characteristics of the project become even more important. The extracted elements were the affinity of the issues and the complementarity of resources. In ARCH, where there are no competitors, almost no new business development teams from large companies have the same technological seeds. Instead, it is important to recognize similar issues and share awareness of the problems. It is also important to determine whether resources of mutual strength can be complementary when working together to solve shared challenges.

4.3.4 Shared purpose-oriented mission. When collaboration with a team of tenants in an incubator is formed and moves toward commercialization, what conditions promote faster or greater progress? It

emerged from these cases that sharing the same mission and direction and working together toward a goal of great social significance and impact were important triggers for progress in collaboration. To this end, some interactions were observed, in which keywords for themes and topics were selected or modified so that the initially established issues and technological seeds could be applied to objectives that would resonate with a greater number of stakeholders.

4.4 Incubators' support (role, culture, strategy & policy)

4.4.1 Physical elements to focus on building a novel and diverse network. Table 6 presents the data structure of incubator support (role, culture, strategy, and policy). Here, two aspects of incubator support (role, institutional and culture, strategy, and policy) that influenced the elements extracted in (1) were identified: physical elements to focus on building a novel and diverse network; Institutional and Physical elements to focus on building a novel and diverse network; and institutional and cultural factors that encourage new business development.

Regarding the physical elements that focus on building a novel and diverse network, it is clear that ARCH's occupancy rules, which select tenants specifically for new business development teams from large companies that are not in a competitive relationship, and the geographic proximity of offices in the same building, have a significant impact. The geographic proximity of the offices in the same building was found to be a significant factor.

4.4.2 Institutional and cultural factors that encourage new business development. Next, regarding the institutional and cultural factors that encourage new business development, the fact that incubators specialize in new business development teams from large companies has a significant impact. In some cases, collaboration with startups may not be successful because speed and growth are too important or the market size is too different; however, with large companies, the image of speed and market size can be easily matched. The cases show that the members of the company all aim for the same open innovation, creating a soil and culture in which they can talk with each other as equals in a purpose-driven, radical, and open-minded manner.

Finally, we developed a process model to examine the relationships among the six aggregate dimensions extracted for (1) finding and building relationships with potential partners and (2) incubator support (role, culture, strategy, policy). Figure 4 shows a process model of the relationships among the six aggregate dimensions extracted from each case's context and the themes' relationships.

-----Figure 4 goes about here-----

During the finding of prospective partners, the interaction between openness and equality in communication and mutual harmonization of psychological temperature strengthens the nascent intrapreneur's perception that the partner they have met is a promising partner. Next, discussions about the project deepen, and when they recognize the affinity of issues and the complementarity of

resources as high, they form a collaboration. And if, over the course of the collaboration, they can identify a shared purpose-oriented mission, the progress of the collaboration toward commercialization is accelerated.

What contributed to the finding of prospective partners were physical elements such as the incubator's location, the environment for concentrated networking with companies from different industries, and the sense of familiarity and temperature created by gathering new business development teams from large companies. On the other hand, institutional and cultural elements within the incubator contributed to forming and developing collaborations, such as appropriate bridging by communicators, occasional intervention, a mentoring system, and a culture where stimulating and radical ideas are welcomed and encouraged.

5. Discussion and Future Research

The motivation of this study is to explore approaches to overcome the situation in which large Japanese firms are engaged in innovation-driven new business development for the next stage of growth but are hampered by a lack of capacity to nurture business seeds and invest in promising new business areas and face a difficult challenge. This study focuses on the role of external organizational incubators in promoting open innovation and supporting new business development in large companies. It examines how nascent intrapreneurs with limited experience and knowledge (member of new business development teams in large companies) search for appropriate partners in incubators

and build collaborative relationships and how incubators' institutions, cultures, and strategies support this process. Birkinshaw et al. (2007) presented a two-step networking process: finding prospective partners and forming relationships with them. Similarly, this study showed that nascent intrapreneurs in incubators follow the same process. Furthermore, using the specific research context of an incubator dedicated to new business development teams in a large company, this study found a viable way to overcome the barriers. Birkinshaw et al. (2007) showed that physical distance between firms and differences in technology and business areas between firms are significant barriers in the finding partner phase. The case analysis in this study shows that the incubator's policy and strategy of assembling new business development teams from large companies at a distance from their headquarters and selecting teams to move in for collaboration and mutual learning can overcome these barriers. Birkinshaw et al. (2007) also suggests that during the forming relationship phase, differences in values and norms between partners, differences in attributes, and ethnic and cultural spheres can become barriers to relationship building. The case analysis in this study showed that appropriate bridging between potential collaborators by incubator communicators, mentoring systems, and community management that allows diverse resident members to have some commonality in values and norms can overcome such barriers. Furthermore, the networking process described by Birkinshaw et al. (2007) shifts the level of importance from matching firm-level characteristics (technology and market sectors, location, etc.) to matching individual-level characteristics (values and norms, attributes, culture). In contrast, a new finding in this study is a shift from matching individual-

level characteristics (communication style, psychological temperature) to matching team-level characteristics (complementary resources, mission to pursue). The possible reasons for this are:

1. Because large companies have abundant and, to some extent, visible resources that are easy for nascent intrapreneurs to evaluate, matching individual-level characteristics is more important in the initial partner search than matching firm-level characteristics.
2. In the case of nascent intrapreneurs with limited experience, they cannot judge the business potential based on the combination of technologies and resources alone (Allison et al., 2017).

Based on the above discussion, the contributions of this study are threefold: First, in a multilevel approach that views the incubator as a sub-Entrepreneurial Ecosystem, the study facilitated the understanding of the micro-level Entrepreneurial Ecosystem formation process by elucidating the process of collaboration among nascent intrapreneurs in the incubator. Second, using the unique context of new business development teams in large companies, we found that forming collaborations shifts the axis of importance from matching individual-level characteristics to team-level characteristics, a process opposite to existing research. A large company's new business development team members should have a more individual entrepreneurial mindset when searching for potential collaborators. Third, we demonstrate the effectiveness of incubators specifically for large company's new business development teams. Many previous incubator studies have focused on startups, not large firms with open innovation challenges. This study clarifies the role of incubators specialized for new

business development teams in large companies and reaffirms the importance of support organizations as an external Entrepreneurial Ecosystem surrounding large companies.

On the other hand, because this study is still in its infancy, we must address many issues. One crucial issue is that it is necessary to elaborate the analytical process sufficiently. In the future, the study should go back and forth between the existing research literature and the extracted themes. Then, we must present a conceptual model that shows similarities and differences with existing theoretical concepts. For this purpose, it is necessary to review the existing research again. In addition, while this study focuses on incubators that specialize in new business development teams in large companies, comparisons between incubators, such as startup-specific incubators and mixed incubators, can deepen our understanding of the role and effectiveness of incubators so that multiple comparative case studies will be more critical.

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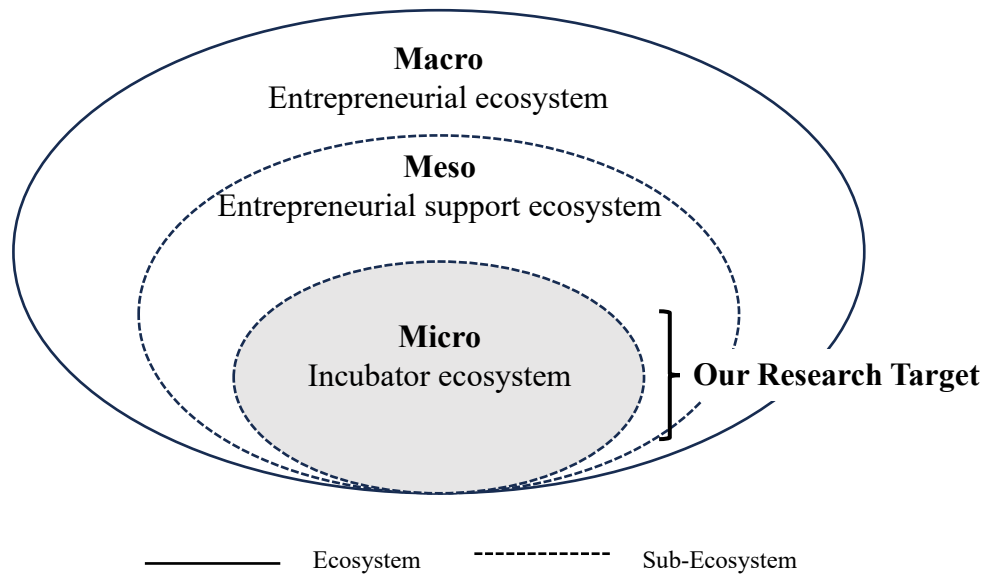
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Figures & Tables

Figure 1: Multi-level Entrepreneurial Ecosystem



Prepared by the author with reference to Theodoraki & Messeghem (2017)

Figure 2: Analytical lens of this study

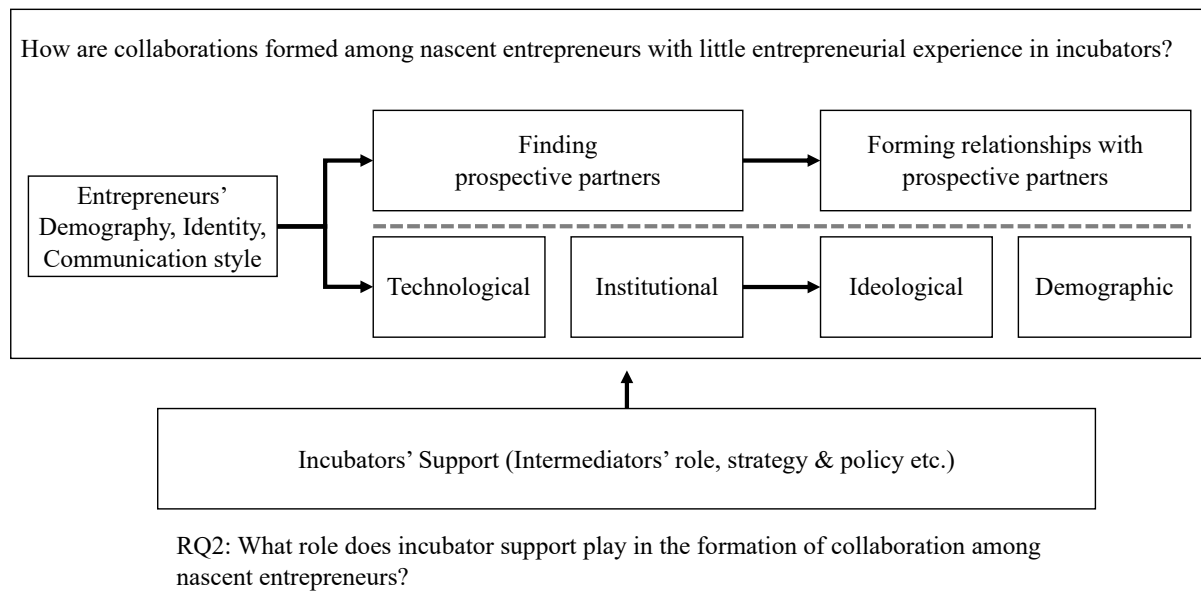


Table 1: Overview of ARCH

	ARCH
Open	April 2020
Location	Toranomon Hills Business Tower 4F
Floor space	Approx. 3,800 m2 (approx. 1,000 tsubo)
Number of tenants	62 companies (April 2021)
Main purpose	New business creation by large companies
Main Residents	Large company (new business, planning department)
Occupancy requirement	Add the decision-making authority to the resident members.
staff	8 persons (3 Mori Building, 3 community managers, 2 experts) (about 10 other mentors)
Pre-Open Network Formation	Managed WiL's LP company membership community site for 3 years prior to opening.

Table 2: Case Profile

Case number (Industry)	Department (Interviewee)	Purpose	Project topic availability	Team members attributes	Networking Opportunities within incubator
Company 1 (IT)	Corporate Strategy Division (Service, Sales & SE)	Networking, Human resource development, Building innovative image	×	Members interested in starting a business gathered through a job opening within the firm	Workshops, Seminars
Company 2 (Automobile)	R&D, etc. (Engineer, Engineer)	Networking, Information gathering, Search for new business	○	Members interested in business creation	Pitches
Company 3 (Insurance)	Innovation Promotion Department. (Project leader)	Networking, Collaboration with external firms	○	Members responsible for each project	Workshops, Lunch meeting
Company 4 (Trading)	Corporate Planning Department (Team leader)	Networking, Taking advantage of incubator mentors	○	Members consisting of new business representative, new hires trained on the job, sales.	Pitches, Seminars,
Company 5 (Music & Entertainment)	New Business Development (Manager)	Networking, Collaboration with external firms	○	Managers of business creation department	Pitches,
Company 6 (Finance)	DX Division (Project member)	Networking, Collaboration with external firms	○	Members gathered through job rotation and open recruitment	Pitches, Seminars
Company 7 (Housing)	New Business Development Department (Project member)	Networking, Learning how to create businesses	○	Members responsible for commercialization of the project	Self-introduction
Company 8 (Retail)	Innovation Development Department (Team leader, 2 Members)	Networking, New business promotion, Knowledge exploratione	×	Members gathered as a mission from upper management.	Drinking and lunch meetings, Online conference
Company 9 (Infrastructure)	New Business Development Department (Project member)	New business creation, collaboration with external companies	○	Highly cross-functional and diverse team	Events, Seminars, Workshops
Company 10 (IT)	Business Innovation Department (Project leader)	Scale of business, co- creation with external companies	○	Members consisting of sales, engineering, and internal coordination	Lunch meeting

Table 3: Case Summary

	Degree of Networking (Base on total number of networks)	Degree of Collaboration (Based on total number of collaborations)	Progress level in commercializing collaborations (Based on comparison of progress before and after move-in)
Company 1	Medium	Very High	Low
Company 2	Low	Medium	High
Company 3	High	High	Low
Company 4	High	Low	Low
Company 5	High	Medium	None
Company 6	Low	Low	Very High
Company 7	Low	Medium	Medium
Company 8	Medium	Low	None
Company 9	Medium	High	High
Company 10	Medium	High	Very High

Figure 3: Case Plot

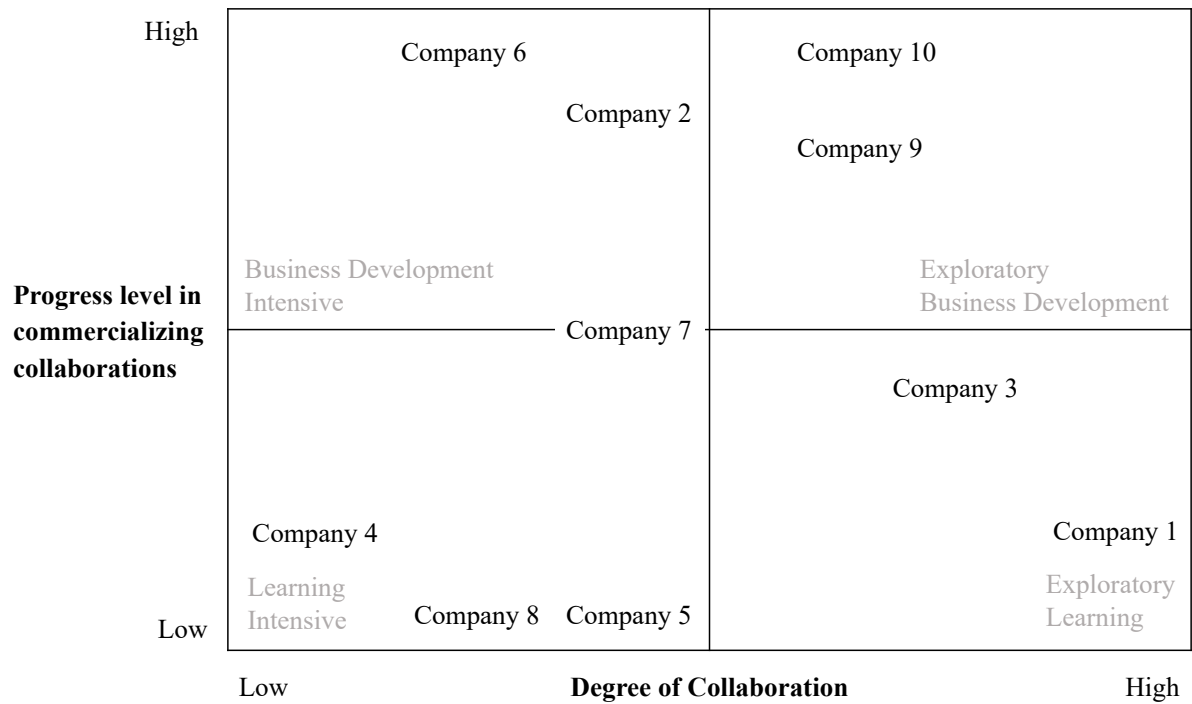


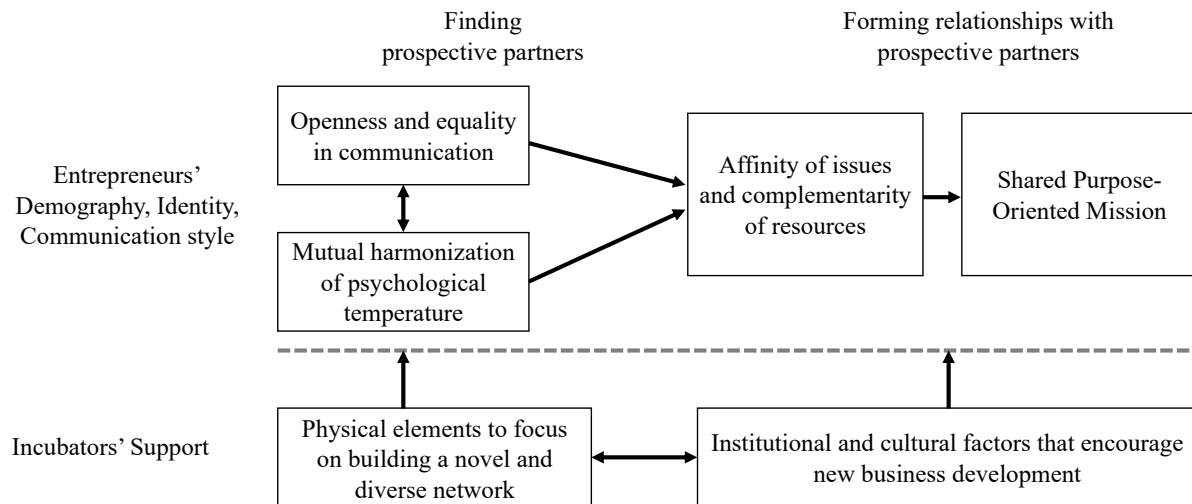
Table 4: Data structure about finding prospective partners and forming relationship with them.

	1st Order Concepts	2nd Order Themes	Aggregate Dimensions
Finding prospective partners	<ul style="list-style-type: none"> • Openness about new business projects. 	We should disclose our own projects or ask them to disclose what they are trying to do, and if there are areas where we are making progress, we should say, "This is how we are doing it," and they should say, "This is how they are doing it. We exchange information on a regular basis and talk directly with each other, saying, "Let's accelerate what we are trying to do" (Company 1).	Project disclosure
	<ul style="list-style-type: none"> • Openness about budgets, timelines, and the scope of the project 		
	<ul style="list-style-type: none"> • No competition, so there is little risk of being imitated 		Openness and equality in communication
	<ul style="list-style-type: none"> • Who are we? What do we want to do? 	We wanted to communicate about our project at the pitch competition (of the incubator). Such actions were the catalyst for the collaboration (Company 6).	Project Information Dissemination
	<ul style="list-style-type: none"> • Our past, present and future 		Equality of business experience and position
	<ul style="list-style-type: none"> • We are both on equal footing as part of a large company's new business development department 	We are open to each other's information: "This is the budget, this is the time frame, this is what we have to do, and this is what we have to agree on." We don't want to waste each other's time (Company7)	
	<ul style="list-style-type: none"> • Neither of us has much knowledge or experience in new business development 		
Forming relationships with prospective partners	<ul style="list-style-type: none"> • With the same speed and challenges of new business development, there is a sense of familiarity 		
	<ul style="list-style-type: none"> • We recognize similar problems 	The seeds are a bit different, but the issues are the same. They are also dealing with vehicles, so in that sense, the issues are the same. (Company2)	Issue Matching
	<ul style="list-style-type: none"> • We empathize with each other's problems 	If the internal and market challenges match, it will be easier to collaborate (Company7)	
	<ul style="list-style-type: none"> • Expanding the interpretation of problems connects each other's business fields 	There have been cases where we have found that we want a certain functionality that we are lacking, and we are wondering if there is anyone in ARCH, so we look at the logos of the companies that have moved in (displayed in the incubator) and say, "Let's talk to this company."	Complementarity of resources (technology seeds, headquarters assets, etc.)
	<ul style="list-style-type: none"> • We have supply chain relationships 		
	<ul style="list-style-type: none"> • Mutual strengths can be combined 	I think the theme of mobility is a technology that our company must have as an advantage, so I think that a win-win collaboration can be achieved by asking if we can solve problems by combining these technologies (Company 2).	Sharing of direction and mission
	<ul style="list-style-type: none"> • Mutually possess technology and know-how that the company does not have 		
	<ul style="list-style-type: none"> • We are working toward the same direction and mission. 	When it comes to well-being, there are three pillars: diet, exercise, and sleep, and sleep is one of them. We are now working together on a project (Company 10).	Empathetic and purpose-driven business themes
	<ul style="list-style-type: none"> • We can do what we want to do together. 	I think it is important that we share the same mission. Since we are heading in the same direction, I think it will be easy to work together (Company 3).	
	<ul style="list-style-type: none"> • The project is of interest to many companies (e.g. SDGs) 	As for the theme, we are now thinking about ethical things. But when you create a product, there are by-products that remain. We thought that was halfway through the process as an ethical product because it is just thrown away, and when we discussed the idea of making it work as a circular economy, we actually came up with the idea of us using the by-products and the other company making the product (Company8).	Shared Purpose-Oriented Mission
	<ul style="list-style-type: none"> • The project has high social significance and is worth working 		
	<ul style="list-style-type: none"> • It is a business that aims for total optimization, not partial optimization 	When it comes to the topic of reducing energy and heat use, we can collaborate with general contractors, developers, and energy-related companies (Company9).	

Table 5: Data structure about incubators' support (role, culture, strategy & policy)

1st Order Concepts		2nd Order Themes	Aggregate Dimensions
<ul style="list-style-type: none"> • The office is separated from the head office • Office is located far from the head office • Instant access to other companies and demonstrations • Pitches, events and seminars at the incubator • Lunch meetings, study groups • Chatting and drinking in common areas • Diversity of Tenants • Exclusion of competitors • Specialized in new business development teams for large enterprises 	<p>There are so many industries within ARCH, and most of the Japanese industries are represented here, so there is always someone to talk to when I have an idea. In this context, we have had discussions with several companies, and we have even started to consider the possibility of developing a project. I really appreciate ARCH for that. (Company2)</p> <p>I think it is very valuable to have an environment where you can talk easily with people you can consult with when you have a problem with a project, or if there is a company right next to you that can fill in a missing function (Company9).</p>	<p>Far from headquarters, close to other companies</p> <p>Diverse networking opportunities</p> <p>Balancing Heterogeneity and Homogeneity</p>	<p>Physical elements to focus on building a novel and diverse network</p>
<ul style="list-style-type: none"> • Pioneering nature of resident members • Positive and reactive sensitivity to newness and innovation • Strongly Purpose-Oriented • Communicators understand the members and business activities of the resident companies. • Matching of candidate companies for collaboration by communicators • Communicator's nosiness, caring • Regular mentoring and business support services 	<p>Of course, we are also aiming for co-creation among large companies here, and for them to work on something together. The other thing is the community. We are doing this because we are very attracted to the community where we can connect with people who work in these places (Company 4).</p> <p>The people on the innovation and new business teams are different from those who have only worked in existing businesses at the head office, and there is an atmosphere of openness (Company 3).</p> <p>I think many people say, "I want to do this so badly. I have the impression that many of the people who say, "I want to do this," are very determined (Company 4).</p> <p>The first thing is that I was able to meet people I never would have met before. Once you have met them, whether or not you have the foundation or the soil to get into such discussions or not makes all the difference. With all of these in place, we are able to discuss various things in a very flat and natural manner (Company2)</p>	<p>A stimulating and responsive community</p> <p>Generous support from communicators</p>	<p>Institutional and cultural factors that encourage new business development</p>

Figure 4 Process model of building collaborative relationships in incubators.



**Factors affecting brand trust in international news media:
Western media in Thailand and Japan**

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Abstract

The increasingly competitive and borderless media market creates both opportunities and challenges for international media companies, as global distrust in media continues to rise. However, little research exists on the drivers of brand trust in the international media industry. This study aims to explore the variables that impact brand trust in international media, using legacy British and American media in Thailand and Japan. The study proposes an overview conceptualization of international media business management and a research model to be tested, employing a consumer-brand relationship theory approach. The results of hierarchical multiple regression analysis reveal that credibility and ideology-fit are the most influential factors affecting brand trust in both countries, while localization and reputation have positive effects only in Japan. Managers of international media can use these findings to identify the factors necessary to gain users' trust in their brand, and the proposed framework can serve as a basis for further research.

Key words: Brand trust, International Media, Thailand, Japan

Introduction

The international media companies are becoming increasingly aware of the transnational nature of their audiences. The consumption of traditional media, including television and print, has been steadily declining for the past eight years (Newman et al., 2022). Therefore, it seems only natural for conventional news media companies to consider expanding into foreign markets when faced with stagnating or decreasing demand in their home markets (Benito, 2015; Doyle, 2015; Dunning & Lundan, 2008). In 2016, the BBC World Service launched 11 new language services, including a full digital service in Thai with advertising on its website (BBC, 2016). By utilizing online services, media organizations can achieve their objectives by taking advantage of the reduced production and distribution costs associated with digital environments. This allows media producers to sell content directly to users (Chan-Olmsted & Shay, 2015; Jenkins, 2006).

However, with the rapid growth of social media, growing skepticism about news and concerns about disinformation may be a natural consequence of pluralistic media environments (Park et al., 2020). This has led to increased attention to trust in news media, not only in Western countries but also in emerging economies, including Southeast Asian countries. For instance, in 2018, the ASEAN Ministers Responsible for Information (AMRI) adopted the Framework and Joint Declaration to minimize the harmful effects of fake news (The ASEAN Secretariat, 2018). The central issue for international news media companies here is to gain brand trust among cross-border audiences in their ability to report credible news coverage.

Brands constitute firm-wide intangible assets that provide a substantial basis for differentiation and a sustained competitive advantage. The paramount significance of branding in international markets has been acknowledged by both practitioners and academics as a key driver of multinational corporations' (MNCs) success (Steenkamp et al., 2003; Yin Wong & Merrilees, 2007). Strategic international brand management can influence brand performance, defined as the achievement of economic objectives through the cultivation of brand-based capabilities (Chabowski et al., 2013). Brand trust here is a critical psychographic brand objective that drives behavior-related brand performance, such as (re)purchase intention (Burmann et al., 2017b). In spite of the fact that the media industries are full of strong brands with high brand recognition, such as the BBC, Thomson Reuters, National Geographic, Time magazine, The New York Times, The Financial Times, and The Wall Street Journal (Siegert et

al., 2015; Tungate, 2004), it is pointed out that managers in news media companies have rarely talked about brand management (Siebert et al., 2015).

This study aims to explore brand trust by extending the consumer-brand relationship theory to the context of the news media industry (Fournier, 1998). The concept of consumer-brand relationships holds even greater relevance in today's media environment (Gómez-Suárez et al., 2017) as consumers have constant access to media content through smartphones or platforms, seamlessly integrating it into their daily lives and activities (Chan-Olmsted & Kim, 2022; Holt, 2016). In order to establish a strong connection with consumers, it is essential for media companies to understand how consumers utilize their content (products) in what contexts, and how they evaluate their media experiences in terms of problem-solving and fulfilling specific needs (Fournier, 2009).

Studies on news brands and public confidence in the media have primarily been conducted in the US and European markets (Fawzi et al., 2021), with minimal focus on international media spreading around the world. Even though the significance of media trust has been highlighted in this high-choice media and uncertain environment, there has been a lack of theoretical clarity or empirical evidence on its causes and consequences (Strömbäck et al., 2020). These gaps in research calls for an integrative, multi-perspective understanding of brand trust in international media.

In sum, the purpose of this research is to explore factors influencing brand trust in international media particularly the Western media in Asian countries, namely Thailand and Japan, to understand an overview of the business and suggest theoretical and practical implications for internationalization and strategic management of both established and emerging news media companies.

Literature Review

Media Brand Management

International business and international marketing literature have recognized the power of global brands for facilitating international entry, alongside the necessity of adapting brands to diverse cultural and environmental contexts (Mandler et al., 2021; Matanda & Ewing, 2012; Steenkamp et al., 2003). Concurrently, some research emphasizes the critical role of branding

throughout a firm's internationalization strategy, influencing its subsequent performance (Pyper et al., 2022; Yin Wong & Merrilees, 2007).

Drawing on the structure-conduct-performance (SCP) theory (Lusch & Laczniak, 1989) and resource-based view (RBV) (Barney, 1991; Grant, 1991), Yin Wong and Merrilees (2007) developed a model highlighting the critical role of branding in international marketing strategy and its impact on superior international financial performance. The model empirically suggested that international commitment, defined as the allocation of financial and human resources to support marketing activities, was the most significant factor influencing the effectiveness of international marketing strategy (Yin Wong & Merrilees, 2007). Chabowski et al. (2013) proposed an integrated framework where international branding strategy, encompassing both brand adaptation and standardization, influences the development of brand-based capabilities associated with the establishment of strong consumer-brand relationships, and these capabilities, in turn, impact brand performance.

The influence of brands varies across product categories and geographical regions (Fischer et al., 2010; Mandler et al., 2021). Although international brand management knowledge can be applied to the media industry, Rohn (2015) raised the major three differences between international media brands and other types of brands that must be considered. First, media content is usually low-priced, or even free, and the risks associated with a poor purchase decision are minimal when compared with expensive consumer products (e.g., automobiles). Second, media brands convey cultural content, making it more difficult for them to get across cultural boundaries than other types of brands. Third, decision-making between global standardization and local adaptation become more complex since local audiences and multinational advertisers may have the opposite preference.

In media management literature, several studies have also explored models of media brand management by adopting SCP theory and RBV. Förster (2011) benchmarked an overview of macro- and micro-level factors in media brand management, explaining how both television stations and recipients are affected by market conditions, and how strategic brand management is translated into content and communication. These activities can contribute to the development of media brand image. Siegert et al. (2011) proposed a theoretical model for decision-making in media brand management, considering two perspectives from which media trust has been studied: a normative perspective on fulfilling societal deliberative needs and a business management perspective aligned with free-market theory and commercial success.

The model suggests that editorial decisions with journalistic orientation and management decisions with market orientation can be translated into brand image and brand reputation.

Thus, the reviewed studies have posited a conceptual foundation for this study investigating international media brand trust. The conceptualization can be divided into three dimensions: international market conditions; strategic brand management of the media company; and content and communication perceived by readers and viewers that are expected to lead to brand trust in international media.

Brand Trust

This study will focus on exploring factors affecting brand trust in international news media from a standpoint of consumer-brand relationships approach. Fournier (1998)'s seminal work introduced the consumer-brand relationship model, highlighting the interactive nature of the connection between consumers and brands. A fundamental aspect of establishing and nurturing long-term relationships is the presence of brand trust, a topic that has garnered significant scholarly attention (Chaudhuri & Holbrook, 2001; Delgado-Ballester & Luis Munuera-Alemán, 2005; Delgado-Ballester & Munuera-Alemán, 2001; Morgan & Hunt, 1994)

Consumer trust is crucial to establish strong brands. According to Sichtmann (2007), brand trust refers to the belief, which a consumer relies on in a purchase situation characterized by uncertainty, vulnerability, lack of control, and the independent-mindedness of the transaction partners, that a corporate brand will deliver a good or service at the expected quality, based on past experiences of the consumer. In the branding literature, brand trust has been modeled as a multidimensional construct made up of different components. These components would include ability, integrity, and benevolence (Schoorman et al., 2007), competence, predictability, goodwill, and integrity (Burmann et al., 2017a), or competence, dependability and integrity (Hon & Grunig, 1999; Kim et al., 2014).

Media brands should be considered as distinct from other media objects of people's trust within hierarchical layers, situated between media system (upper layer) and media coverage and journalists (lower layer) (Fawzi et al., 2021). The media literature has suggested the existence of a disconnect between news organizations and their audiences about elucidating the factors that generate trust in news media, implying the necessity of referring to business management knowledge. Toff et al. (2021) highlighted that while journalists prioritize transparent reporting procedures as hallmarks of quality, news audiences are more prone to

highlighting their familiarity with brands or stylistic characteristics. Similarly, Urban and Schweiger (2014) demonstrated that media brand image hold greater heuristic value than the normative quality criteria such as objectivity when readers appraise news quality. In the increasingly digitalized media landscape, as Chan-Olmsted and Kim (2022) pointed out, other dimensions of brand trust, such as relationship and experience, should be adequately addressed in this study.

Brand trust has been found to significantly contribute to brand loyalty (Lau & Lee, 1999) as well as increase market share and advertising efficiency (Chatterjee & Chaudhuri, 2005). Additionally, brand trust has been proved to impact the selection of companies for both existing and new products, as well as the word-of-mouth (WoM) behavior of consumers (Sichtmann, 2007). It is plausible that brand trust would have a positive correlation with the adoption of micropayments (Sindik & Graybeal, 2011).

Influential Factors on Brand Trust

Ashworth et al. (2009) shifted towards understanding the functions of consumer-brand relationships, specifically examining how these relationships fulfill various needs and desires of consumers in their lives. The authors argued that consumers are driven to establish relationships with brands that fulfill several key functions: (1) helping consumers fit into a group (social adjustment), (2) providing practical and utilitarian benefits (utilitarian), (3) evoking positive emotions (hedonic), (4) aligning with consumers' values and sense of identity (value expressions), and (5) fostering feelings of closeness and intimacy (affiliation). Furthermore, the authors discovered that all of these functions, with the exception of social adjustment, exhibited a positive correlation with the strength of brand relationships.

Credibility

In brand management literature, brand credibility refers to the extent to which consumers perceive that a brand has the ability and willingness to continuously deliver what is promised in terms of product or service quality (Erdem et al., 2006). Consumers often rely on the information provided by the supplier prior to purchase, making credibility assessment crucial to evaluating the supplier's willingness to deliver as promised (Erdem et al., 2002). Credible brand attributes, therefore, increase the perceived value and quality of the brand (Lassoued & Hobbs, 2015). Numerous studies in various contexts have demonstrated the positive relationship between credibility and brand trust. For instance, Ha (2004), Erdem et al.

(2006), Sichtmann (2007) and Ngo et al. (2020) found a positive relationship between credibility and trust in e-bookstores, computers, orange juice, mobile phone services, and vegetables respectively. Wu and Wang (2011) discovered that media credibility and source credibility have a direct and favorable connection with brand trust in the context of electric word-of-mouth.

In the context of media trust, credibility is currently considered highly related to brand trust, and a narrower concept than trust in media, as credibility pertains to a specific evaluation of media content rather than a future-oriented perspective (Engelke et al., 2019). This study aims to distinguish credibility from brand trust as a factor influencing brand trust. Credibility may include multiple dimensions of "fairness," "biasedness," "completeness," and "accuracy," as supported by most researchers (Bakshi & Mishra, 2016; Kioussis, 2001; Oyedele, 2007). Moreover, it is argued that credibility has always been a major factor in driving brand trust and predicting news media success (Bakshi & Mishra, 2016; Chan-Olmsted & Kim, 2022). For instance, Bakshi and Mishra (2016) used structural equation modelling to explain how credibility influences consumer-based brand equity. However, while research has shown a relation between brand credibility and brand trust for non-media products (Erdem et al., 2004; Ngo et al., 2020; Sichtmann, 2007), little empirical research has yet been conducted to determine whether this relation holds true for international news media.

Reputation

The concept of brand reputation can be defined as the sum total of a company's previous actions and behaviors (Herbig & Milewicz, 1993; Lassoued & Hobbs, 2015). Brand trust is not only influenced by personal experience, but also by the experiences and opinions of other consumers (Afzal et al., 2009). Considerable investigations have been carried out to examine the correlation between brand reputation and consumer trust within the domain of e-commerce or online shopping (Jarvenpaa et al., 2000; Teo & Liu, 2007). The reason behind such focus is the belief that reputation furnishes reassurance to the customers regarding the seller's ability, benevolence, and integrity (Jarvenpaa et al., 2000), which in turn mitigates the risk of customers becoming vulnerable in the uncertain environment of the vast internet. If a company's activities are consistent and its promotional communication is truthful, the brand is expected to create a favorable image that fosters consumer trust. Conversely, if a brand has a negative reputation, consumers may not have sufficient trust to make a purchase (Creed & Miles, 1996; Lassoued & Hobbs, 2015).

In a previous investigation, Jarvenpaa et al. (2000) found that perceived reputation could have a positive effect on trust in internet stores selling both goods and services (such as bookstores and travel sites). Teo and Liu (2007) expanded the scope of the study and discovered that reputation was positively associated with consumer trust in the United States, Singapore, and China. This subsequently produced a positive correlation with attitude and a negative correlation with perceived risk in e-commerce. Additionally, McKnight et al. (2002) examined e-commerce vendors and determined that reputation was a significant factor influencing consumer trust. This trust, in turn, led to users engaging in behaviors such as following advice offered by the web vendor, sharing personal information with the vendor, and making purchases from the vendor's website. These behaviors could be important aspects of a vendor's strategic management (McKnight et al., 2002).

In the context of the media business, it may be wise to explore the potential of the concept of reputation, particularly when media companies strive to broaden their online subscription or micropayments sales (Russ-Mohl & Nazhdiminova, 2015; Sindik & Graybeal, 2011). However, despite the potential benefits of examining the relationship between media reputation and trust, there has been limited research conducted on this topic. Therefore, there is a pressing need for further empirical research to better understand how reputation and trust interact in the media business, particularly in the age of digital media with an abundance of media choices.

Localization

The decision whether to adapt brand content and communication to local markets or to keep them standardized is a critical one when expanding globally. In business management perspective, Schmid and Kotulla (2011) emphasized the critical role of standardization and localization considerations in international marketing strategy and a firm's overall internationalization structure. This issue has garnered attention from international business scholars as well as marketing researchers investigating significant factors influencing the degree of international product standardization/localization (Schmid & Kotulla, 2011). The studies have suggested that international companies seeking to maximize profits in foreign markets should consider adapting their products, brand image, and branding strategies based on: a higher degree of product adaptation practiced within the industry (Calantone et al., 2006) ; greater cross-national differences in socioeconomic conditions (Roth, 1995); and a more intense competitive landscape (Dow, 2006), respectively.

Considering the internationalization of news media corporates, in some cases local adaptation may even be the only way a company is allowed access to a market. Since news media can have a significant impact on public opinion and political discourse, it is often subject to political and regulatory barriers (Rohn, 2009). While larger markets typically justify a more costly strategy of localization, international media brands may localize their content in order to better meet the demands of the local audience in competitive environment (Rohn, 2015). Earlier research has identified localization, or identity, as a significant component of brand equity in the news media industry (Bakshi & Mishra, 2016; Victoria-Mas et al., 2018) in the context of localization within a country.

In addition, the idea of relevancy measures the extent to which a brand provides things that are pertinent to its customers' lives. In the context of brand extension, Liu et al. (2010) demonstrated that relevancy helps facilitate the transfer of brand affect and predict attitudes toward the brand, particularly when there is a high degree of relevance.

Customization is also a related concept. The degree of customization represents the level at which a particular service has been customized and modified in order to serve a customer's preference (Schmenner, 1986). Regarding social media marketing, Martin and Todorov (2010) found out that through customization, brands can convey originality thus creating more brand trust and loyalty.

The existing gap in previous research suggests that further investigation is necessary to examine the relationship between localization and trust in international media. Additional research in this area would provide a new perspective and contribute to a better understanding of the role of localization in enhancing trust among international media audiences.

Entertainment

Journalists and media companies have been more aware of what should be done to make their news more attractive to readers, rather than emphasizing journalistic quality and transparency of their content. Toff et al. (2021) pointed out that news audiences are more likely to stress their familiarity with brands and stylistic characteristics related to outward appearance when selecting quality media. An issue of the entertainment aspect of news arises here.

The concept of entertainment is associated with positive experiences such as fun, stimulation, relaxation, and diversion, which leads to both evaluative and experiential media use (Nabi & Krcmar, 2004). Entertainment features have been found to positively influence

attitudes towards a website and the intention to use it (Chang & Wang, 2008). Furthermore, Sohail et al. (2020) found the positive direct effect of entertainment dimension on both brand trust and brand loyalty regarding social media marketing.

Similarly, research has shown that high levels of perceived entertainment have a positive effect on consumers' attitudes and loyalty towards online news brands, as well as enhancing their engagement with the media (Krebs & Lischka, 2019; Riskos et al., 2022; Su et al., 2019). There has been limited research conducted on the extent to which being entertaining can enhance media users' knowledge and awareness, and subsequently impact their level of trust.

Ideology-fit

The definition of ideology can be found in both political science and psychology literature. Lyons and Scheb (1992) define ideology as an abstract, comprehensive perspective of the political world, which creates a rational framework of attitudes towards political parties, policy issues, and candidates. A considerable amount of research has been made on the relationship between people's ideology, or partisanship, and general trust in media as well as trust in media brands. For instance, individual's level of trust in the media can be influenced by their political beliefs and the intensity of those beliefs, as well as their position within a particular political group (Gunther, 1988). Conservative political attitudes are associated with lower levels of media trust or credibility (Gronke & Cook, 2007; Yamamoto et al., 2016), while liberals tend to express higher levels of trust (Livio & Cohen, 2018). People are more likely to trust media institutions or select news that align with their political ideology (Iyengar & Hahn, 2009; Stroud & Lee, 2013). Furthermore, Oyedemi (2010)'s study of Fox and CNN news channels in the United States found that ideological congruency influences consumers' perception of brand equity.

Fawzi et al. (2021) highlighted that many studies exploring the relationship between political ideology and media use have focused on the American context due to its clear political polarization and media landscape. However, it should be noted that both conservative and liberal perspectives exist in Thailand and Japan. For example, in Thailand, while the monarchy is essentially conservative, it has also adopted more liberal forms during the 1990s (Mccargo, 2005). In Japan, despite showing one of the highest levels of income equality in the world, conservative ideology has traditionally been dominant (Crespo, 1995). Therefore, investigating

the association between ideological fit with international media and brand trust would enhance the comprehension of cross-national media.

Interaction

The notion of "relationship," while more significant for consumer-brand relationships and brand trust measures, has been seldom discussed from a media standpoint, while scholars in social media marketing have intensively examined this concept. Social networking sites have had a profound impact on e-commerce in this technologically advanced era, connecting global users. As online news, including social media, has become the most prominent source of news (Newman et al., 2022), this dimension warrants more than a cursory observation.

The concept of social interaction refers to the use of brand-affiliated social media platforms by users to connect with others who use similar products or brands and share their opinions (Muntinga et al., 2011). Previous research on electronic word-of-mouth (eWoM) has suggested that people are more likely to share information when they perceive the source as trustworthy (Brown et al., 2007; Phelps et al., 2004). Kim et al. (2014) found that Twitter users who retweeted brands in South Korea had higher levels of brand trust than those who did not retweet. Other studies have suggested that interaction on media platforms has a positive impact on brand trust and brand loyalty (Manthiou et al., 2013; Sohail et al., 2020).

Hypothesis development

The model will include six independent variables, namely credibility, reputation, localization, entertainment, ideology-fit, and interaction, and brand trust in international media as the dependent variable. By examining the relationships among these variables, this model aims to shed light on the factors that contribute to brand trust in international media.

As discussed in the preceding literature review, the concept of credibility is viewed as a narrower concept than trust in media, focusing on the specific evaluation of journalistic quality of media content (Engelke et al., 2019), rather than taking a future-oriented perspective like brand trust in media. Studies in various contexts, including both products and service sectors, have demonstrated the positive relationship between credibility and brand trust (Sichtmann, 2007). Thus, it is postulated that:

Hypothesis 1: Credibility would have a positive influence on brand trust in international media.

Reputation is the sum total of a company's previous actions and behaviors, which are influenced by personal experience and other consumer experiences. Investigations have been conducted to examine the correlation between brand reputation and consumer trust (Jarvenpaa et al., 2000). Hence, it is hypothesized that:

Hypothesis 2: Reputation would have a positive influence on brand trust in international media.

Localization or standardization is a critical decision when international strategic management. The review of literature not only on localization but also its related concepts, such as customization and relevancy, explains that they are factors positively influencing consumers' attitudes toward brands. Thus, it is postulated that:

Hypothesis 3: Localization would have a positive influence on brand trust in international media.

As seen in the literature review, journalists and media companies have been wondering whether they should focus on making their news more attractive and entertaining to readers, rather than emphasizing journalistic quality. On the other hand, previous research has shown that high levels of perceived entertainment have a positive effect on consumer attitudes and loyalty towards online news brands (Riskos et al., 2022). Hence, it is hypothesized that:

Hypothesis 4: Entertainment would have a positive influence on brand trust in international media.

According to the literature review about the relationship between ideology, and general media trust and media brand trust, conservative political attitudes are associated with lower levels of media trust or credibility, while liberals tend to express higher levels of trust. Moreover, people are more likely to trust news sources or choose stories that support their political beliefs (Iyengar & Hahn, 2009; Oyedele, 2010). Therefore, it is postulated that:

Hypothesis 5: Ideology-fit would have a positive influence on brand trust in international media.

As mentioned in the literature review, social interaction refers to the use of brand-affiliated social media platforms by users to connect with others and share opinions. Many studies have suggested that interaction on media platforms has a positive impact on brand trust and brand loyalty (Sohail et al., 2020). Hence, it is hypothesized that:

Hypothesis 6: Interaction would have a positive influence on brand trust in international media.

Methodology

Data collection

Convenience sampling was utilized as the sampling technique for this study, in which the survey was conducted based on the willingness of the respondents. Due to time and budget constraints, the data collection was performed through an online survey in Thailand and Japan, with data being collected by both the author and market research agencies in Thailand and Japan. Respondents who completed the questionnaire were offered a chance to participate in a draw for rewards. Before proceeding to the questionnaire, participants were screened and excluded who had never read or watched any of the six international news media regardless of knowledge about those media.

The data collection period took place from February to March 2023, resulting in 168 completed questionnaires from Thailand and 138 from Japan. After removing unreliable responses, such as those who selected the same scores on all of the seven-point Likert scale questions, 120 responses from Thailand and 125 from Japan were used for final data analysis. The collected data remained anonymous and did not contain any sensitive information that could identify an individual's identity.

Table 1 Frequency and percentage of demographic characteristics

	Thailand	Percentage (%)	Japan	Percentage (%)
Number of Respondents	120	100	125	100
Gender				
Male	58	48.3	64	51.2
Female	61	50.8	58	46.4
Unspecified	1	0.8	3	2.4
Age				
20-29	41	34.2	21	16.8
30-39	32	26.7	47	37.6
40-49	33	27.5	40	32.0
50+	14	11.7	17	13.6
Education				
High school/Vocational school	26	21.7	34	27.2
Undergraduate	77	64.2	70	56.0
Graduate	17	14.2	21	16.8
Occupation				
Company employee (including part-time)	56	46.7	73	58.4
Public servant	5	4.2	2	1.6
Self-employee	36	30.0	25	20.0
Company executive	3	2.5	4	3.2
Student	12	10.0	4	3.2
Unemployed	7	5.8	17	13.6
Other	1	0.8		

Table 1 presents an overview of the media use frequency and percentage among the Thai and Japanese participants. The findings reveal that BBC and CNN emerged as the most favored international news media outlets by both Thai and Japanese samples, corroborating with another study conducted by the Reuters Institute (Newman et al., 2021). Notably, BBC was the most preferred international media among the six media companies by Japanese respondents, constituting 38.4%, while Thai respondents were inclined towards selecting CNN the most (45.0%).

Furthermore, in the Japanese sample, British media exhibited a higher frequency of usage than American media, whereas the reverse was observed in the Thai sample.

The digital format of news content was predominantly preferred in both countries. While Thai respondents demonstrated a tendency to access articles via social media, Japanese respondents preferred the media's own website or application. It is worth noting that only a meagre proportion of the respondents, approximately 10%, reported paying subscriptions to international news media when queried about their subscription status.

Data analysis

To fulfill the aims of this study and test the hypotheses, the statistical software package SPSS 22.0 were utilized. Descriptive analysis was carried out using SPSS 22.0 to find out the demographic characteristics of the samples. In addition, reliability was tested using Cronbach's α . Multiple linear regression analysis was used to test the hypotheses.

Research findings

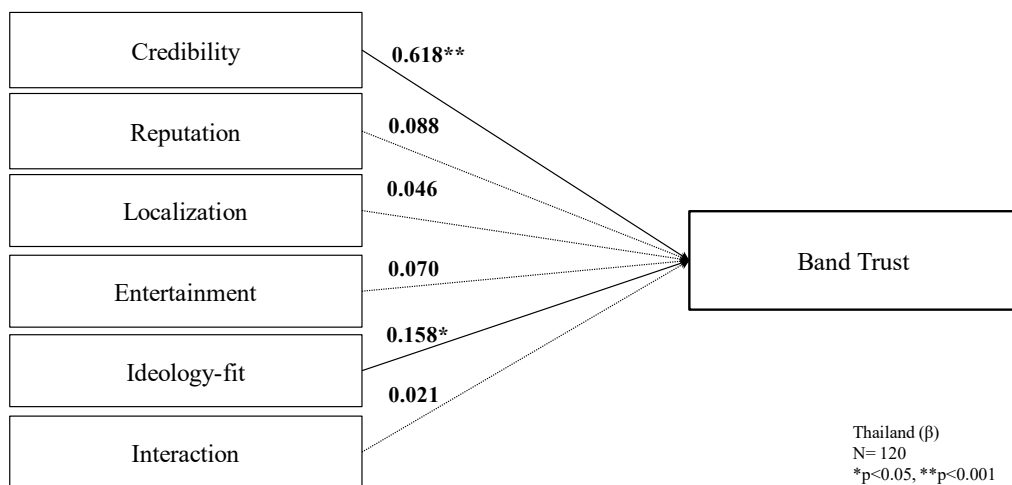
Table 2 Result of t-test on mean difference between Thai and Japanese samples

Variable	Thailand (n=120)		Japan (n=125)		Independent Samples t-Test			
	Mean	SD	Mean	SD	t	df	Sig.	Mean Difference
Credibility	5.02	1.26	4.10	1.19	5.826	243.000	0.000	0.91
Localization	4.48	1.59	3.22	1.19	6.979	220.850	0.000	1.26
Reputation	5.55	1.10	5.50	0.87	0.393	226.750	0.695	0.05
Entertainment	4.57	1.31	3.24	1.17	8.379	243.000	0.000	1.33
Ideology-fit	4.79	1.35	3.98	1.10	5.146	229.105	0.000	0.81
Interaction	5.17	1.33	3.43	1.28	10.430	243.000	0.000	1.74
Brand Trust	5.13	1.29	4.36	0.98	5.257	221.734	0.000	0.77

Hypotheses 1 to 6 postulate that credibility, localization, reputation, entertainment, ideology-fit, and interaction would serve as significant determinants of brand trust in the domain of international news media. To scrutinize these hypotheses, two-hierarchical multiple linear regression analyses was performed, where the control variables (age and education) were entered in the first stage and the predictor variables (credibility, localization, reputation, entertainment, ideology-fit, and interaction) were entered in the second stage. A dummy variable was constructed to gauge the effect of graduate-level education on trust in international news media (where high school/vocational level and undergraduate level = 0, and graduate level = 1). The dependent variable was brand trust, analyzed via two regression models based on Thai and Japanese samples.

Table 3 Result of multi linear regression analysis of Thai sample

Thailand (n=120)		Model 1			Model 2		
		Standardized Coefficients			Standardized Coefficients		
Variable		Beta	t	Sig.	Beta	t	Sig.
Age (reference=20-29)	30-39	0.071	0.678	0.499	0.002	0.030	0.976
	40-49	-0.077	-0.738	0.462	0.020	0.420	0.675
	50+	-0.089	-0.889	0.376	-0.024	-0.515	0.607
Education		-0.208	-2.235	0.027	-0.058	-1.288	0.201
Credibility					0.618	8.670	0.000
Reputation					0.088	1.401	0.164
Localization					0.046	0.730	0.467
Entertainment					0.070	1.115	0.267
Ideology-fit					0.158	2.158	0.033
Interaction					0.021	0.335	0.738
R			0.228			0.903	
R-square			0.052			0.816	
Adjusted R2			0.019			0.799	

Figure 1 Regression analysis of the Thai samples

The result of multiple linear regression analysis was different between the two countries. In Thai sample, during the first stage, it was found that educational level had a negative and significant effect on the dependent variable ($\beta = -0.208$, $p = 0.027$). However, after moving to the second stage, it was discovered that credibility was the most impactful factor, followed by ideology-fit, in predicting brand trust in international media, even after controlling for the respondents' age and education level. Conversely, localization, reputation, entertainment and interaction did not exhibit significance in the model. A look at the standardized coefficient ($\beta = 0.618$) and correlation (0.875) of credibility reveals that Thai respondents put a strong

emphasis on credibility, which means evaluation of journalistic quality, in building brand trust. Thus, these two concepts seem to overlap to some extent in the Thai sample.

The multiple linear regression analysis indicated that the multiple correlation coefficient R was 0.903 and the adjusted squared multiple correlation coefficient R^2 was 0.799 in the second model, which considerably increased from the model 1. These findings suggest that the multiple regression model fits the actual data and that the independent variables adequately explain the dependent variable (brand trust).

Table 4 Result of multi linear regression analysis of Japanese samples

Japan (n=125)		Model 1			Model 2		
		Standardized Coefficients			Standardized Coefficients		
Variable		Beta	t	Sig.	Beta	t	Sig.
Age (reference=20-29)	30-39	0.158	1.242	0.217	0.132	1.615	0.109
	40-49	0.263	2.097	0.038	0.152	1.906	0.059
	50+	0.209	1.875	0.063	0.085	1.171	0.244
Education		-0.046	-0.511	0.611	-0.072	-1.261	0.210
Credibility					0.376	5.227	0.000
Reputation					0.256	3.777	0.000
Localization					0.154	2.100	0.038
Entertainment					-0.105	-1.538	0.127
Ideology-fit					0.320	4.364	0.000
Interaction					0.054	0.883	0.379
R			0.212			0.811	
R-square			0.045			0.657	
Adjusted R2			0.013			0.627	

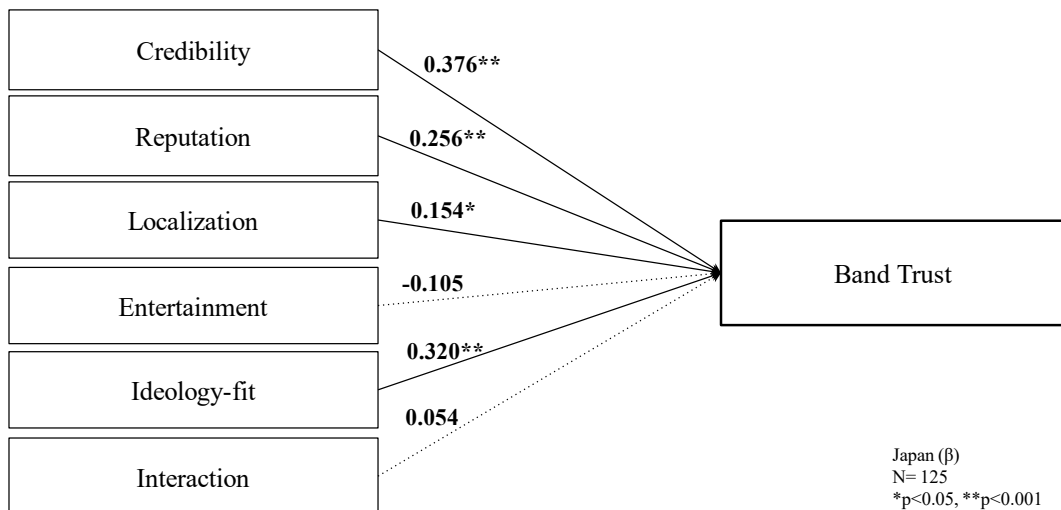
*p < 0.05, **p < 0.01 and ***p < 0.001; N = 125

Similarly, for the Japanese respondents, during the first stage, age in the 40s, compared to age in the 20s, was a significant predictor ($p = 0.038$) in the model. However, after moving to the second stage, it was observed that credibility was the most influential factor, followed by ideology-fit, reputation and localization in predicting brand trust in international media, even after controlling for the respondents' age and education level. On the other hand, entertainment and interaction did not demonstrate significance in the model.

The multiple linear regression analysis indicated that the multiple correlation coefficient R was 0.811 and the adjusted squared multiple correlation coefficient R^2 was 0.627 in the second model, which highly increased from the model 1. These results indicate that the

multiple regression model fits the actual data and that the independent variables far more appropriately explain the dependent variable than the demographic variables.

Figure 2 Regression analysis of the Japanese samples



In summary, upon comparing the two multiple linear regression models of the Thai and Japanese samples, it transpired that credibility and ideology-fit were the two most prominent factors that exhibited a significant impact on the trust in international media brands, which was consistent with Hypotheses 1 and 5. However, reputation and localization emerged as influential determinants of brand trust solely in the Japanese respondents, lending partial support to Hypotheses 2 and 3. On the other hand, the effects of entertainment and interaction were not found to be significant in both countries, which was inconsistent with Hypotheses 4 and 6.

Discussion

The comparison of the results across countries suggests that there are differences in the factors that readers perceive as important for increasing trust in international media. For example, it is suggested that localization and reputation of brands may be more influential on brand trust in a developed country with a larger market size or in a competitive market environment where media companies must differentiate themselves from one another. In contrast, the findings of this study indicated that entertainment and interaction are not significant predictors of brand trust in the Thai and Japanese samples. This result is intriguing as these factors have been widely accepted as influential on trust in social media marketing literature. The finding may suggest that there is a clear division in the context of international

media between social media posts, which are often more commercialism-oriented, and digital news articles, which are more journalistic-oriented, in building trust even in this highly socialized information age.

Managerial implications

The importance of media trust, or distrust, cannot be overstated for journalists and brand managers, as evidenced by numerous projects and guidance related to media trust, distrust, and mistrust (Lee, 2010; Reuters Institute for the Study of Journalism, 2020; The ASEAN Secretariat, 2018). While the editorial and business sides of news media may appear to be in opposition (Siegert et al., 2011), they are working towards a virtuous cycle where trustworthy coverage attracts more subscribers, making the business sustainable, and ultimately helping to promote democracy and a higher standard of living for all. This study offers a new implication for international media industry managers. Our findings reveals that there are differences in the factors that readers consider important for increasing trust in international media. Therefore, media managers may need to tailor their marketing strategies to each foreign market based on the level of ideological expression and local adaptation that is most appropriate. At the same time, media activities for content and communication should prioritize credibility, which strongly reflects the media's competence in journalism (Chan-Olmsted & Kim, 2022; Sichtmann, 2007).

Limitations and future research

This study provides a comprehensive and insightful perspective on strategic brand management for the international media industry through independent research and quantitative data analysis. However, the targeted population was limited to readers or viewers of selected British and American media in Thailand and Japan due to time and budget constraints. Therefore, to fully examine the model and establish theories, further analysis of explanatory variables and a broader survey across different countries is necessary. What is more, further analysis of the relative importance of the factors across societal, individual, and media-related environments will be required, since only age and educational level were controlled in the multiple linear regression analysis of this study. Additionally, the businesses of the media companies involved in this study differ in some aspects, such as the number of social media accounts used, which could affect the effects of variables. Therefore, future research should

take into account these differences to ensure proper comparison of the effects of variables across countries.

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Strategic Influence on Management Control Systems: A Comparative Study of Japanese Multinational Enterprises in Food industry

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Abstract

This study explores the impact of multinational enterprises' (MNEs') global strategies on Management Control Systems (MCS) in the context of the food industry. Employing a case study approach, we analyzed two Japanese MNEs to understand how their integration and response strategies affect MCS. Our methodology categorizes MCS into output control, process control, and cultural control, aligning them with the Integration-Responsiveness framework. The findings indicate significant differences in MCS between the firms, shaped by their respective Integration-Responsiveness typologies. Multinational enterprises (MNEs) with a 'Global' strategy focus on the faithful reproduction of key products from their home country. They exhibit strong cultural control by utilizing expatriates not only for technology transfer but also for management and financial control. In contrast, MNEs with the 'Multinational' strategies,

assign expatriates primarily for manufacture and quality control. This study contributes to understanding the dynamic relationship between MNEs' overseas strategies and MCS, offering insights into managing subsidiaries in varying global contexts.

Strategic Influence on Management Control Systems: A Comparative Study of Japanese Multinational Enterprises in Food industry

INTRODUCTION

The Management Control System (MCS) is a critical function in an organization; therefore, its failures can lead to large financial losses, reputation damage, and the possibility of organizational failure (Merchant & Van der Stede, 2017, p. 3). Research on MCS in multinational enterprises (MNEs) has largely focused on defining how MNEs control their subsidiaries through management mechanisms for more than 50 years (Kostova et al., 2016; Meyer et al., 2020). A recent review article by Zeng et al. (2023) summarizes the diverse studies on MCS and provides a framework that can aid in understanding and analyzing the content of MCS.

The MCS is a major issue in MNEs research. However, the integration of control is contingent upon the organization's strategy, and research in this domain has been declining (Zeng et al., 2023). Despite the pivotal role that control plays in strategy implementation, there has been a notable decrease in the number of studies examining this intersection. Furthermore, a considerable portion of MCS research has been centered on examining how individual foreign subsidiaries are managed (Lee, 2022; Nohria & Ghoshal, 1994), with limited studies analyzing the overall relationship between headquarters and subsidiaries (Lee,

2022). In response to these issues, it is imperative to identify how headquarter (HQ)'s overall overseas business strategy affects MCS.

Therefore, we compare the MCS of the two Japanese MNEs and examine how their respective overseas strategies affect their MCSs.

The first section of this paper will examine literature review of MNE's MCS and relationship between MNE's strategy and MCS. The second section is concerned with the methodology employed for this study. The third section is the findings of interviews undertaken during the two Japanese food MNEs. The final section includes implications and limitations of the findings to future research into MNE's MCS.

LITERATURE REVIEW

MNEs' MCS for foreign subsidiaries

MNEs that expand their operations across borders often establish foreign subsidiaries to conduct business overseas. These foreign subsidiaries operate with legal independence from the parent company, enabling them to develop their own strategies and organizational structures. However, foreign subsidiaries are typically established by parent company, and the final operational methods are influenced by the HQ,

leading to close management by the HQ (Baliga & Jaeger, 1984). Consequently, foreign subsidiaries find themselves in a dependent state (Sobotkiewicz, 2021).

The parent company exercises control over foreign subsidiaries to construct strategies and organizational structures that benefit the entire corporation.

The relationship between the parent company and foreign subsidiaries is treated as an agency problem in the transaction cost theory (O'Donnell, 2000). Foreign subsidiaries, acting as agents for the principal parent company, operate as legal entities distinct from the parent company. Due to the ability to engage in independent activities as separate entities, a misalignment of objectives can arise between the parent company seeking the overall goal and the foreign subsidiaries seeking individual optimization (Ambos et al., 2019). Resolving this issue involves methods such as monitoring the agent (principal's surveillance) to restrain self-interested behavior and providing incentives that align with the principal's objectives to the agent (Jensen & Meckling, 1976).

Considering these agency problems there are two approaches to control Management control system and equity control (Liu et al., 2014). Ouchi (1979) posited market, bureaucratic, and clan mechanisms as fundamental mechanisms of MCS, and it is used not only for domestic corporations but also MNEs to control foreign subsidiaries (O'Donnell, 2000; Sageder & Feldbauer-Durstmüller, 2019). Specifically,

MNEs combine control through outputs, process control, and social/cultural control (Ambos et al., 2019; Harzing, 1999; Malmi & Brown, 2008; Sageder & Feldbauer-Durstmüller, 2019; Stendahl et al., 2021; Turner & Makhija, 2006; Zeng et al., 2023) to govern and manage foreign subsidiaries (Stendahl et al., 2021). Output control is a method of managing foreign subsidiaries based on tasks or the specific output desired by the organization, such as budget and performance (Gencturk & Aulakh, 1995; Turner & Makhija, 2006). Process control is a method of managing foreign subsidiaries by specifying the appropriate behaviors and processes that must be engaged (Gencturk & Aulakh, 1995; Turner & Makhija, 2006). Social or cultural control, based on Ouchi's study call clan (Ouchi 1979), involves overseeing foreign subsidiaries by exerting normative pressure to ensure compliance with social responsibilities and to promote the alignment of values among members of the organization (Ouchi, 1979). Govindarajan & Fisher (1990) argue that the framework of control should not be rigidly applied but rather tailored according to the strategy.

Several studies have pointed out that the control mechanisms of MCS vary depending on the country where the headquarters is located (Egelhoff, 1984; Pudelko & Tenzer, 2013,). Japanese companies rely on management that is influenced by societal and cultural factors, in contrast to American and German companies (Baliga & Jaeger, 1984; Nakagawa et al., 2018; Pudelko & Tenzer, 2013). They dispatch

expatriate managers from HQ to foreign subsidiaries to oversee (Pudelko & Tenzer, 2013), facilitate the transfer of corporate culture and technology, and manage decision-making processes within foreign subsidiaries (Harzing, 2001; Jaussaud & Schaaper, 2006). Also, Headquarters can substitute or complement centralized decision-making by directly monitoring overseas subsidiaries through the deployment of expatriates (Harzing, 2001; Lee, 2022).

A significant amount of research on MCS has focused on investigating the management of individual subsidiaries (Lee, 2022; Nohria & Ghoshal, 1994), while there have been few studies examining the comprehensive relationship between headquarters and subsidiaries (Lee, 2022). Zeng et al. (2023) underscored the impact of environmental change and temporal dynamics on organizational control systems in their comprehensive review. Few studies have explored how MNEs adjust their MCS in response to environmental changes and the passage of time (Brenner & Ambos, 2013; Stendahl et al., 2021). The MCS is not operated rigidly with a fixed structure; instead, MNEs adjust and update their systems in response to external environments and their developmental circumstances (Stendahl et al., 2021).

Relationships between MNEs' strategy and MCS

Porter (1985) proposed that firms should adopt three generic strategies to secure competitive advantage in the market: cost leadership, differentiation, and focus. Prahalad and Doz (1987) applied Porter's theory of competitive strategies to international business studies, highlighting that as MNEs expand their business, they often face a strategic dilemma between 'global integration' and 'responsiveness to local situations'. They argued that addressing this dilemma requires strategic focus and organizational adaptation.

Bartlett & Ghoshal (1989) incorporated the concept of pursuing global-scale benefits into the theory of Prahalad and Doz (1987), presenting the Integration-Responsiveness (I-R) Framework. This framework illustrates the strategic types that MNEs aspire to as they strive to become supranational entities. Within the I-R framework, MNEs strategies are categorized into the 'Global' strategy type, where HQ makes decisions centrally; the 'Multinational' strategy type, emphasizing adaptation to host countries with foreign subsidiaries holding authority; and a collaborative approach treating the world as a single market, denoted as 'International' strategy type. Additionally, the 'Transnational' strategy type exists, which aims to balance global efficiency, local responsiveness, and worldwide learning capabilities. However, Dunning (1993) and Birkinshaw and Morrison (1995) noted the challenges of treating the world as a single market due to differences in market environments and regulatory requirements. Additionally, Rugman and Verbeke (2004) pointed out that global companies are often dependent on regions around their

headquarters in sales, suggesting that the transnational strategy is challenging to implement. Based on their arguments, it might be more realistic to consider the strategies of MNEs by focusing on two quadrants: one emphasizing 'Integration' for 'Global' strategy type and the other emphasizing 'Responsiveness' for 'Multinational' strategy type.

However, the discussion on a series of strategy types is too much concerned with the superficial event of the locus of decision-making authority and not enough with what determines the locus of decision-making. So what determine MNEs' type of strategy? Revisiting Porter (1985) and Prahalad and Doz (1987), it is considered that sources of MNEs' competitive advantage dictates its strategy type. According to this logic, in case the MNEs' competitive advantage heavily depends on specific processes or production methods, it may choose a more 'integrated' strategic type (global type in the I-R framework). This strategy involves applying the best methods established at the headquarters across global operations to maximize efficiency and aim for global competitive advantage. On the other hand, as Rugman and Verbeke (2004) have noted, in case the MNEs' business are strongly influenced by cultural backgrounds, consumer preferences, and legal regulations (such as food, FMCG, and housing industries), MNEs may adopt a more 'responsive' strategy (multinational type in the I-R Framework). This is because this strategic type aims to gain competitive advantage in local markets by offering products and services tailored to

regional needs. On the other hand, Barney (1991) presents the VRIO framework from the four perspectives of value, rarity, in-imitability, and organization, and seeks the source of competitive advantage in the company's internal management resources. However, the VRIO framework does not include the element of portability of resources. In order to utilize the VRIO framework in global management, it is necessary to consider processes that ensure the reliable utilization of resources globally.

MCS are defined by Anthony (1965) as the process by which managers ensure that resources are obtained and used effectively and efficiently to achieve organizational objectives. According to this definition, MCS can be seen as processes of utilizing resources to implement strategy, and it is clear that there is an interaction between MCS and strategy. However, limited research has been conducted on the impact of adaptation and integration strategies on MCS in the context of a company's foreign markets.

Matolcsy and Wakefield (2017) shed light on the strengthening of control of wholly owned subsidiaries through global integration; however, there remains a gap in understanding which control mechanisms are affected.

In this study, the central theme revolves around "how the overseas business expansion strategy of a corporation influences the MCS for the entire foreign subsidiaries." Through an investigation into various

companies with distinct overseas business strategies, we aim to validate how MCS are shaped by these strategies.

METHODS

Due to the limited prior research on MCS influenced by overseas business strategy, we utilized an inductive, multiple-case study to develop a new theory. Multiple-case comparative analysis facilitates theory building and extension by providing deeper, more generalizable theoretical insights than single-case studies (Eisenhardt & Graebner, 2007). Additionally, case studies maintain significant validity in revealing a comprehensive understanding of the context and process of a case, even when analyzing a solitary case, and they do not hinder hypothesis testing or theory development (Flyvbjerg, 2006; Yin, 1994). In this study, we entail the comparison of two MNEs' case studies.

The research question set in this study extends beyond factor identification and numerical measurements. It involves understanding, exploring, and analyzing aspects related to the context of the cases, including their broader context, making it necessary to collect comprehensive, systematic, and in-depth information about the cases (Doz, 2011; Eisenhardt & Graebner, 2007). By selecting two MNEs as samples, it was possible to collect rich cross-sectional data, typically used when investigating one or two companies,

including the contextual aspects of the cases. This approach facilitates concurrent comparative research among companies. It should be noted that this study is preliminary and serves to pave the way for a forthcoming multiple case study featuring more than four companies.

Sample

First, for the case study, we selected food MNEs listed on the Tokyo Stock Market. Food MNEs engage in manufacturing and selling overseas, and they often encounter numerous cultural differences (Ghemawat, 2007, p. 49), particularly when selling in foreign markets. Given the need to overcome these differences, the introduction of MCS tailored to the local market is considered. This consideration led to the selection of the food industry as the focus of the analysis. To reduce variability in cost structures compared to cross-industry comparisons, analysis was conducted focusing on a single industry.

From this list, we selected two MNEs (*Oberon* and *Titania*), because Oberon has made more than 50% in its sales from overseas, as well as to achieve an overseas operating profit margin ratio hits more than 10 %, and Titania has made more than 26% in its sales from overseas, as well as to achieve an overseas operating profit margin is less than 5%. It has been adopted as a case study precisely as a polar-type example following the Eisenhardt method (Eisenhardt, 2021).

According to data from eol, which provides financial data for Japanese listed companies, the average overseas sales ratio of Japanese food companies will be 28% in 2022. Oberon have existed for a higher overseas market sales ratio than average. In contrast, Titania have existed indicators are below the average. Oberon is currently engaged in food manufacturing and sales in 15 countries, and factories are located in 6 countries and province (USA, China, Taiwan, Netherlands, Singapore, Brazil) as of March 2022. Foreign subsidiaries were first established in the late 1950s. Titania is currently engaged in food manufacturing and sales in 8 countries, and factories are located in 7 countries (USA, China, Korea, Hongkong, Thailand, Indonesia, UK). Their first establishment of foreign subsidiaries were in early 1970s. Both MNEs operate their businesses in the overseas market, not only in manufacturing subsidiaries but also in sales subsidiaries. From the first establishment of a foreign subsidiary to the present, both MNEs have experienced foreign business operations, some of which, by any objective major, have been prioritized over overseas businesses, some of which have been less so. The details of the sample companies are listed in Table 1. The purpose of this study is not merely to elucidate how MNEs manage a single overseas subsidiary, but also to examine the specific MCS methodologies employed over an extended period of overseas business operations to effectively control the entire overseas subsidiaries.

Table 1. Description of Sample as of FY2022

MNEs	Location	Overseas sales ratio	Overseas operating profit margin	Year of first FDI	Number of foreign subsidiaries	Number of FDI countries	Number of countries for factory investment
Oberon	Japan	75.8%	11.0%	1950s	22	15	6
Titania	Japan	25.8%	3.6%	1970s	17	8	7

Data source: Two companies financial statements

Data Sources

We gathered and analyzed data on sample MNEs and individual managers, focusing on both quantitative and qualitative aspects. To collect quantitative data, we gathered data from financial statements, financial results presentations, and corporate history books. To collect qualitative data, semi-structured interviews were conducted with the managers. The interviews lasted for approximately 60 minutes. The interview survey consisted of how their respective overseas strategies affected their MCS, expatriates' roles, quantitative management methods for foreign subsidiaries, withdrawal rules of foreign subsidiaries, and changes in MCS due to the performance of foreign subsidiaries. Table 2 presents a summary of the interview surveys. The research notes and audio recordings of the interviews were transcribed and compiled into a "research record." Complementary data, such as relevant books, articles, newspapers, magazines, company websites, and other publications, financial reports, were collected in addition to material obtained from the interviews and financial-related data. The interviews were conducted using a

pre-designed interview guide that focused on providing informants with a means to relate relevant secondary information data to the MCS. To limit subjectivity, informants were asked to describe specific actions, events, and facts, as per the interview guide. Additionally, the interview results of the two researchers were compared for secondary data obtained through the interviews. In addition, the accuracy of the data and information was improved by using multiple sources to “triangulate” the data (Eisenhardt, 1989). The accuracy of the data and information was improved.

Table 2. Summary of cases and data sources

MNEs	Interviews	Interview location	Interview date	Record No.	Other sources (secondary and observation)
Oberon	Manager	HQs office	November 10 th , 2023	No. JPY-20231110	Financial Statement, Annual Report, Financial result presentation, Homepage, Press release, Corporate history book
Titania	General Manager	Online	October 6 th , 2023	No. JPY-20231006	Financial Statement, Annual Report, Financial result presentation, Homepage, Press release

Data Analysis

We conducted a comparative analysis of the two MNEs, employing case analysis to amalgamate interviews and archival data, aiming to construct a comprehensive case narrative for each company

(Eisenhardt, 1989). First, we systematized the quantitative data of the companies (such as revenue, percentage of overseas sales, percentage of domestic sales, overseas profit margin, and number of overseas locations), transition of top management and major shareholders, based on the financial data from eol, currency exchange rate based on Bank of Japan, making them easy to understand through the use of graphs and other visualizations. Next, we organized the qualitative data from the survey sheets (such as methods of MCS and roles of expatriates) in a way that highlights differences in the MNEs' strategies, and then integrated this qualitative data with the quantitative data. Ultimately, we integrated these consolidated quantitative and qualitative data with interview and archival data to create two case stories that capture the MCS and strategies of each company.

Following the analysis of each case, a subsequent cross-case analysis was conducted (Eisenhardt & Graebner, 2007). The provisional structures derived from each MNEs' cases were systematically arranged to emphasize the shared traits and distinctions among the case narratives. In this study focuses on whether the HQ's overseas expansion strategy influences MCS. To address this, we examine the overall group's strategy for overseas expansion, defining the degree of adaptation to foreign markets as "overseas expansion strategy." Drawing on cross-sectional data from two case studies, we discerned distinct strategic categories: one where the core product is sold without local customization and another where the

strategy involves adapting to the local market using the I-R framework (Bartlett & Ghoshal, 1989).

Additionally, we established measures for assessing “differences in overseas expansion strategy and MCS," including output control, process control, cultural control (Sageder & Feldbauer-Durstmüller, 2019; Gencturk & Aulakh, 1995; Turner & Makhija, 2006), and diversification strategy, using the I-R framework (Bartlett & Ghoshal, 1989). We investigated whether these differences impact quantitative data such as the proportion of overseas revenue and overseas profit margins. Finally, upon completing the intra-case analyses, we compared the insights gained from one case with the others, connecting elements to attempt theoretical derivation and refinement.

FINDINGS

This study focuses on two Japanese food MNEs to elucidate the impact of MNEs’ overseas strategies on MCS.

Firstly, we categorized the MCS of these MNEs into three types: output control, process control, and cultural control, consistent with classifications found in existing literature (Ambos et al., 2019; Harzing, 1999; Malmi & Brown, 2008; Sageder & Feldbauer-Durstmüller, 2019; Stendahl et al., 2021; Turner & Makhija, 2006; Zeng et al., 2023). Second, we classify their overseas expansion strategies using the I-R

framework. Table 3 presents the classification of MNEs' overseas expansion strategies and MCS based on the I-R framework. Table 4 also summarizes the quotes from the interview survey regarding compiles excerpts that highlight the contextual aspects of their MCS.

Table 3. Comparison of MCSs & I-R framework typology

	Oberon	Titania
Output control	○	○
Sales	○	○
Profit	○	○
Growth rates	○	-
Cost	-	○
Process control	⊙	△
Investment Decision	○	△
	Subsidiaries don't have any autonomy	Subsidiaries have limited autonomy
Turnaround Responsibilities	○	-
Quality & Brand Control	○	△
	All product quality control is directed by HQ	Only global brands quality control are directed by HQ
Cultural control	○	○
Expatriates	○	○
CEO	○	△
	To transfer culture	Capable local talents are best
Manufacturing Manager	○	○
	To transfer manufacturing technology	To transfer manufacturing technology
Financial Manager	○	-
Exchange rate	Not effected	Not effected

Top management change	Not effected to MCS	Not effected to MCS
I-R framework	'Global' strategy type	'Multinational' strategy type

Source: Two companies interview and data.

Notes: ○= The relevant mechanism is in place. △= The relevant mechanism is partly in place. - = The relevant mechanism is not in place.

Table 4. Contextual aspects in the MCSs: Dimensions and quotes from the interview survey

Dimensions	MNEs	Representative Quotations
Output Control	Oberon	"Each foreign subsidiary has targets for sales, operating profits, and business profits, and we monitor these metrics. For foreign subsidiaries, we particularly focus on CAGR."
	Titania	"Fundamentally, we manage sales profits, final profit and loss, and COGS."
Process Control	Oberon	"For investments, even small amounts are generally decided by the HQ's overseas business division." "Foreign subsidiaries make the operation plans to achieve targets." "(If a foreign subsidiary isn't meeting targets, the HQ) always conducts cause and countermeasure analysis." "We focus on 'adaptation' but not 'assimilation', with the basic principles set by the HQ and foreign subsidiaries responding accordingly." "Quality assurance is centrally managed by the quality assurance department in Japan HQ."
	Titania	"We have approval authority guidelines made at the HQ, allowing foreign subsidiary's autonomy up to a certain amount, beyond which HQ makes decisions." "(If foreign subsidiary performance declines, it is) regularly reported to the management committee in Japan." "(As foreign subsidiary sales ratio increases,) we are starting to strengthen governance."

		<p>"Global branding and factory establishment involve considerations at the HQ."</p> <p>"If selling global brands overseas, permission from HQ is required."</p> <p>"HQ does not interfere with products unique to the foreign subsidiary market."</p>
Cultural Control	Oberon	<p>"Sharing culture is extremely important. We consider the entire group as one community. Our company newsletter is bilingual, and corporate contests are open to staff of foreign subsidiaries."</p> <p>"We created a page in our company newsletter introducing local staff with photos and names right after establishing our first overseas factory."</p>
	Titania	<p>"The best approach is to trust capable local talents for leadership roles."</p> <p>"We provide information on our website, but our overseas efforts may not be as extensive as those in Japan."</p> <p>"We regularly gather some employees of foreign subsidiaries to convey policies directly from the Japanese management team."</p>
Expatriates role	Oberon	<p>"(Expatriates) are dispatched to most foreign subsidiaries. However, there are cases where they are not sent to branches of foreign subsidiaries."</p> <p>"Generally, expatriates in president, manufacturing, and finance & administration roles are dispatched."</p> <p>"(Sending expatriates is to) penetrate the HQ's rules and ideas, and make major decisions."</p>
	Titania	<p>"Heads of foreign subsidiaries are not always expatriates from Japan HQ, some subsidiaries are appointed local."</p> <p>"Primarily, we dispatch production and development personnel as expatriates from Japan HQ."</p>
I-R framework	Oberon	<p>"Broad policies and strategies are primarily conceived by the overseas business division of HQ while foreign subsidiaries focus on execution."</p>

Titania	<p>"(Business in each country) is handled case-by-case based on current issues, not strictly following a particular policy."</p> <p>"As overseas business grows, we believe that authority will be delegated to regions to increase speed."</p>
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Source: Two companies interview

Both MNEs are Japanese food manufacturers, and have in common that they utilize their own manufacturing technologies to sell their products in overseas markets. Although there are differences in the number of countries in which they operate, there are no marked differences in the number of overseas subsidiaries and the number of countries in which they have production bases. In contrast, overseas sales and profit margins differ significantly (Table 1).

The two MNEs have in common that they use all types of MCS, output control, process control, and cultural control. However, the degree and scope of process control and cultural control differ significantly.

The commonality is that, in output control, foreign subsidiaries set their sales and profit budgets and manage them based on the degree of achievement of the budgets. While Oberon focuses on the sales growth rate and Titania on cost control, the basic approach to control is the same.

Process control

Regarding process control, while both MNEs are involved in investment and manufacturing, there are significant differences in the management of the two companies. At Oberon, the HQ has strong control,

and, in principle, all investment decisions are made at the HQ. Therefore, the HQ also takes responsibility for foreign subsidiaries when problems arise, and the HQ dispatches support to deal with business failures or problems that occur. In contrast, Titania has a relatively lenient process control system, and as long as it is possible to achieve its budget, the HQ does not question the process. Even when budgets are not achieved, Titania only requires status reports to their foreign subsidiaries. However, Titania also requires prior approval from the HQ when considering investments above a certain amount, a procedure that is partially similar to Oberon's. Both MNEs focus on quality control in manufacturing. Oberon controls the quality of all its products at its HQ, including those developed overseas. Titania has a system in place whereby brands sold in global markets are managed at the HQ when they are also sold overseas, whereas products unique to local markets are managed locally. When asked about their decision making procedure, the two MNEs responded as follows:

Cultural control

In cultural control, both companies are using clan (Ouchi, 1979) to focus on transferring culture to control foreign subsidiaries. But each company has a different method or level of effort to embed. When asked about their cultural transfer method, the two MNEs responded as follows:

Both companies dispatch expatriates from the HQ, but their roles differ significantly. They send their heads to the manufacturing division as expatriates. This suggests that the company dispatches these employees from HQ for the purpose of technology transfer (Harzing, 2001; Jaussaud & Schaaper, 2006), as HQ has technological strength in food manufacturing, which is key to its management. In contrast, Oberon dispatches not only manufacturing expatriates but also management and those in charge of general affairs and finance to monitor their foreign subsidiaries. This is the evidence of Obelon's tight control of its local subsidiaries and its strategy of integrating rather than adapting to the local market. In terms of quality control of products sold abroad, Obelon manages everything at HQ, whereas Titania gives its local subsidiaries autonomy in a way that is adapted to the markets in which they op. The two companies with different overseas profit margins discussed in this study reveal very different methods of expatriate management of local subsidiaries. Oberon places a particular emphasis on cultural transfer compared to Titania, stating that expatriates are a key element in the way this is achieved.

In the two companies analyzed, changes in top management and exchange rate fluctuations had no impact on MCS.

Both MNEs focus on quality control in manufacturing. Oberon controls the quality of all its products at its HQ, including those developed overseas. Titania has a system in place whereby brands sold in global

markets are managed at the HQ when they are also sold overseas, whereas products unique to local markets are managed locally.

I-R framework

Focusing on the location of decision-making, Oberon states that policies and strategies are primarily considered by HQ, while overseas subsidiaries focus on implementation. In contrast, Titania delegates authority to each region to speed up the process. Both MNEs maintain a consistent style of decision-making across different countries, not altering it based on the host country. Therefore, these differences are thought to be due to company-specific. These results indicate that Oberon has a 'Global' strategy type and Titania has a 'Multinational' strategy type. In this study, it is not clear to what extent competitive advantage or product variety influences the strategy type. However, Oberon's products are the same as or derived from the basic products manufactured in the home country, in contrast, Titania manufactures specialized products for the local market with products and raw materials not used in the home country.

IMPLICATION AND LIMITATION

Much of the prior research on MCS has analyzed dyadic relationships , focusing on how HQ controles individual foreign subsidiaries (Lee, 2022; Nohria & Ghoshal, 1994). Furthermore, research addressing

the relationship between strategy and MCS has been limited (Matolcsy and Wakefield, 2017). In this study, we focused on the relationship between overseas expansion strategy and the management methods of foreign subsidiaries, which has significant implications in both academic and practical perspectives.

Two Japanese MNEs in our research, there were no significant differences in the number of countries with manufacturing bases. However, considerable differences are observed in the ratios of overseas sales and profitability. Oberon, which boasts high overseas profit margins, makes all investment decisions from HQ and dispatches expatriates from HQ to key positions in its foreign subsidiaries. In contrast, Titania, with lower overseas profit margins, grants a certain level of autonomy to its foreign subsidiaries regarding specific investments. While manufacturing managers at foreign subsidiaries must be expatriates from HQ, other positions, including top management roles, are not necessarily staffed with expatriates from HQ. The I-R positions (Prahalad and Doz, 1987) based on them affect the MCS of MNEs. For companies that prioritize manufacturing technology, it is possible to transfer critical technology to overseas subsidiaries by dispatching only personnel possessing that expertise from HQ (Jaussaud and Schaaper, 2006). Conversely, when not only technology but also corporate culture and overall processes form the foundation of the company to copy HQ processes and , it is essential to fill key positions in overseas subsidiaries with expatriates from headquarters.

As an academic implication, this study suggests the potential for further process and cultural controls within MCS, as evidenced by the case approach. Moreover, this demonstrates that different MCS are required for I-R framework typology (Bartlett & Ghoshal, 1989) . This finding implies that a company's strategy directly influences its subsidiaries management approach, offering a new perspective on existing MCS research. While previous studies have explained MCS in MNEs as classification issues or differences in corporate culture due to nationality (Baliga & Jaeger, 1984; Nakagawa et al., 2018; Pudelko & Tenzer, 2013), our study uniquely illuminated the alignment of MCS with strategy. For the 'Global' strategy type focused on faithful reproduction of key products from the home country, a strong MCS including cultural control is advisable. We have not found a suitable MCS for the 'Multinational' strategy type, but the degree of control by culture may be lower than for the 'Global'.

Deploying numerous expatriates across various departments can be an effective implementation approach. However, a more lenient MCS that enhances the autonomy of foreign subsidiaries may be appropriate for the 'Multinational' strategy type focused on market adaptation. Targeting expatriate deployment can ensure effective control of the core aspects of the MNEs. Furthermore, MNEs can tailor their strategies based on the management capabilities and ownership structure of their foreign subsidiaries (Liu et al., 2014).

Expanding this research to a broader range of industries could provide academic solutions to the challenges MNEs face in aligning control and strategies with foreign subsidiaries. In conclusion, this study offers new insights into the interplay between the I-R framework typology and MCS in global management, serving as a vital guideline for manufacturers in strategic planning for competitive advantage in global markets. It also lays a foundation for further theoretical and practical research in the field of global management.

However, this study has several limitations. First, the sample size was limited to only two MNEs, and there is insufficient evidence to generalize the results. Future research should involve a larger number of MNEs to gather more evidence and attempt further expansion and refinement of this theory. Second, attention should be paid to the differences in product strategies and profitability between HQ and overseas subsidiaries. Oberon employs the 'Global' strategy type based on decisions made at HQ, while Titania adopts the 'Multinational' strategy type, tailored to local market demands and decisions. Although Teece (1980) points out that economies of scope can be established under the right conditions even with multi-products, according to classical economics, a high number of products inhibits economies of scale. However, an increase in the number of products is inevitable when trying to be responsive to local situations. Oberon has higher profitability overseas than domestically, while Titania shows the opposite

trend. Careful analysis is needed to discern the causal relationship between the combination of global strategies with MCS, and profitability. Third, we were unable to observe changes in MCS over time in the two case studies. Some studies mention the influence of the number of years of operation and control by expatriates (Belderbos & Heijltjes, 2005; Gong, 2003), suggesting that the passage of time affects the MCS of MNEs. However, although both of the two firms in this study had been in the market for a considerable number of years, the overall management of the overseas subsidiaries did not show such changes even though the management had changed. Fourth, although we were able to suggest a relationship between MCS and the location of decision-making in accordance with the I-R framework, we did not obtain sufficient evidence that strategy type was defined by firm-specific competitive advantage or product variety.

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Informal institutions shaping attitudes towards plant-based foods in Japan

- Consumer and company perspectives

Abstract

The research aims to identify **informal institutional aspects that influence attitudes toward sustainable plant-based foods and the outcomes of these attitudes** in Japan. The food industry generates 34 percent of the global greenhouse gas emission, meat production accounting for 60 percent of these emissions. Plant-based food-systems are based on products derived from plants (e.g. beans, vegetables and fruits) and they have a significantly lower environmental footprint than animal-based food systems. Meat consumption in Japan is constantly increasing, and Japan being the World's third biggest economy, there is a huge **economic potential** for new sustainable plant-based alternatives in the country. Attitudes of entrepreneurs and the general public play a central role in the adoption of sustainable practices. In the global incentive to move towards sustainable systems, clashing attitudes in a society can even negate legal efforts. Through the **aimed 40 in-depth interviews and 200-300 survey responses** from companies and consumers, the study aims to gain a deep understanding of the informal institutions influencing Japan's shift towards sustainability, expanding the highly Western focused research field.

The Dilemma between Talent Management and Individual Autonomous Career Orientation -The Japanese case-

1. Introduction

This paper critically examines the relationship between the perception of talent status in talent management (TM) and individual career perspectives (career perspectives). It delves into how organisational-led TM influences the performance of individuals who perceive themselves as selected as talent (so-called 'talent personnel') as their career perspectives become popular. The impact of talent status perceptions (TSP) on career views is not just an exciting aspect of TM but a crucial one that needs to be understood for effective talent development strategies. This understanding is particularly relevant in Japanese, where talent management practices and career perspectives are unique.

In recent years, the career aspirations of individuals have received more attention, and some companies have started to tolerate and encourage the career development of such individuals. This significant shift in perspective contrasts traditional TM research, which suggests that employee career management is a strategic function of the organisation. This evolving understanding of career management, focusing on individual career development, is a prerequisite for developing human resources in the

company concerned. Hence, it has been noted that in TM, the perspective of mechanisms (retention and engagement) for career actors, that is, individual employees, is lacking (Crowley-Henry et al., 2019). At the same time, employees are becoming more proactive about their careers. Today, workers and companies recognise the importance of an 'individual-led' and autonomous view of their careers. This paper, therefore, focuses on the career attitudes of talented individuals (and non-talented personnel) and their impact on performance. Note that this paper does not aim to evaluate the merits or demerits of organisational-led career management or autonomous careers. Previous research has focused on the practice of TM and its strategic nature as company-led career management, with little discussion of the organisation's strategic function for individual careers (Dries et al., 2013).

The relationship between TM and performance is strengthened when HRM is considered central to the organisation. In addition, employees who do not have a TSP are likely to react negatively to this inequity of non-certification (Gelens et al., 2014; Lacey & Groves, 2014, etc.). Employee reactions to recognition can affect productivity and creativity, sometimes leading to poor performance (Mahajan & Benson, 2013) and employee turnover. Therefore, positive/negative employee and organisational outcomes are critical factors in differentiating the TM-exclusive workforce.

In TM, conflicts occur between those who are selected as talented and those who are not, and the TM system and the non-identification of talent selectors take these conflicts into account (e.g. The Japan

Institute of Labour Policy and Training, JILPT, 2017). With the development of TM, talent (or talent candidate) personnel's career perspectives will also need to be considered when considering the management of talent (or talent candidate) personnel. As TM progresses, their career perspectives must be considered when considering the management of talent (or talent candidate) personnel.

This paper's research question (RQ) is: "How does the conflict between company-led career management and individual autonomous career perspectives affect individual performance?" We delve into this question and examine the relationship between 'TSP' and individuals' autonomous career orientation (ACO) in TM. Specifically, in the context of the increasingly diverse career perspectives of those who perceive themselves as selected talents, we examine how organisational-led TM affects their performance and what moderating effect autonomous career orientation has on the relationship between talent and performance.

2. Background

2-1. Human Resource Development and Promotion in Japanese Company

According to a survey by Rosei-Jiho (2014) (N = 171), 85.2% of companies reported that they could not develop human resources for next-generation management. The Recruit Works Research Institute (2013) survey also found that 44.5% of companies (N = 238) said "developing next-generation leaders" is

the most essential human resource issue they currently recognise. In other words, it can be said that a significant number of companies are facing challenges in "developing and promoting next-generation managers" in human resource management (HRM). Identifying and developing next-generation leaders/high performers is an urgent issue for Japanese companies, and various companies have reported company-based efforts to develop next-generation executives (Nishimura & Tanaka, 2017; Tanaka and Nishimura, 2017 etc.).

What is the policy of Japanese companies in selecting managers who are also candidates for the next generation of management executives? According to JILPT's 2014 survey, 67.6% of companies emphasise internal training and promotion as their policy for developing and promoting managers, while 7.4% emphasise external sourcing of experienced personnel. This means that hiring managers in Japanese companies is a crucial factor in hiring managers in Japan. Japanese firms have emphasised internal development and promotion when hiring managers. It would be reasonable to determine who should be promoted after eliminating information asymmetries through long-term employment. However, 50.7% of companies answered that they select and promote regardless of age, which is significantly higher than the percentage of companies that train and promote in seniority order (19.1%), so it is difficult to say that selection for management positions is based on the accumulation of long-term human resources information. When companies that are "considering" introducing early selection (22.1%) are added, nearly

40% of companies (37.5%) have introduced this system. In other words, the seniority system is gradually disintegrating despite the intention to promote it internally. One of the means of selecting employees at an early stage is talent management.

The above survey data suggests that Japanese companies recognise the challenges they face in developing the next generation of executives. On the one hand, they emphasise internal development and promotion more while steering towards early selection. On the other hand, the development of early selection poses a severe challenge for traditional HRM in Japanese companies. This is because, while promotion positively impacts employees' work attitudes and behaviour and their sense of unity with the organisation by raising their self-esteem, failure to promote them may lead to a decline in motivation. However, the organisational structure limits the number of employees who can be promoted.

It has been noted that there are two types of promotion structure: one in which there is a certain amount of competition regardless of the length of service and all members of the organisation are motivated for promotion, and one in which the entry position determines the final position, resulting in a generous investment in training for specific personnel. In the latter case, the efficiency of investment in the development of specific human resources (talented or potentially talented people) increases and, according to Rosenbaum's (1984) study, winners and losers compete within the trading group and within the losing group, respectively, to prevent a decline in position. However, the promotion structure in Japan

is said to be implemented slightly differently than the above (e.g. Imada and Hirata, 1995). According to Yamamoto (2009), competition in Japanese companies begins around the 5th to 9th year of employment. Prior to that competition, promotions are, in principle, implemented in a manner that does not create a so-called loser/lagging group, referred to as simultaneous promotion in the same year. This simultaneous promotion in the same year (or staggered promotion in the same year) is operated in a seniority-based manner, does not create a loser group (promotion at the beginning of the term) among employees who have just joined the company, and maintains employee motivation, which is in line with the basic philosophy of personnel management in Japanese companies, which is based on the principle of skills development. Later, tournament warfare between employees begins between the 15th and 20th year of employment (Yamamoto, 2009). During this period, so-called 'horizontal transfers' allow employees to discover their aptitudes and develop competencies by broadening their work experience.

Being selected for talent may lead to high performance and high fulfilment. However, not everyone sees being selected for talent as a 'personal career success'. Therefore, if one's view of one's career differs from talent selection (and the associated organisational-led career management), this may hinder improved performance. This paper focuses on protean and boundaryless careers as ACO, which have been advocated against organisational-led career management. It examines the impact of career views on performance using TSP. This validation task is a gap that TM research has yet to reach out to and needs to be clarified.

2-2. Career Management

Workers' careers are nurtured in the labour market, where they can develop their competencies and skills and move to companies offering better working conditions. The labour market is a trading market for labour power, where the supply-demand relationship between workers and enterprises significantly impacts an individual's career. Internal labour markets are "administrative units, such as manufacturing plants, where administrative rules and procedures control the price and distribution of labour" (Doeringer & Piore, 1971). It is characterised by skill specificity (competitive advantage due to skill specificity), on-the-job training (internally promoted personnel based on training) and custom. The advantages of such internal labour market development include the ability to develop organisation-specific competencies, including values, the improvement of competencies through personnel development leading to increased motivation of workers, and the possibility of long-term and systematic utilisation of human resources (Morishima, 2009). Lepak and Snell (1999) distinguish four quadrants of human capital based on the conceptual dimensions of value and uniqueness. Although each has different characteristics and HR implications, the first quadrant locates human capital that combines value and uniqueness. Employees in this quadrant are nurtured through internal development. This internal development can be regarded as a 'making' type of resource procurement. On the other hand, the external recruitment of personnel with

already formed competencies (e.g. mid-career recruitment for immediate employment) can be considered a 'buying' type of resource procurement.

Lepak & Snell's (1999) framework states that adequate resourcing can be achieved by using human resources according to human resource needs rather than by making or buying TM. It discusses whether to develop human resources internally or to source them externally. Given the current state of workforce availability in Japan, many new graduates are of low value and often need to deepen their uniqueness. It can also be argued that many recruits are "blank slates" (Ishiyama, 2020) and are selected on-the-job (OJT) in a long-term, slow process based on current Japanese-style career management. Hence, organisational employee career management has been implemented on the premise of internal development (Takeishi, 2016). In a survey conducted by the Japanese Institute for Labour Policy and Training (JILPT) (2017), most Japanese companies stated that they attach importance to hiring new graduates, long-term employment, skills development through company responsibility and company-led transfers. In addition, more than 70% of companies place importance on employees with long service tenure.

The Japanese-style career management did not require individuals to think deeply about their careers. However, nowadays, individuals take the initiative in career development (e.g. Takeishi, 2016). Individuals' careers are constructed within the organisation, but in a way that harmonises the individual and the organisation. In the case of organisation-led career management, the main focus is on achieving

organisational goals.

2-3. Career Orientation

So-called Japanese-style career management is a way of career building in which companies and individuals mutually depend on each other. However, now that long-term employment is not guaranteed or not aimed for, individuals are increasingly oriented towards developing employability. There is a shift from interdependence to self-support (Sakamoto, 2013). Resources are also being allocated to support employee career autonomy. ACOs are becoming a significant trend in career construction against uncertainty and diversifying values associated with rapid market changes.

An autonomous career is "a shift from personnel and education systems traditionally provided from an organisational perspective to career design and construction systems from an individual perspective" (Hanada, 2006, p. 54). In other words, it refers to employees thinking about their careers autonomously, considering their professional life and life in general, rather than relying solely on the organisation's career development measures. This autonomous career has two axes: the 'protean career' and the 'borderless career' (Takeishi, 2016). Protean careers, as proposed by Hall (1996, 2002), refer to a career perspective based on the consistency of an identity-conscious self, with adaptability and willingness to adapt to external change (e.g. Takeishi, 2016). In other words, it refers to being aware of what one considers

important and maintaining one's identity while adapting to organisational and environmental changes (adaptability). Underlying this idea is a career awareness of psychological success rather than objective success, as careers are managed by individuals and based on goals defined by the individual, reflecting freedom by the individual, career self-management and choices based on personal values (Briscoe & Hall, 2006). As it is an attitude of autonomous career development according to one's identity, it may be at odds with organisational-led career management, which is altruistic and TM-oriented.

Protean careers, as proposed by Hall (2002), refer to a career view that is conscious of identity and adaptable and willing to adapt to external changes based on one's consistency (e.g. Takeishi, 2016). In other words, it refers to being aware of what one considers important and adapting to organisational and environmental changes (adaptability) while maintaining one's identity. Underlying this idea is a career awareness of psychological success rather than objective success, as careers are managed by individuals and based on goals defined by the individual, reflecting freedom by the individual, career self-management and choices based on personal values (Briscoe & Hall, 2006). It is an attitude of autonomous career development according to one's identity so that it may be at odds with organisational-led career management with altruistic TM in mind. Boundaryless careers were proposed by Arthur & Rousseau (1996) and refer to job, organisational and national boundaries. Boundaryless careers develop across such boundaries or without awareness of them. This view of career is less dependent on a particular organisation

and more independent of the employer than traditional careers. Interested in this career model can often expect high employability and market mobility. There is a concern that people are relatively more likely to change jobs depending on their employability. If people with high boundaryless careers are to be targeted for TM development as human resources, management will need to encourage their retention.

3. Talent Management and Career Orientation

Are organisational-led career management and TM-aligned autonomous careers compatible or contradictory? The relationship between TM and employees' careers has yet to be thoroughly examined. This phenomenon is not unique to our country, as Lewis and Heckman (2006) and De Vos and Dries (2013) point out: as the practitioners of TM are the HR department and management, TM is generally viewed through the lens of HR (Lewis & Heckman, 2006). On the other hand, career research encompasses much of the individual-level research described above and careers within organisations (e.g., talent identification and development in HRM) (Hall, 2002; Baruch & Peiperl, 2000 and other discussions). It has also been noted that there are some contradictory assumptions between TM and careers (see De Vos & Dries, 2013).

In TM, critical positions in an organisation are explicitly or non-explicitly defined, and companies take the initiative to build a talent pool and develop succession plans for these positions. In contrast, recent career theory suggests that talented employees act as free agents (Tulgan, 2001) and increasingly

autonomous careers, where employees are left to manage their careers (Van Buren, 2003). In this context, an essential part of TM practice is 'continuity' in career research and the retention and succession of high-value, high-uniqueness employees in the first quadrant of Lepak & Snell (1999) De Vos & Dries (2013) found that Lepak & Snell (1999) quadrant one and found a high proportion of High Value/High Uniqueness employees in the first quadrant. The higher the proportion of high-value and highly unique employees, the more the organisation emphasises continuity as a goal of its career management measures. At the same time, however, the importance and necessity of autonomous careers based on professional identity and other factors not limited by the organisational framework are also advocated, and the gap between the two is significant.

Table 1.

The Career versus the Talent Management Literature: Conflicting Assumptions		
	Career Literature	Talent Management Literature
Credo	Build a career in which I can use and develop my talents in view of my personal career drivers and goals	Detect, development, and deploy employees' talent in order to obtain superior performance at the individual, group, and organizational level
1 Importance attached to continuity	Low	High
2 Focus of career management	individual (Psychology)	Organizational (Strategy)
3 Accountability for career management	Self (Protean)	Organization (Paternalistic)
4 Mobility preference	Inter-organizational (Boundaryless)	Intra-organizational (Bounded)
5 Number of formalized CM practices	Low (Focus of CSM)	High (Focus on OCM)

Note: CM=Career Management, CSM=Career Self-Management, OCM=Organizational Career Management

Source: de Vos & Dries (2013)

TM research has not focused on individual career outcomes as talent or individual career management responsibilities (e.g. Hall, 2004). Previous research has focused on the practice of TM and its strategic nature as company-led career management. However, there needs to be more discussion of the strategic function of individual careers for organisations (Dries et al., 2013). This paper, therefore, discusses traditional organisation-led career management and its relationship to ACO.

In TM, there are conflicts between those who are selected as talented and those who are not, and the TM system and the non-identification of talent selectors take these conflicts into account (e.g., National Institute for Labour Policy and Training, 2017). With the development of TM, talent's career perspectives will also need to be considered when considering the management of talent (or talent candidate) talent. As TM progresses, their career perspectives will also need to be considered when considering managing talent (or talent candidates) talent.

Employees who consider themselves 'talented' despite being identified as 'untalented' are likely to react negatively to this inequity of non-certification (Gelens et al., 2014; Lacey & Groves, 2014; Malik & Singh, 2014). Employees react to perceptions of injustice, dissatisfaction (Wan et al., 2013), reduced commitment, and poor performance (Mahajan & Benson, 2013), and some employees are expected to leave. This supports Marescaux et al.'s (2013) finding that workforce differentiation, which is at the core of exclusive TM, leads to adverse outcomes with employees. De Vos & Dries (2013) found that the more

an organisation values continuity in light of its human capital structure, The more it adheres to the 'traditional' career management model and the more it will emphasise continuity as a career element, they point out. Organisational approaches to management are noted as an important determinant. Human resource development in Japan has traditionally been oriented towards long-term stability, which may be consistent with long-term TM measures. However, prolonged periods of mixed talent and not-so-talented personnel can lead to organisational dissonance. In general, employees who are recognised as 'talent' by the organisation have a positive perception of the value and fairness of the organisation's actions as part of that relationship (Bjorkman et al., 2013; Gelens et al., 2014; Slack et al., 2015). Perceptions of being part of the talent pool lead to perceptions of organisational support, recognition, development and organisational commitment (Gelens et al., 2014), lower turnover intentions (Bjorkman et al., 2013) and higher recognition. These results suggest that being selected as a Talent will lead to more positive job behaviour. In other words, those selected as talents in TM are often considered high performers and have high potential. This paper examines whether being selected as a talent improves their performance.

Hypothesis 1: The perception of being selected as a talent enhances their performance.

It then examines how being an ACO affects performance in the TM system, an organisation-driven

career management system. Therefore, this study examines the impact of ACOs on performance and the interaction between TSPs and ACOs on performance. It has been noted that protean careers increase an individual's cognitive employability (Lin, 2015). However, career outlook itself is not considered to impact performance directly (of course, there are preconditions for performance, such as proactive behaviour). In addition, not all people consider being selected as a talent as a 'career success', even if they have achieved a high level of performance and find their work rewarding. In other words, if a person's view of his/her career (borderless or protean career) is not aligned with being selected as a Talent in TM measures, this may hinder performance improvement. Therefore, the analysis in this paper asks, "Does TM match the diversity of career views?" and examines the following hypotheses.

Hypothesis 2: Autonomous career orientations affect their performance.

Hypothesis 3: Autonomous career orientation exacerbates the relationship between the perception of being selected as a human resource and performance.

4. Analyses

4-1. Data

This paper uses data from “the Survey on Careers”, conducted online in 2021. The survey was conducted online by monitors registered with an internet research company, targeting full-time employees working in the manufacturing, electricity, gas, heat supply and water supply, information and communications, wholesale and retail or finance and insurance industries in Japan with more than 300 employees. The survey was conducted in two parts in January 2021. The survey was split into two parts to reduce the burden on respondents and avoid common method bias. The first survey (Wave 1) was conducted in early January 2021 and received responses from 1207 respondents. A second survey (Wave 2) was conducted in late January after about two weeks. Of the respondents to the first survey, 876 also responded to the second survey.

4-1. Variables

Explanatory variables

The explanatory variable in this study is TSP. The explanatory variable in this study is the perception of being selected as talented human resources.

Explained variable

The explained variable in this study is creative performance. As the sample of this study included a wide range of companies and industries, it was difficult to establish a uniform outcome variable. Therefore, the Creative Performance Index by Janssen and Van Yperen (2004) was used. The indicators used included 'generating new ideas for improvement', 'supporting decisions that affect the department or organisation' and 'finding new work methods, techniques and equipment that can be used in operations'. The factor analysis results converged on one group of factors, so a composite variable was created based on them (Cronbach's alpha = 0.961). Nine item means were used in the analysis. This variable was recovered in the second round.

Moderating variable

The ACO in this study consists of protean and boundaryless carriers. Each concept is described above, and references are made to the protean and boundaryless career scales developed by Briscoe et al. (2006). The scale of Takeishi and Hayashi (2013) obtained the same factor structure as the preceding indicator, Briscoe et al. (2006), and shows a certain validity. As a result of the factor analysis, a single factor group was constructed with nine protean carriers, so a composite variable was created as the protean carrier (Cronbach's alpha = .866). For boundaryless carriers, four of the total nine items were boundaryless

carriers, four of which were mobility preferences. These four items were measured as inverted items; when creating the nine-item composite variable (and measuring reliability), the scoring scales for these four items were inverted. The five items of the Boundaryless Thinking scale were split, but a nine-item composite variable was created (Cronbach's $\alpha = .839$), as was the Protean. Those variables were items from the first survey.

Control variables and analytical methods

This paper's analysis is a hierarchical multiple regression analysis. Dummies for occupation, industry, and company size were entered as control variables. In addition to analysing the impact of TSP on creative performance, we examine the impact of ACO variables—protean and boundaryless careers—on their creative performance. We also test the effect of the interaction between TSP and ACO on performance. Correlations among the main variables are shown in Table 2.

Table 2: Correlations amongst Main Variables

	N=876	Ave	S.D.	①TSP	②	③
② Protean Career		3.121	0.590	.052 +		
③ Boundaryless Career		3.082	0.579	.112 **	.568 ***	
④ Creative Performance		4.133	1.186	.225 ***	.361 ***	.402 ***

TSP: Ave = .094, S.D. = .293

*** $p < .001$, ** $p < .01$, + $p < .10$

4-3. Analysis Results

The results of the analysis are presented in this section. First, Table 3 examines the impact of TSP on creative performance and the impact of the interaction term between TSP and protean career on creative performance. Step 2 of Table 3 shows that TSP ($\beta = 0.776$, $p < .01$) and Protean Career ($\beta = 0.695$, $p < .01$) have a positive and significant impact on performance. Thus, TSP and protean career orientation were positively correlated with creative performance. In Step 3, on the other hand, the TSP ($\beta = 0.798$, $p < 0.01$) and protean career orientation ($\beta = 0.572$, $p < 0.01$) showed a positive and significant effect. In contrast, the interaction between the TSP and protean career had a negative effect ($\beta = -0.331$, $p < .10$).

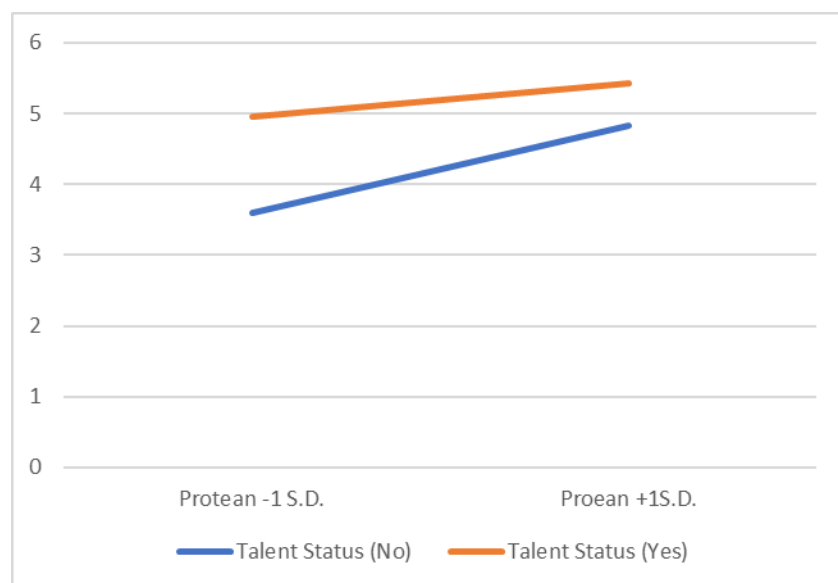
Following Cohen & Cohen (1983) (mean \pm 1 SD of Protean career), a simple slope analysis of this interaction showed that the effect was significantly more modest for those with higher protean career orientation and TSP with higher creative achievement. Also, the increase was significant. The results show

that TSP and high protean career orientation as ACO increase creative performance. On the other hand, high protean career orientation of those perceived as selected suppressed performance gains compared to those perceived as not selected. The results show that the higher the protean career orientation of those with TSP, the more performance gains are suppressed compared to those without TSP. This suggests that TSP may drag on performance if the talent selectee has a protean career view.

Table 3: Impact of TSP and Protean Career on Creative Performance

Explained variable		Creative performance					
		Step 1.		Step 2.		Step 3.	
Variable name		beta	p	beta	p	beta	p
Intercept.		4.592	**	4.773	**	4.790	**
Female (dummy).		-0.316	**	-0.243	*	-0.238	*
Research workers (dummies)		0.123		0.217		0.210	
Development jobs (dummy)		-0.159		-0.131		-0.136	
General administration position (dummy)		0.244		0.086		0.072	
Human resources positions (dummy)		0.522	+	0.289		0.331	
Other than HR and administration (dummy)		-0.222	+	-0.148		-0.148	
Corporate planning positions (dummy)		0.405	+	0.304	+	0.317	+
Accounting and finance jobs (dummy)		0.010		0.012		0.003	
Mid-career (dummy)		-0.021		0.093		0.095	
Electricity, gas and water (dummy)		0.465		0.379		0.370	
Information and communication (dummy)		-0.036		-0.088		-0.085	
Wholesale and retail (dummy)		-0.158		-0.093		-0.095	
Financial insurance (dummy)		-0.118		-0.130		-0.144	
Company size: 300-999 employees (dummy)		-0.119		-0.028		-0.032	
Company size: 1000-4999 employees (dummy)		-0.226		-0.024		-0.019	
TSP				0.776	**	0.798	**
Protean Career				0.695	**	0.572	**
TSP × Protean Career						-0.331	+
R ²		.048		.203		.206	
ΔR^2				.155	***	.003	***
N				876			

** $p < .01$, * $p < .05$, + $p < .10$



	Protean-1 S.D.	Protean +1S.D.	
Talent Status (No)	3.592	4.83	**
Talent Status (Yes)	4.947	5.431	*

Figure 1 Results of Interaction (Protean Career × Talent Status Perception)

Table 4 examines the relationship between TSP and boundaryless career on creative performance.

In Step 2 of Table 4, TSP ($\beta = 0.676$, $p < .01$) and boundaryless career ($\beta = 0.768$, $p < .01$) have positive effects on creative performance. Step 3 also showed a positive and significant effect on TSP ($\beta = 0.758$, $p < .01$) and boundaryless career orientation ($\beta = 0.590$, $p < .01$). However, the interaction between TSP and boundaryless career showed a negative effect ($\beta = -0.489$, $p < 0.01$).

Table 4: Impact of TSP and Boundaryless Careers on Creative Performance

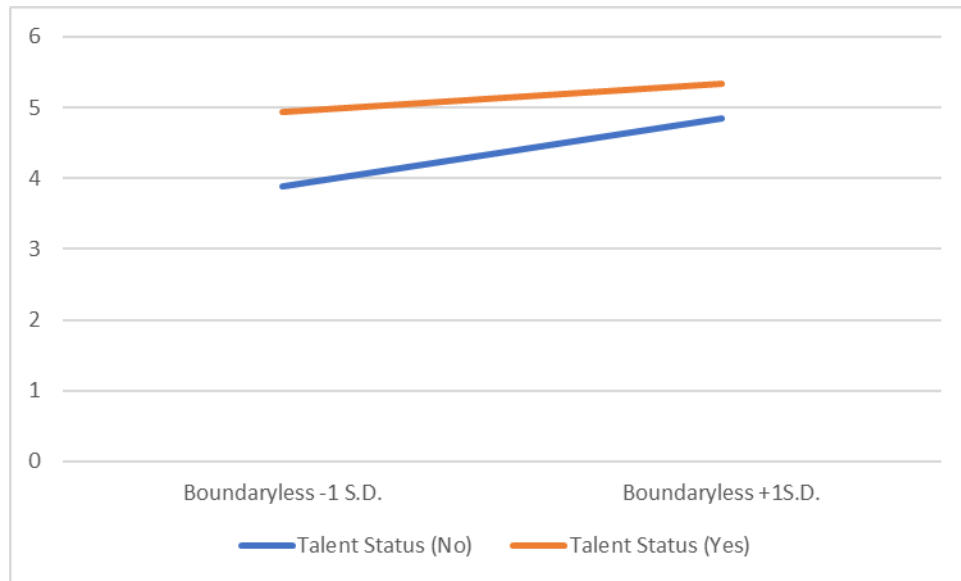
Explained variable	Creative performance					
	Step 1.		Step 2.		Step 3.	
Variable name	beta	p	beta	p	beta	p
Intercept	4.592	**	4.659	**	4.748	**
Female (dummy).	-0.316	**	-0.226	**	-0.247	**
Research workers (dummies)	0.123		0.222		0.248	
Development jobs (dummy)	-0.159		-0.060		-0.052	
General administration position (dummy)	0.224		0.129		0.116	
Human resources positions (dummy)	0.522	+	0.059		0.139	
Other than HR and administration (dummy)	-0.222	+	-0.161		-0.159	
Corporate planning positions (dummy)	0.405	*	0.269		0.277	
Accounting and finance jobs (dummy)	0.010		0.013		0.019	
Mid-career (dummy)	-0.021		-0.001		0.000	
Electricity, gas and water (dummy)	0.465	+	0.377		0.364	
Information and communication (dummy)	-0.036		-0.045		-0.039	
Wholesale and retail (dummy)	-0.158		-0.126		-0.130	
Financial insurance (dummy)	-0.118		-0.107		-0.121	
Company size: 300-999 employees (dummy)	-0.119		0.026		0.022	
Company size: 1000-4999 employees (dummy)	-0.026		0.002		0.009	
TSP			0.676	**	0.758	**
Boundaryless Career			0.768	**	0.590	**
TSP × Boundaryless career					-0.489	**
R ²	.048		.220		.227	
ΔR ²			.172	***	.007	***
N			876			

** $p < .01$, * $p < .05$, + $p < .10$

A simple slope analysis was also conducted for this interaction, following Cohen & Cohen (1983)

(mean \pm 1 SD of a boundaryless career). These results indicate that TSP and boundaryless career

orientation enhance creative performance. On the other hand, the performance enhancement of TSP with high boundaryless career orientation is suppressed. This suggests that TSP may drag on performance when the talent has a high boundaryless career orientation. In other words, the results indicate that when considered in conjunction with the effect of a protean career, high ACO may suppress the creative performance of the next generation of chosen perceivers.



	Boundaryless -1 S.D.	Boundaryless +1S.D.	
Talent Status (No)	3.89	4.848	**
Talent Status (Yes)	4.928	5.326	*

Figure 2 Results of Interaction (Boundaryless Career × Talent Status Perception)

5. Conclusion

This study examined the impact of TSP and ACO in TM on creative performance. Specifically, it examined how organisation-led TM affects performance in the context of diverse career perspectives of those who perceive themselves as selected as talent and how ACO moderates between TSP and performance.

The analysis revealed that TSP improves creative performance and that ACO positively influences performance. However, it was also found that high ACO reduces the relationship between competence and creative performance. The results supported hypotheses 1 and 2. However, the interaction between TSP and ACO was negative and significant only in the case of boundaryless careers. This result partially supports hypothesis 3.

The implications of these results are as follows. First, as De Vos & Dries (2013) point out, the organisational logic of TM and the career orientation of individuals may conflict, which sometimes harms performance, and the analysis in this paper has shown similar results. Therefore, it is necessary not only to select talented individuals in TM but also to prepare (customise) a development plan that appropriately identifies the gap between the career orientation of these individuals and the organisational-led career management.

The second implication is that, as Lawrence et al. (2015) pointed to four generations of shifting

trends in career theory, this study reconfirmed that the current stage of Japanese career management is in the third generation. The third generation focuses on the individual. This theoretical trend reinforces the separation between career research and organisational research, particularly organisation-led career development within organisations.

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ID 8 PANEL

The Panel Name: **30 Years of Hybrid Factory: Japanese FDI and World Automotive Industry**

The session format: Keynote and commentary

Chair: Haruo H. Horaguchi, Professor, Faculty of Business Administration, Hosei University, Tokyo, Japan. horaguch@hosei.ac.jp

Keynote: Tetsuji Kawamura, Professor Emeritus, Faculty of Economics, Hosei University, Tokyo, Japan. tetsuji-kawamura@nifty.com

Panelist: Masato Itohisa, Associate Professor, Faculty of Social Sciences, Hosei University, Tokyo, Japan. itohisa@hosei.ac.jp

Panelist: Tomasz Olejniczak, Director of Doctoral School, Associate Professor at the Division of Business History, Kozminski University Kozminski University, Warsaw, Poland. tolejniczak@kozminski.edu.pl

ID 8 PANEL

This panel will summarize the contents of two main books published in 1994 and in 2010.

Professors Kawamura and the late Testuo Abo, along with their respective groups, authored these books. The first, titled '*Hybrid Factory: The Japanese Production System in the United States*' (Oxford University Press, 1994), was followed by '*Hybrid Factories in the United States: The Japanese-style Management and Production System Under the Global Economy*' (Oxford University Press, 2010). These publications include significant reappraisals of the 'Hybridization' model and its dynamics. Since then, they have continued to publish various research works related to the Hybrid Factory.

The session titled '30 Years of the Hybrid Factory: Japanese FDI and the World Automotive Industry' will explore the transformative impact of Japanese Foreign Direct Investment (FDI) on the global automotive sector over the past three decades. The discussion will focus on the evolution of hybrid factory models introduced by Japanese companies and their influence on manufacturing practices, technological advancements, market dynamics, and the overall landscape of the automotive industry worldwide. Key areas of focus will include innovative approaches, strategies, and collaborations that have shaped the industry. The session aims to examine the successes, challenges, and future trends propelled by Japanese FDI within the automotive sector.

This panel aims to delve into both the historical roots and future trajectory of the

automotive industry. Specifically, it seeks to explore how research in this industry should adopt an international comparative perspective, considering the emerging challenges like the proliferation of electric vehicles, the standardization of automated driving, and the advancement of flying cars. A crucial aspect of these discussions involves presenting conceptual frameworks and offering theoretical analytical perspectives to substantiate them.

The panel participants will scrutinize the interplay between hybridization and evolution, endeavoring to draw preliminary conclusions. Firstly, hybridization stands as a distinctive juncture within the evolutionary continuum, leading to consequential institutional adaptations. These institutions encompass workplace elements such as wages, promotions, labor relations, and division of responsibilities, as well as broader organizational changes spanning strategy and management. The study of hybridization, initially sparked by the expansion of Japanese companies into the U.S., also serves as an exploration into the historical shifts in institutions.

Secondly, it becomes imperative to discern the disparity between phenotype and genotype in delineating the evolutionary path of corporate management. While the phenotype, or observable traits, is apparent in product development, the genotype, underlying these observable traits, plays a pivotal role in production processes. This panel will specifically

emphasize the significance of the genotype in this context.

Synthesizing hybridization and an evolutionary perspective is crucial for analyzing business ecosystems. It involves symbiotic patterns of commensalism, amensalism, and parasitism. Measuring changes in hybridized manufacturing processes provides novel perspectives for management analysis. The amalgamation of these perspectives enables a comprehensive understanding of how businesses coexist and compete within ecosystems. By examining the interplay of diverse organizational strategies and their impact on the ecosystem, one can identify emergent behaviors, fostering adaptability and resilience. This holistic approach not only facilitates a deeper comprehension of ecosystem dynamics but also informs strategic decision-making, fostering sustainable growth and innovation within the business landscape.

(1) Professor Kawamura will summarize the contents of those studies, the intent of each book, and the repercussions from them. One of the repercussions was the networking with overseas researchers, including Prof. Mira Wilkins and Prof. Duane Kujava, and the exchange and mutual inspiration of research interests. Prof. Kawamura traces the relationship between American hegemony (Pax Americana) and hybridization. Prof. Kawamura sees that Japanization as a life-prolonging treatment for Pax Americana which

leads to the subject of his research from a historical perspective. The hybridization of the automotive industry in the U.S. has led to institutional changes at the factory level. While the prevalent model was the push system in the U.S., the introduction of the hybrid factory brought about a shift toward a pull model, exemplified by the implementation of the Kanban system, Toyota production system, and Just-in-Time (JIT) production system. Subsequently, these pull models were collectively termed as part of the lean production system.

(2) Prof. Itohisa surveys the results of a 30-year investigation into 10 rounds of hybrid factories conducted by the Japanese Multinational Enterprises Study Group (JMESG) or Abo Group including Prof. Kawamura and the late Prof. Abo. Prof. Itohisa overviews researches on various forms of hybridization at different levels, including country, industry, organization, and routines. Among these, Routines (for example, 23 indicators by Abo) are the most important as could be a metaphor that they represent the basic genome of the company to transfer DNA. Analysis of hybridization should always begin by considering the sources of this routines-genome relationship, whether the source is foreign or local. By focusing on hybridization at the routine level, Prof. Itohisa takes on the challenge of pioneering a new frontier in the hybridization discourse. Hybridization

occurs simultaneously with the process of evolution – both foreign routines and local routines undergo variation, selection, and retention processes. The distinction lies in the fact that foreign routines can be artificially supported by the foreign source (e.g., Japanese HQ), which makes strategic decisions about the process of their transfer and implementation. In other words, the process of evolution refers to natural selection by local factors, while the process of hybridization encompasses all activities and interference by the foreign source. To avoid misleading generalizations about which routines are Japanese and which are local, and to fully understand the complexities of the hybridization process over time, Prof. Itohisa provides empirical examples based on his field research.

(3) Prof. Olejniczak will focus on the theoretical perspective of industries and companies by presenting the key construct of hybridization. Prof. Olejniczak argues that organizational hybridization constitutes an alternative to the process of organizational evolution, particularly valuable for countries reliant on foreign direct investments (FDI) such as Poland. Prof. Olejniczak incorporates global strategy with insights from modern evolutionary biology perspective of hybridization to discuss strategic hybridization at the corporate organizational level in the context of Poland. In modern evolutionary biology,

hybridization is defined as ‘a process by which an offspring is produced as a result of gene flow between two genetically distinct populations or species’ (Harrison 1990; Arnold 1997; Buerkle, 2013). In the context of business, this means the establishment of a new business entity based on the transfer of routines between two organizations from different populations (industries or countries). Poland is an especially interesting source of examples in terms of hybridization because it is a country of “hybrid companies” where the manufacturing sector is heavily reliant on FDI and knowledge transfer from foreign headquarters. Prof. Olejniczak conducted a case study, which is based on a 2013-2017 study of Japanese hybrid companies in Poland and Central Eastern Europe (CEE). To delve deeper into the details, a single example of the NSK ball-bearing factory in Kielce in 2017 will be examined, describing the process of gradual, strategically managed hybridization that has led to the gradual replacement of local production routines with Japanese production routines. The purpose of the case study is to illustrate the importance of different organizational-level factors that affected the process of hybridization (including initial transfer and subsequent evolution) of Japanese routines in the NSK factory.

(4) Prof. Horaguchi summarizes the intricate relationship between the evolutionary

perspective and hybridization. This theoretical exploration involves an in-depth discussion concerning whether hybridization serves as a catalyst for innovation or imposes constraints on mutation within organizational structures. Notably, despite assumptions that hybridization inherently fuels innovation, the proliferation of tech giants like GAFA (Google, Apple, Facebook, Amazon) in Silicon Valley presents a counterargument, suggesting that hybridization might not always directly correlate with innovation. A compelling case study supporting this notion is the dissolution of NUMMI, a collaborative hybrid factory between Toyota and GM. Despite its dissolution due to GM's bankruptcy in 2009, the facilities found new life under Tesla's ownership, transforming into a hub for electric vehicle (EV) production. This transformation underscores the adaptive nature of hybridization, showcasing how remnants of failed hybrid initiatives can lead to innovative outcomes in different contexts. By benchmarking the expansion strategies of Japanese companies into the U.S., this analysis seeks to identify patterns and strategies employed by different automotive giants, shedding light on their competitive approaches and market positioning. Additionally, the research will leverage data on the competition and market shares of various global automakers—Korean, Chinese, Japanese, German, French, and American—in the European market. This data will serve as foundational information, providing insights into market dynamics

and the competitive landscape among key players in Europe's automotive industry.

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