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The Effect of Early Supplier Involvement on Firm Performance through Teamwork and New Product Development

Alvenia Oktapia[1], Zeplin Jiwa Husada Tarigan[2*]
[1,2]Faculty of Business and Economics, Petra Christian University
Jl. Siwalankerto 121-131, Surabaya, Indonesia
Email: [1]alvenia.oktapia789@gmail.com; [2*]zeplin@petra.ac.id
[*]Corresponding author

Abstract

Manufacturing companies in Indonesia experienced the most severe growth due to the impact of the coronavirus pandemic (Covid-19). The effect of the pandemic resulted in companies reducing production capacity by reducing the use of utilities owned by the company. This study examines the effect of early supplier involvement on firm performance through teamwork and new product development. This research surveyed 55 companies from 104 manufacturing companies with more than 100 employees in East Java, Indonesia. The data collection used a questionnaire designed with a five-point Likert scale. Data analysis used SmartPLS version 3.0 to assess the measurement model and examine the hypothesis. This study developed nine hypotheses, which indicated that eight hypotheses were supported, and one hypothesis was rejected. Early supplier involvement affects teamwork, new product development, and firm performance. Furthermore, teamwork affects new product development and firm performance. Moreover, new product development affects firm performance. In addition, early supplier involvement indirectly affects firm performance through new product development and teamwork, respectively and simultaneously. These findings provide an insight for manufacturing management to consider early supplier involvement in developping new products and enhancing firm performance. This research will enrich the supply chain management theory, focusing on product development as the competitiveness of companies that are changing rapidly.

Keywords: Company Performance; Product Development; Supplier Involvement; Team Project.

1. Introduction

Indonesia's manufacturing industry will experience the most severe growth and will be much lower than during the 2008 crisis due to the impact of the coronavirus pandemic (Covid-19). Indonesia's economic conditions are very depressed, and it is estimated that there will be a rate of layoffs (PHK) of 1.9 million workers from 144,340 companies. This condition will drag on until mid-June 2020, with 3 million people being housed. Such conditions will significantly impact the national economic growth by -0.4 to 2.3% (Mulyani, 2020). On the other hand, this condition gives the company resilience in producing the company. Some companies see this condition as an opportunity to diversify or develop products according to the community's needs.

The pressure from the competition requires a company to develop products quickly and with quality to reach market share and not be eliminated by competitors with new products that are more attractive and superior. According to Chen et al. (2018), "Innovate or die" is a choice that makes companies must be able to develop new and modified products to have values that follow current market needs and developments. Product innovation carried out by a company has dependent on the company's organization, internal company processes, the rules that exist in the organization, and the equipment needed to innovate by a team that has been determined by the company (Hallstedt et al., 2013).

New product development entering the early stages of the development process requires the implementation of Early Supplier Involvement to support the effectiveness of the process with complete requirements at the beginning. Early Supplier Involvement is a form of vertical collaboration between supply chain partners where producers involve suppliers in the early stages of the product development (Günay et al., 2019). Initial innovation from suppliers in providing raw materials according to company criteria will impact the development of new products for the company, which is done sustainably (Mazzola et al., 2015). The ability of suppliers of raw materials and company auxiliary materials to provide appropriate innovation and support the company's invention on an ongoing basis will allow companies to produce new products more quickly. Initial creations made by

suppliers and in collaboration with companies and collaborating both parties will give the company speed in developing new products according to market desires (Hallstedt et al., 2013).

Collaboration with suppliers to improve supply chain transparency and reduce risks related to sustainability in the procurement of raw materials, production processes, and product marketing for product users. They know potential suppliers and collaborate with suppliers on new ideas to provide quality raw materials and the correct quantity to increase the company's sustainability (Multaharju et al., 2017). Furthermore, product development carried out by the company by carrying out continuous innovation will impact the company's sustainability in maintaining excellence and improving company performance (Eccles & Serafeim, 2013). Furthermore, the innovations made by the company to produce products have an impact on sustainable performance improvements for the company (Lintukangas et al., 2019). Based on the explanation above, this research has a research objective: the impact of supplier involvement and building teamwork development on company performance through new product development

Previous research has shown that firm performance can be improved through several approaches such as early supplier involvement, teamwork, and new product development. However, previous research has only focused on the direct relationship between the two constructs. This research builds a research model involving all four constructs, namely the influence of early supplier involvement on firm performance through early supplier involvement, teamwork, and new product development. This study's Novelty is a model that examines the interaction of the abovementioned four variables. To the extent of the researcher's knowledge, no research has addressed the relationship of the four constructs simultaneously. Therefore, this research raises two primary questions: 1) whether previous studies' result applies to manufacturing companies in East Java, Indonesia. 2) whether teamwork and new product development mediate the impact of early supplier involvement on firm performance. The results are expected to provide a managerial implication for the industrial practitioner to enhance the firm performance. The results of this study could also contribute to supply chain management theory, especially the mediating role of intervening variables.

2. Literature Review

2.1. Supply Chain Management

The supply chain network is inseparable from suppliers and customers who cooperate to control, manage, and improve the flow of materials, information, services, and funds (Felea & Albăstroiu, 2013). Supply Chain Management (SCM) is defined as the management of relationships within the supply chain network to create added value for all stakeholders (Rebelo et al., 2021). SCM also describes coordination and collaboration between suppliers, intermediaries, and customers to integrate supply and demand inside and outside the company. SCM comes as management that can measure performance between suppliers, manufacturers, distributors, sellers, and customers (Hermawan, 2021).

2.2. Early Supplier Involvement

Early supplier involvement is a form of vertical collaboration between supply chain partners in which manufacturers involve suppliers in the early stages of the product development process (Günay et al., 2019). Early Supplier Involvement is not only the responsibility of one organization but is the result of cross-functional collaboration between various organizations. Saunders et al. (2015) regarding supplier involvement in purchasing strategies on company performance shows a positive correlation. Through previous research, it can be assumed that indirectly early supplier involvement can affect a company's performance. The study by Benton Jr et al. (2020) stated that the development carried out by suppliers of automatic companies in America in providing raw materials could improve company performance by improving product quality, delivery performance, and product prices. Supplier development carried out by the company by giving total commitment to suppliers will impact the supplier's activity in developing product designs. Suppliers also actively participate in designing the company's products (Saunders et al., 2015). Supplier selection is one of the initial stages the company does when it develops new products, whether the company's suppliers can send raw materials according to the company's needs in product development (Günay et al., 2019).

2.3. Teamwork

Teamwork or teamwork is an effort made by a group of people in one group to achieve a common goal or complete a task/job effectively and efficiently. The team needs a leader who functions to ensure that the team is well prepared to have good adaptability to face any changes in the environment, both internal and external, by ensuring that the team's skill level is sufficiently developed to achieve team goals. If team members have a good relationship, they will be highly dependent on one another, resulting in information sharing and work assistance. Each team member is responsible for their obligations and responsibilities (Jiang et al., 2019). Teamwork for companies in developing products requires many organizational functions by actively involving suppliers in building a good quality system for the company (Suprapto et al., 2015).

Team orientation refers to a preference for working in teams and a tendency to improve individual performance by coordinating, evaluating, and leveraging input from others in a team setting. Teams are also trained to have the habit of helping other team members complete tasks, or it can be called workload distribution when there are team members in a state of having too much workload. Trust illustrates the understanding between team members that each member will carry out his duties or responsibilities. Each member can rely on the other to protect and maintain the team member's interests. The ability of company management to increase the role of employees in a team and be given training and development and motivation will increase a solid team in the company (Tabassi et al., 2012).

2.4. New Product Development

New product development is a term to describe the complete process of producing a new product to reach the market. The existence of new products can maintain the company's growth rate and profits and replace obsolete products (Sharifi et al., 2013). Striving for a new product has several stages that must be done starting from the concept stage, namely generating ideas or ideas, filtering ideas, and developing concepts. The company carries out new product development by involving many functions within the company's internal and involving the company's suppliers to actively maintain the quality of raw materials to produce quality products (Suprapto et al., 2015). Early supplier involvement in new product development will provide benefits such as lower material costs, shorter development cycles, improved material quality, lower development and manufacturing costs, improved product functionality, characteristics, and technology, development of long-term supplier relationships, more efficient use of human resources, improved customer service, and compliance with environmental regulations. The innovations made by the company by developing new products and modifying existing products will be able to provide value according to the company's needs to improve company performance by increasing the company's market share (Chen et al., 2018).

2.5 *Firm Performance*

Company performance is the result of work influenced by industrial behavior and structure, where results are usually identical to the amount of market share or profit of a company. The company's performance can be seen from the financial statements reported by the company (Mohammed, 2014). Companies that perform well can generate high and long-term profits, generating job opportunities and increasing the income of individuals and organizations (Taouab, 2019). The company's performance measuring indicators are divided into financial performance, operational performance, and market-based performance. Financial performance is an achievement to describe the level of the company's financial health. Financial performance can be assessed by profitability, liquidity, solvency, and financial activity ratios. Product development for the company is new potential to increase competitiveness (Caniato and Größler, 2015). Therefore, the performance of companies related to New Product Development is determined by the product's economic performance and the production environment's performance (Wang and Yang, 2021). Operational performance is related to the value of using the company's resources to achieve profits or the company's vision and mission. Operational performance measurement can be done by measuring the operating cycle, replacement of fixed assets, return on assets, and return on equity (Azim et al., 2015). The operational performance of manufacturing companies is measured by quality products, customer satisfaction, punctuality of delivery, and flexibility (Tarigan et al., 2021). Operational performance refers to measurable aspects of organizational process results, such as reliability, production cycle time, and inventory

turnover (Azim and Ahmed, 2015). Prajogo and Olhager (2012) state that a company's performance is measured through product quality, delivery accuracy, flexibility, and cost. For example, the company's performance in developing products set by Caniato and Größler (2015) includes product quality, product innovation, volume flexibility, delivery accuracy, procurement costs, sustainability, and lead time.

2.6. The Relationship between Concepts

Early Supplier Involvement is a form of vertical collaboration between supply chains where producers involve suppliers in the early stages of the product development process (Merilainen, 2018) so that collaboration occurs between suppliers and companies. The results of the initial development of materials from suppliers in providing raw materials according to the criteria needed by the company will impact the development of new products for the company, and this is done in a sustainable manner (Mazzola et al., 2015). Supplier development carried out by the company by giving full commitment to suppliers will impact the supplier's activity in developing product designs, and suppliers also actively participate in designing the company's products (Saunders et al., 2015). The selection of suppliers is one of the initial steps taken by the company when developing new products, whether the company's suppliers can send raw materials according to the company's needs in product development (Günay et al., 2019).

H_1: Early Supplier Involvement influences New Product Development.

Research conducted by Benton Jr et al. (2020) states that the development carried out by suppliers of automated companies in America in providing raw materials can increase company performance by improving product quality, delivery performance, and product price. Supplier relationship management, one part of the early supplier involvement, significantly affects firm performance in the manufacturing industry in Surabaya, Indonesia (Chandra Tanuwijaya et al., 2021). Previous research conducted by Car (2016) regarding supplier involvement in purchasing strategies on company performance shows a positive correlation. A study on fifty-nine the 3-star Hotel in Surabaya, Indonesia, found that supplier collaboration, which part of the early supplier involvement, improves the firm performance (Tarigan et al., 2020). Through previous research, it can be assumed that indirectly Early Supplier Involvement can affect a company's performance. Cadden and Downes (2013) stated that the role of suppliers in providing materials that comply with specifications and joining the company's activities in product development could produce products on time and increase the company's speed in responding to customer needs.

H_2: Early Supplier involvement influences firm performance.

Efrata et al. (2019), Early Supplier Involvement correlates significantly positively with a team's performance effectiveness. Two factors affect the performance of a project team, namely the resource factor and the agency factor. The resource factor consists of product development supplier resources, while the agency factor consists of information sharing, goal congruence, task programmability, and relationship length. Therefore, the ability of the product development team needs the role of supplier involvement, where teamwork at Genco Inc. by making a list of 260 suppliers and discussing them in full and in detail so that they become 47 suppliers who have the potential to procure materials needed by the company (Cadden and Downes, 2013).

H_3: Early supplier involvement affects teamwork.

The company carries out new product development by including suppliers to provide quality raw materials, and suppliers understand the characteristics of raw materials to produce quality products (Suprapto et al., 2015). In addition, solid corporate teamwork is critical for product development, as seen by the firm's ability to connect marketing, design, and manufacturing in understanding the customer's voice and the company's house of quality and design engineering (Cadden and Downes 2013).

H_4: Teamwork affects new product development.

Solid teamwork and mutual trust in various internal functions of the company are the main characteristics of company performance because they can work flexibly, reduce production costs, reduce the time required to market, and increase responsiveness to customer requests (Cadden & Downes, 2013).

H_5: Teamwork affects firm performance.

Innovations made by companies by developing new products and modifying existing products will be able to provide value according to the company's needs to improve company performance

by increasing the company's market share (Chen et al., 2018). The development of new products that have been integrated between functions can impact the company's performance (Caniato & Größler, 2015). The company's new product development becomes a new competitive advantage due to rapid changes in customer demand, shorter product life cycles, and fast-moving technological changes (Cadden & Downes, 2013). Developing new products for small and medium enterprises can increase the company's performance (Tarigan, 2018).

H_6: New product development affects firm performance.

Based on the explanation above, a research framework can be set in Figure 1.

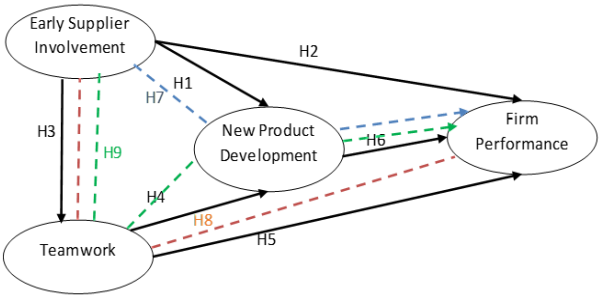

Figure 1. Research Model

Based on Figure 1, it can be shown that the hypotheses H7, H8, and H9 are:

H_7: Early supplier involvement has an indirect effect directly on firm performance through new product development.

H_8: Early supplier involvement indirectly affects firm performance through teamwork.

H_9: Early supplier involvement indirectly affects firm performance through teamwork and new product development.

3. Methods

The effect of implementing early supplier involvement and teamwork on new product development on the performance of manufacturing companies in Surabaya" is research with quantitative methods. The researcher wanted to examine the relationship between early supplier involvement, teamwork, new product development, and firm performance in this study. Quantitative research aims to develop research thinking by using mathematical methods, theories, and hypotheses related to an event or case. This study uses a causal research method. Causal research shows the direction of the relationship between variables such as independent and dependent variables and measures the strength of the relationship between these variables. The object of this research is a manufacturing company in Surabaya with product development facilities within its corporate organization, such as the research and development department, product development, and other similar departments. The sampling method in this study is to use probability sampling. There are 104 manufacturing companies in East Java with more than 100 employees based on data information on the East Java Central Statistics Agency website. In this study, a sample of 55 companies will be examined. Respondents are new product development employees who have worked for at least one year in a manufacturing organization. Data will be collected by distributing questionnaires to 55 manufacturing companies in Surabaya that have product development facilities within their company organizations.

Variables are significant in a study because there are objects that vary from one object to another in a study. The variables in this study consisted of three types of variables: independent variables, intervention variables, and dependent variables. Early supplier involvement is a concept that describes the advantages of involving suppliers in cross-functional teams in the early stages of product development. Mutual trust and good communication between customers and suppliers strengthen relationships. The measurement indicators in this study adopted the research of Wang and Yang (2021), namely supplier involvement in product design (ESI1), supplier involvement in the product design process (ESI2), supplier involvement in the production process (ESI3), and timely material procurement (ESI4). *Teamwork* is a group of individuals who work cooperatively to achieve specific goals, and the ability to work in a team is an essential skill that must be possessed by every team member or worker (Sanyal & Hisam, 2018). The indicators used in this study consist of six indicators, namely: mutual trust among team members (TW1), all team member's involvement (TW2), determining the right decision collectively (TW3), team members having clear responsibilities (TW4), joint evaluation on the goals that have been set (TW5) and all team members focus on the purposes of the organization (TW6). New product development is a complete process of seeking a new product to reach the market. This study adopts the research of Caniato and Größler

(2015), which focuses on the new product development process, namely new product design (NPD1), coordination between functions/ departments going well in the organization (NPD2), has used the latest technology as needed (NPD3) and considers aspects environmental impact (NPD4).

Corporate performance is the ability of a company to exploit available resources efficiently to obtain achievements consistently with the goals set by the company and consider the relevance of relevance to its users (Taouab, 2019). In this study, the company's performance that will be observed is in terms of the company's operational performance. According to Basheikh and Maksound (2008), performance indicators are product quality (FP1), customer satisfaction (FP2), On-time delivery (FP3), efficiency (FP4), and utilization (FP5). The method used is explanatory research with a systematic approach that uses Partial Least Square (PLS) with the help of SmartPLS software. This is because, in this method, there is hypothesis testing. The data analysis technique used in this study was the Partial Least Square (PLS) method. According to Ghozali and Latan (2015), Partial Least Square is a component or variant-based Structural Equation Modeling (SEM) model. PLS is an alternative approach that shifts from a covariance-based SEM approach to a variance-based approach. The purpose of this PLS is to assist researchers in doing predictive research. The data will be analyzed using the SmartPLS 3.0 application.

4. Results

4.1. Descriptive Analysis

Characteristics of respondents who are used as research samples can be classified based on the origin of the department, position in the department, and work experience.

Table 1. Respondents Department Profile

Total	Percentage of	R
R&D	5	9 %
Accounting	6	11 %
EPIC	9	16 %
Purchasing	12	22 %
Marketing	11	20 %
Production	8	15 %
Warehouse	4	7 %
Total	**55**	**100%**

Table 1 shows the respondent profile based on the department. The purchasing department contributes 12 respondents (22%), the marketing department for 11 respondents (20%), the planning production and inventory control department for nine respondents (16%), and the warehouse department for four respondents (7%). This shows that in developing new products, the company has involved all departments, especially the purchasing department, in providing adequate raw and auxiliary materials. In addition, the marketing department has a significant role in communicating that the products requested by customers have met the specified requirements.

Table 2. Respondents Position Profile

Position	Total	Percentage
Manager	21	38 %
Assistant Manager	8	15 %
Supervisor	17	31 %
Staff Officer	7	13 %
Staff	2	4 %
Total	**55**	**100%**

Characteristics of respondents are reviewed based on the position or position in the department contained in Table 2. which explains that the two positions with the highest scores are supervisor, manager, and assistant manager, with 46 respondents (84%). This illustrates that the respondent is in the middle manager position as coordination and operational responsibility and can be said to have known the company's condition so that he could represent the company in filling out this research questionnaire. In addition, these three positions also have tremendous responsibility so that product development can be carried out in the company.

Analysis of the data in this study using the Structural Equation Modeling (SEM) approach with the Partial Least Square (PLS) statistical method using the SmartPLS software program. Research data analysis includes evaluation of the outer model and inner model. The outer model consists of convergent validity, reliability, and research hypothesis testing. Convergent validity if it has an outer loading value > 0.5; considered acceptable. Testing the outer loading of each variable can be shown the loading value. The loading value on the early supplier involvement variable, the indicator values are supplier involvement in product design (ESI1) of 0.807, supplier involvement in the product design process (ESI2) of 0.791, supplier involvement in the production process (ESI3) of 0.777 and timely material procurement (ESI4) of 0.822. The involvement of suppliers in the production

process (ESI3) is 0.777, and the value is above 0.5, so it can be said that all measurement items on the early supplier involvement variable have been met and are acceptable.

The second variable, namely teamwork, has the outer loading for each indicator. Mutual trust among team members (TW1) of 0.572, all team members involved (TW2) of 0.739, determining the right decision together (TW3) 0.787, team members have clear responsibilities (TW4) 0.754, joint evaluation of the goals that have been set (TW5) 0.776 and all team members focus on organizational goals (TW6) 0.692. Teamwork has the lowest score on the indicator mutual trust among team members (TW1) of 0.572. The value has been above 0.5, so it can be said that all measurement items on the teamwork variable have been met and are acceptable. The third is the new product development variable. The loading factor value is that it focuses on the new product development process, namely the new product design (NPD1) of 0.706, coordination between functions/departments goes well in the organization (NPD2) of 0.819, has used the latest technology as needed (NPD3) of 0.588 and considering the environmental impact aspect (NPD4) of 0.855. The lowest new product development indicator has used the latest technology as needed (NPD3) of 0.588, and the value has been above 0.5; so it can be said that all measurement items on the New Product Development variable have met and are acceptable. Firm performance has a loading factor value with product quality (FP1) 0.789, customer satisfaction (FP2) 0.795, on-time delivery (FP3) 0.734, efficiency (FP4) 0.744 and utilization (FP5) 0.865. Firm performance obtained the lowest value on the on-time delivery (FP3) indicator of 0.734, and the value has been above 0.5, so it can be said that all measurement items on the firm performance variable have met and are acceptable.

A reliability test was conducted to prove the instrument's accuracy, consistency, and accuracy in proving the construct. The reliability test uses the composite reliability method. The use of composite reliability to test construct reliability if the composite reliability value is said to be reliable if it has a composite reliability value of more than 0.7. The greater the composite reliability value, the better the level of accuracy, consistency, and reliability of the variables in these indicators. The results of composite reliability can be seen in Table 3.

Table 3 shows the value – Cronbach's alpha, rho_A, and composite reliability values for each variable used in this study. For example, the early supplier involvement variable has a Cronbach's alpha value of 0.812, rho_A of 0.815, and composite reliability of 0.876, which can be reliable because its value has exceeded 0.70.

Second, the firm performance variable has a Cronbach's alpha value of 0.846, rho_A of 0.854, and composite reliability of 0.890, which can be reliable because the value has exceeded 0.70. Third, the new product development variable has Cronbach's alpha value of 0.728, rho_A of 0.739, and composite reliability of 0.834, which can be reliable because its value has exceeded 0.70. Finally, the teamwork variable has Cronbach's alpha value of 0.816, rho_A of 0.816, and composite reliability of 0.867, which can be reliable because the value has exceeded 0.70.

Table 3. Reliability Test Result

Variables	Cronbach's Alpha	rho_A	Composite Reliability
Early Supplier Involvement	0.812	0.815	0.876
Firm Performance	0.846	0.854	0.890
New Product Development	0.728	0.739	0.834
Teamwork	0.816	0.816	0.867

4.2. Hypothesis Test Result

Testing the research hypothesis is indicated by the t-statistical value, and if the value of the t-statistical hypothesis testing is above or equal to 1.96 or the significance value (p-value) is below or equal to 0.05 (5%), it is stated that the alternative hypothesis is accepted. On the other hand, if the t-statistic value is below or equal to 1.96 or the significance value (p-value) is above or equal to 0.05 (5%), it is stated that the alternative hypothesis is rejected. Based on the results of the tests carried out on the research model with *Partial Least Square* (PLS), the path coefficient value or inner model is shown in Figure 4.2, and the results of testing the research hypothesis are shown in Table 4.

Based on Figure 2. and Table 4. it was found that the first hypothesis was tested with a path coefficient value of the influence of early supplier involvement on new product development of 0.445, which has a t-statistic of 2.711 exceeding the t-statistic 1.96 and has a P-value of 0.007 which is below 0.05. Therefore, it can be concluded that there is a significant influence on early supplier involvement in new product development in the manufacturing industry. This means that in this study, early supplier involvement

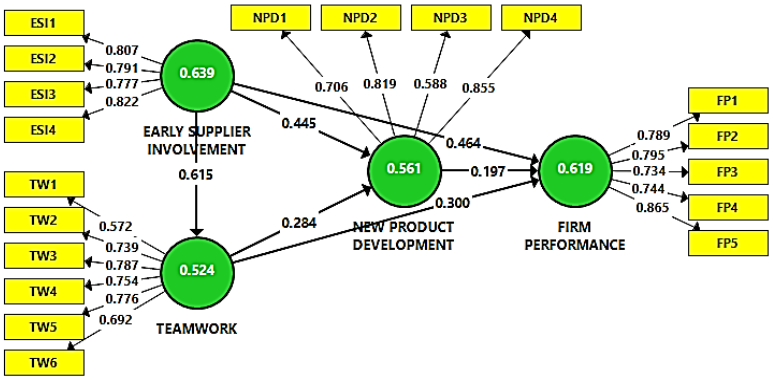

Figure 2. Research Results with PLS

Table 4. Direct Effect Hypothesis Test Results

Direct Effect	Path Coefficient	T Statistics	P-Values
Early Supplier Involvement → New Product Development (H1)	0.445	2.711	0.007
Early Supplier Involvement → Firm Performance (H2)	0.464	5.142	0.000
Early Supplier Involvement → Teamwork (H3)	0.615	7,660	0.000
Teamwork → New Product Development (H4)	0.284	1.969	0.050
Teamwork → Firm Performance (H5)	0.300	3.559	0.000
New Product Development → Firm Performance (H6)	0.197	2.482	0.013

significantly increased the new product development in the manufacturing industry with a significant level of 0.05.

Based on Figure 2 and Table 4, it is found that testing the second hypothesis with a path coefficient value of the influence of early supplier involvement on firm performance is 0.464, which has a t-statistic of 5.142, exceeding the t-statistical 1.96 and has a P-value of 0.000 under 0.05. Therefore, it can be concluded that there is a significant influence between early supplier involvement on firm performance in the manufacturing industry. This means that in this study, early supplier involvement significantly increased firm performance in the manufacturing industry with a significant level of 0.05. Based on Figure 2 and Table 4, it is found that testing the third hypothesis with a path coefficient value of the influence of early supplier involvement on teamwork is 0.615, which has a t-statistic of 7.660, exceeding the t-statistical 1.96 and has a P-value of 0.000 under 0.05. It can be concluded that there is a significant influence between early supplier involvement on teamwork in the manufacturing industry. This means that in this study, early supplier involvement significantly increased teamwork in the manufacturing industry with a significant level of 0.05. Based on Figure 2. and Table 4, it is found that testing the fourth hypothesis with the path coefficient value of teamwork on new product development is 0.284, which has a t-statistic of 1.969, exceeding the t-statistical 1.96 and has a P-value of 0.05 equal to a significance value of 0.05. It can be concluded that there is a significant influence between teamwork on new product development in the manufacturing industry. This means that in this study, teamwork significantly increased new product development in the manufacturing industry with a significant level of 0.05.

Based on Figure 2. and Table 4, it is found that testing the fifth hypothesis with a path coefficient value of teamwork influence on firm performance is 0.300, which has a t-statistic of 3.559 exceeding the t-statistical 1.96 and has a P-value of 0.000, which is smaller than a significance value of 0.05. It can be concluded that there is a significant influence between teamwork on firm performance in the manufacturing industry. Teamwork significantly improves firm performance in the manufacturing industry with a significant level of 0.05. Meanwhile, based on indirect path coefficient testing, it can be shown in Table 5.

Table 5 indicates the indirect hypothesis test result. The sixth hypothesis stating that new product development affects firm performance is supported with the coefficient value of 0.197, a t-statistic of 2.482, or a p-value of 0.013. It can be concluded that there is a significant influence between new product development on firm performance in the manufacturing industry. This means that in this study, new product development significantly increased firm performance in the manufacturing industry with a

significant level of 0.05. Table 5 also indicates that early supplier involvement indirectly affects firm performance through teamwork with a path coefficient of 0.185, t-statistic of 3.422, and p-value of 0.001. It can be concluded that there is a significant influence between early supplier involvement on firm performance through teamwork in the manufacturing industry. This means in this study that early supplier involvement can improve firm performance through teamwork in the manufacturing industry with a significant level of 0.05.

Furthermore, it is found that early supplier involvement indirectly affects firm performance through new product development with a coefficient of 0.088, t-statistic of 2.022, and p-value of 0.044. Therefore, it can be concluded that there is a significant influence between early supplier involvement on firm performance through new product development in the manufacturing industry. This means in this study that early supplier involvement can improve firm performance through new product development in the manufacturing industry with a significant level of 0.05.

Moreover, the hypothesis testing also shows that early supplier involvement influences firm performance through teamwork and new product development with a coefficient of 0.034, t-statistic of 1.308, and p-value of 0.192, which is greater than 0.05. It can be concluded that there is no significant influence between early supplier involvement on firm performance through teamwork and new product development in the manufacturing industry. This means in this study that early supplier involvement could not improve firm performance through teamwork and new product development in the manufacturing industry with a significant level of 0.05.

5. Discussion

5.1. Interpretation

Early supplier involvement in new product development in the manufacturing industry is essential. The results show that manufacturing companies developing new products need early communication and coordination with potential suppliers to meet market demand.Early supplier involvement in firm performance in the manufacturing industry. The company's ability to develop suppliers early by involving suppliers in product design (ES1) with a loading value of 0.807 and timely material procurement (ES4) with a loading value of 0.822; able to have an impact on increasing company performance with an increase in production utilization (FP5) with the loading of 0.865 due to the procurement of materials following the specified time, on-time delivery (FP3) with the loading of 0.734 and customer satisfaction (FP2) with the loading of 0.795. This shows that the involvement of suppliers in the company can increase production utilization so that on-time delivery can be achieved and increase customer satisfaction in the manufacturing industry. The company's ability to develop suppliers early by involving suppliers in product design (ES1) with a loading value of 0.807 and timely material procurement (ES4) with a loading value of 0.822; able have an impact on increasing the company's internal teamwork with togetherness in determining the right decision (TW3) with a loading of 0.787 and joint evaluation of the goals that have been set (TW5) with the loading of 0.776. This means that early supplier involvement can significantly increase teamwork in the manufacturing industry with a significant level of 0.05.

Table 5. The Indirect Hypothesis Test Results

Indirect Path	Path Coefficient	T Statistics	P Values
Early Supplier Involvement → New Product Development → Firm Performance (H7)	0.088	2,020	0.044
Early Supplier Involvement → Teamwork → Firm Performance (H8)	0.185	3,422	0.001
Early Supplier Involvement → Teamwork → New Product Development → Firm Performance (H9)	0.034	1.308	0.192

The existence of teamwork in the new product development process is essential in the manufacturing industry. The company's ability in internal teamwork, such as determining the right decisions (TW3), and conducting joint evaluations of the goals that have been set, enables the company to improve the coordination between functions/departments. Teamwork on firm performance in the manufacturing industry. Increased teamwork by manufacturing companies by maintaining togetherness in determining the right decisions (TW3) with a loading factor of 0.787 and conducting joint evaluations of the goals that have been set (TW5) with a loading factor of 0.776; able to provide an increase in production utilization (FP5) with the loading of 0.865 due to the procurement of materials following the specified time, on-time delivery (FP3) with the loading of 0.734 and customer satisfaction (FP2) with the loading of 0.795. This shows that solid teamwork has a positive impact on improving firm performance.

New product development on firm performance in the manufacturing industry is crucial. The company's ability in new product development through coordination between functions/departments can improve company performance by increasing production utilization (FP5) with a loading factor of 0.865 due to material procurement following the specified time, on-time delivery (FP3) with a loading factor of 0.734 and customer satisfaction (FP2) with loading 0.795.

5.2. Managerial Implication

Based on the research result, early supplier involvement is essential in improving firm performance. Supplier involvement in the early stage of new product development enables t firm to develop the product based on the latest technology owned by the supplier. In addition, teamwork between the firm and supplier will also enrich the coordination in designing the new product. Therefore, the company is highly suggested to involve the supplier early during the product development, allowing the company as the first mover in the market.

5.3. Theoretical Contribution

This study contributes to the existing theory, namely the mediation of new product development and teamwork toward the relationship between early supplier development and firm performance.

6. Conclusions

Based on the discussion on early supplier involvement research on firm performance through teamwork and new product development, several conclusions can be drawn. First, the company's ability to develop suppliers early by involving suppliers in product design and timely material procurement impacts new product development. Second, the company's ability to build early supplier involvement increases firm performance in the manufacturing industry by involving suppliers in product design and timely material procurement. Third, early supplier involvement has a significant effect on teamwork in the manufacturing industry because the company can develop suppliers from the start through supplier involvement in product design and timely material procurement. Fourth, there is a significant influence between teamwork on new product development in the manufacturing industry with the existence of togetherness in determining the right decisions and evaluating the goals that have been set. Fifth, teamwork significantly affects firm performance in the manufacturing industry in producing on-time delivery and customer satisfaction.

Sixth, new product development has a positive effect on improving firm performance due to good coordination between functions/ departments within the company organization. The company can also consider aspects of environmental impact to improve on-time delivery and customer satisfaction. Seventh, new product development is a mediating variable affecting the relationship between early supplier involvement variables and firm performance. This condition is caused by the early involvement of suppliers in the company who can provide materials as needed as an initial form of new product development to produce increased firm performance. Finally, teamwork mediates the effect of the early supplier involvement variable on firm performance. The company initially involved key suppliers to actively communicate and coordinate with the product development team to improve firm performance. Teamwork and new product development simultaneously do not mediate the relationship between the early supplier involvement variable and firm performance. However, these two things can partially mediate improving firm performance, so companies still need to improve teamwork and new product development.

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