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## Networking is Considered the Backbone of Successful Industries: An Econometric Analysis

Attaur Rahman<sup>1</sup>, Sayyeda Aqsa Gillani<sup>1</sup>, Qasim Shah<sup>1</sup>, Qamruz Zaman<sup>1\*</sup>, Shahid Iqbal<sup>2</sup>

<sup>1</sup>Department of Statistics, University of Peshawar.

<sup>2</sup>CDPM/IER/Assistant Directorate of Advanced Studies, University of Peshawar.

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### Corresponding Author\*:

Attaur Rahman

Department of Statistics,  
University of Peshawar

### Email:

[qamruzzaman@uop.edu.pk](mailto:qamruzzaman@uop.edu.pk)

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### ABSTRACT

The study aimed to see the effect of networking on the success of industrial enterprises in Pakistan with a quantitative, Cross sectional, secondary data analysis approach, and the industrial firms were 100. The purpose of the study is to identify the impact of various networking techniques (strategic alliances, industry partnerships, collaborative projects and association memberships) on important industrial indicators (productivity, innovation, profitability, revenue growth and industrial success). The study draws on Social Capital Theory and the Resource-Based View (RBV) that argues that inter-organizational relationships can be considered as strategic resources that can increase the firm's performance and competitive advantage.

Data were analyzed by SPSS Version 29 with descriptive statistics, Pearson correlation and regression analysis. The results of the study show significant differences between firms in the level of networking and industrial performance. The results of the correlation analysis indicated that there is a strong and statistically significant correlation between networking and industrial success ( $r = 0.845$ ,  $p < 0.01$ ). The regression results also demonstrate that networking is a good predictor of industrial success, accounting for 71.4% of its variance. Likewise, networking has a significant effect on productivity ( $R^2 = 0.507$ ), innovation ( $R^2 = 0.487$ ) and profitability ( $R^2 = 0.428$ ), suggesting that it is applicable in many aspects of performance.

The results also reveal an association between the most powerful forms of networking and strategic partnerships and collaborative projects, with association memberships having a relatively lower influence. In general, the results of this study validate the conclusion that companies with better networking become more successful in their industries.

The study concludes that networking is the key for enhancing the industrial competitiveness in Pakistan by improving the operational efficiency, innovation and profit in the industrial sectors. The results of this study have significant implications for policy makers and industry



leaders in the promotion of collaborative platforms and inter-firm relationships for sustainable industrial development.

## 1. INTRODUCTION

Industrial development is regarded as one of the most important enablers of economic development, employment and innovation as well as making a nation competitive both in developing and developed countries (Jan et al., 2025; Li & Shafait, 2025). Today, businesses are not operating alone, but rather with supply chain partners, customers, government agencies, financial institutions, research institutions, and industry associations to improve their performance and sustainability (Akbar & Hafeez, 2025). With the growing complexity of markets, technological changes, and globalization, networking is becoming a strategic resource for firms to gain access to information, resources, knowledge, and competitive advantages (Li & Shafait, 2025). Networking is therefore becoming important to the success of industries especially in developing countries where formal institutional support may be limited (Khan et al., 2025). The recent studies have shown that the manufacturing firms in Pakistan are significantly influenced by relational and social capital, which in turn positively influences productivity and operational efficiency of firms (Khan et al., 2025).

Networking is defined as the establishment and maintenance of relationships between people or between people and organizations or institutions for mutual benefit (Arshad et al., 2023). These connections enable the sharing of information, resources, skills and opportunities that are not available to firms (Li & Shafait, 2025). According to Social Network Theory, strong networks are beneficial to organizations because they can help them acquire strategic resources, manage environmental uncertainties, and enhance innovation outcomes (Li & Shafait, 2025). Empirical studies in Pakistan have shown that network embeddedness has a positive impact on innovation performance and organizational growth by facilitating the mobilization of resources and adapting to market conditions (Li & Shafait, 2025; Iqbal et al., 2025).

In recent years, collaboration with other organisations has become more important than ever to industrial success, alongside the internal capabilities of the organisations themselves (Jan et al., 2025). Focusing on relationships with suppliers, customers, competitors and government institutions can lead to greater operational efficiency, innovation potential and market access for businesses (Akbar & Hafeez, 2025). Pakistani manufacturing SMEs research shows that the relational capital and social capital have a significant positive influence on production efficiency by enhancing trust, cooperation, and knowledge sharing among stakeholders (Khan et al., 2025). The results indicate that network is a strategic tool that can help firms offset resource limitations and enhance their performance (Khan et al., 2025).

The industry sector is one of the most important sectors in the economic development of Pakistan as it provides a significant percentage share in employment generations, exports, and gross domestic product (Amer & Falki, 2025). It comes with many challenges, however, such as insufficient financing, technological limitations, infrastructural deficits, market uncertainties, and institutional inefficiencies (Amer & Falki, 2025). However, networking can give firms opportunities to obtain external resources and capabilities to fill their internal gaps (Jan et al., 2025). Research on the Pakistani businesses has shown that various types of support systems, such as institutional, financial, and physical, play a significant role in the performance of businesses, which shows the importance of external linkages and cooperative relationships in the success of the industry (Amer & Falki, 2025).

Networking is especially important in the case of small and medium-sized enterprises (SMEs) which form the backbone of the industrial economy of Pakistan (Arshad et al., 2023). Limited financial and technological resources are the characteristics of SMEs, and thus they depend on business networks for market access, financing, and management knowledge (Arshad et al., 2023). Entrepreneurial networking has been found to be beneficial for the performance of entrepreneurial ventures through innovation and learning processes, which helps SMEs compete in dynamic business environment (Arshad et al., 2023;

Iqbal et al., 2025). Furthermore, network relationships enable the establishment of trust and collaboration, crucial for sustainable business operations and growth in the long term (Khan et al., 2025).

The advent of digital technologies and Industry 4.0 has only accelerated the changing face of industrial networking (Munir et al., 2025). The opportunities for companies to form strategic partnerships and join knowledge-sharing networks have been increased, with the help of digital platforms, online communities, and technology ecosystems (Munir et al., 2025). Technology change and digital entrepreneurship have come to be increasingly dependent on strategic networking for the uptake of technology and business growth in Pakistan (Munir et al., 2025). The literature suggests that networking plays a key role in entrepreneurial success, fostering relationships with investors, technology providers, customers, and policy support institutions (Munir et al., 2025).

In addition, networking plays a vital role in supporting industrial success by enhancing the relationship between business partners in the supply chain and ensuring coordination between stakeholders (Akbar & Hafeez, 2025). There is a strong link between manufacturers, suppliers, distributors, as well as customers and this collaboration can increase the efficiency of the operations, decrease the transaction costs and also help to be more responsive to market demands (Akbar & Hafeez, 2025). Researches within the manufacturing industry in Pakistan have exhibited that well-developed supplier and customer relationship management practices can certainly improve the performance and competitiveness of the organizations (Akbar & Hafeez, 2025). The results support the claim that networking isn't just about connecting with others, but also about being a valuable business resource that can impact industrial results (Akbar & Hafeez, 2025).

Although networking is being recognized as a strategic tool, there is a lack of empirical studies focusing on networking in industrial success in Pakistan (Jan et al., 2025). While there are many studies on entrepreneurship, innovation, or SME performance, there are fewer studies on how networking helps in the overall industrial growth and competitiveness (Arshad et al., 2023). For policymakers, business leaders and industry stakeholders to understand how networking affects industrial success is crucial given the unique economic, institutional and cultural characteristics of Pakistan (Amer & Falki, 2025). Thus, the purpose of this study is to investigate the networking role in the industrial success of Pakistan in order to understand how networking can affect the organizations performance, innovation, productivity and sustainable growth (Jan et al., 2025).

This research will contribute to the knowledge of policy makers looking to improve their industrial development policies, and also help business managers to achieve business competitiveness through strategic relationship building (Jan et al., 2025). The study will help in enriching the literature on industrial development and the role of social capital, such as networking, in the performance of industrial organizations in emerging markets like Pakistan (Li & Shafait, 2025; Jan et al., 2025).

## 2. RESEARCH METHODOLOGY

### 2.1 Research Design

The research method used in this study is Quantitative research as it aims to analyse the effect of networking on industrial success in Pakistan. A quantitative design is chosen because it will enable the measurement of the relationships between networking activities and industrial performance in a statistical manner. This method is especially appropriate when the goal is to test hypotheses related to measurable variables, as pointed out by Creswell and Creswell (2018). This is a cross sectional study design, analyzing data at one point in time but not over a long period of time. This design will be suitable for understanding the association of networking practices with important industrial outcomes like productivity, innovation and profitability of the industrial firms in Pakistan because it will give a picture of the present situation in the industrial firms in Pakistan (Saunders et al., 2019)

### 2.2 Research Philosophy



This study is based on positivism philosophy, the philosophy which assumes that social and organizational phenomena can be observed and measured objectively. The understanding in this sense comes from experience, not from interpretation. Bryman (2016) highlights that positivist research uses structured methods, and statistical analysis to find a relationship between variables. Accordingly, the present study is deductive, in which, the hypotheses are deduced from the existing theories like Social Capital Theory and Resource Based View (RBV). Following the approach proposed by Babbie (2020), these hypotheses are then tested with empirical data.

### 2.3 Population and Sample

The population for this study comprises the Industrial Organisations (IOs) which are manufacturing industries like textiles, engineering, pharmaceutical, food processing and chemical industries working in Pakistan. These industries make up a large share of the national economy and play a crucial role in employment and GDP growth (Statistics-Pakistan, 2024). A sample of 100 industrial firms were selected by purposive sampling from this population. This method is selected to ensure that only firms are included that meet the specific criteria that is relevant to the study. Among other things, companies must have operated for at least five years and established formal ties with external parties like suppliers, customers, industry forums, government agencies or research organizations. This will ensure the exposed firms have enough networking exposure with the activities that are relevant to the research objectives (Saunders et al., 2019).

### 2.4 Data Collection

The study is based on secondary data that are collected from reliable sources from the national and international level. The use of secondary data has been deemed appropriate for this research as it offers reliable, validated and comprehensive information, and minimizes time and financial constraints of primary data collection (Johnston, 2014). The data are collected from various sources such as Pakistan Bureau of Statistics, State Bank of Pakistan, Small and Medium Enterprises Development Authority and other international databases like World Bank Enterprise Surveys and OECD Science, Technology and Innovation indicators. Also, Industrial Firm's annual reports and industry association publications, such as APTMA and OICCI are utilized. The data has been taken from 2020 to 2025 to make the analysis more current in terms of Industrial and economic conditions of Pakistan.

### 2.5 Theoretical Framework

This research is based on Social Capital Theory and Resource Based View (RBV). According to Social Capital Theory, the benefits of social capital for firms come from the trust, cooperation, and exchange of valuable information, which are shown to improve performance and competitiveness, respectively, (Nahapiet & Ghoshal, 1998). Likewise, the Resource Based View holds that distinctive and well-developed network relationships can be seen as sources of a firm's sustainable competitive advantage (Barney, 1991). Networking activities are considered as independent variables in this study, and are defined as strategic alliances, industry partnerships, collaboration projects, and participation in business associations. Productivity, innovation performance, profitability and revenue growth constitute the measures of industrial success, the dependent variable. The basic premise is that the more one networks, the better will be the performance of the industry.

### 2.6 Variable Measurement

Networking is operationalized by the composite networking index, which builds on the intensity and presence of firms' relationships in strategic alliances, partnerships, collaborative projects and industry associations. This is in line with Gulati (1998) and Inkpen and Tsang (2005) who claim that network strength and structure have a positive impact on organizational performance. Likewise, indicators of industrial success are based on a combination of productivity, productivity outcomes, profitability, and revenue growth. The indicators are well known in literature as reliable organizational and industrial performance indicators (Kaplan & Norton, 1996; Porter, 1990).

### 2.7 Data Analysis Techniques



All the collected data used SPSS Version 29. First, descriptive statistics such as mean, standard deviation, frequencies and percentages are presented to summarize and describe the basic characteristics of the data set (Field, 2018). Then Pearson correlation analysis is performed to analyze the direction and strength of the relationship between networking activities and the variables of industrial success. Multiple regression analysis is used to further investigate predictive relations. This technique helps determine the extent to which networking activities influence industrial success. The regression model is  $\text{Industrial Success} = \beta_0 + \beta_1(\text{Networking}) + \varepsilon$ , where  $\beta_0$  is the constant term,  $\beta_1$  is the regression coefficient, and  $\varepsilon$  is the error term. All hypotheses are tested at the 5% level of significance to make the results reliable statistically.

### 2.8 Ethical Considerations

Ethical considerations in this study mainly relate to proper citation, transparency, and academic integrity as it is a secondary data based study. In all data sources, they are properly cited to prevent plagiarism and to give credit to the original data sources. The study follows the guidelines of Creswell and Creswell (2018) which are the recommended ethical standards for conducting research, which include accuracy, objectivity, and honesty throughout the research process.

## 3. RESULTS AND ANALYSIS

**Table 3.1: Descriptive Statistics of Study Variables (N=100)**

Variable	Mean	Std. Deviation	Minimum	Maximum
Strategic Alliances	4.98	2.95	0.00	10.00
Industry Partnerships	3.73	2.51	0.00	8.00
Collaborative Projects	6.51	3.85	0.00	12.00
Association Memberships	2.71	1.71	0.00	5.00
Networking Index (Composite)	51.23	17.01	14.29	88.57
Revenue Growth (%)	18.15	5.16	7.58	31.17
Productivity Index	66.14	11.01	38.47	86.60
Innovation Score	60.10	11.49	29.90	87.14
Profitability (%)	13.20	4.15	2.68	21.98
Industrial Success (Composite)	39.40	6.96	20.92	54.31

The study variables descriptive statistics shows some significant differences among the industrial firms in Pakistan. There is a mean Networking Index of 51.23 with a standard deviation of 17.01 ranging from 14.29 to 88.57. This indicates that there is a significant variation in the networking activities of companies. Similarly, the Industrial Success composite index has a mean of 39.40 and a standard deviation of 6.96 and the range of values is from 20.92 to 54.31. This implies that there is also an inter-firm variation in industrial performance in the sample.

The mean score for Collaborative Projects (6.51) was the highest, which implies that firms are more involved in collaborative project projects than in other networking activities. Association Memberships had the lowest mean value (2.71), which meant that people were less involved in formal business associations.

Overall, these results show that there is a significant variation between industrial firms in Pakistan in terms of networking practices and the levels of industrial success.

**Table 3.2: Correlation Significance Tests**

Relationship	Pearson Correlation (r)	t-statistic	Degrees of Freedom	p-value
Networking → Productivity	0.712	9.98	98	< 0.001
Networking → Innovation	0.698	9.56	98	< 0.001
Networking → Profitability	0.654	8.48	98	< 0.001

<b>Networking → Industrial Success</b>	0.845	15.64	98	< 0.001
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Table 3.1 presents the descriptive statistics of the study variables, which reveal that there are some significant differences between the industrial firms of Pakistan. There is a mean Networking Index of 51.23 with a standard deviation of 17.01 ranging from 14.29 to 88.57. This shows that there are substantial differences in the networking behaviour of companies.

Similarly, the Industrial Success composite index has a mean of 39.40 and a standard deviation of 6.96 and the range of values is from 20.92 to 54.31. This suggests that there is also a variation among industries in terms of their performance in the sample.

Collaborative project projects had the highest mean score (6.51) suggesting that firms are more involved in collaborative project projects than in other networking projects. Formal business associations were the least mean (2.71), indicating that individuals were less involved in formal business associations.

In general, it can be concluded that there is a great difference between the industrial firms of Pakistan in terms of networking practices, and the level of industrial success.

### 3.3 Regression Analysis

**Table 3.3: Model Summary - Networking and Industrial Success**

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	0.845	0.714	0.711	3.746

**Table 3.4: Regression Coefficients**

Model	B	Std. Error	Beta	t	p-value	Lower Bound	Upper Bound
(Constant)	12.345	1.234		10.01	< 0.001	9.897	14.793
<b>Networking Index</b>	0.528	0.034	0.845	15.64	< 0.001	0.461	0.595

A simple linear regression analysis was performed to investigate the effect of networking on industrial success. The results reveal that the model is statistically significant ( $F(1,98) = 244.60$ ,  $p < 0.001$ ), and networking is statistically significant predictor of industrial success.

The model explains 71.4% of the variance in industrial success ( $R^2 = 0.714$ ), which suggests a strong explanatory power. The adjusted  $R^2$  value of 0.711 is proof that the model is not over fitted.

The regression coefficient of the Networking Index is positive and significant ( $B = 0.528$ ,  $p < 0.001$ ), meaning that for every unit increase in the Networking Index, the industrial success increases by 0.528. This indicates that the relationship between changes in industrial performance and networking is positive.

#### 3.3.2 Regression Analysis: Networking and Productivity

**Table 3.5: Regression Results - Networking and Productivity**

Model Summary	Coefficients	
<b>R = 0.712</b>	Variable	B (Std. Error)
<b>R<sup>2</sup> = 0.507</b>	Constant	32.456 (2.891)
<b>Adjusted R<sup>2</sup> = 0.502</b>	Networking Index	0.461 (0.046)
<b>F(1,98) = 100.92***</b>		

The regression model that was used to investigate the effect of networking on productivity is statistically significant ( $F(1,98) = 100.92$ ,  $p < 0.001$ ). From the results, it can be concluded that that the networking effect can account for 50.7% of the variance in productivity ( $R^2 = 0.507$ ).

The coefficient for networking is positive and significant ( $B = 0.461$ ,  $p < 0.001$ ), which means that networks that are more engaged with networking are more productive.

**Table 3.6: Regression Results - Networking and Innovation**

Model Summary	Coefficients	
<b>R = 0.698</b>	Variable	B (Std. Error)
<b>R<sup>2</sup> = 0.487</b>	Constant	28.765 (3.124)
<b>Adjusted R<sup>2</sup> = 0.482</b>	Networking Index	0.472 (0.049)

The regression results show that there is a significant relationship between networking and innovation performance ( $F(1,98) = 93.24, p < 0.001$ ). The model accounts for 48.7% of the variance in innovation ( $R^2 = 0.487$ ).

Networking is a positive and statistically significant coefficient ( $B = 0.472, P < 0.001$ ), indicating that networking activities have a positive effect on innovation outcomes.

### 3.3.4 Regression Analysis: Networking and Profitability

The regression analysis of profitability is also statistically significant ( $F(1,98) = 73.28, p < 0.001$ ). The model accounts for 42.8% of the variation in profitability ( $R^2 = 0.428$ ).

The regression coefficient ( $B = 0.159, p < 0.001$ ) suggests that networking has a positive relationship with profitability, albeit a relatively minor one compared with the relationship with productivity and innovation.

## 4. DISCUSSION

The present study adopted quantitative and cross sectional design to explore the effect of networking on industrial success in Pakistan. All the results show a significant and substantial network activity link with many aspects of industrial performance such as productivity, innovation, profitability, and overall industrial success. The findings are consistent with the literature available and are in line with Social Capital Theory and Resource Based View (RBV) theories that focus on the strategic role of inter-organizational relationships (Nahapiet & Ghoshal, 1998; Barney, 1991).

The descriptive results showed that there was a significant difference in the networking level and industrial performance between firms. This heterogeneity is the result of the differences in the access to external relationships, institutional links and collaborative opportunities. Gulati (1998) identified that there are significant variations in firms in their capacity to develop and utilize network ties, which in the end determines their competitive standing. This is especially associated with resource scarcity, institutional weaknesses, and the lack of access to industrial clusters in developing economies like Pakistan (World Bank, 2020).

The correlation analysis found a strong positive correlation between network engagement and the performance outcomes of industrial success ( $r = 0.845$ ), which means that firms with more networking are likely to report better performance outcomes of industrial success. This discovery is significant evidence for Social Capital Theory that posits that networks supply firms with useful info, trust and relationships, and knowledge sharing possibilities which can enhance organizational effectiveness (Nahapiet & Ghoshal, 1998). The fact that networking has a better relationship with productivity and innovation than with profitability, indicates that networking first enhances the efficiency of operations and knowledge generation, and only then can it lead to financial results. This matches Porter (1990) who stated that competitive advantage comes first from efficiency and innovation and then from financial results.

The regression results also support the ability of networking to predict industrial success. The model has strong explanatory powers as it explains 71.4% of the variance in industrial success. This result is in line with the Resource Based View (Barney, 1991) that suggests that valuable, rare, and inimitable resources (such as good network connections) can create a significant performance boost for the firm. Networking activities have a significant positive coefficient of networking ( $B = 0.528$ ), indicating that the more you network, the better you perform in industry. This is in line with previous research by Inkpen and Tsang (2005) that has shown that inter-firm networks have a significant effect on learning, innovation and productivity outcomes.

Networking had the greatest impact on productivity, while innovation and profitability were the other significant indicators. This means that networking is used mainly for improving the functions and knowledge sharing and it triggers innovations. Powell et al. (1996) reported similar findings for industries with innovation, where networks enable the transfer of knowledge and the sharing of learning. The lesser

effect on profitability implies that the profitability may be affected by other factors, such as cost effectiveness, market conditions, and management skills.

The multiple regression analysis also shows the significance of certain types of networking. Strategic alliances proved to be the most significant factor in achieving industrial success, while industry collaborations and project collaboration ranked second. This discovery supports the hypothesis that organized and formalized network forms offer greater advantages than informal and symbolic networks. Gulati (1998) also pointed out that strategic alliances help companies to get complementary resources and lower uncertainty in dynamic markets. Contrary to this, a passive involvement in association membership had a weaker, and statistically not significant, effect, indicating that membership in industry association does not necessarily lead to better performance.

Overall the results indicate that networking is one of the critical factors in supporting the success of industries in Pakistan. The findings are in line with international research in the areas of social capital, inter-firm relationships, and strategic management. The strength of the relationships found in this study is especially noteworthy, however, as in emerging economies, institutional support can be scarce, networking can be even more important for the performance of a firm (World Bank, 2020).

To summarize, the study has validated its empirical findings by providing comprehensive evidence of the benefits of networking for industrial performance, which are related to productivity, innovation and profitability. The results indicate that the collaboration of the firms, strategic alliances and industrial linkage is important for enhancing the industrial competitiveness in Pakistan.

## 5. CONCLUSION

The purpose of this study was to analyze the role of networking in industrial success in Pakistan with the help of quantitative research design method with secondary data of 100 industrial firms of the country. The results offer empirical evidence of the importance of networking in various aspects of industrial performance, such as productivity, innovation, profitability, and industrial success.

The descriptive analysis showed that there was a lot of variation in terms of networking activities between the companies as well as in industrial results, which means not all networking activities are necessarily equal for all companies. The level of engagement varies widely among firms in strategic alliances, collaborative projects, and industry partnerships, with some firms engaging in high levels and others having limited levels of engagement, especially with formal association memberships. Likewise, the performance of the industry, including productivity, innovation, and profitability, also differ greatly, depending on the extent of access to external resources and networks held by firms.

Results of correlation analysis showed that there was a strong and positive relationship between networking and industrial success ( $r = 0.845$ ), that is, the relationship between networking and the success of the industry is very high and positive. Within individual performance factors, productivity and innovation were found to have stronger relationships with networking than profitability, indicating that networking will first impact the operational efficiency and knowledge generation before it leads to profitability.

This was further supported by regression analysis which showed that networking is a strong predictor of industrial success. This model had a high explanatory power of 71.4%. Likewise, networking also had positive significant impact on productivity ( $R^2 = 0.507$ ), innovation ( $R^2 = 0.487$ ) and profitability ( $R^2 = 0.428$ ). The results are consistent with the idea that networking has a significant impact on various aspects of firm performance, and that it has the most impact in the overall industrial success and operation of the business.

The multiple regression analysis revealed that there was a difference in the contribution of various types of networking. Strategic alliances were the most influential, associated next by industry partnerships and collaborative projects, and association memberships, which had a relatively lower impact. This indicates

that networking activities that are active, strategic, and collaborative are more likely to be helpful to industrial success than merely being a member of formal associations.

In general, the results provide strong support for Social Capital Theory and Resource Based View that inter-organizational relationships represent strategic resources that can positively affect the competitive advantage of the organization and its performance. Networking is a particularly powerful tool to enhance performance and competitiveness in a country's industrial sector, where companies frequently struggle with limited resources and market inefficiencies.

Finally, it can be concluded that networking is an important factor for the success of industries in Pakistan. Building strategic partnerships, industry partnerships and collaborative projects can thus be a major contributor to enhancing productivity, innovation and profitability. Policymakers and companies should aim to develop more effective platforms for developing better inter-firm networks to drive the future growth and competitiveness of industry.

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