

# Product Innovation, Process Innovation and their Effect on Organizational Performance in Ethiopia Flower Firms: Organizational Learning Commitment as Mediating Role

By

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## Abstract

*Organizations like flower manufacturing firms need product innovation and process innovation to influence performance was also mediated by organizational learning commitment. Thus, the study aims to access the effect of product innovation and process innovation on performance of firm through mediating role of organizational learning commitment in case of flower manufacturing firms surrounding Batu town, Oromia region, Ethiopia. To achieve study objective, quantitative study approach with descriptive and explanatory design was employed. To obtain correct information the study was employed five likert scale questionnaires and sampled 415 respondents from study area and analyzed the data from 391 (94.6%) using SPSS V20. The study used structural equation model with factor analysis using exploratory and confirmatory factor analysis. The study result revealed that product innovation, process innovation and organizational learning commitment had directly and positively significant effect on firm performance. Process innovation had 0.14 standard deviations indirect effect on firm performance while product innovation had insignificant indirect effect. Additionally, organizational learning commitment significantly played mediating role between process innovation and firm performance but not mediate the relation between product innovation and organizational performance. From this finding the study recommended flower firms managers and concerned bodies should give strict attention in flower firms' process innovation, product innovation and organizational learning commitment. Since this study was conducted on Ethiopia flower firms with quantitative approach, future researchers should extend and conduct the study on different manufacturing firms using mixed research approach.*

*Keywords: Commitment, Innovation, Learning, Process, Product*

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## 1. Introduction

In today's rapidly evolving global flower market, organizational performance is improved by improving product and process innovation. Ethiopia is utilizing a variety of strategies to significantly lower poverty and is putting several development plan and efforts into accomplishment in an attempt to boost its exports. Currently, the government is engaged on mounting the flower manufacturing firms due its ability to enhance exports, create a large number of jobs, and bring foreign exchange. Improving product innovation, process innovation and organizational learning commitment encourage flower manufacturing investors with an emphasis on businesses that improve organizational performance.

Product innovation is the ability to in producing improved goods/services with regards to customers (Pham & Hoang, 2019; Zahra et al., 2019; Patky, 2020). Process innovation brings new elements to the organization to improve production process of goods/services that meet customers need (Farzaneh & Nazari, 2020; Shaoying Zhu, Yuxin Wu, 2022; Watanabe-wilbert & Steil, 2022).

However, lack of innovation product and process mainly caused due to lack of understanding customer need, lack of generating and screening innovative idea, lack of developing and testing innovative prototype, lack of managing uncertainty and risk, lack of collaborating and communicating with different people and team and lack of scaling and launching (Ferreira & Coelho, 2019). A study in rural Ethiopia revealed that some teams effectively implemented innovative product and process to enhance efficiency, others weakened due to lack of above mentioned challenges (Kitenga, 2020). This disparity highlights how contextual factors can greatly influence the effectiveness of innovative product, innovative process and organizational learning commitment (Farzaneh & Nazari, 2020; Shaoying Zhu, Yuxin Wu, 2022; Watanabe-wilbert & Steil, 2022). In addition to this, study on local hotel chain showed that while the management recognized the need to innovate by adopting renewable, energy saving and innovative products, they faced resistance from staff who were unfamiliar with technology (Rotjanakorn et al., 2020; Najib et al., 2022). This reluctance to adapt not only impeded the hotel's ability to enhance its market reach but also reflected a broader issue regarding the cultural and educational barriers to implementing innovation effectively (Efendi et al., 2020; Mwazo, 2020).

## 2. Statement of the Problem

The major objective for this study is to addresses is the effect of product innovation and process innovation within Ethiopian firms and their impact on organizational performance, particularly through the lens of organizational learning commitment. The organization includes a robust framework of innovative product and process that allows firms to adapt, innovate, and thrive in competitive environments. However, many Ethiopian firms struggle to cultivate these innovations effectively, resulting in suboptimal performance and missed opportunities for growth (Rotjanakorn et al., 2020; Saeed et al., 2021).

The literature contains contradictory findings; some studies suggest a strong correlation between performance and innovation in processes and products, while others find little to no correlation. For instance, research in developed markets by Lütjen et al. (2019) often demonstrates innovation at product level founded the firm growth; nevertheless, similar studies in Ethiopia by Pundziene et al. (2021) yield contradictory results. This disparity creates a gap in our understanding of how these technologies function in different socioeconomic circumstances by raising the prospect that theoretical frameworks developed in Western contexts may not fully apply to Ethiopian firms. Additionally, there are theoretical gaps concerning the ways in which dynamic skills affect firm performance and innovation, particularly

in developing nations. The majority of current theories are based on assumptions about market stability and resource availability that are not representative of Ethiopian conditions (Kump et al., 2019; Lütjen et al., 2019; Akenroye et al., 2020). When applied to businesses with limited resources and unstable market conditions, this misalignment calls into doubt the applicability of well-established models (Pundziene et al., 2021; Linde et al., 2021).

Knowledge gaps further compound these issues, as limited empirical research has focused on the specific product and process innovation that plays great role in influencing organizational learning commitment and performance in Ethiopia flower manufacturing firms. Thus, lack of localized studies challenged to fully understand the factors that inhibit or facilitate the development of innovations at level of both process as well as product in Ethiopian firms (Kump et al., 2019; Mostafa et al., 2021). Additionally, situational gaps are evident in the limited exploration of industry-specific challenges, which can vary significantly between sectors such as agriculture, manufacturing, and services (Linde et al., 2021). As study conducted by Jiangna, (2020) on a share manufacturing companies Shenzhen and Shanghai product innovation has significantly positive effect on commercial presentation at ( $\beta=0.387$ ,  $P<0.001$ ), depicted that the durable product innovation, organizational performance become better which also similar with (Muhammad et al., 2019).

As more studies was conducted on different countries, while few studies were conducted in Ethiopia on product innovation, process innovation, organizational learning commitment effect on firm performance and the mediating role of organizational learning commitment. For instance study conducted Study conducted by Peng, Zhang, et al., (2019) on Taiwanese firms using 234 valid respondents revealed that innovation product and process have significant direct effect at ( $\beta= 0.179$ ,  $P<0.001$ ) while study by Rotjanakom et al., (2020) from 326 respondents from Automotive industry showed that indirect effect which also similar to (Obsa et al., 2022). Keraga et al., (2023) study showed that, innovation have strong and positive impact on firms productivity at Ethiopian firms. As Bortola et al., (2024) stated, product and process innovation has significant direct effect on Ethiopia manufacturing firms competitiveness. Tadesse et al., (2025) on state-owned enterprises in Ethiopia revealed that innovation (product and process) capability has significant influence in firm performance at ( $\beta= 0.677$ ,  $P<0.01$ ). Therefore, this shows that there is an empirical and location research gap.

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Practical challenges are also prevalent, as firms often face lack of new ideas, new process, lack of renewable product, lack of effective resource utilization and inadequacy to use innovative technology those hinder organizational ability to implement innovation (product and Process) effectively (Ali et al., 2019). For example, many firms may recognize the need for innovation (product and process) but lack the commitment to learn for practicing those innovations to improve performance successfully. Additionally, the study conducted by Kitenga, (2020) also showed organization having innovative technology do not produce and process innovative products/services due to lack of new idea creation, new process, lack of commitment at organizational level. This influences organizational performance directly and indirectly.

By performing a thorough investigation of the nexus amid innovation (both process along with product), managerial learning commitment, and organizational performance in Ethiopia, this study seeks to close these gaps. The study will provide light on the particular difficulties and possibilities faced by Ethiopian businesses by concentrating on empirical data and localized case studies (Mostafa A., 2021; Linde et al., 2021). Additionally, by suggesting modified frameworks that more accurately represent the reality of dynamic capability implementation in developing nations, it will advance the theoretical conversation (Shahzad et al., 2022; Hurtado-Palomino et al., 2022). In the conclusion, the results will be a useful tool for upcoming scholars and decision-makers, providing practical suggestions that can advance both theoretical knowledge and real-world implementations in promoting innovation and enhancing organizational performance in the Ethiopian setting.

Research gaps exist in understanding how organizational learning commitment specifically mediates the association. While some studies were addressed the importance of innovation in driving development, few have examined the mechanisms through which organizational learning commitment facilitate this process within the unique socio-economic landscape of Ethiopia (Peng et al., 2019). This chapter aims to fill these gaps by providing a comprehensive analysis of the innovation (product and process) of Ethiopian firms, their effect on organizational learning commitment, and the subsequent effects on organizational performance.

Thus, the study investigated the research questions like, what is the effect of product innovation on firms' performance? What is the influence of process innovation on organizational performance? What is the effect of organizational learning commitment on firms' performance? Does organizational learning commitment mediate the relationship between product innovation, process innovation and organizational performance of flower firms' at study area?

### **3.Theoretical Review and Hypothesis Development**

Several theories provide a foundational understanding of innovation and their relationship with organizational performance and organizational learning commitment. Among these, the Resource-Based View (RBV) is particularly significant (Samsudin & Ismail, 2019; Vasudevan, 2021; Greve, 2021). RBV suggest firms own unique product and process innovation that can lead to sustained competitive advantage. The importance of internal resources emphasizes such as human capital, technology, and organizational processes in driving performance (Mokhtarzadeh & Cardinali, 2020). In the context of Ethiopia, where resource constraints are prevalent, understanding how firms can leverage their innovation ability becomes crucial for enhancing their organizational performance and fostering learning commitment (Mostafa et al, 2021).

Another pertinent theory is the Absorptive Capacity Theory, which focuses on a firm's capability to recognize, embrace, and apply external knowledge. Absorptive capability is important for innovation as it determines how effectively an organization can integrate new information and adapt to changing market conditions (Anwar, 2020). In Ethiopia firms may have a shortage of access to global networks, understanding how to enhance absorptive capacity can provide insights into fostering innovation and improving performance (Chen et al., 2018; Ayuri & Nasution, 2022).

Understanding how innovative concepts and technologies proliferate both inside and between industries is another aspect of the Innovation Diffusion Theory. According to this idea, perceived advantages, compatibility with current procedures, and the social structure in which the business functions are some

of the elements that affect the adoption of innovations (Ferreira & Coelho, 2019; Patky, 2020; Bianchi et al., 2021). In the Ethiopian context, where cultural and infrastructural barriers often impede innovation adoption, this theory provides a lens to examine how firms can overcome these challenges to implement innovation effectively (Smith, 2021; Fuchs & Hovemann, 2022).

Nonetheless, the Dynamic Capability Theory itself serves as the primary theoretical framework for this investigation. This theory highlights the significance of a firm's capacity to assimilate and reconfigure interior along with exterior competences in order to meet quickly altering settings that promote businesses' innovation, as stated by Peng, Zhang, et al. (2019); Haile & Tüzüner (2022). It provides the broad framework for analyzing how Ethiopian businesses can build dynamic capabilities that improve their level of innovation and, in turn, their overall success (Alsaad et al., 2022). This theoretical lens will guide the research design, data collection, and analysis, ensuring a coherent approach to addressing the study's primary research question.

### **Definition and Sources of Terms**

Product innovation is the capacity of an organization to identify and implement new ideas and enhancements in goods or services systematically. This capability focuses on creating value-added products that improve firm performance (Kump et al., 2019; Ali et al., 2019; Kitenga et al., 2020; Ciszewska-Mlinari, 2020).

Process innovation refers to the adoption of new, incorporating new components, procedures, tools, refining existing process or introducing new process that helps to reduce costs and improve quality to enhance firm performance (Hongyun et al., 2019; Ali et al., 2020).

Organizational learning commitment is the dedication of an organization to practice and share knowledge, harness advanced technologies, and develop innovative ideas, product and process to enhance firm performance (Najib et al., 2022).

Organizational Performance: Organizational performance is defined as the measure of how effectively an organization achieves its goals and objectives. This term mostly used indicators, such as customer perspectives, financial perspective, internal process perspective, and learning and growth perspective (Oluwayemisi B. & Abayomi O., 2018; Afum et al., 2020; Kitenga et al., 2020).

### **Product Innovation (PI) and Organizational Performance (OP)**

Innovation in product is a firm's ability to see, search chance to overcome quickly and improve organizational performance (Ali et al., 2019; Kump et al., 2019). As Lütjen et al., (2019) stated product innovation is the ability of seeing, creating new idea/concept and changing opportunities to maintain competitiveness and re-using resources to improve performance. As Iszewska-Mlinari, (2020) stated PI enables organization to improve performance by creating new/improved products/services directly. As Pundziene et al., (2021) stated, product innovations are the activities of an corporate to generate, added values to its product/services to improve their performance directly. Though, product innovation is the ability of an organizations in creating, modifying, value adding, new/existing product/services in order to boost firm growth (Rotjanakorn et al., 2020; Saeed et al., 2021). Therefore, the stronger organizational ability to produce innovative products/services better organizational performance achieved (Jiangnan, 2020).

Product innovation includes changes in designing by continuously improving new or existing products/services by using new technologies and new knowledge to foster customer needs that directly/indirectly influence organizational performance (Kump et al., 2019; Akenroye et al., 2020; Pundziene et al., 2021; Linde et al., 2021). Seizing capability includes the utilization of resources to address the opportunities. Product innovation is a continuing and cross functional progression that encompasses as well as integrate opportunities and resources to attract new customers and increase sales that directly influence organizational performance ( Mostafa et al, 2021).

Organizations those became responsive to improving marker share, sales growth and customer's satisfaction should focus in product innovation. By focusing on future customer wants, businesses may stay informed about emerging markets and technological advancements and improve their capacity to leverage these advancements in product development (Ali et al., 2019). This enables firms consequently participate in offering special benefit. Product innovation through continuous improvement of new/ existing product specifically influenced the growth of firms directly (Lütjen et al., 2019). According to Mostafa A., (2021); Linde et al., (2021) product innovation involves the practical project, investigation and growth actions which alarmed in the promotion of the novel goods. Therefore, product innovation is the main factor to improve organizational performance.

*H1: Product innovation has positive significant direct effect on organizational performance*

### **Process Innovation (PRI) and Organizational Performance (OP)**

The company's capacity to achieve process innovation depends on several parameters such as overall company strategy/method priorities, cost focus and managers involvement in process innovation to enhance performance directly or indirectly ( Akenroye et al., 2020; Pundziene et al., 2021; Linde et al., 2021). Process innovation causes the involvement of organizational and technological changes to match the changing environment with opportunities to augment growth (Rotjanakorn et al., 2020) and additionally, Companies become over their competitors with cost efficiency, production speed and quality consistency (Hongyun et al., 2019; Ali et al, 2020).

Process innovation can give different benefits to organization those enables them to improve their performance. According to Navarro-García et al., (2018) benefit of market position when company set the standards to that become barriers to competitors. Applying new technologies is another advantage that helps a business overcome its shortcomings and innovate to realize its full potential by using resource utilization, rearrange, reduce and renewal to improve organizational performance directly (Chang, 2019). In addition to these advantages, the process's result demonstrate the organization's dedication, inventiveness, and ingenuity (Stav et al, 2019) and also speed up time to market for innovative product that significantly influence firm performance (Rotjanakorn et al., 2020).

*H2: Process innovation has positive significant direct influence on organizational performance*

### **Organizational Learning Commitment (OLC) and Organizational Performance (OP)**

Organizational commitment to learn is the extent to which an organization values and fosters a learning environment (Werlang, 2019; Nadhira Putri & Mangundjaya, 2020). Organizational commitment to learn must be seen, both by managers and employees, as a value that enables organization to achieve a goal. Senior management and employee of the organization having ability and knowledge enables employee to perform more and more that enables organization to improve performance (Muhammad

et al, 2019; Haile & Tüzüner, 2022). The attention and commitment in creative thinking, identifying new ways of working has a great contribution in improving organizational performance (Nafei, 2018; Mohammad, 2019; Hermelingmeier & von Wirth, 2021).

Optimal performance achievement will be realized if there is a high organizational learning commitment (Maria et al., 2020). Organizational learning commitment is the control of a person's identification, participation, and value of an organization (Vega Martinez et al., 2020). Organization with high organizational learning commitment have greater influence on employee/individual/team in organization by affecting work convenience, work productivity and sense of ownership that directly influence organizational performance (Mohammad, 2019; Werlang, 2019; Nadhira Putri & Mangundjaya, 2020).

*H3: Organizational learning commitment has significant positive direct effect on organizational performance*

### **Product and Process Innovation and Organizational Learning Commitment**

A competitiveness along with productivity of an organization is enhanced when products/services of those organization is innovative. As study Rotjanakorn et al., (2020) conducted by showed that, organization using renewable product, suitable and smart in packaging, labeling and transportation increase employee and managers of the organization to plan, budget and support for learning more about innovation. Organizational learning commitment of an organization is to support new ideas and process that influenced due to lack of producing and processing innovative product. As stated by Jiangnan, (2020) organizational learning commitment in sharing best experience and best practicing to produce and process innovative products/services is affected due to challenges on creating new ideas, improving new/existing products/services and using innovative technology.

According to Efendi et al., (2020) study indicated product innovation has strong correlation with organizational learning commitment that influence the managers and employees commitment to use innovative technologies for producing and processing innovative products. As Migdadi, (2021) investigated on relation between innovation and organizational learning revealed that both product and process innovation positively contribute to organizational learning commitment. The learning commitment of an organization directly influenced by organizational ability to produce innovative product ( Najib et al., 2022) while new method, new/modified working process that saves energy, time and increase quality in processing innovative products/services significantly influencing organizational learning commitment (Watanabe- wilbert & Steil, 2022).

*H4: Product innovation has a statistically significant direct effect on organizational learning commitment*

*H5: Process innovation has a statistically direct significant influence on organizational learning commitment*

### **Mediation of Organizational learning commitment (OLC)**

Organizational performance occurred when product and process innovation influence is mediated by organizational learning commitment ( Kitenga et al., 2020). As study Muithya & Muathe, (2020) asserted that product innovation caused due to new idea/concept in a firms enhance organizational commitment to share best experience and focus in producing innovative product that enables organization in improving performance. As Pundziene et al., (2021) study stated that product innovation is capability to build,

extend or amend organization resource enables firm learning commitment that directly influence firm performance. The development of novel, cutting-edge goods and services was positively connected with an increase in the general performance of the company (Yuliansyah et al., 2021) and learning commitment (Luan et al., 2022). Supporting cutting-edge technology helps businesses reduce expenses, which in turn enhances organizational performance influenced indirectly by the company's capacity to enhance new or existing products (Rotjanakorn et al., 2020; Najib et al., 2022).

As studies Lütjen et al., (2019) revealed that organizations those identified new product, process and method encourage employee to learn new things that directly influence performance. Organizations improving product/services in renewal, technology utilization and speed time for product processing enables managers and employee to learn more (Werlang, 2019). Furthermore, product and process innovation facilitate continuous learning and knowledge sharing and transfer commitment within organizations (Rotjanakorn et al., 2020). By systematically reflecting on past experiences and integrating lessons learned into future practices, firms can enhance their performance over time. This iterative process of learning and adaptation is essential for sustaining long-term innovation, as it allows organizations to remain relevant and responsive to changing market conditions that directly/indirectly influencing growth (Saeed et al., 2021).

*H6: Product innovation effect on firm performance is significantly mediated by organizational learning commitment.*

*H7: Organizational learning commitment has a significant mediating role between process innovation and organizational performance*

Finally, based on the above theoretical review and hypothesis development, the study framed the following proposed conceptual model. The model consists five direct and two indirect hypothesis.

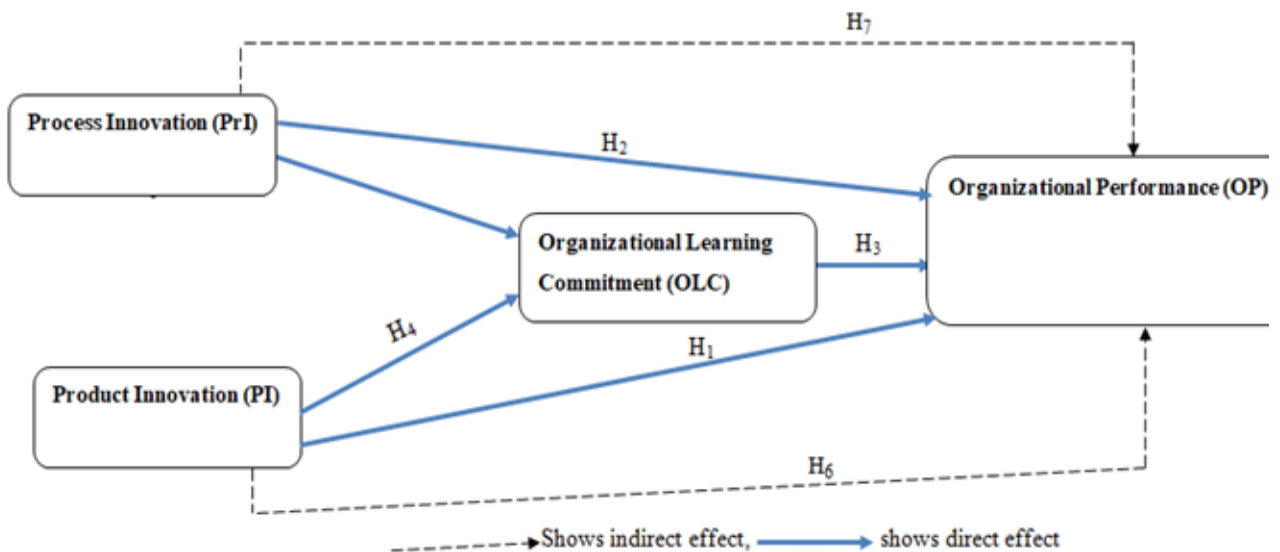


Figure 1: Conceptual Framework of the study

Source: Developed by researcher, 2024

#### 4. Material and Methods

As the study aimed to investigate the effects of product innovation and process innovation on organizational performance, with organizational learning commitment as a mediating variable, a descriptive and explanatory research design employing a quantitative approach was adopted.

The research was conducted within the flower manufacturing sector of Batu Town Administration, Ethiopia. According to administrative records, the town hosts five flower manufacturing firms, all of which were purposively selected for the study due to the manageable and well-defined nature of the population. The total workforce across these five firms constituted the study population (N), which exceeded 6,000 employees.

To ensure a representative sample from this population, a probability sampling technique was applied. The sample size was determined using the Yamane (1967) formula for finite populations:

$$n = \frac{N}{1 + N(e)^2}$$

where:

n = required sample size,

N = total population size,

e = margin of error (set at 0.05 for a 95% confidence level).

This calculation yielded a base sample size. Furthermore, to account for potential non-responses, a contingency of 10% was added to the calculated figure. Consequently, a final sample of 413 participants was established.

Respondents were proportionally and randomly selected from various operational levels within each firm to maintain representativeness. The distribution of the sample across the five companies was as follows:

Table 1: The distribution of the sample across the five companies

Firm	Participants
Sher Ethiopia PLC	241
Ziway Roses PLC	46
AQ Roses PLC	43
Hurburg Roses PLC	50
Braam Flowers PLC	33

Totally 413 questionnaires using Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) were distributed and 391 successfully returned. The remaining 22 returned response was not used for analysis, because of incorrect responses or missing data and never returned by the respondents. Thus, 94 percent was the overall response rate.

Data analysis was conducted using different statistical techniques to ensure rigor and depth. The Kaiser-Meyer-Olkin (KMO) test was performed to assess the adequacy of the sample for factor analysis, with EJBME, Vol. 8, No. 2, 2026

values above 0.6 indicating acceptable levels of sampling adequacy (Torino, 2021; Lisdiono et al., 2022). Following this, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were employed to identify underlying structures within the data, confirming the dimensionality of the constructs measured in the study. These analytical steps ensured that the scales used were appropriately capturing the theoretical constructs of interest (Lisdiono et al., 2022; Yang & Yu, 2022).

Finally, Structural Equation Modeling (SEM) was utilized to inspect the relationships between product innovation, process innovation learning commitment, and firm performance employing AMOS software. SEM enabled the testing of the hypothesized model, allowing for an assessment of both direct and indirect effect among the constructs.

### Development of Scale

To measure product innovation construct, items were adapted from (Ferreira & Coelho, 2019; Abdallah & Al-Ghwayeen, 2020; Mura et al., 2021) studies, emphasizing aspects such as new idea creation, new products, modifying product, and new technology. For the firms' product and process innovations, as highlighted by scholars like (Jones, 2019; Da Costa et al., 2020). The scale included items that captured the frequency and impact of product innovation and process innovation activities within the firm, such as "Our firm consistently develops new products that meet customer needs" and "We frequently implement new processes to enhance operational efficiency." Organizational performance used Balanced Scorecard dimensions (Rasool et al., 2019; Imran et al., 2021) the scale included items like "Our firm has achieved significant growth in revenue over the past year" and "Customer satisfaction levels have improved due to our recent innovations." The 5-point Likert scale was.

### Reliability and Validity Statistics

Reliability was assessed using composite reliability and internal consistency. Reliability is the extent to which an assessment tool generates consistent, stable, and reliable results allowing simplicity of replication by other researchers of your study's findings González-Rodríguez et al. (2020). So, cronbach's alpha values closer to 1.00 are ideal internal consistency; values over 0.70 and below 0.95 show high dependability (Kareem & Mijbas, 2019; Hurtado-Palomino et al., 2022). Thus, as shown in Table 2 below, the individual Cronbach's alpha varies from 0.921 to 0.965 and is more than 0.70. Moreover, the findings from Table 1 below reveal that the CFA-derived composite reliability values span from 0.744 to 0.843, above 0.70, suggesting that all items have no reliability issue.

Table 2: Reliability Statistics

Variables	Cronbach's alpha ( $\alpha$ )	Composite Reliability (CR)	No of Items
Product Innovation (PI)	0.923	0.843	6
Process Innovation (PRI)	0.948	0.835	6
Organizational Learning Commitment (OLC)	0.965	0.767	6
Organizational Performance (OP)	0.921	0.744	6
Overall Scale	0.976		24

Source: Survey result, 2024

Construct validity was employed in the study to identify how each construct's measurement items related to one or more elements or dimensions. To evaluate construct validity, EFA and CFA were employed. To determine if items assessing each construct loaded onto one or more factors or dimensions, EFA was employed. SEM-derived CFA was used to validate or improve the measurement's unidimensionality as a result of EFA. To assess EFA, principal component analysis (PCA) and four commonly used assumptions was used. To ensure greater confidence, the sampling appropriateness test used KMO above 0.5 and Bartlett's test of sphericity to test uniformity of variances statistics were statistically significant ( $P < 0.05$ ). The minimum eigenvalue value was greater than one, and factor loading above 0.50 was taken into consideration as the threshold for keeping items. Varimax rotation was used because it is a good method that makes factor interpretation easier ( Migdadi, 2021). Based on this the study used convergent validity and discriminant validity to test the validity issues. Convergent validity, which takes into consideration the variance of its indicators, was assessed using factor loading larger than 0.5 and Average Variance Extracted (AVE) similarly above 0.5 with a significant matching p-value ( $p < 0.05$ ) as the criteria. As shown from Table 2 below the PCA was conducted in four factors at which communality was detected. From this result item PI3 from product innovation, PRI3 from process innovation and OP4 from organizational performance was deleted because of their loading factor was below 0.50. Finally, 21 items was used for CFA. The result from Table 3 below indicates all loading value ranges between 0.612 and 0.963, AVE value ranges between 0.841 and 0.911, KMO value ranges between 0.782 and 0.859 and Bartlett's test of sphericity was significant. Therefore, the results confirm the absence of any issues with convergent validity.

Table 3: Convergent Validity Test

Construct	Items	Initial	Extraction	AVE	KMO	Bartlett's test of sphericity (Sig.)
Product Innovation (PI)	PI1	1.00	.904	0.911	0.831	0.000
	PI2	1.00	.881			
	PI4	1.00	.914			
	PI5	1.00	.917			
	PI6	1.00	.939			
	Process Innovation (PRI)	PRI1	1.00	.948	0.903	0.859
PRI2		1.00	1.00	.963		
PRI4		1.00	1.00	.775		
PRI5		1.00	1.00	.952		
PRI6		1.00	.881			
Organizational Learning Commitment (OLC)		CT1	1.00	.916	0.854	0.849
	CT2	1.00	1.00	.910		
	CT3	1.00	1.00	.612		
	CT4	1.00	1.00	.842		
	CT5	1.00	1.00	.926		
	CT6	1.00	.916			
Organizational Performance (OP)	OP1	1.00	.911	0.841	0.782	0.000
	OP2	1.00	1.00	.845		
	OP3	1.00	1.00	.787		

	OP5	1.00	1.00	.750		
	OP6	1.00	1.00	.909		

Source: Survey result, 2024

Based on the result of EFA the study conducted CFA to test discriminant validity. The study used single CFA using maximum likelihood estimate with number of bootstrap sample more than 200. From this, the result of model fit summary was presented with Table 4 below. Hence, all construct achieved model fit summary criteria and the mean was computed and further analysis was conducted.

Table 4: Model Fit Summary

Model Fitness Index	Threshold	Product Innovation	Process Innovation	Organizational Learning Commitment	Organizational Performance
Chi2/DF	$\leq 3$	0.028	0.098	1.492	2.114
GFI	$\geq 0.95$	1.00	1.00	0.992	0.991
AGFI	$\geq 0.95$	1.00	0.998	0.973	0.967
TLI	$\geq 0.95$	1.00	1.00	0.998	0.997
CFI	$\geq 0.95$	1.00	1.00	0.999	0.999
RMR	$\leq 0.05$	0.001	0.004	0.019	0.012
RMSEA	$\leq 0.05$	0.000	0.000	0.036	0.049
P Value	$\geq 0.05$	0.972	0.961	0.176	0.076

*Chi2 /DF = Chi-square over degrees of freedom; GFI = goodness of fit index; AGFI = Adjusted goodness of fit index; TLI = Tucker–Lewis index; CFI =Comparative fit index; RMR = root mean square residual; RMSEA = Root mean square error of approximation; P Value= significance indicators.*

Source: Survey result, 2024

Cross correlation and the square root of AVE were used to perform discriminant validity (Rotjanakorn et al., 2020). The square root values of each construction (bold diagonal elements) are larger than the corresponding correlations with the other constructs, as seen in Table 5 below. Consequently, this study's discriminant validity was strong and attained.

Table 5: Discriminant Validity Test

Variables	Product Innovation	Process Innovation	Organizational Learning Commitment	Organizational Performance
Product Innovation	0.954			
Process Innovation	0.692**	0.950		
Organizational Learning Commitment	0.588**	0.869**	0.924	
Organizational Performance	0.877**	0.871**	0.788**	0.917

\*\* Significant at 0.01

Source: Survey result, 2024

## 5. Result

### Demographic Information Analysis

Table 6 below shows that 65.5% of were men and the remaining were women. 53.2% respondents ages between 31 and 40, 32.8% are ages between 18 and 30, and just a small percentage are older than 41. Regarding educational level of the respondents, majority of them was college diplomas or technical and vocational education (TVET) holders 276 (70.6%) followed by first-degree holders 57(14.6%) while few numbers was below high school level. Table 6 below illustrates 56% had 6–10 years' work experience, while 32% was less than 5 years.

Table 6: Demographical statistics

Category	Sub- categories	Frequency	Percent
Gender	Male	256	65.5
	Female	135	34.5
	Total	391	100.0
Age	18 - 30	132	33.8
	31 - 40	208	53.2
	41 - 50	35	9.0
	Above 50	16	4.1
	Total	391	100.0
Education	Below high school	19	4.9
	College Diploma/TVET	276	70.6
	1st Degree		
	2nd Degree and Above	39	10.0
	Total	391	100
Work Experience	Up to 5	125	32.0
	6 - 10	219	56.0
	11 - 15	40	10.2
	Above 15	7	1.8
	Total	391	100.0

Source: Survey result, 2024

### Hypothesis Testing

The study used AMOS 26 to perform SEM in order to test the suggested model.. All hypotheses, including direct and indirect effects, can be tested simultaneously using SEM, and the mediating impact can be tested using a bootstrapping re-sampling technique. The study used bootstrapping approach because of normal distribution assumption accuracy was not required and result accuracy was not affected by sample size used by study. The study used 95 percent bias-corrected confidence interval and the mediating influence is accepted if the lower and upper bounds of confidence interval do not contain zero.

Therefore, Table 7 below shows the result of all direct effect that allows study to test hypotheses. The

result shows process innovation ( $\beta = 0.889$ ,  $SE=0.034$ ,  $CR=25.62$ ,  $p \leq 0.001$ ) and ( $\beta = 0.369$ ,  $SE = 0.030$ ,  $CR = 10.63$ ,  $p \leq 0.001$ ) has significant direct effect on organizational learning commitment and organizational performance respectively. Therefore, H5 and H2 are supported.

As Table 7 below result indicates that organizational performance directly affected positively and significantly at ( $\beta = 0.529$ ,  $SE = 0.018$ ,  $CR = 24.97$ ,  $p \leq 0.001$ ) and ( $\beta = 0.156$ ,  $SE = 0.027$ ,  $CR = 5.05$ ,  $p \leq 0.001$ ) by product innovation and organizational learning commitment respectively. Hence, H1 and H3 are supported. But product innovation has statistically insignificant effect on organizational learning commitment at ( $\beta = -0.026$ ,  $SE = 0.34$ ,  $CR = -0.757$ ,  $p = 0.449 \geq 0.05$ ). Therefore, H4 is not supported.

Table 7: Hypotheses Testing (Direct effect)

Construct	Standardized Estimate	Unstandardized Estimate	SE	CR	P	Hypothesis	Result
OLC <--- PRI	0.889	0.877	.034	25.62	***	H5	Supported
OLC <--- PI	-0.026	-0.026	.034	-.757	0.449	H4	Not supported
OP <--- OLC	0.156	0.135	.027	5.05	***	H3	Supported
OP <--- PRI	0.369	0.314	.030	10.63	***	H2	Supported
OP <--- PI	0.529	0.449	.018	24.97	***	H1	Supported

\*\*\*significant at 0.001, CR- critical ratio

Source: Survey result, 2024

The study conducted indirect effect as result shown with Table 8 below. The study result from Table 8 below shows that at ( $\beta = 0.139$ ,  $SE= 0.037$ ,  $P= 0.002 \leq 0.05$ ) and 95% confidence interval does not containing zero value, process innovation has positive significant effect on organizational performance through organizational learning commitment. Hence, process innovation indirectly affects organizational performance. Therefore, H7 is supported.

The study result from Table 8 below shows that ( $\beta = -0.004$ ,  $SE= 0.008$ ,  $P= 0.542 \geq 0.05$ ,  $LB= -0.022$ ,  $UB= 0.011$ ) product innovation has insignificant indirect effect on organizational performance. Since 95% confidence interval containing zero, organizational learning commitment does not mediate product innovation and organizational performance. Therefore, H6 is not supported.

Table 8: Hypotheses Testing (Indirect effect)

Construct	Standardized Estimate	SE	95% Confidence interval		P	Hypotheses	Result
			LB	UB			
OP <--- OLC<---PRI	0.139	.037	0.064	0.214	0.002	H7	Supported
OP <--- OLC<---PI	-0.004	.008	-0.022	0.011	0.542	H6	Not supported

\*p- p value, SE- Standard errors, LB-lower bounds, UB- upper bounds, Op-organizational performance, OLC, organizational learning commitment, PRI- Process innovation, PI- product innovation

Source: Survey result, 2024

After all study hypotheses were tested, modification indices were used to obtain correct model that fit model fitness criteria threshold. Therefore, the final model illustrated as Figure 2 below resulted all model fit criteria (CMIN/DF  $0.573 \leq 2$ ; CFI  $1.00 \geq 0.95$ ; TLI  $1.00 \geq 0.95$ ; SRMR  $0.010 \leq 0.05$ ; RMSEA  $0.001 \leq 0.05$ ;  $\rho$   $0.449 \geq 0.05$ ). In order to guarantee that the data and findings are interpreted accurately, the model fit suggests an appropriate fit to the data, and the final model satisfies the model fitness criteria.

The study used standardized coefficient to test direct, indirect and total effect. The study result from Table 9 below shows process PRI has .89 direct effects on OLC, OLC has .16 direct effects on OP and PRI has .14 indirect effects (partial mediation) on OP. The total (direct + indirect) effect on OP due to PRI is .51. Hence path influence due to PRI is significant. As shown from Table 9, PI has .53 direct effect on OP while -.03 insignificant effect on OLC. Therefore, PI has no indirect effect on OP.

Table 9: Direct, Indirect and Total Effect

Construct	Direct effect	Indirect effect	Total effect	Path influence
PRI ----> OLC	.89	.00	.89	Significant
OLC ----> OP	.16	.00	.16	Significant
PI ----> OLC	-.03**	.00	-.03	Insignificant
PI ----> OLC ----> OP	.53	-.004(-.03*.16)	.52**	Insignificant
PRI ----> OLC ----> OP	.37	.14(.89*.16)	.51	Significant

\*\*insignificant at 0.05

Source: Survey result, 2024

The study result from Figure 2 below that indicates R<sup>2</sup> value 0.91 on organizational performance and 0.76 on organizational learning commitment while 0.69 covariance amongst innovation of product along with process. Hence, performance of organization explained 91% due to explored variables and mediation variable organizational learning commitment. But organizational learning commitment effect explained 76% due to product innovation and process innovation.

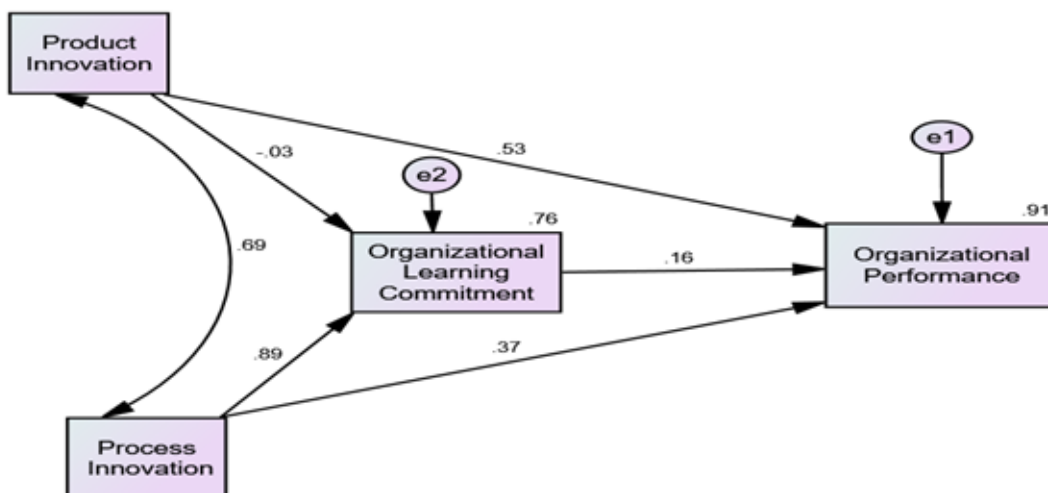


Figure 2: Path Model (Source: Own survey result, 2024)

## 6. Discussion

The study demographic result shows that majority of the respondents were male, having better work experience while their education level is below college diploma/TVTE. Therefore, flower manufacturing firms under study area has matured employee that enables them to create new idea, modify or produce new product to foster innovation for organizational performance improvement. But having majority of workforce with education level under college diploma became challenging issues to organization for employee commitment to share knowledge, experience and process of work that influence organizational performance.

The study result indicates that innovation in process has positive direct consequence on organizational learning commitment and organizational performance. This implies that organizations using innovative technology in packaging, transporting and labeling product enhance organizational learning commitments that also improve organizational performance. This result is supported by study result (Rotjanakorn et al., 2020) that stated process and product innovation has positive effect on organizational learning commitment. An ideal circumstance of delivering new innovative product coupled with new method, technologies and production techniques. The study also revealed that PRI has 0.89 and 0.37 standardized effect on OLC and firm performance respectively. This implies that as PRI increase by one standard deviation, OLC increase 0.89 and OP by 0.37. Therefore, process innovation may increase variations among learning commitment in organizations which may potentially influence organizational performance.

The result of this study showed that product innovation and learning commitment has positive significant direct effect on performance. This indicates that creating new idea, producing new product and modifying existing product/service resulted in increasing customer satisfaction and firms' financial performance. The study result also revealed that 0.53 and 0.16 standard deviation effect on OP caused directly due to PI and OLC respectively. This showed that one standard deviation change by PI and OLC changes OP by 0.53 and 0.16 standard deviation respectively. This result was supported by previous study (Kump et al., 2019; Ali et al., 2019; Iszewska-Mlinari, 2020) result that asserted product innovation of manufacturing firms significantly affect their performance. The study result also indicates organizations having potential commitment in acquiring, sharing knowledge, and best experience directly improve the quality and quantity of product that increase sales, profit and market share of manufacturing firms. This result also supported with study (Mohammad, 2019; Werlang, 2019; Nadhira Putri & Mangundjaya, 2020) finding that stated organizational learning commitment directly and significantly influence performance of organization. However, the study result revealed that product innovation has insignificant effect on organizational learning commitment. This showed that however firms create new idea, new products/services and new innovative technology it has no influence on organizational learning commitment to share knowledge and best experience. The reality also shows that if organizations do not participate and give attention to employee for innovation issue, employees are not committed to learn and share best experience. This result inconsistent with (Nafei, 2018; Mohammad, 2019) study result that stated product innovation significantly impacted organizational learning commitment.

This study result pointed out the mediation effect as process innovation has positive significant indirect (mediation) influence on organizational performance while process innovation has indirect insignificant effect on organizational performance. This result indicates that process innovation directly affects organizational learning commitment and firm performance and organizational learning commitment directly affect organizational performance. The result also showed that mediation effect due to PRI is

0.14 standard deviation which means that one standard deviation increase by PRI indirectly increases 0.14 standard deviation OP keeping other factors as constant. This Therefore, organizational learning commitment partially mediates the relation between process innovation and firm performance which also consistent with (Rotjanakorn et al., 2020; Saeed et al., 2021) study result. This result also showed that product innovation does not directly affect organizational learning commitment (mediator) while organizational learning commitment directly affects performance of an organization. Hence organizational learning commitment does not play mediating role between product innovation and firm performance which contradict with product Najib et al., 2022; Rotjanakorn et al., 2020) study result.

## **7. Conclusion**

This study examines mediating effect of product and process innovation in case of Ethiopia flower firms. After the data result analysis, discussion, and hypotheses testing the following the result of the study was concluded. The result indicates that product innovation can enhance positively and significantly firm performance but not organizational learning. This indicates product innovation has significant positive association with organizational performance but has no significant association with organizational learning commitment. Process innovation of flower manufacturing firms can significantly influence organizational learning commitment and firm performance. However, consequence of process innovation on firm performance was significantly was decreased while organizational learning commitment was introduced as mediator. Therefore, process innovation can directly and indirectly (with mediation of organizational learning commitment) affect the organizational performance which conclude that organizational learning plays partial mediating role between process innovation and firm performance. Since product innovation has no substantial consequence on learning commitment while learning commitment has significant positive effect on organizational performance. From this the study concluded that organizational learning does not play mediating role between product as well as process innovation.

## **8. Theoretical Implication**

The result of this study had two main implications to advance theory. First the study contributes to advance RBV to understand and explain the causes of flower firms product innovation and process innovation influencing organizational performance ( Vasudevan, 2021; Greve, 2021). Basing study arguments, product innovation in new idea creation, new product and new technology can influence organizational performance. While applying RBV theory to product and process innovation, it suggests that utilizing all internal and external resources efficiently can enables organizations to be innovators. Second, the study contributes to dynamic capability theory to understand effect of organizational learning commitment on firm performance ( Akenroye et al., 2020; Kitenga, 2020). Based on this, organizational learning plays critical role in mediating the consequence of product as well as process innovation on performance of a firm. The result suggests that, product innovation directly affect firm performance but does not affect indirectly. The DC theory applying to the causes of firm performance effect due to product and process innovation. The theory suggest that, firms with distinctive or unique capability in producing and processing innovative product can be competent over other firms which enables to improve performance (Menberu, 2020). The DC theory also suggest as firms became advanced in renew, recompose and reconstruct available resources, they became innovative to produce and process product innovation.

## **9. Practical Implication**

This study offer several suggestions for managers/leaders, concerned bodies, flower manufacturing firms and researchers on how product innovation, process innovation and organizational learning commitment affect firm performance. Based on this, managers and concerned bodies in flower manufacturing firms should be strictly work on firms in new idea creation, new product, modify existing product, new technology to maximize their performance and enhance organizational learning commitment which also suggested by ( Jiangnan, 2020). Since flower manufacturing firms utilize cutting-edge, inventive technology to create novel items that satisfy their clients, should actively assist in identifying new ideas, new products, or changed existing products that fully enable them to boost performance (Rotjanakorn et al., 2020). Flower manufacturing firms also strictly give attention on organizational learning commitment in acquiring and sharing knowledge, and sharing best experience that significantly enables to improve performance ( Najib et al., 2022).

Because this study only examined with a few dimensions of organizational learning commitment, process innovation, product innovation, and organizational performance, future researchers may focus on other areas. Furthermore, the study focused on businesses that manufactured flowers, but researchers may broaden the scope to include businesses in other sectors.

### **Contribution of authors**

**Abdulakim Erbo Gobena** engraves the data collection, analysis part and writes down the literature review

**Chalchissa Amentie** helped in discussion, proof reading and final draft preparation

**Shashi Kant** framed the theoretical foundation, lenses, and contribution.

### **Competing Interest**

The authors declares as there is no competing interest

### **Ethical Consideration**

Written ethical approval was obtained from the university's ethics committee.

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### **Data availability**

Data will be available on request from the corresponding author.

### **References**

- Abdallah, A. B., & Al-Ghwayeen, W. S. (2020). Green supply chain management and business performance: The mediating roles of environmental and operational performances. *Business Process Management Journal*, 26(2), 489–512. <https://doi.org/10.1108/BPMJ-03-2018-0091>
- Afum, E., Osei-Ahenkan, V. Y., Agyabeng-Mensah, Y., Amponsah Owusu, J., Kusi, L. Y., & Ankomah, J. (2020). Green manufacturing practices and sustainable performance among Ghanaian manufacturing SMEs: the explanatory link of green supply chain integration. *Management of Environmental Quality: An International*

Journal, 31(6), 1457–1475. <https://doi.org/10.1108/MEQ-01-2020-0019>

Akenroye, T. O., Owens, J. D., Elbaz, J., & Durowoju, O. A. (2020). Dynamic capabilities for SME participation in public procurement. *Business Process Management Journal*, 26(4), 857–888. <https://doi.org/10.1108/BPMJ-10-2019-0447>

Al-Mamary, Y. H., & Alshallaqi, M. (2022). Impact of autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness on students' intention to start a new venture. *Journal of Innovation and Knowledge*, 7(4), 100239. <https://doi.org/10.1016/j.jik.2022.100239>

Ali et al. (2020). Organizational Learning and Hotel Performance: The Role of Capabilities' Hierarchy. *International Journal of Hospitality Management*, 85, 1–29. <https://doi.org/10.1016/j.ijhm.2019.102349>

Ali, K. M., And, & Ahmed, A. A. A. (2019). The Impact of Dynamic Capabilities on Organizational Effectiveness. *Management & Marketing. Challenges for the Knowledge Society*. <https://doi.org/10.2478/mmcks-2019-0028>

Alsaad, A., Selem, K. M., Alam, M. M., & Melhim, L. K. B. (2022). Linking business intelligence with the performance of new service products: Insight from a dynamic capabilities perspective. *Journal of Innovation and Knowledge*, 7(4), 100262. <https://doi.org/10.1016/j.jik.2022.100262>

Anwar, B. (2020). Knowledge Management and Organizational Performance: Mediating Role of Organizational Learning: A Study of Corporate Sector in Pakistan. *Pakistan Social Sciences Review*, 4(II), 329–344. [https://doi.org/10.35484/pssr.2020\(4-ii\)27](https://doi.org/10.35484/pssr.2020(4-ii)27)

Ayuri, D. P., & Nasution, Y. (2022). The Effect of Organizational Learning Capability and Inspirational Leadership to Individual Ambidexterity in Improving Team Performance in Public Sector Organizations. *Advances in Economics, Business and Management Research*, 647(Seabc 2021), 266–272. <https://doi.org/https://doi.org/10.2991/aebmr.k.220304.035>

Bianchi, G., Testa, F., Boiral, O., & Iraldo, F. (2021). Organizational Learning for Environmental Sustainability: Internalizing Lifecycle Management. *Organization and Environment*, 35(1), 103–129. <https://doi.org/10.1177/1086026621998744>

Birkie, S. (2019). Review Article : Why Environmental Impact Assessment Failed in the Floriculture Industry in Ethiopia. *Journal of Environment and Earth Science*, 9(9), 10–13. <https://doi.org/10.7176/JEES>

Bortola, G. W., Kero, C. A., & Bali, N. (2024). Impact of Product and Process Innovation Practices on Competitiveness of Manufacturing Enterprises in Ethiopia Mediated by Competitive Advantage. *Ethiopian Journal of Science and Sustainable Development*, 11(2). <https://doi.org/doi.org/10.20372/ejssdastu:v11.i2.2024.849>

Chang, Y. S. (2019). Bonding Ties, Bridging Ties, and Firm Performance: The Moderating Role of Dynamic Capabilities in Networks. *Journal of Business-to-Business Marketing*, 26(2), 159–176. <https://doi.org/10.1080/1051712X.2019.1603395>

Ciszewska-Mlinari, P. W. and M. (2020). The impact of cognitive and behavioral factors on the export performance : a dynamic capabilities perspective. *European Business Review*, 2014. <https://doi.org/10.1108/EBR-03->

2019-0031

- Da Costa, L. M., Tondolo, V. A. G., Tondolo, R. da R. P., Longaray, A. A., & Ferro de Guimarães, J. C. (2020). Dynamic Capabilities and Organizational Performance in the Nonprofit Sector. *Latin American Business Review*, 21(4), 393–415. <https://doi.org/10.1080/10978526.2020.1768540>
- Darras, A. I. (2020). Implementation of sustainable practices to ornamental plant cultivation worldwide: A critical review. *Agronomy*, 10(10 October). <https://doi.org/10.3390/agronomy10101570>
- Efendi, S., Sugiono, E., Guritno, E., Sufyati, E., & Hendryadi, E. (2020). Building innovation and competitiveness for low technology manufacturing SMEs through imitating capability and learning: The case of Indonesia. *Cogent Social Sciences*, 6(1). <https://doi.org/10.1080/23311886.2020.1803515>
- Farzaneh, M., & Nazari, J. A. (2020). Contributory role of dynamic capabilities in the relationship between organizational learning and innovation performance. *European Journal of Innovation Management*. <https://doi.org/10.1108/EJIM-12-2019-0355>
- Fathi, M., Yousefi, N., Vatanpour, H., & Peiravian, F. (2021). The Effect of Organizational Resilience and Strategic Foresight on Firm Performance: Competitive Advantage as Mediating Variable. *Iranian Journal of Pharmaceutical Research*, 20(4), 497–510. <https://doi.org/10.22037/ijpr.2021.116145.15723>
- Ferreira, J., & Coelho, A. (2019). Dynamic capabilities , innovation and branding capabilities and their impact on competitive advantage and SME ’ s performance in Portugal : the moderating e f f ects of entrepreneurial orientation. *International Journal of Innovation Science*. <https://doi.org/10.1108/IJIS-10-2018-0108>
- Fuchs, M., & Hovemann, G. (2022). Homogeneity or Heterogeneity: An Institutional Theory View on Circular Economy Practices in the Outdoor Sporting Goods Industry. *Sustainability (Switzerland)*, 14(10). <https://doi.org/10.3390/su14106279>
- Greve, H. R. (2021). The Resource-Based View and Learning Theory: Overlaps, Differences, and a Shared Future. *Journal of Management*, 47(7), 1720–1733. <https://doi.org/10.1177/0149206320967732>
- Haile, E. A., & Tüzüner, V. L. (2022). Organizational learning capability and its impact on organizational innovation. *Asia Pacific Journal of Innovation and Entrepreneurship*. <https://doi.org/10.1108/apjie-03-2022-0015>
- Hermelingmeier, V., & von Wirth, T. (2021). The nexus of business sustainability and organizational learning: A systematic literature review to identify key learning principles for business transformation. *Business Strategy and the Environment*, 30(4), 1839–1851. <https://doi.org/10.1002/bse.2719>
- Hongyun, T., Kankam, W. A., Appiah-Twum, F., & Akolgo, I. G. (2019). Effect of Social Capital on Firm Performance: the Role of Entrepreneurial Orientation and Dynamic Capability. *International Review of Management and Marketing*, 9(4), 63–73. <https://doi.org/10.32479/irmm.8108>
- Imran, M., Arshad, I., & Ismail, F. (2021). Green Organizational Culture and Organizational Performance: the Mediating Role of Green Innovation and Environmental Performance. *Jurnal Pendidikan IPA Indonesia*, 10(4), 515–530. <https://doi.org/10.15294/jpii.v10i4.32386>
- Jiangnan, Y. (2020). Financial flexibility, dynamic capabilities, and the performance of manufacturing enterprises. *Journal of Research in Emerging Markets*, 2(2), 19–33. <https://doi.org/10.30585/jrems.v2i2.465>

- Jones, P. (2019). Entrepreneurial orientation and the mediating role of organisational learning amongst Indian S-SMEs. *Journal of Small Business and Enterprise Developmen.* <https://doi.org/10.1108/JSBED-07-2018-0215>
- Kitenga. (2020). Dynamic Capabilities and Performance: The Mediating Role of Firm Competence. *Journal of Economics and Business*, 3(1), 450–474. <https://doi.org/10.31014/aior.1992.03.01.211>
- Kump, B., Engelmann, A., Kessler, A., & Schweiger, C. (2019). Toward a dynamic capabilities scale: Measuring organizational sensing, seizing, and transforming capacities. *Industrial and Corporate Change*, 28(5), 1149–1172. <https://doi.org/10.1093/icc/dty054>
- Linde, L., Sjödin, D., Parida, V., & Wincent, J. (2021). Dynamic capabilities for ecosystem orchestration A capability-based framework for smart city innovation initiatives. *Technological Forecasting and Social Change*, 166. <https://doi.org/10.1016/j.techfore.2021.120614>
- Lisdiono, P., Said, J., Yusoff, H., & Hermawan, A. A. (2022). Examining Leadership Capabilities, Risk Management Practices, and Organizational Resilience: The Case of State-Owned Enterprises in Indonesia. *Sustainability*, 14(10), 6268. <https://doi.org/10.3390/su14106268>
- Lütjen, H., Schultz, C., Tietze, F., & Urmetzer, F. (2019). Managing ecosystems for service innovation: A dynamic capability view. *Journal of Business Research*, 104(May), 506–519. <https://doi.org/10.1016/j.jbusres.2019.06.001>
- Melkie, M. E. (2022). Green Industrialisation in Ethiopia:Challenges and Potentials on the Road to a Net Zero Green economy Case Study. May.
- Menberu, A. W. (2020). Development Of A Theoretical Model Based On The Evaluation Of The Impact Of Business Process Management As A Dynamic Capability On Organisational Performance' In The Banking Sector In A Developing Country Context. *Liquid Crystals*, 21(1), 1–17.
- Migdadi, M. M. (2021). Organizational learning capability, innovation and organizational performance. *European Journal of Innovation Management*, 24(1), 151–172. <https://doi.org/10.1108/EJIM-11-2018-0246>
- Moccia, S., Zhao, S., & Flanagan, P. (2020). Innovation, dynamic capabilities, leadership, and action plan. *Journal of Enterprising Communities*, 14(1), 113–127. <https://doi.org/10.1108/JEC-10-2019-0108>
- Mohammad, H. I. (2019). Mediating effect of organizational learning and moderating role of environmental dynamism on the relationship between strategic change and firm performance. *Journal of Strategy and Management.* <https://doi.org/10.1108/JSMA-07-2018-0064>
- Mostafa et al. (2021). Dynamic capabilities and their impact on intellectual capital and innovation performance. *Sustainability (Switzerland)*, 13(18). <https://doi.org/10.3390/su131810028>
- Mura, M., Micheli, P., & Longo, M. (2021). The effects of performance measurement system uses on organizational ambidexterity and firm performance. *International Journal of Operations and Production Management*, 41(13), 127–151. <https://doi.org/10.1108/IJOPM-02-2021-0101>
- Mwazo, J. (2020). Effect of firm capabilities on the non-financial performance of fast-moving consumer goods firms in Nairobi metropolitan area. Strathmore University.[https:// 11071/10190/Effect of firm capabilities](https://11071/10190/Effect%20of%20firm%20capabilities)

on the non-financial performance of fast-moving consumer goods firms in Nairobi metropolitan area. pdf?sequence=3&is

- Nadhira Putri, D., & Mangundjaya, W. (2020). Examining the Effects of Organizational Learning on Workforce Agility through Psychological Empowerment. *Open Journal for Psychological Research*, 4(2), 85–94. <https://doi.org/10.32591/coas.ojpr.0402.02085n>
- Nafei, W. A. (2018). Organizational Success as a Mediating Variable of the Relationship between Organizational Learning and Organizational Excellence : A Study on Telecommunications Sector in Egypt. *International Journal of Business and Management*, 13(1), 244–265. <https://doi.org/10.5539/ijbm.v13n1p244>
- Najib, M., Fahma, F., Abror, A., & Suhartanto, D. (2022). Organizational Capability, Market Perspective, and Green Innovation Adoption: Insight From Indonesian Food Processing Small and Medium-Sized Enterprises. In *Journal of Small Business Strategy* (Vol. 32, Issue 2, pp. 51–66). [doi.org/https://doi.org/10.53703/001c.32293](https://doi.org/10.53703/001c.32293)
- Navarro-García, A., Rey-Moreno, M., & Pires de Lima, P. d'Alte B. (2018). Competitive Advantages as a Complete Mediator Variable in Strategic Resources, Dynamic Capabilities and Performance Relations in the Car Sales Sector. *Journal of Business*, 10(1), 24–37. <https://doi.org/10.21678/jb.2018.875>
- Nimona Fufa Hunde. (2018). The Impact of Floricultural Industry on the Environment in Ethiopia. *International Journal Of Agriculture And Biological Sciences*, 7(11), 24–30. <https://doi.org/10.5281/zenodo.2576716>
- Okereke, C., Coke, A., Geebreyesus, M., Ginbo, T., Wakeford, J. J., & Mulugetta, Y. (2019). Governing green industrialisation in Africa: Assessing key parameters for a sustainable socio-technical transition in the context of Ethiopia. *World Development*, 115(March), 279–290. <https://doi.org/10.1016/j.worlddev.2018.11.019>
- Oluwayemisi B., & Abayomi O. (2018). Organizational learning, organizational innovation and organizational performance: Empirical evidence among selected manufacturing companies in Lagos metropolis, Nigeria. *Journal of Economics and Management*, 33(3), 25–38. <https://doi.org/10.22367/jem.2018.33.02>
- Patky, J. (2020). The influence of organizational learning on performance and innovation: a literature review. *Journal of Workplace Learning*, 32(3), 229–242. <https://doi.org/10.1108/JWL-04-2019-0054>
- Peng, M. Y. P., Zhang, Z., Yen, H. Y., & Yang, S. M. (2019). Dynamic capabilities and firm performance in the high-tech industry: Quadratic and moderating effects under differing ambidexterity levels. *Sustainability* (Switzerland), 11(18), 11–15. <https://doi.org/10.3390/su11185004>
- Pham, L. T., & Hoang, H. V. (2019). The relationship between organizational learning capability and business performance. *Journal of Economics and Development*, 21(2), 259–269. <https://doi.org/10.1108/jed-10-2019-0041>
- Pundziene, A., Nikou, S., & Bouwman, H. (2021). The nexus between dynamic capabilities and competitive firm performance: the mediating role of open innovation. *European Journal of Innovation Management*, 25(6), 152–177. <https://doi.org/10.1108/EJIM-09-2020-0356>
- Rasool, S. F., Samma, M., Wang, M., Zhao, Y., & Zhang, Y. (2019). How human resource management practices translate into sustainable organizational performance: the mediating role of product, process and knowledge innovation. *Psychology Research and Behavior Management*, 12, 1009–1025. <https://doi.org/10.2147/PRBM.S204662>

- Rotjanakorn, A., Sadangharn, P., & Na-Nan, K. (2020). Development of dynamic capabilities for automotive industry performance under disruptive innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 1–19. <https://doi.org/10.3390/joitmc6040097>
- Saeed, M. A., Tabassum, H., Zahid, M. M., Jiao, Y., & Nauman, S. (2021). Organizational Flexibility and Project Portfolio Performance: The Roles of Environmental Uncertainty and Innovation Capability. *EMJ - Engineering Management Journal*, 00(00), 1–16. <https://doi.org/10.1080/10429247.2021.1884450>
- Samsudin, Z. binti, & Ismail, M. D. (2019). The Concept of Theory of Dynamic Capabilities in Changing Environment. *International Journal of Academic Research in Business and Social Sciences*, 9(6), 1071–1078. <https://doi.org/10.6007/ijarbss/v9-i6/6068>
- Shaoying et al. (2022). How Environmental Knowledge and Green Values Affect the Relationship between Green Human Resource Management and Employees' Green Behavior: From the Perspective of Emission Reduction. *Processes*, 10(1). <https://doi.org/10.3390/pr10010038>
- Smith, H. L. (2021). Exploring Eco-Friendly Strategies in Early Learning Businesses. *Sustainability*. <https://search.proquest.com/openview/f41b412e3dedbafea1368079756786cd/1?pq-origsite=gscholar&cbl=18750&diss=y>
- Torino, P. D. I. (2021). Impact of Total Quality Management Practices on Corporate Sustainable Development with Emphasis on Green Innovation in Manufacturing Companies ( Case Study : PARS KHAZAR Industrial Company ) *ACADEMIC SUPERVI. Industrial and Corporate Change*, July.
- Vasudevan, H. (2021). Resource-Based View Theory Application on the Educational Service Quality. *International Journal of Engineering Applied Sciences and Technology*, 6(6), 174–186. <http://www.ijeast.com>
- Vega Martinez, J. E., Martinez Serna, M. D. C., & Parga Montoya, N. (2020). Dimensions of learning orientation and its impact on organizational performance and competitiveness in smes. *Journal of Business Economics and Management*, 21(2), 395–420. <https://doi.org/10.3846/jbem.2020.11801>
- Watanabe-wilbert, J. K., & Steil, A. V. (2022). Network learning and interorganizational learning: a theoretical framework of relationship and interdependence Julieta. *Organization Management Journal*, 2002.
- Werlang, N. B. (2019). The effects of organizational learning and innovativeness on organizational performance in the service provision sector. *Gestão & Produção*, 3(26). <https://doi.org/10.1590/0104-530X3641-19>
- Yang, J., & Yu, M. (2022). The Influence of Institutional Support on the Innovation Performance of New Ventures: The Mediating Mechanism of Entrepreneurial Orientation. *Sustainability (Switzerland)*, 14(4). <https://doi.org/10.3390/su14042212>
- Yuliansyah, Z. Y., Hussain Gulzar, R., Maryani, M., Ismie Roha, M. J., & Mohd-Sanusi. (2021). Organizational learning, innovativeness and performance of financial service firms in an emerging market: *Business Process Management Journal*, April. <https://doi.org/10.1108/BPMJ-10-2020-0454>