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Innovative Responses to Exogenous Shocks in Indonesian Transportation Firms: Mediating Role of Sustainable Performance and Outcomes

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ABSTRACT

Innovative responsiveness to exogenous shocks for sustainability is a proactive methodology for mitigating and adapting to unforeseen events and challenges that could jeopardize the sustainability of ecosystems or organizations. This research aims to examine three innovative strategies—minimizing impact, shifting approaches, and short-long term planning—for responding to exogenous shocks in two Indonesian private sector transportation firms, Gojek and Grab, and the influence of this response on sustainable development. In addition, sustainable performance and outcomes are employed as mediators between the innovative response and sustainable development. A total of 385 drivers from Gojek and Grab in Yogyakarta, Indonesia, were enlisted to answer questionnaires. The survey was distributed online via social media applications, and the collected data was analyzed using SEM-PLS 4. The findings indicate that the innovative response strategies to exogenous shocks—including minimizing impact, shifting to new approaches, and short- and long-term planning—were effective and contributed to the sustainable development of both companies. The results also suggest that minimizing impact has a negative but insignificant impact on sustainable outcomes, whereas both sustainable performance and outcome positively enhance the sustainable development of both firms. These research findings contribute to the literature by addressing a gap related to sustainability during crises in the Indonesian context. They also have practical implications by raising awareness of innovative, technology-based solutions.

1. INTRODUCTION

Sustainable development is garnering increased attention from academics, industries, investors, policy makers, and economic and political decision makers. In this research, sustainable development is viewed through the lens of sustainable performance and sustainable outcomes. Sustainable development pertains to the practice of promoting economic, social, and environmental progress that satisfies current needs without endangering the capability of future generations to meet their needs [1]. The goal of sustainable development is to underscore a balanced and comprehensive approach towards growth, prioritizing resource efficiency and conservation, biodiversity protection, and social equity [2].

On the other hand, innovative response to exogenous shocks refers to the capacity of companies and organizations to adapt and weather unexpected external events [3]. These shocks can manifest as a natural disaster, economic crisis, political instability, or even swift technological change [4]. A successful innovative response necessitates flexibility, creativity, and forward-thinking strategies, allowing businesses to promptly modify their operations, product offerings, and resource allocation as required.

Responsiveness strategies and techniques to external shocks during a crisis are vital for maintaining sustainability and outcomes. For instance, during the COVID-19 pandemic, many small businesses in Indonesia shuttered, while many others struggled and suffered considerable losses [5]. Gojek and Grab, the largest transportation firms in Indonesia specializing in transport, logistics, and online goods and food delivery, have more than two million drivers each [6]. According to the latest reports, the average number of trips per minute is 3860, with an average of 100 million transactions monthly [7]. Grab Indonesia is part of the international Grab business, while Gojek is a purely Indonesian private sector business headquartered in Jakarta. Gojek also operates in Singapore with 30 million transactions, representing 20% of the company's full operation [8]. These two companies exemplify a successful response to the COVID-19 crisis, sustaining their performance and development during and after the pandemic.

A number of scholars have highlighted the importance of innovation and creativity in transforming businesses, especially during crises [9-11]. The innovative response of

Gojek and Grab involved minimizing impact, shifting to new flexible approaches, and maintaining short- and long-term plans. Despite the widespread interest in the role of innovative responsiveness to exogenous shocks in fostering sustainable business, the existing literature is characterized by some theoretical gaps [12]. The first pertains to the approaches themselves; this research identifies and utilizes three of the most common approaches to mitigate external shocks. The second relates to theories of responding to shocks, where evidence was limited in some global businesses. This research introduces new evidence from Indonesia, representing the Asian context. The third concerns common practices to be adopted during and after a crisis to minimize cost and keep business performance and outcomes sustainable, ultimately leading to sustainable organizational development.

With the onset of the COVID-19 pandemic, both Gojek and Grab faced operational difficulties. Instead of laying off employees and minimizing the pandemic's impact, the firms found alternative solutions by transforming business operations and management to work remotely, relying on advanced technological infrastructure. Many of the management employees worked online from their homes at half their salaries, avoiding full layoffs. Operational employees, including vehicle drivers, shifted to delivery instead of customer transport. These solutions maintained the short-term performance and outcomes of both firms. The actual results alerted supervisors and leaders of both firms to the potential benefits of these strategies for sustaining operations, performance, and outcomes. This research investigates these strategies and their use in responding to the exogenous shock caused by the COVID-19 pandemic, providing evidence from the Indonesian private transportation sector.

In light of these theoretical gaps, the primary objective of this study is to examine businesses' ability to overcome exogenous shocks by adopting technology-based approaches. Compared to existing studies, this research introduces three fundamental novelties: investigating the three innovative responses to external shocks, sustaining business performance and outcomes, and using both sustainable performance and sustainable outcomes as mediators to examine sustainable development.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Innovative response to exogenous shocks

Innovative responsiveness to exogenous shocks signifies an organization's capacity to adjust promptly and efficiently to external disruptions [13]. This capability can be harnessed by firms that proactively identify or anticipate potential disruptions and foster a culture of innovation and agility. When external shocks occur, innovative organizations may engage in cross-functional collaboration, rapid iteration of new products or services, or the deployment of emerging technologies [4].

However, effective responsiveness is not merely about having the capacity for innovation; it often requires strategic anticipation and expertise in risk management. Successful implementation of these strategies can result in market differentiation and a competitive advantage, as well as increased resilience against future disruptions [14]. Thus, organizations should prioritize fostering a culture of innovation and flexibility, enabling them to respond effectively when inevitable shocks occur.

The ability to minimize the impact of exogenous shocks is critical for businesses seeking to maintain operational continuity and stability [15]. To achieve this, organizations need to proactively identify potential risks, develop contingency plans, and establish effective communication channels. Mitigation strategies may include diversifying supply chains, creating redundant systems or infrastructure, regularly conducting risk assessments, and investing in comprehensive insurance coverage [16].

Moreover, successful crisis management requires a clear understanding of regulatory requirements and compliance obligations in response to specific events [17]. Additionally, minimizing the impact of exogenous shocks necessitates a strategic approach that considers both short-term priorities and long-term objectives. Maintaining flexibility and adaptability while implementing specific mitigation measures can help organizations successfully navigate unexpected disruptions while minimizing their negative impact on stakeholders.

Faced with exogenous shocks, such as pandemics, natural disasters, or economic crises, businesses must be prepared to shift to new approaches swiftly. While it's challenging to anticipate every potential disruption, companies can create contingency plans that allow them to pivot quickly when these shocks occur [18]. An effective response often involves diversifying business operations and supply chains so that disruptions in one area or sector are less destructive [19].

Companies also need to embrace innovative technological solutions that enhance their agility and responsiveness. For instance, a manufacturing company might rely on industrial robots that can be easily reprogrammed for different tasks [20]. Additionally, organizations should prioritize reskilling employees and providing them with the necessary tools and resources to adapt to new working models, such as remote work. This approach helps maintain productivity levels during times of crisis. In essence, businesses need to adopt a flexible approach and mindset to not only survive but also thrive amidst exogenous shocks in today's rapidly changing environment.

Lastly, short- and long-term planning are crucial for businesses to effectively respond to exogenous shocks [21]. These shocks can range from natural disasters to political changes or economic downturns, all of which can significantly impact a company's operations. Short-term planning may involve immediate steps such as identifying potential threats and assessing the associated risks [22]. This could include contingency planning, optimizing supply chain operations, and reducing costs wherever possible.

This could entail contingency planning, optimizing supply chain operations, and reducing costs wherever possible. Long-term planning involves developing strategic responses to mitigate the impact of exogenous shocks on future business ventures such as diversifying products, expanding into new geographical locations, exploring new markets or engaging in mergers and acquisitions [13, 23]. Both short- and long-term plans work together to enhance business continuity, maintain investor confidence, protect employees' welfare and ensure long-term viability during periods of uncertainty [24]. As such, incorporating flexibility in both strategic directions are essential when taking robust decisions during periods of unpredictable change. Based on the prior literature, the first, second and third hypotheses are formulated.

H1: Minimizing impact strategy significantly affects sustainable performance and outcomes

H2: Shifting to new approaches significantly affects sustainable performance and outcomes

H3: Short- and long-term planning significantly affects sustainable performance and outcomes

2.2 Integration of sustainable performance, outcomes and development

2.2.1 Sustainable performance

Sustainable performance refers to the practice of achieving long-term success while remaining socially and environmentally responsible [25, 26]. To achieve sustainable performance, professionals adopt a holistic approach that considers the impact of their actions on various stakeholders, including customers, employees, shareholders, suppliers, and society [27, 28]. This requires developing strategies that balance economic growth with social responsibility and environmental concerns [29]. Sustainable performance also involves adopting a continuance improvement mindset, constantly improving processes and practices through innovation and learning from feedback [30]. Furthermore, sustainable performance requires an ongoing commitment to creating shared value for all stakeholders involved in the business operations willing not only to maximize profits but also ensure societal valuation by minimizing negative impacts on people and the planet.

2.2.2 Sustainable outcomes

Besides, sustainable outcomes refer to achieving positive and long-lasting results while minimizing negative impacts on the environment, society, and economy [31]. In a professional context, sustainable outcomes are essential for creating a thriving business that can sustain its operations in the long term [32, 33]. By adopting sustainable practices, organizations can improve their reputation and brand image while reducing their carbon footprint and environmental impact [34]. Sustainable outcomes also include ethical practices that promote social equity and fair labor standards. A focus on sustainable outcomes ensures that businesses are contributing positively to local communities while ensuring economic prosperity in the long term [35]. Achieving sustainable outcomes requires a commitment from all stakeholders, including suppliers, employees, customers, shareholders, and government agencies [36]. In short, sustainable outcomes not only benefit an organization but also contribute to a healthier planet and society as a whole.

2.2.3 Sustainable development

Both of sustainable performance and sustainable outcomes lead to sustainable development. Sustainable development is an approach to meeting the needs of present and future generations while safeguarding the environment [37]. This involves improving economic and social well-being, and ensuring that natural resources are used in a responsible and equitable manner to avoid their exhaustion or degradation. To achieve sustainable development, it is important to adopt policies that promote energy efficiency, reduce greenhouse gas emissions, promote renewable energy sources, support clean production technologies, and enhance resource management [38, 39]. This also requires collaboration between various stakeholders including governments, NGOs, academia, industry professionals and communities. By pursuing sustainability goals, businesses can become more competitive while reducing risks associated with environmental damage and resource depletion. Sustainable development requires a long-term perspective that looks beyond short-term gains in profit or productivity to ensure that future generations can also thrive economically, socially, and environmentally.

2.2.4 Mediating role of sustainable performance, outcomes and development

Furthermore, the relationship between innovation, organizational development and sustainability is a critical aspect of modern businesses [14, 32]. Innovation, which refers to the creation and application of new ideas or products, plays an essential role in driving organizational development and ensuring long-term sustainability [23, 29, 40]. Through innovation, organizations are able to identify opportunities for growth, enhance their competitive advantage, and address emerging challenges. By continuously improving products, services, processes, or business models, companies can adapt to changing market demands and customer preferences effectively [36]. In addition, innovation enables organizations to stay ahead of competitors by providing unique value propositions that attract customers [18]. In the context of sustainability, innovation also plays a vital role in developing environmentally friendly practices or solutions that reduce negative impacts on the environment while optimizing resource utilization. Therefore, fostering an innovative culture within an organization promotes its overall development and enhances its ability to achieve long-term sustainability goals.

Prior researches also have highlighted the mediating role of good performance and outcomes in keeping continuity and sustainability of organizations [41, 42]. Innovation and sustainability are linked in the pursuit of environmental, economic, and social development where this shows a positive association between innovation and organizational sustainability [41, 42]. Further, innovation can act as a mediator between HR practices and theories and organizational sustainability where strategic innovation and organizational sustainability are evaluated empirically to understand their relationships [43]. Sustainability is also a driver of innovation and can lead to both bottom-line and top-line returns for organizations while sustainability-oriented innovation practices have positive effects on organizational performance [44]. Pervious research also confirms that innovation plays a crucial role in organizational development and sustainability through improved performance, competitive advantage, and positive environmental and social outcomes. Organizations that prioritize sustainability and embrace innovative practices are more likely to thrive in the long run [45].

This study gives evidence of the role of sustainable performance and outcomes in sustaining development and continuity. Based on this literature, fourth and fifth hypotheses are formed.

H4: Sustainable performance significantly enhances relationship among innovative response and sustainable development

H5: Sustainable outcomes significantly enhance relationship among innovative response and sustainable development

2.3 Research framework

To obtain the best practices responding to exogenous shocks such as COVID-19 pandemic, two approaches were taking

into consideration. The first role is the general approach which includes the most used practices to minimize the impact of pandemic in management practice. The second role is related to shifting to new approaches and creating innovative management practices to overcome the existing challenges. Furthermore, the short, medium and long-term of the exogenous shock's impact and its managerial implications will be considered as part of the research. Figure 1 illustrates the relationship among variables.

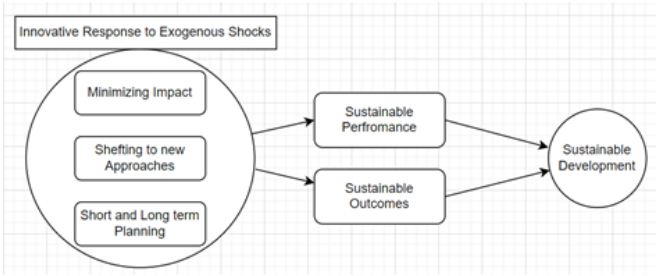

Figure 1. Research framework

3. METHODS

3.1 Participants

This research was conduct in Yogyakarta, Indonesia in the top two transportation service providers in Indonesia (Gojek and Grab). This research is using primary data with a direct questionnaire given to the respondents. The respondents are Gojek and Grab drivers in Yogyakarta. The number of respondents involved in this research is 385 in total, 200 from Gojek, and 185 from Grab. The decision to take 385 drivers was taken randomly by using Slovin's Formula. The population of Gojek and Grab Drivers in Yogyakarta is almost 10.000 employees. Using a margin of error of 5%, the sample would be as:

$$N \,/\, (1 + [N * e]2) \tag{1}$$

$$N = 10.000 \,/\, \left(1 + \left[10.000 * [0.05]\right]^2\right) = 385 \tag{2}$$

3.2 Measures

Before collecting data, researchers interviewed with managers and personnel in both companies to figure out which strategic and innovative approaches were used to overcome COVID-19 pandemic crisis. The focus of two firms were in minimizing impact of crisis, shifting to new approaches and maintaining short- and long-term planning. Based on these three indicators, researchers design the questionnaires for independent variable in this research which is innovative response to exogenous shocks. Following the managers concern, they were more worried about both performance and outcomes and how to sustain development in the future.

Questionnaire included 27 items. These items were adopted from previous studies in addition to researchers' modification. 4 items were excluded related to the saturation which was less than 0.40 (Three items from sustainable performance and one item from short-long term plans). Each item "statement" was measured by Likert five scale rating from (5) strongly agree to (1) strongly disagree. Questionnaires were designed based on prior researches including sustainable development [46, 47], sustainable outcomes [48, 49], sustainable performance [50, 51]. Furthermore, innovative response to exogenous shocks were measured through minimizing impact, shifting to new approaches and short- and long-term planning where the items for these indicators were developed by researches based on the interviews of both firms. For ethical purpose, all participants were aware of questionnaire items. Researchers gave more information about the survey and stated that participation in the survey is voluntary. In addition, participants were informed that all information used for scientific purpose and no need to mention their names or any personal information. The same procedures were followed when researchers conducted the interviews.

3.3 Construct reliability and validity

To ensure collected data was valid and reliable, further data processing was conducted. Results of reliability and validity test are shown in Table 1. Cronbach's alpha was more than 0.7 which shows that data was reliable [52]. In addition, Composite reliability was more than 0.7 which is acceptable [53] while the average variance extracted are more than 0.50, which explains that items were acceptable to measure the variables [54].

3.4 Discriminant validity

According to Anderson and Gerbing [55], discriminant validity refers to differences among constructs in which this difference should not very high than distinct measures. The Heterotrait-monotrait ratio in Table 2 explains the similarity between latent variables. The results conclude that discriminant validity is established.

Table 1. Reliability and validity test

Variables / Indicators	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Minimizing Impact	0.876	0.895	0.912	0.778
Shifting to New Approach	0.725	0.722	0.766	0.597
Short- & long-term Plans	0.748	0.771	0.829	0.655
Sustainable Development	0.729	0.738	0.811	0.583
Sustainable Outcome	0.754	0.762	0.823	0.503
Sustainable Performance	0.747	0.812	0.783	0.682

Table 2. Heterotrait-monotrait ratio (HTMT)

Variables	Minimize Impact	Shifting to New Approach	Short- & Long-Term Plans	Sustainable Development	Sustainable Outcome
Shifting to New Approach	0.762				
Short- & long-term Plans	0.530	0.828			
Sustainable Development	0.368	0.644	0.710		
Sustainable Outcome	0.326	0.692	0.667	0.835	
Sustainable Performance	0.700	0.619	0.682	0.476	0.811

4. RESULTS

Data was collected by online and typed questionnaires in addition to interviews with managers in both organizations. Smart PLS 4 was used to analysis data by adopting Partial Least Squares Structural Equation Modeling PLS-SEM approach.

4.1 R Square

The coefficient of determination illustrated in Table 3 determine the variation explained by innovative response to external shocks indicators in explaining sustainable performance and outcomes as mediation variables in addition to sustainability development as dependent variable. Based on the results of Table 3, variances explained by three strategies used in this research including minimizing impact, shifting to new approaches and short-long term planning where they explain 49% of sustainable performance, 31% of sustainable outcomes. In addition, both mediators including sustainable performance and outcomes explain 42% of sustainable development.

Table 3. The coefficient of determination

Variables	R-Square	R-Square Adjusted
Sustainable Development	0.424	0.421
Sustainable Outcome	0.313	0.307
Sustainable Performance	0.491	0.487

4.2 Path coefficients

To test the hypotheses, path coefficients analysis was extracted. Based on the inner model analysis of PLS-SEM, Table 4 illustrates both T statistics and p values in addition to standard deviation. The results confirm all hypotheses except hypothesis No.1 partially where minimizing impact has insignificant impact on sustainable outcomes. The p value was significant ($p<0.01$) except for the first hypothesis was insignificant.

Table 4. Hypotheses testing by path analysis

Variables	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Minimizing Impact -> Sustainable Outcome	-0.049	0.056	0.890	0.373
Minimizing Impact -> Sustainable Performance	0.381	0.060	6.442	0.000
Shifting to New Approach -> Sustainable Outcome	0.254	0.069	3.635	0.000
Shifting to New Approach -> Sustainable Performance	0.197	0.057	3.336	0.001
Short- & long-term Plans -> Sustainable Outcome	0.398	0.060	6.579	0.000
Short- & long-term Plans -> Sustainable Performance	0.273	0.051	5.357	0.000
Sustainable Outcome -> Sustainable Development	0.580	0.046	12.454	0.000
Sustainable Performance -> Sustainable Development	0.178	0.051	3.483	0.001

4.3 Indirect impact

One more step to finalize the inner model analysis, indirect impact of innovative responsiveness to exogenous shock indicators through sustainable performance and outcomes on sustainable development was extracted. Table 5 reveals results where short- and long-term planning has higher indirect impact and shifting to new strategies as second while minimizing impact was not that important.

Table 5. Indirect impact

Varivales	Sustainable Development
Minimizing Impact	0.039
Shifting to New Approach	0.179
Short- & long-term Plans	0.278

5. DISCUSSION

During crisis, organizations rely on their strong potential and competitive advantages in addition to exploring new approaches to adapt new environments' changes. This research focus on two local business in Indonesia (Gojek and Grab) and how they could overcome COVID-19 pandemic as exogenous shock. The important approaches used to overcome crisis were adoption of innovative solutions including three strategies: minimizing impact as possible as they could, shifting to new approaches to continue their operations and daily demands and revising their short- and long-term planning and objectives. The aim of research was to measure appropriateness of these solutions rather than finding them. to do so, researchers conducted initial interviews with managerial level in both organizations understand how they coup COVID-19 crisis and then we test these used strategies to understand they are effective in sustain performance, outcomes and development.

The results reveal that innovative response strategies to COVID-19 pandemic were significant in sustaining both performance and outcomes through minimizing impact, adoption of new ways to perform services and maintain short- and long-term plans. Figure 2 illustrates these results and

confirms the hypotheses of our research with one exception where minimizing impact has negative insignificant impact on outcomes. This negative impact resulted because that it was impossible to minimize impact without any loss as proved by prior research [56]. Minimizing impact was through reducing salaries, expenditure and operations. Furthermore, adaptation with new circumstances enabled both organizations to transform most of their operations in different ways including remote work for administration, transferring goods and products to homes instead of picking up customers.

The results of this study are aligned with prior work in determining the impact of both performance and outcomes in enhancing organizations sustainability [1, 6, 7, 14, 39]. Results reveal three adopted strategies including minimizing impact, shifting to new approaches and short-long term plans were accurate and significantly enhanced Gojek and Grab firms' performance and outcomes except minimizing impact where it has negative impact on firms' outcomes. These results were important because they add to the literature where is the gap in giving evidence when firms and business have exogenous crisis like what world was witnessed during the COVID-19 [57, 58]. The successful story of these technology-based firms should attract the awareness of practitioners and managers how to transform business activities and gain benefits during crisis. In addition, these shifting and transformative strategies should be taking into consideration based on the competences of employees and company power.

The results give empirical evidence in responding to exogenous shocks in one of the emerging economic countries, Indonesia. The approaches of responding were effective and saved many businesses from collapsing. However, some of small and medium business were affected hardly and suffered loss [59], but the technological infrastructure of modern businesses helped them to avoid threats and also take advantage of the crisis [60]. Gojek and Grab were once of these technology-based businesses that could overcome COVID-19 pandemic and gain more advantages by adopting new strategies [61, 62]. The results of this research also highlight the importance of awareness and readiness of businesses for sudden shocks and crisis.

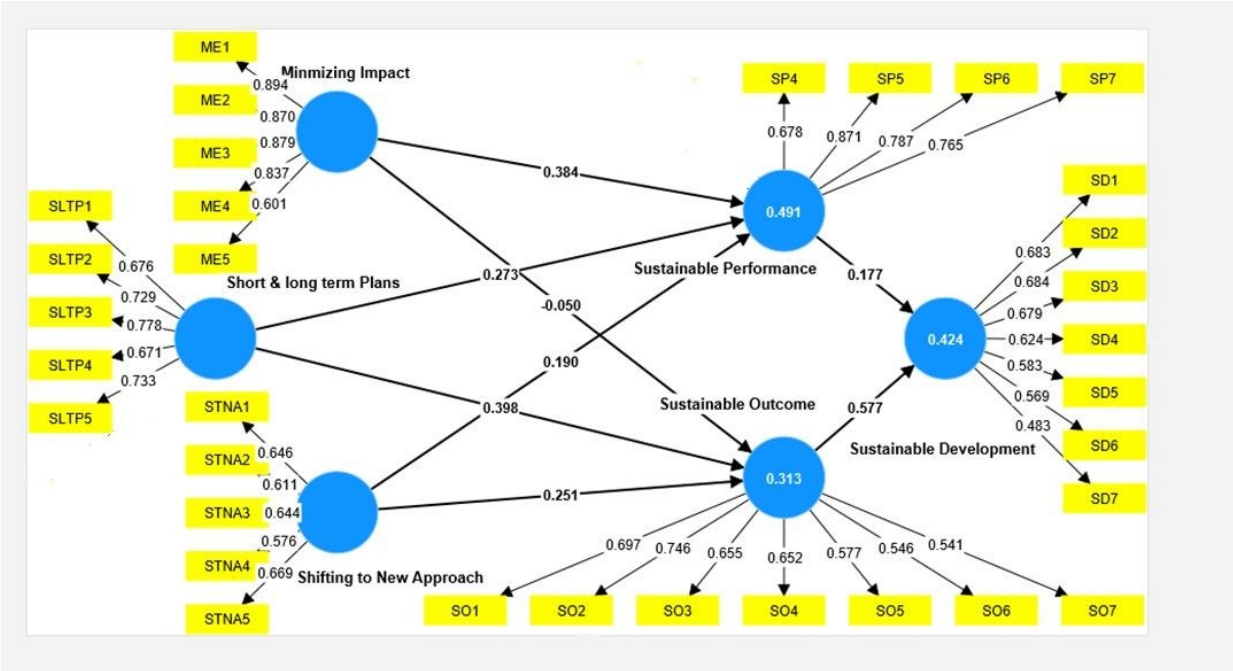

Figure 2. Results of PLS-SEM

6. CONCLUSION

This research aimed to investigate the innovative response to external shocks that impact organizations during crisis such as COVID-19 pandemic. The results revealed that minimizing impact has negative but insignificant impact on sustainable outcomes but positive and significant impact on sustainable performance. Short and lob term objectives and shift to new approaches have positive and significant impact on both sustainable performance and outcomes. In addition, results revealed that sustainable performance and outcomes also have positive and significant impact on sustainable development. Hypotheses 1, 2, 3, 4 and 5 stating that innovative strategies and sustainability performance/outcomes influence sustainable development were supported, confirming the importance of preparedness for exogenous crisis by practitioners and managers. These results give evidence from developing countries private sector in how to response to exogenous shocks to minimize the impact and adopt new approaches to overcome crisis. The results also recommend that engaging more in technologies and adopting recent technologies help organizations to sustain both outcomes and performance and lead to sustainable development. Shifting to new strategies required more resources and flexibility and that what practitioners and business managers should be aware about when it comes to facing challenges and crisis.

7. IMPLICATIONS

During COVID-19 pandemic, many of businesses have witnessed difficulties that caused waste of resource, lay off and disruption in daily operations. Thousands of Gojek and Grab employees were anxious about their jobs where they

have to think about taking other jobs at the beginning of pandemic. Gojek and Grab companies have tried to minimize the impact by cutting off salaries and giving break for thousands of employees. But not much time, companies have shifted to service and good deliveries where most of Gojek and Grab drives found themselves working in this line and continued their jobs. Social distancing was as new opportunity for these companies where they have to shift all their drivers toward goods delivery instead of giving a ride. The successful transformation in business and remote work of hundreds of employees encourage new comers to start same business in good delivery and transportation. Some of new business have emerged during and after COVID-19 and at the moment they are real competitors of Gojek and Gran transportation services.

There is need for more investigation about the usefulness of these approaches in different crisis or external shocks. In addition, transformation of management practices and leadership style during pandemic was effective enough to change the expected loss to competitive advantage which is deserved for more analysis. Furthermore, scholar and researchers are recommended to identify more approaches based on the nature of business and should take into consideration other environmental, government and climate policies.

8. FUTURE DIRECTIONS

In the dynamic and rapidly changing business environment, organizations should be prepared to navigate through exogenous shocks effectively. These external disruptions, such as natural disasters, economic downturns, or geopolitical conflicts, can have significant repercussions on a company's operations and bottom line. As such, future strategies in dealing with these exogenous shocks should encompass a proactive and adaptive approach. This necessitates developing robust risk management frameworks that identify potential threats and vulnerabilities while mitigating their impact through contingency plans. Additionally, businesses need to foster agility and flexibility to quickly adjust their operations in response to unexpected events. Collaborative partnerships with key stakeholders including suppliers, customers, and regulators are also crucial for effective risk mitigation. Moreover, leveraging advancements in technology like data analytics and artificial intelligence can provide valuable insights into predicting and mitigating potential disruptions, allowing companies to stay ahead in uncertain times. Practitioners are recommended to be ready and have immediate plans for sudden crisis to avoid loses and declining performance or outcomes of their organizations. Furthermore, scholars also are advised to investigate the potential strategies and approaches to face crisis and giving more evidence from different business and countries to enrich literature and share information in how to adopt the best methods to overcome crisis and natural crisis.

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NOMENCLATURE

Subscripts

N	Number of Population
n	Number of Sample
e	Margin of error