

The Effect of Environmental Management Practices and Integrated Supply Chain on Technology Innovation Performance in Manufacturing Companies

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Keywords: Management practices, supply chain, knowledge sharing, and performance.

Abstract: This study aims to analyze the effect of environmental management practices and integrated supply chain on the performance of technological innovation in manufacturing companies in the Special Region of Yogyakarta and South Sumatera. The list of manufacturing companies was obtained from the Directory of Large and Medium Processing Industries in Yogyakarta and South Sumatera. The variables used in this study are environmental management practices, integrated supply chain, supply chain knowledge sharing, and technological innovation performance. The data used in this study are primary data. The data collection method used was a questionnaire. The analytical tool used is a simple regression model, multiple regression, and path analysis. The results of this study indicate that environmental management practices have no positive and no significant effect on the performance of technological innovation, integrated supply chain has a positive effect on the performance of technological innovation, integrated supply chain has a positive effect on supply chain knowledge sharing, supply chain knowledge sharing has a positive effect on the performance of technological innovation, and supply chain knowledge sharing is able to mediate the effect of integrated supply chain on the performance of technological innovation.

1 INTRODUCTION

In the time of globalization with a great deal of rivalry and advances in innovation and data as it is today, organizations will consistently contend to address the issues of their clients regarding speed, capacity, fulfillment, and precision in an item. Client request additionally changes from easy to increasingly unpredictable. This makes the organization flawless the generation procedure that includes the majority of the organization's accomplices, from the acquisition of crude materials to the end-client or the end-client, which is the place inventory network the board is required here.

Networks in Indonesia have pursued the improvement of science, innovation, and expressions (IPTEKS), which affects individuals' lives, particularly in mechanical social orders. This additionally affects the assembling business. As per BPS (2008), the assembling business is an assembling industry, which is a business that procedures or changes over crude materials into

completed merchandise or semi-completed products that have included worth, which is done precisely with machines, or without utilizing machines. Nearly in each district in Indonesia, there are assembling organizations. This can be brought about by a great deal of completed merchandise required by the network.

A few exact examinations have endeavored to analyze the impact of natural administration on advancement following the Porter Hypothesis at the business level. (Jaffe and Palmer, (1997); Chudnovsky et al., (2005); Kneller and Manderson, (2012)). In any case, Portney (2008) demonstrates that the impacts of natural guidelines on organizations can be altogether different, and varieties in the organization level are significant viewpoints. Therefore, a few scholastics and analysts broke down the connection between ecological administration rehearses and mechanical developments at the organization level, for instance, the utilization of natural administration frameworks (ISO14001, Gold), earth well-disposed advertising, clean creation, and interior approaches for

improving natural execution. Ecological administration practices have demonstrated their impacts on procedure advancement and item development (Wagner, 2008) (Rennings et al., 2006). The extent of current investigations in this field is restricted to the impact of a couple of ecological administration rehearses on mechanical development. In this way, it is important to investigate the instrument by which natural administration practices can advance mechanical development.

Numerous observational examinations (e.g., Gemünden, 1996) locate that drawing in providers for past item development ventures can maintain a strategic distance from expensive plan changes later. Provider interest in mechanical development has a critical constructive outcome on operational execution and creative execution. Client investment in new item advancement ventures can help organizations get request data, which can expand consumer loyalty at lower costs but then with higher caliber. The client request is a significant predecessor of development and significant for item plan, so client inclusion in advancement contributes emphatically to the nature of execution and development execution.

The significance of raising this subject is so assembling organizations in the Special Region of Yogyakarta, and South Sumatera can improve their production network combination so they can get by in progressively savage business rivalry and have the option to contend with the best procedures to win the challenge from their rivals, so it is trusted that by actualizing ecological administration rehearses, inventory network incorporation, store network learning sharing can influence the presentation of mechanical development in assembling organizations in the Special Region of Yogyakarta and South Sumatera. In light of the foundation over, the creators are keen on looking into with the title Effect of Environmental Management Practices and Supply Chain Integration on Technology Innovation Performance in Manufacturing Companies in Special Region of Yogyakarta and South Sumatera.

2 LITERATURE REVIEW

2.1 Environmental Management Practices and the Performance of Technological Innovation

In ongoing years, the connection between the board rehearses deliberate condition and the presentation of mechanical advancement in an organization have turned into the focal point of consideration. Wanger (2008) found that natural administration rehearses in organizations can not just decrease negative ecological effects and asset utilization yet, in addition, to advance natural procedure development and item advancement through authoritative learning. Rennings et al. (2006) demonstrate that intentional natural administration works on, including life cycle investigation and ISO14001 accreditation, have a critical positive effect on item advancement and procedure development.

H1: Environmental administration practices have a critical and beneficial outcome on the presentation of mechanical development in assembling organizations.

2.2 Integrated Supply Chain and the Performance of Technological Innovation

Both production networks and mechanical development centers around business techniques, associations, and procedures. The inventory network is focused on making an incentive for end clients. For organizations, individuals' inventory network (counting clients and providers) are the fundamental wellsprings of mechanical development as well as significant wellsprings of thoughts and information. Data sharing, common trust, and joint critical thinking among individuals are things that incorporation store network underlines, and this can increment immediate or roundabout communications among organizations and their production network accomplices. Things like this can prompt new and alternate points of view and can help create new thoughts and various options that are significant for the advancement of assembling organizations in the Special Region of Yogyakarta.

Bellamy et al. (2014) attested that store network combination system and learning coordinated effort could improve item quality and administration levels as well as are the principal assets of business development. Lee et al. (2014) found that store network mix had a positive and noteworthy impact

on advancement execution in Malaysian assembling organizations.

H2: Supply chain mix has a positive and noteworthy impact on the exhibition of mechanical development in assembling organizations.

2.3 Integrated Supply Chain and Supply Chain Knowledge Sharing

With the change of business, the board from shut end the board to open administration, production network systems have turned into a significant route for organizations to share information. The impact of store network incorporation on learning sharing is for improvement, and organizations ought not just to depend on their rare assets (counting information) yet in addition, effectively gain new information from outer sources. At that point, it can invigorate information sharing. A tight system of connections between organizations can advance learning sharing. Store network joining gives its individuals neighborly correspondence openings that encourage agreement building, which adds to open learning sharing and the viable utilization of implied information to assembling organizations in the Special Region of Yogyakarta. Lee et al. (2014) additionally found that inventory network systems are significant wellsprings of learning and assets for organizations.

H3: Supply chain reconciliation has a positive and critical impact on production network learning partaking in assembling organizations.

2.4 The Influence of Supply Chain Knowledge Sharing on Technological Innovation Performance

Nonaka (1991) says that learning sharing is a fundamental phase of development. An association can't make learning without anyone else, just when the information controlled by its staff is shared, talked about, and whenever broke down, the association or organization will be able to advance. Learning sharing between associations can not just mitigate the troubles of restricted inside information assets and decrease advancement costs yet additionally increment the degree of execution of development.

H4: Supply chain information sharing has a positive and critical impact on the presentation of mechanical advancement in assembling organizations.

2.5 The Influence of Supply Chain Integration on the Performance of Technological Innovations Mediated by Supply Chain Knowledge Sharing

Organizations, when offering to learn to an accomplices production network, will have the option to comprehend cutting edge innovation instantly and the most recent imaginative accomplishments that are basic for mechanical advancement.

H5: Supply chain learning sharing emphatically intervenes in the impact of production network combination on the presentation of mechanical development in assembling organizations.

3 RESEARCH METHOD

This research concentrate utilizes quantitative research, and the information source utilized in this investigation is the wellspring of essential information acquired from surveys. The testing procedure utilized is Purposive Sampling. The example in this investigation was assembling organizations in the Special Region of Yogyakarta and South Sumatera, with the respondent criteria being assembling organizations. The information recorded in the Large and Medium Manufacturing Industry Directory Daerah Istimewa Yogyakarta and South Sumatera in 2016 is still in activity until this examination is completed, having executed ecological administration, having in excess of 200 workers, producing organizations that have the type of a Limited Liability Company or PT.

4 RESULTS AND DISCUSSION

4.1 Simple Regression Analysis

Hypothesis testing utilizing a basic relapse examination in this investigation is utilized to test one theory. Basic relapse depends on the utilitarian or causal relationship of a free factor with a needy variable. Test results with straightforward relapse examination can be found in Table 1:

Table 1: Hypothesis Testing Results with Simple Regression Analysis

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Annotation
	B	Std. Error	Beta			
(Constant)	12.025	3.002		4.005	.000	
SCI	.239	.088	.434	2.726	.010	significant
a. Dependent Variable: SCKS						
R ² : 0.188						
F hitung : 7.432						
Sig. F : 0.010						

Source: Data processing with simple regression analysis, 2019

4.2 Multiple Regression Analysis

Numerous relapse investigation expects to foresee how the state (high points and low points) of the needy variable (measure) if at least two free factors as an indicator factor are controlled (expanded in worth). So different relapse examinations will be done if the quantity of autonomous factors is at any rate two. Hypothesis testing utilizing a straightforward relapse examination in this investigation was utilized to test three hypotheses.

Table 2: Hypothesis Testing Results with Multiple Regression Analysis

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Annotation
	B	Std. Error	Beta			
Constant	-.880	1.439		-.612	.545	
PML	-.051	.039	-.082	-1.303	.203	Not Significant
ISC	.091	.036	.158	2.507	.018	Significant
SCKS	.945	.071	.906	13.239	.000	Significant
Dependent Variable: TIP						
Adjust. R ² : 0.894						

4.3 Path Analysis

Path analysis is an expansion of various relapse investigations, or way investigation is the utilization of relapse examination to appraise causality connections between factors that have been foreordained dependent on the hypothesis (Ghozali, 2013).

Table 3: Hypothesis Testing Results with Path Analysis

Direct Effect	
SCI → TIP	
(p ₁)	= 0.154
SCI → SCKS	
(p ₂)	= 0.433
SCKS → TIP	
(p ₃)	= 0.871
Indirect Effect	
SCI → SCKS → TIP	
(p ₂ x p ₃ = 0.433 x 0.871)	= 0.377143
Total Effect	
(Direct Effect + Indirect Effect = 1.458 + 0.377143)	= 1.835143

Source: Data processing with path analysis, 2019

4.4 Hypothesis Testing Results 1

In light of the legitimacy test hypothesis (Ghazali, 2011) utilized in this investigation, where the rule of noteworthiness esteem $\alpha \leq 0.05$ is pronounced substantial. From the relapse, investigation, results got noteworthy outcomes found in the Significant Coefficient table of 0.203. With this, it doesn't demonstrate that the worth is $0.000 \leq 0.05$, and it very well may be presumed that PML doesn't impact KIT. This is since there are as yet many assembling organizations in the Special Region of Yogyakarta and South Sumatera that have not actualized natural administration appropriately, truth be told, there are no organizations that have explicit ecological models, for example, ISO14001 with the goal that the impact that emerges on the exhibition of mechanical advancement isn't yet there. In this manner, theory 1 isn't acknowledged.

4.5 Hypothesis 2 Testing Results

In view of the legitimacy test hypothesis (Ghazali, 2011) utilized in this examination, where the rule of centrality esteem $\alpha \leq 0.05$ was announced substantial. From the relapse examination results acquired noteworthy outcomes found in the Significant Coefficient table of 0.018. With this, it demonstrates that the estimation of $0.018 \leq 0.05$, and it very well may be inferred that the ISC positively affects KIT, implying that on the off chance that the ISC is higher, at that point the KIT in assembling organizations in the Special Region of Yogyakarta and South Sumatera will likewise be higher.

In improving inventory network incorporation, to have the option to connect with clients through data systems, speak with clients, increment piece of the pie data from clients, trade data with providers and

clients, take an interest with providers during the time spent obtaining crude materials, and so forth improve the exhibition of mechanical development.

In the inventory network, the joining procedure can help improve item data that is available, discover what item advancements are going on, and the market needs, and can help organizations in amplifying generation and expanding productivity in the organization. Furthermore, with this, it can likewise be expressed that hypothesis 2 (H2) is acknowledged.

4.6 Hypothesis Testing Results 3

In light of the legitimacy test hypothesis (Ghazali, 2011) utilized in this investigation, where the foundation of importance esteem $\alpha \leq 0.05$ is announced legitimate. From the relapse investigation results acquired huge outcomes found in the Significant Coefficient table of 0.010. With this, it demonstrates that the estimation of $0.010 \leq 0.05$, and it tends to be reasoned that ISC positively affects SCKS, implying that if ISC is higher than SCKS in assembling organizations in the Special Region of Yogyakarta and South Sumatera will likewise be higher. The significance of inventory network coordination in-store network learning sharing is that the production network mix gives data about conditions and openings that are entirely appropriate for organizations in picking up information in the inventory network.

Production network combination carries the organization closer to inventory network accomplices, so this can invigorate data sharing or learning sharing, set up store network connections both inside and outside the organization, expanding income and income as well as expanding union to improve proficiency inside the organization. So the execution of inventory network reconciliation in assembling organizations in the Special Region of Yogyakarta and South Sumatera can confront the tight local challenge and can impact the degree of offers inside the organization. Furthermore, with this, it can likewise be expressed that hypothesis 3 (H3) is acknowledged.

4.7 Hypothesis 4 Test Results

In light of the legitimacy test hypothesis (Ghazali, 2011) utilized in this investigation, where the paradigm of noteworthiness esteem $\alpha \leq 0.05$ was proclaimed substantial. From the relapse investigation results acquired huge outcomes found in the Significant Coefficient table of 0,000. With

this, it demonstrates that the estimation of $0,000 \leq 0.05$, and it tends to be reasoned that SCKS positively affects KIT, implying that if SCKS is higher, the KIT in assembling organizations in the Special Region of Yogyakarta and South Sumatera will be higher. An organization can be said to be fruitful in advancement if the whole arrangement of organizations from upstream to downstream as of now comprehends and comprehends the learning gave. With so advancement in the organization will go connected at the hip with the talk and investigation, so the procedure of store network information sharing can emphatically impact the presentation of mechanical development in improving execution and expanding the greatness of assembling organizations in Special Region in Yogyakarta and South Sumatera. What's more, with this, it can likewise be expressed that hypothesis 4 (H4) is acknowledged.

4.8 Hypothesis Testing Results 5

Hypothesis intervention testing should be possible by a strategy created by Sobel (Ghozali, 2011) and is known as the Sobel test or Sobel test. The Sobel test is completed by testing the quality of the backhanded impact of the autonomous variable (ISC) on the needy variable (KIT) through interceding factors (SCKS) or the circuitous impact (ISC) on (KIT) through (SCKS).

The way coefficient demonstrates the immediate impact of a free factor on the needy variable on away. Testing this hypothesis has an ISC variable coefficient of 0.433 duplicated by an SCKS variable coefficient of 0.871 will give an aftereffect of 0.377143. Inventory network reconciliation has an immediate application that has great outcomes to improve the presentation of mechanical developments to be applied to the organization. At that point with the job of production network learning sharing as intervention can make inventory network incorporation persuasive and assume a more noteworthy job in improving the presentation of mechanical advancement.

Where the store network of information sharing has a major job to improve correspondence and to learn to share on everything that is engaged with the production network process in the organization, this implies the production network learning sharing gives a superior and more prominent impact in the mix of the store network on the exhibition of mechanical advancement if the reconciliation of the inventory network through the production network information sharing.

5 CONCLUSIONS

Based on the results of the study, as outlined in the previous chapter, some conclusions can be drawn as follows:

- 1) Natural administration practices are not huge with the goal that they don't have any effect on the presentation of mechanical development in assembling organizations in the Special Region of Yogyakarta and South Sumatera.
- 2) Production network combination has a positive and noteworthy impact on the presentation of mechanical advancement in assembling organizations in the Special Region of Yogyakarta and South Sumatera
- 3) Inventory network combination has a positive and noteworthy impact on production network information partaking in assembling organizations in the Special Region of Yogyakarta and South Sumatera.
- 4) Production network learning sharing has a positive and huge impact on the presentation of mechanical development in assembling organizations in the Special Region of Yogyakarta and South Sumatera.
- 5) Store network information sharing emphatically intercedes the impacts of the joining of the inventory network to the presentation of innovation development in assembling organizations in Yogyakarta and South Sumatera.

6 SUGGESTIONS

Suggestions from this study based on the results of research hypothesis testing are as follows:

- 1) Following the aftereffects of the investigation, ideally, every assembling organization proceeded with consideration will rehearse ecological administration around the organization. Seeing the realities on the ground that there are as yet numerous organizations that have not executed natural administration appropriately, this won't influence the exhibition of the organization's mechanical advancement. Organizations are additionally urged to keep up and increment production network reconciliation and are joined by a superior inventory of information sharing stockpile chains. Since by actualizing production network mix together with the

usage of store network learning sharing, there is a huge constructive outcome on improving the exhibition of mechanical development. With the presentation of inventory network mix, store network information sharing, and the exhibition of this great mechanical development will have the option to expand the upper hand of assembling organizations in the Special Region of Yogyakarta and South Sumatera.

- 2) Future specialists who utilize this exploration as a source of perspective ought to create research models so they can find or demonstrate new things from ecological administration rehearses, production network mix, inventory network information sharing, and mechanical development execution.

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