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FACTORS AFFECTING THE OPERATIONAL PERFORMANCE OF SMES: EXPLORING THE MEDIATING ROLE OF PROCESS MANAGEMENT

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Research Paper

***Abstract**: The objective of this study was to investigate the various factors that can potentially impact the operational performance of small and medium-sized enterprises (SMEs). This study examines various factors that have been investigated in relation to their impact on the operational performance of small and medium-sized enterprises (SMEs). Specifically, the factors of training on quality, continuous improvement, rewards, quality assurance, and strategic agility are analysed. Additionally, the study sought to examine the mediating function of process management. In order to accomplish the objective of the research, data was gathered from a sample of 245 employees employed in diverse manufacturing organisations located in Saudi Arabia. The data collected for this study was subjected to analysis using the statistical software packages SPSS and AMOS. The results of the study indicate a significant correlation between process management and the operational performance of small and medium-sized enterprises (SMEs). Furthermore, various factors such as quality training, continuous improvement, rewards, quality assurance, and strategic agility exhibited a significant correlation with process management. Furthermore, it was observed that process management played a crucial role in mediating the relationship between all of these factors and the operational performance of small and medium-sized enterprises (SMEs), with the exception of the relationship between strategic agility and operational performance of SMEs. This study contributes to the existing body of knowledge by addressing the limited literature on the operational performance of small and medium-sized enterprises (SMEs) and the lack of research examining the relationship between various factors and SME operational performance in the context of process management.*

***Keywords:** Process management, operational performance, SME, strategic agility, quality assurance, continuous improvement.*

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1. Introduction

The intensification of competition among organisations is occurring due to the rapid advancements in the corporate world. Organisations encounter a multitude of challenges that must be overcome in order to ensure their viability within the market. The aforementioned challenges have a detrimental impact on the operational efficacy of organizations. The categorization of organisational performance encompasses multiple types, with operational performance being widely recognised as a crucial element for achieving success in contemporary society. The concept of operational performance can be defined as the collaborative endeavour of various organisational divisions, working in unison, to achieve significant business goals (Oke, 2022). Organisations are making concerted efforts to enhance their operational performance in order to attain success. Hence, it is imperative for management to acknowledge the variables that enhance the operational efficacy of an organisation and confer upon it a competitive edge within the market. During the discourse on organisational context, the advantageous nature of operational performance has been recognised across various dimensions (Prajogo et al., 2012; Slack & Brandon-Jones, 2018).

Previous research has indicated that enhancing operational performance has been associated with a reduction in costs (Heizer & Render, 2008), an enhancement in product and service quality, an improvement in economic performance (Kaynak & Hartley, 2008), and an increase in consumer satisfaction(Ou et al., 2010). The operational performance of each organisation is contingent upon the robustness of its core business processes (Seethamraju, 2012). The performance of organisations is impacted by their business processes, which in turn affect their quality of work, creativity, and effectiveness (Minonne & Turner, 2012). The term "business process" encompasses a comprehensive and dynamic framework of interconnected activities, spanning from procurement to sales, with the objective of ensuring the effective delivery of goods and services to customers and facilitating the overall prosperity of an organisation within a defined economic environment (Novak & Janeš, 2019). Based on the principle of process orientation, it is recommended that organisations undertake strategic activities such as planning, organising, leading, and controlling their business processes (Kaydos, 2020). The primary contributors to an organisation's operational performance are the key business processes of the firm (Zelt, Schmiedel, & vom Brocke, 2018).

If the underlying processes possess a creative nature, it is expected that the operational performance of the organisation will reflect this characteristic. From this perspective, it is imperative for managers and corporate leaders to give priority to the management of critical processes within their organisations in order to enhance their operational performance. Small and medium-sized enterprises (SMEs) exert a discernible influence on economic growth through their contributions to employment opportunities, financial generation, and the facilitation of equitable allocation of limited resources. However, a considerable proportion of small and medium-sized enterprises (SMEs) encounter challenges in efficiently executing, overseeing, and improving their activities to guarantee the consistent provision of superior goods and services within designated time constraints. These firms face operational challenges that could potentially impede their ability to expand and maintain long-term sustainability (Appiah Fening, Pesakovic, & Amaria, 2008). Understanding the factors that influence the operational performance of small and medium-sized enterprises (SMEs) is of utmost importance for their success and the overall financial prosperity of an economy.

Furthermore, it is worth noting that the field of operational management research lacks a substantial amount of scholarly literature that thoroughly investigates the multitude of factors that influence the operational performance of small and medium-sized enterprises (SMEs). Therefore, the primary objective of this study is to investigate the various factors that have the potential to impact the operational performance of small and medium-sized enterprises (SMEs). This study examines various factors that have been investigated in relation to their impact on the operational performance of small and medium-sized enterprises (SMEs). Specifically, the factors of training on quality, continuous improvement, rewards, quality assurance, and strategic agility are analysed. Moreover, the study also seeks to examine the mediating function of process management. The aforementioned factors are examined in relation to their impact on process management, which in turn can affect the operational performance of small and medium-sized enterprises (SMEs).

This study contributes to the existing body of knowledge by addressing a research gap in the literature on small and medium-sized enterprise (SME) operational performance. Specifically, the investigation explores the previously unexplored association between various factors and the operational performance of SMEs with regard to process management.

2. Literature Review

2.1 Process Management and Operational Performance of SMEs

Operational performance refers to the capacity of an organisation to reduce managerial costs, meet order fulfilment deadlines, optimise the utilisation of raw materials, and enhance distribution capabilities (Slack & Brandon-Jones, 2018). The importance of operational performance for organisations resides in its capacity to improve production efficiency, deliver goods of superior quality, enhance customer satisfaction, and ultimately stimulate revenue and profit expansion for organisations (Kaydos, 2020; Kaynak & Hartley, 2008). Organisations can be characterised as a network of interrelated processes, and it is widely acknowledged that improving these processes is the fundamental prerequisite for achieving performance improvements. The phenomenon of globalisation has served as a driving force for companies to actively participate in the process of innovation, as noted by Appiah Fening et al. (2008).

Process management involves the utilisation of statistical methods to improve the efficiency and dependability of process design (Truong et al., 2013). The implementation of these methods offers advantages in the reduction of process variation and the mitigation of the probability of workers' oversights within an organisation. The occurrence of defective materials and delayed delivery is reduced, resulting in a decrease in lead time and unnecessary expenses (Ahire & Dreyfus, 2000). Additionally, there has been a notable rise in production levels, accompanied by enhanced product uniformity. Furthermore, the implementation of proactive maintenance strategies for machinery has been found to improve operational efficiency in the production process. This is achieved by enhancing the resilience of the equipment and reducing disruptions in production (Slack & Brandon-Jones, 2018). Process management prioritises the implementation of operations rather than solely concentrating on results through the utilisation of a range of methodological and behavioural approaches.

Likewise, process management also involves the implementation of preventive and proactive approaches to ensure effective quality management. One illustrative instance of such strategies encompasses the formulation of resilient and dependable manufacturing schedules and methods for distributing tasks, with the aim of mitigating fluctuations and augmenting the quality of products throughout the production stage (Nguyen, Phan, & Matsui, 2018), which ultimately impacts the operational performance of an organisation. Effective management of processes requires employees who possess the requisite expertise to navigate the complex and ever-changing landscape of process-oriented environments (Baker & Maddux, 2005). The implementation of this initiative may pose challenges for small and medium-sized enterprises (SMEs), as they may face constraints in terms of their financial and human resources.

In the context of the global marketplace, it is imperative for small and medium-sized enterprises (SMEs) to give utmost importance to the task of effectively reorganising their processes, fostering the development of high-quality goods, and sustaining a competitive advantage. The implementation of organisational restructuring within the company will yield improved operational efficiency, thereby resulting in a decrease in both waste production and overall expenditures. In order to optimise performance, it is imperative to continuously evaluate and improve processes. When a business is capable of effectively managing its processes, the production processes operate in a cohesive and uninterrupted manner Kaydos (2020). The minimization of process variation and the mitigation of workers' errors are effectively reduced. Consequently, there is an improvement in operational performance. Based on the discussion mentioned above, the following hypothesis is proposed,

H1: *Process Management is positively linked to the operational performance of SMEs.*

2.2 Training on Quality

Many organisations frequently overlook the importance of training, despite the existence of a clear correlation between training initiatives and overall performance outcomes. Organisations experience enhanced performance when their employees receive adequate training, leading to improved individual performance (Appiah Fening et al., 2008). The provision of employee training in quality management is of utmost importance in ensuring the efficacy of quality management practices within the organisation. This programme equips employees with the necessary skills and knowledge to effectively comprehend the core principles of quality management and their potential impact on its execution. As a result, this leads to improved efficiency and effectiveness of organisational activities and outcomes (Nguyen et al., 2018). The significance of employee training in effectively managing the workforce during the implementation of significant organisational changes is widely acknowledged (Niedermeier, 2017).

In order to enhance organisational effectiveness, particularly in the realm of fostering employees' capacity to generate innovative solutions, it is advisable for training programmes to concentrate on matters pertaining to quality, prioritise the cultivation of problem-solving skills within small group environments, foster the development of practical communication abilities, and incorporate the utilisation of statistical process monitoring methods (Dumas et al., 2018). In order to secure the enduring viability of improvement endeavours, it is imperative to uphold an ongoing

workforce training initiative that centres on fortifying organisational processes. This approach facilitates the ongoing exploration of innovative methods for enhancing organisational performance while also empowering employees to take on greater responsibility in driving these improvements (Ho, Duffy, & Shih, 1999).

In doing so, employees are able to contribute to the overall operational performance of their organisation. Training possesses the potential to enhance the competencies of employees. The notion of training within the realm of quality extends beyond the mere augmentation of knowledge, materials, and staff competencies, encompassing the adaptation of current processes (Soria-García & Martínez-Lorente, 2014). Organisations can enhance employees' skill sets, specifically in terms of quality-related competencies, through the provision of training programmes focused on quality. The implementation of a robust internal human resources strategy plays a crucial role in augmenting operational performance. Moreover, by developing their skills, workers have the potential to significantly improve the accuracy of manufacturing processes, resulting in a decrease in errors and an overall enhancement of performance. The influence of this factor has a substantial effect on the overall operational performance of businesses (Nguyen et al., 2018). In order to effectively oversee quality, it is imperative that personnel possess the requisite skills to proficiently assess and expeditiously employ data pertaining to quality.

In order to accomplish this objective, it is imperative for personnel to undergo comprehensive training in the utilisation of tools that enhance quality (Ahire & Dreyfus, 2000). Training programmes that have a specific emphasis on quality Van Looy (2021) suggests that it is imperative to equip staff members with the requisite knowledge and skills to proficiently employ tools that enhance quality, employ foolproofing techniques in process design, and execute preventative maintenance on machinery. As a result, employees possess the capacity to reduce superfluous or excessive movements, errors, and inconsistencies in procedures (Zu, Fredendall, & Douglas, 2008), thereby enhancing the overall operational efficiency of the organisations. Based on the discussion above, the subsequent hypotheses are proposed,

H2: *Training on quality is positively linked to process management.*
H3: *Process management serves as a mediator in the association between training on quality and operational performance of SMEs.*

2.3 Continuous Improvement

Continuous improvement is a perpetual endeavour that entails consistently seeking progress and implementing systematic methodologies to identify enhanced approaches for converting inputs into outputs. The optimisation of interconnected processes within an organisation facilitates the organisation's capacity to effectively fulfil and surpass the demands and expectations of consumers (Van Looy, 2021). The act of reducing the proportion of defects while continuously enhancing the design and quality of products and services necessitates adjustments to production processes, resulting in decreased inefficiency and heightened operational efficacy within an organisation. Within a comprehensive quality environment, the evaluation and improvement of work processes are conducted on an ongoing basis (Dumas et al., 2018). Furthermore, the application of process-management principles enhances the team's efficiency in resolving problems and making prompt decisions. The act of reducing variance has been found to have a positive impact on productivity, as it leads to a decrease in the need for rework, the elimination of errors, and ultimately results

in time, money, and resource savings (Slack & Brandon-Jones, 2018).

Continuous improvement is achieved through a deliberate emphasis on the processes that result in advancements and enhancements in quality. In the context of a traditional organisational structure, there are interrelated processes that encompass various functions such as design, production, marketing, and client service. The implementation of enhancements in a particular procedure will lead to the holistic advancement and efficacy of the organisation, with every member of the workforce and department being responsible for upholding quality standards. The objective of continuous process improvement entails optimising efficacy and efficiency, augmenting process regulation, and consolidating internal protocols to adequately respond to evolving consumer demands (Agus & Hassan, 2011). The policies enacted by the higher-level administration are designed to foster innovation and streamline continuous enhancements in manufacturing and design methodologies. For instance, the endorsement of initiatives that advocate for the utilisation of standardised components and the implementation of modular designs for various parts contributes to the streamlining of design tasks.

Consequently, enhancing the effectiveness of design (Kaynak, 2003; Kaynak & Hartley, 2008; Ou et al., 2010). In addition, the adoption of continuous improvement strategies to optimise manufacturing operations, such as increasing automation levels and employing statistical methodologies, along with the incorporation of fail-safe process designs and proactive machinery maintenance, has been shown to effectively reduce staff errors and minimise process variability (Dumas et al., 2018; Kaynak, 2003). Consequently, these measures serve to enhance the operational performance of organisations and improve their overall operational efficiency. Organisations that engage in the practice of continuous improvement strive to continually enhance their products and processes with the aim of improving overall operational performance (Nguyen et al., 2018). Thus, the following hypotheses are proposed,

H4: *Continuous improvement is positively linked to process management.*
H5: *Process management serves as a mediator in the association between continuous improvement and the operational performance of SMEs.*

2.4 Rewards

Rewards encompass both monetary and non-monetary components. The introduction of financial incentives has the potential to improve the employees' sense of immediate satisfaction. Conversely, non-monetary incentives function as a mechanism for acknowledging employees, thereby serving as a catalyst for motivation (Dumas et al., 2018). The implementation of monetary incentives has been observed to possess the capacity to augment levels of motivation. Nevertheless, there is contention that non-monetary incentives are more efficacious in fostering employee motivation as they possess an inherent capacity to stimulate intrinsic motivation within individuals. Employees who exhibit intrinsic motivation experience genuine enjoyment and satisfaction in their work or profession, and they demonstrate a vested interest in enhancing organisational performance. Non-monetary rewards encompass advantages that do not take the form of financial compensation.

The incentives offered encompass a range of recognition mechanisms, training and development opportunities tailored to employees' learning needs, and the provision of flexible work schedules. Non-monetary rewards provide employees or staff members with a strong sense of job security and stability(Shafagatova, 2017). When

employees perceive job security and stability, they are inclined to exert greater effort in order to achieve higher levels of recognition and appreciation. In this fashion, individuals are motivated and stimulated solely by their personal incentives. The attainment of optimal organisational performance can be facilitated by the implementation of non-monetary employee incentives (Heyman & Ariely, 2004).

Based on the study conducted by Osterloh and Frey (2000), it has been observed that employees who are involved in creative endeavours demonstrate intrinsic motivation, which can be attributed to two main factors. Organisations should consider these factors in order to improve their performance. The necessity of intrinsic motivation lies in its crucial role in facilitating the generation and dissemination of knowledge and ideas. Research has demonstrated that individuals who receive encouragement exhibit an inherent inclination to actively participate in their work. Furthermore, these employees engage in the exchange of information among their peers, thereby facilitating the creation and accumulation of knowledge within the organisation. This, in turn, aids the company in modifying its business procedures and formulating novel approaches to enhance its operational efficiency (Slack & Brandon-Jones, 2018).

Moreover, the presence of intrinsic motivation enhances the efficiency of time management in relation to job responsibilities and contributes to an overall increase in workers' productivity within the organisational context. The dissemination of this knowledge fosters a heightened level of awareness among employees regarding the effective allocation of time towards tasks that yield profitability. The prioritisation of allocating time towards such tasks is crucial for achieving organisational success and enhancing performance. Rewards are utilised as motivational tools to encourage favourable concepts and achievements, with the objective of cultivating a driven and efficient professional atmosphere within the workforce. The implementation of this strategy has the potential to improve overall performance, specifically in terms of operational performance, by fostering worker satisfaction (Nguyen et al., 2018). The implementation of incentives to encourage positive behaviour generally strengthens the relationship between employees and higher-level executives, as it fosters a feeling of recognition among staff members for their diligent efforts and exceptional achievements (Shafagatova, 2017).

As a result, these outcomes led to an improvement in staff morale, an enhancement in customer service, and an increase in productivity and performance. Engaged and motivated employees have a significant influence on quality outcomes, as they contribute to the generation of innovative ideas aimed at improving products, services, and processes. Moreover, such employees facilitate the timely and efficient introduction of new offerings to the market. Based on the discussion, the subsequent hypotheses are proposed,

H6: *Rewards are positively linked to process management.*
H7: *Process management serves as a mediator in the association between rewards and the operational performance of SMEs.*

2.5 Quality Assurance

Quality assurance, also referred to as quality management, encompasses a variety of principles, methodologies, tools, and ideologies that aim to improve the quality and standards of products and services while simultaneously reducing waste and costs (Mukhopadhyay, 2020). This, in turn, contributes to the operational efficiency of an organisation. Quality assurance is the process of ensuring that the entire system and

methodology for manufacturing goods or providing services are both effective and devoid of errors. The fundamental principle encompasses the utilisation of high-quality raw materials, the implementation of advanced manufacturing processes, and the production of goods of superior quality, thereby ensuring the satisfaction of customer demands without any complications.

Total quality management (TQM) is a discipline within the realm of quality assurance that prioritises the achievement of elevated standards of quality, encompassing not only inputs and processes but also the establishment of a culture that is oriented towards quality across the entirety of the organisation. Total Quality Management (TQM) places its primary emphasis on the satisfaction of customers through the provision of goods and services of superior quality, which in turn prompts customers to endorse and promote the firm within their social networks, thereby augmenting the firm's level of popularity (Sfakianaki, 2019).

Therefore, the main aim is to respond to changing customer needs and preferences by modifying products and services in accordance with fluctuating market circumstances, thereby leveraging both current and future demand (Mukhopadhyay, 2020). The quality standards and processes within the framework of Total Quality Management (TQM) are not static; rather, they undergo continuous refinement, and persistent efforts are made to achieve elevated levels of quality Mukhopadhyay (2020). posits that distinct attributes can be attributed to Total Quality Management (TQM). These factors encompass continuous improvement, methodical change, an organisation-wide perspective that considers all stakeholders, problem-solving approaches that involve collective or team efforts, decision-making based on knowledge or factual evidence, and the satisfaction of both internal and external customers. The discipline in question seeks to optimise customer value through the ongoing enhancement of process efficiency.

It is widely recognised that quality management and operational management systems exhibit similar objectives and implementation characteristics. Within this particular context, the implementation of quality management practises can be regarded as a feasible strategy that effectively contributes to the improvement of operational performance (Soria-García & Martínez-Lorente, 2014). The emergence of Total Quality Management (TQM) has predominantly been observed within the industrial sector; however, its importance for small and medium enterprises (SMEs) is equally noteworthy. In recent years, there has been an increasing focus on the adoption of Total Quality Management (TQM) within small and medium-sized enterprises (SMEs) (Appiah Fening et al., 2008). The suboptimal performance of the small and medium-sized enterprise (SME) sector, relative to its inherent capacity, can primarily be ascribed to deficiencies in managerial efficacy and calibre, alongside a dearth of cohesive endeavours aimed at supporting SME operations.

The lack of managers and owners who implement quality management practices has been identified as a significant contributing factor to the failure of small and medium-sized enterprises (SMEs) (Van Looy, 2021). Limited resources often pose a constraint for small enterprises, impeding their capacity to effectively implement quality management practices. Quality management is widely acknowledged as a strategic tool for improving organisational performance in different types of organisations and geographic settings. Based on the preceding discourse, it is apparent that the adoption of total quality management (TQM) in small and medium enterprises (SMEs) is a complex concept. Therefore, it can be postulated that the

implementation of quality management practices enhances the operational efficiency of an organisation by mitigating costs and minimising waste across various processes.

Furthermore, the implementation of quality management enhances various organisational processes, thereby facilitating superior process management, ultimately leading to improved operational efficiency within the organisation. Thus, the following hypotheses are proposed,

H8: *Quality Assurance is positively linked to process management.*
H9: *Process management serves as a mediator in the association between quality assurance and the operational performance of SMEs.*

2.6 Strategic Agility

According to Clauss et al. (2021a), an organisation that is able to respond effectively to the ever-changing demands of its environment in order to gain a competitive advantage can be regarded as strategically agile. Strategic agility refers to an organisation's ability to consistently engage in self-renewal and maintain flexibility, all while ensuring that efficiency is not compromised (Clauss et al., 2021b). Previous research has demonstrated that organisations possessing strategic agility exhibit a higher level of proficiency in effectively implementing innovative business models. The aforementioned capability stems from their aptitude to promptly respond to emerging demands, opportunities, and developments that result from shifts in their organisation's external environment and subsequently modify their strategies accordingly (Arbussa, Bikfalvi, & Marquès, 2017). The concept of strategic agility can be analysed by breaking it down into three separate components: strategic sensitivity, leadership unity, and resource flexibility.

Strategic sensitivity refers to the ability to promptly recognise shifts in the external environment that can be perceived as opportunities for gaining a competitive advantage. Moreover, it encompasses the expeditious and comprehensive dissemination of these prospects throughout all divisions of the organisation. Leadership unity, alternatively referred to as collective dedication, facilitates the collaborative decision-making process among an organisation's top-level executives, enabling them to make impactful and strategically significant choices collectively. The concept of resource fluidity pertains to the dynamic and flexible procedures involved in the redistribution, mobilisation, and utilisation of resources and competencies (Clauss et al., 2021a). The small and medium-sized enterprise (SME) sector is faced with changing requirements due to technological advancements. Given the prevailing circumstances, organisations that exhibit the ability to adapt to these changes would thrive in an intensely competitive environment and improve their operational efficiency.

Therefore, it is crucial for small and medium-sized enterprises (SMEs) to possess strategic agility, which entails the efficient reconfiguration of their resources in order to adapt to dynamic environmental changes (Menon & Suresh, 2020). The agility of the firm plays a crucial role in the successful incorporation and integration of new processes within the business. By implementing this approach, a company can

effectively recognise and respond to real-time alterations. The capacity of organisations to embrace contemporary methodologies for waste reduction and operational efficiency improvement is contingent upon their strategic agility. Therefore, the following hypotheses are proposed,

H10: *Strategic Agility is positively linked to process management.*
H11: *Process management serves as a mediator in the association between strategic agility and the operational performance of SMEs.*

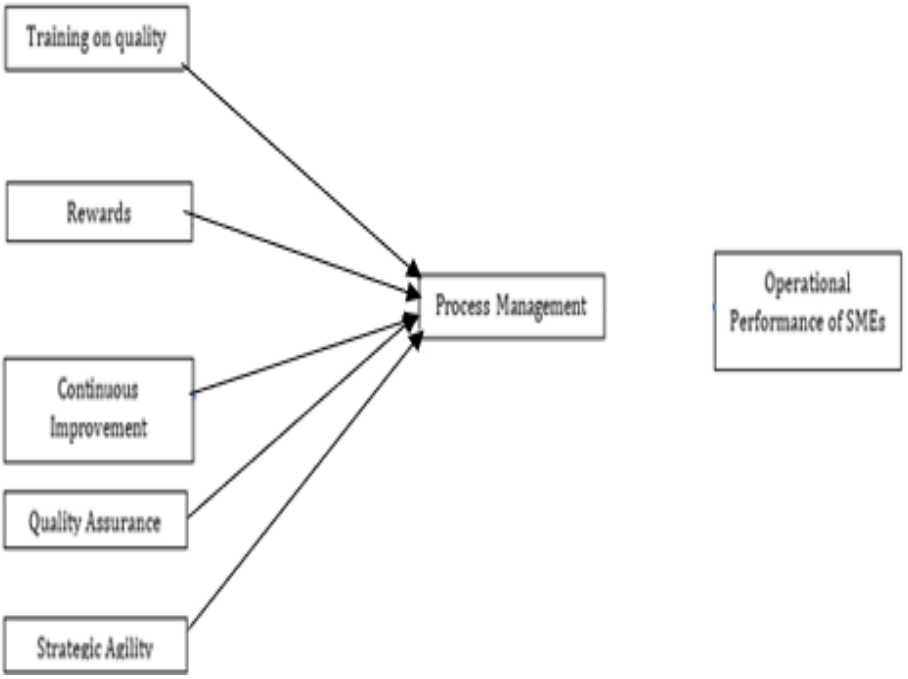

Fig.1: conceptual model of study

3. Methodology

3.1 Research Instrument

The variables utilised in this study were assessed using pre-existing measurement questionnaires that have been previously validated. The scales utilised for measuring the variables of training on quality, continuous improvement, rewards, and process management were derived from the research conducted by Nguyen et al. (2018). The scale used to measure the variable of quality assurance in this study was derived from the research conducted by Soria-García and Martínez-Lorente (2014). The measurement of strategic agility was conducted through the adaptation of the tool developed by Claus et al. (2021). The measurement of operational performance was conducted by modifying the tool developed by Truong et al. (2013). The variables were assessed using a 5-point Likert scale. Table 1 below displays the measurement items and statements for each variable, along with their respective sources.

Table.1: Measurement Tools

Items	References
"Training on Quality	
We provide specific work-skills training to employees throughout the organization.	
We provide quality-related training to hourly employees throughout the organization	
We provide quality-related training to managers and supervisors throughout the organization.	Nguyen et al. (2018)
We provide training on the "total quality concept" (i.e., philosophy of company-wide responsibility for quality) throughout the organization.	
Our employees receive training and development in workplace skills on a regular basis.	
Management at our company believes that continual training and upgrading of employee skills is important	
Continuous Improvement	
Continuous quality improvement is an important goal of this organization	
People in this organization are continually looking for better ways of doing their work	
People in this organization are constantly improving their business process	Nguyen et al. (2018)
All employees believe that it is their responsibility to improve quality	
Continuous improvement of quality is stressed in all work processes throughout our organization	
Quality improvement is not a high priority for me.	
Rewards	
Staff are rewarded for quality improvement	Nguyen et al. (2018)
Managers are rewarded for making continuous improvements	
We pay a group incentive for quality improvement ideas	
Quality Assurance	
Institutional project design has been developed with the participation of the sectors involved in their future development.	
The curriculum has and develops all of the quality principles agreed by the education standards authority	
The pedagogical guidelines are clearly defined.	
The material design corresponds to quality criteria in formal aspects such as systematization, clarity, conceptual rigor.	(Soria-García & Martínez-Lorente, 2014)
The curriculum guarantees that teacher' s actions can be participative, creative and innovative.	
The curriculum is susceptible to being adapted to student diversity, adopting organizational and curriculum measures.	
The assessment model allows the diversity of learning through different performances in its implementation.	
Institutional projects incorporate improvements from the results of the previous year's assessment.	
The result of the assessment analysis involves a permanent feedback procedure to enable continuous improvement.	
Strategic Agility	
Strategic Sensitivity	(Claus et al, 2021)

We are very sensitive to external changes (regarding customers, competitors, technologies, etc.) and integrate these into the strategic planning of our company.	
We utilize different mechanisms to become aware of strategic developments early.	
Requirements for strategic adaptations are communicated fast and comprehensively through the organization.	
Collective Commitment	
Our top management team is able to make bold and fast strategic decisions.	
Our management board collaborates for strategic decisions.	
Strategic questions are collectively solved by our management without being bogged down in top-level 'win-lose' politics.	
Resource-fluidity	
We are able to reallocate and utilize capital resources fluidly.	
Our people and their competencies are highly mobile within our organization.	
Our organizational structure allows for flexible redeployment of our resources.	
Process Management	
We clearly define the objectives of the processes necessary to achieve them.	
We establish responsibility for managing processes	
We manage processes' interrelations as a system to achieve quality objectives	Nguyen et al. (2018)
We analyze the effect of modifications to individual processes on the system as a whole.	
We manage risks that can affect outputs of the processes	
We have standardized process instructions which are given to personnel	
Operational Performance	
We have achieved reduction of management cost	
There is a significant reduction in lead time since adoption of green practices	Truong et al. (2013)
We have achieved reduction of order time	
We have achieved reduction in the rate of damaged materials	
The rate of low delivery has dropped since adopting green practices"	

3.2 Data Collection Method

In order to fulfil the aim of this research, which is to evaluate the factors that contribute to the operational performance of small and medium-sized enterprises (SMEs), numerical data of a quantitative nature was gathered from employees employed in different manufacturing firms located in Saudi Arabia. The survey method employed in this study involved the distribution of self-administered questionnaires. The researchers obtained informed consent from the participants regarding their voluntary participation in the study. A convenience sampling method was employed to distribute a total of 300 questionnaires among the respondents. Out of these, 245 completed questionnaires were returned and subsequently utilised for statistical analysis in order to test the hypotheses. The data collected underwent a screening process to identify and address any outliers or missing values. The analysis was performed utilising the statistical software packages SPSS and AMOS, employing the

methodology of structural equation modelling.

4. Analysis

The data collected for the study was subjected to analysis using statistical software packages such as SPSS and AMOS. Initially, the evaluation of the measurement instrument's quality was conducted through an examination of its reliability as well as the convergent and discriminant validity of the measurement items. Table 2 presents the reliability statistics pertaining to all variables examined in the study. Three criteria were employed in order to evaluate its reliability. Initially, it is noteworthy that the Cronbach's alpha coefficient for all variables examined in the study exceeded the threshold of 0.7, indicating a satisfactory level of reliability for each variable. Furthermore, an evaluation was conducted on the composite reliability (CR), which was found to exceed the acceptable threshold. This indicates that the variables under consideration exhibit a high level of reliability. Furthermore, it is noteworthy that the average variance extracted (AVE) values for all variables surpass the threshold of 0.5. This observation further substantiates the internal consistency and, consequently, the reliability of all the variables.

Table 1: factor Loadings Reliability, Convergent Validity

	CR	AVE	α
Training on Quality (TQ)	0.81	0.58	0.80
Continuous Improvement (CI)	0.70	0.56	0.83
Rewards (R)	0.76	0.59	0.84
Quality Assurance (QA)	0.82	0.62	0.76
Strategic Agility (SA)	0.84	0.61	0.74
Process Management (PM)	0.86	0.63	0.70
Operational Performance (OP)	0.81	0.58	0.76

The following table, Table 3, presents the outcomes of the discriminant validity analysis conducted on the measurement instruments employed in the study. In order to evaluate the discriminant validity, it is customary to compare the square root of the average variance extracted (AVE) for each variable with its respective correlations with other variables. The table demonstrates that the correlation coefficients for all variables are lower than the square root of the average variance extracted (AVE), indicating the presence of discriminant validity for all variables.

Table.2: Discriminant Validity

	1	2	3	4	5	6	7
TQ	0.61						
CI	0.35**	0.64					
R	0.28**	0.29**	0.56				
QA	0.31**	0.24**	0.34**	0.58			
SA	0.48**	0.33**	0.24**	0.27**	0.55		
PM	0.39**	0.36**	0.19**	0.18**	0.25**	0.63	
OP	0.47**	0.27**	0.24**	0.26**	0.18**	0.11**	0.62

Note: values of AVE on diagonal higher than squared correlations values. † $p < 0.100$; * $p < 0.050$; ** $p < 0.010$; *** $p < 0.001$

Table 5 below presents the model fit indices for the measurement model of the

study. It can be seen that all fit indices are within the acceptable ranges which shows that the measurement model is a good fit and therefore, the study can proceed towards the analysis of the structural mode.

Table.4: Measurement Model Fit

Overall Model Measure	Overall Model Score	Acceptable Model Fit	Acceptable Baseline
CFI	0.95	Acceptable	≥0.90
AGFI	0.88	Acceptable	≥0.80
RMSEA	0.059	Acceptable	<0.10
CMIN/df	2.34	Acceptable	<3
TLI	0.90	Acceptable	≥0.89
IFI	0.94	Acceptable	≥0.90

Following an evaluation of the measurement model's quality, the analysis progressed to the evaluation of the structural model, which serves as the basis for hypotheses testing. Initially, an evaluation of the fit indices of the structural model was conducted. The model fit indices of the structural model of the study are presented in Table 6. The fit indices for the structural model are observed to fall within the recommended ranges, indicating a favourable fit of the structural model.

Table.5: Structual Model Fit

Overall Model Measure	Overall Model Score	Acceptable Model Fit	Acceptable Baseline
CFI	0.93	Acceptable	≥0.90
AGFI	0.88	Acceptable	≥0.80
RMSEA	0.040	Acceptable	<0.10
CMIN/df	1.67	Acceptable	<3
TLI	0.92	Acceptable	≥0.89
IFI	0.91	Acceptable	≥0.90

Following the evaluation of the fit indices, the examination of hypotheses was carried out through the testing of both direct and indirect relationships. Table 7 presents a comprehensive summary of the hypotheses testing. The table illustrates a strong correlation between process management and the operational performance of small and medium-sized enterprises (SMEs), thereby supporting the first hypothesis (H1) of the study. This implies that by diligently considering the production processes, reducing wasteful steps and procedures, and improving process efficiency through automation and more reliable process design, the organisation can ultimately achieve higher operational performance.

Furthermore, there is a significant correlation between training in quality and process management, thus supporting the second hypothesis (H2) of the research. Simultaneously, it was determined that process management plays a crucial role in mediating the relationship between quality training and operational performance of small and medium-sized enterprises (SMEs), thus supporting the hypothesis H3 as stated in the study. This implies that providing employees with quality training enables them to acquire the essential skills and competencies required for quality management, as well as the ability to identify any potential deficiencies that may have adverse effects on product quality. Employees who have received formal training consistently seek ways to enhance processes and foster innovation. This not only contributes to effective process management but also has a subsequent impact on the

operational performance of small and medium-sized enterprises (SMEs).

Additionally, substantial evidence is presented that establishes a connection between continuous improvement and process management, thereby supporting Hypothesis 4 of the study. Simultaneously, it was discovered that process management plays a crucial role in mediating the relationship between continuous improvement and the operational performance of small and medium-sized enterprises (SMEs), thereby supporting hypothesis H5 of the study. This implies that organisations with a strong emphasis on quality will consistently strive to enhance their procedures and operational methods, thereby improving their process management and ultimately resulting in enhanced operational performance for small and medium-sized enterprises (SMEs). In addition to this, a significant association was observed between rewards and process management, thereby supporting the hypothesis H6 posited in the study.

Simultaneously, it was discovered that process management plays a crucial role in mediating the relationship between rewards and the operational performance of small and medium-sized enterprises (SMEs), thereby supporting the hypothesis H7 proposed in this study. This implies that the provision of both financial and non-financial incentives serves as a driving force for employees to exert their utmost efforts in contributing to the success of the organisation. Employees who possess intrinsic motivation demonstrate a genuine commitment to the organisation, leading them to proactively seek opportunities for process improvement and enhance their own productivity levels. The aforementioned factors contribute to the enhancement of quality and process management within the organisation, resulting in improved operational performance for small and medium-sized enterprises (SMEs).

Furthermore, a noteworthy association was observed between quality assurance and process management, thereby providing empirical support for hypothesis 8 in the present study. Simultaneously, it was discovered that process management plays a crucial role in mediating the relationship between quality assurance and the operational performance of small and medium-sized enterprises (SMEs), thus supporting the hypothesis H9 put forth in this study. This implies that the implementation of Total Quality Management (TQM) principles, which are designed to reduce waste and improve product quality throughout all stages of production, results in improved process management and ultimately higher operational performance for small and medium-sized enterprises (SMEs).

In conclusion, the study revealed a significant correlation between strategic agility and process management, thereby providing support for hypothesis H10. However, the analysis did not yield significant evidence to support hypothesis H11 of the study, as it was found that process management does not act as a significant mediator between the strategic and operational performance of small and medium-sized enterprises (SMEs). Organisations that possess strategic agility consistently exhibit a proactive approach towards identifying and responding promptly to innovations, as well as adapting to evolving demands and opportunities stemming from dynamic environmental conditions. Strategic agility refers to the capacity to adapt and modify operational approaches, thereby improving the organisation's process management capabilities. Nevertheless, the current study lacks adequate evidence to establish a direct correlation between strategic agility and operational efficiency achieved through process management.

Table.6: Summary of Effects

Variables	Direct Effects	Indirect Effects	Total Effects
Process Management → Operational Performance	0.568		0.568
Training on Quality → Process Management	0.249		0.249
Continuous Improvement → Process Management	0.314		0.314
Rewards → Process Management	0.147		0.147
Quality Assurance → Process Management	0.106		0.106
Strategic Agility → Process Management	0.169		0.169
Training on Quality → Operational Performance		0.349	0.349
Continuous Improvement → Operational Performance		0.459	0.459
Rewards → Operational Performance		0.597	0.597
Quality Assurance → Operational Performance		0.466	0.466
Strategic Agility → Operational Performance		0.051	0.051

Table 8 presents a comprehensive overview of the acceptance or rejection status of all the hypotheses in the study, based on the findings presented in Table 7 above.

Table.7: Result of Analyses and Hypotheses

	Hypotheses	P-value	t-value	Accept or reject
H1	**Process Management is positively linked to the operational performance of SMEs**	0.012	2.69	Accept
H2	**Training on quality is positively linked to process management**	0.031	2.94	Accept
H3	**Process management serves as a mediator in the association between training on quality and operational performance of SMEs.**	0.040	4.64	Accept
H4	**Continuous improvement is positively linked to process management.**	0.036	3.97	Accept
H5	**Process management serves as a mediator in the association between continuous improvement and the operational performance of SMEs.**	0.014	4.05	Accept
H6	**Rewards are positively linked to process management.**	0.022	3.88	Accept
H7	**Process management serves as a mediator in the association between rewards and the operational performance of SMEs.**	0.031	2.97	Accept
H8	**Quality Assurance is positively linked to process management.**	0.018	3.67	Accept
H9	**Process management serves as a mediator in the association between quality assurance and the operational performance of SMEs.**	0.011	3.60	Accept
H10	**Strategic Agility is positively linked to process management.**	0.017	2.55	Accept
H11	**Process management serves as a mediator in the association between strategic agility and the operational performance of SMEs.**	0.324	1.01	Reject

p-value <0.05 (Hair et al., 2007), t-value > 1.96 (Bhatti and Sundaram, 2015)

5. Discussion

The objective of this study was to investigate the various factors that have the potential to impact the operational performance of small and medium-sized enterprises (SMEs). The study examined various factors, such as training in quality, continuous improvement, rewards, quality assurance, and strategic agility, and their influence on the operational performance of small and medium-sized enterprises (SMEs). Additionally, the study sought to examine the mediating function of process management. The aforementioned factors were examined in relation to their impact on process management, which in turn can affect the operational performance of small and medium-sized enterprises (SMEs). In order to accomplish the objective of the research, data was gathered from a sample of 245 employees employed in diverse manufacturing organisations located in Saudi Arabia. The data collected for this study was subjected to analysis using the statistical software packages SPSS and AMOS. The findings of the analysis indicate a significant correlation between process management and the operational performance of small and medium-sized enterprises (SMEs).

In contemporary times, process management encompasses the utilisation of automation and digitalization techniques to mitigate the occurrence of human error and process variability (Truong et al., 2013). In addition, the practice of regularly and promptly maintaining equipment and machinery falls within the domain of process management. This practice serves to improve operational efficiency by extending the lifespan of the equipment and reducing the likelihood of production disruptions. Consequently, it contributes to enhanced operational efficiency (Slack & Brandon-Jones, 2018). Furthermore, it was discovered that the provision of training focused on quality exhibited a significant correlation with process management, ultimately leading to enhanced operational efficiency. The training programmes that place emphasis on quality-related issues prioritise the cultivation of problem-solving skills within small group contexts, foster the acquisition of practical communication skills, and employ statistical process monitoring methods. These efforts ultimately lead to improved efficiency and effectiveness in organisational activities and outcomes (Dumas et al., 2018; Nguyen et al., 2018).

When employees possess the requisite skills and capabilities pertaining to quality, they are capable of discerning any defects and problems within the production processes, resulting in enhanced precision in manufacturing, decreased occurrence of faults, and overall performance enhancement. Moreover, it was determined that there exists a significant correlation between continuous improvement and process management, which in turn has a direct impact on operational efficiency. The pursuit of reducing defect rates and continuously enhancing product and service design and quality necessitates the implementation of process modifications in production. This, in turn, diminishes inefficiencies and enhances the operational efficiency of an organisation (Van Looy, 2021). The objective of continuous process improvement entails the optimisation of effectiveness and productivity, the enhancement of process control, and the consolidation of internal procedures to effectively respond to evolving consumer expectations (Slack & Brandon-Jones, 2018).

In addition to this, it was discovered that reward is significantly associated with process management and, consequently, operational efficiency. Rewards are utilised as motivational tools to encourage favourable ideas and achievements, with the goal of cultivating a motivated and efficient workplace atmosphere among employees. This, in turn, has the potential to improve overall performance, particularly in terms of

operational effectiveness, by fostering worker satisfaction (Nguyen et al., 2018). Employees who possess a strong work ethic and are motivated by their tasks will have a favourable influence on the overall quality of a company's output. Such individuals are more likely to generate creative concepts aimed at improving products, services, or operational procedures, and they are also adept at swiftly and effectively introducing novel offerings to the market.

Furthermore, a strong association was observed between quality assurance and process management, ultimately leading to enhanced operational efficiency. The ideology of quality assurance encompasses the utilisation of high-quality raw materials, the implementation of advanced manufacturing processes, and the production of goods of exceptional quality. This approach guarantees the satisfaction of customer demands without any complications (Mukhopadhyay, 2020). Quality management enhances the operational efficiency of an organisation by mitigating costs and minimising waste across various processes. Moreover, the implementation of quality management enhances various organisational processes, thereby facilitating superior process management, ultimately leading to enhanced operational efficiency within the organisation.

Likewise, it was observed that there is a significant association between strategic agility and process management, but no conclusive evidence was found regarding its impact on operational performance. Organisations that possess strategic agility demonstrate a higher level of proficiency in effectively implementing innovative business models (Arbussa et al., 2017). Organisations that possess strategic agility demonstrate a proactive approach and exhibit prompt responsiveness to the evolving demands of a dynamic environment. Therefore, these organisations promptly embrace innovative procedures and methods that can optimise their internal processes.

5.1. Theoretical Implications

In the field of operational management research, there is a dearth of academic literature that thoroughly examines the diverse factors influencing the operational performance of small and medium-sized enterprises (SMEs). This study contributes to the extant literature by addressing the dearth of scholarly work on the topic of small and medium-sized enterprise (SME) operational performance. Furthermore, it fills a gap in the literature by investigating the association between various factors and the operational performance of SMEs, specifically in the context of process management.

5.2. Practical Implications

The findings of this study have significant practical implications for small and medium-sized enterprises (SMEs) that are conducting business operations in Saudi Arabia. The research emphasises the significance of multiple factors that can contribute to the effective management of processes and, consequently, the operational efficiency of small and medium-sized enterprises (SMEs). It is imperative for employees within small and medium-sized enterprises (SMEs) to undergo comprehensive training in quality management and adhere to established quality standards. This training equips employees with the necessary skills to independently recognise and address quality-related concerns while also fostering a culture of innovation that encourages the development of novel solutions.

Additionally, it is imperative for the organisation to foster a culture that prioritises quality assurance and implements the principles of Total Quality Management (TQM).

This is essential to guarantee exceptional quality throughout all phases of production and to minimise any instances of inefficiency or waste. Small and medium-sized enterprises (SMEs) ought to consistently strive for ongoing enhancement in their operational procedures and embrace superior and more effective methods of functioning, with the aim of mitigating defects and errors. This proactive approach can yield significant savings in terms of time, finances, and other valuable resources.

It is imperative to ensure that employees receive equitable compensation in order to maintain their motivation and encourage the generation of constructive and inventive ideas aimed at enhancing the organisation's operational efficiency. Finally, it is imperative for a small and medium-sized enterprise (SME) to respond promptly to the evolving requirements and demands of the dynamic business environment. This entails seeking improved and more advanced operational methods to enhance production efficiency.

5.3. Limitations and Future Research Directions

The current study possesses certain limitations that may serve as opportunities for future researchers to explore. The scope of this study is confined to the context of small and medium-sized enterprises (SMEs) in Saudi Arabia, as the data collection was exclusively conducted within the boundaries of Saudi Arabia. As a result, these limitations limit the generalizability of the findings. Subsequent investigations may endeavour to evaluate the model in alternative contexts.

Furthermore, it is important to note that the operational efficiency of small and medium-sized enterprises (SMEs) can be impacted by various additional factors, including but not limited to management or leadership style, input costs, supply chain dynamics, and the degree of automation and digitalization. Subsequent investigations may delve into these aforementioned factors as well as additional variables. A comparative analysis can also be conducted to examine the similarities or differences in the factors influencing operational efficiency between small and medium-sized enterprises (SMEs) and larger firms.

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