

Effect of Process Standardization on Operational Efficiency and Service Quality in Small and Medium Enterprises: A Theoretical Analysis

¹Prof. Balkrishna Salunkhe, ²Prof. Harsh Shah

¹Assistant Professor, Institute for Future Education, Entrepreneurship and Leadership iFEEL, Lonavala,

²Assistant Professor, Institute for Future Education, Entrepreneurship and Leadership iFEEL, Lonavala

ARTICLE INFO

Received: 10 March 2024

Revised: 18 Apr 2024

Accepted: 26 Apr 2024

ABSTRACT

Process standardization has appeared as a critical managerial practice to improve organizational performance, mainly in Small and Medium Enterprises (SMEs) that are operating in highly competitive and resource-constraint environment. This theoretical work examines the effects of process standardization on operational efficiency and service quality in SMEs. The analysis proposes that process standardization positively influences operational efficiency by minimizing errors, reducing rework, optimising resource utilization, shortening cycle time, and improving coordination across functional units. Standardised process facilitates better monitoring and performance measurement, enabling SMEs to control costs and enhance productivity. Furthermore, it is argued that standardization contributes to improved service quality by ensuring consistency in service delivery, reducing service variability, enhance customer satisfaction, and strengthening reliability and responsiveness. This paper also explores potential moderating factors such as organizational culture, employee training, technological adoption, and leadership commitment, which may strengthen or weaken the relationship between standardization and performance outcomes. A sample of 267 respondents was collected. The factors identified to find the result of the study are Process consistency and uniformity, Employee productivity and performance, Quality control and monitoring, and Process documentation and formalization.

Keywords: Process standardization, Operational Efficiency, service quality, automation, process documentation

Introduction

Process standardization in Small and Medium-sized Enterprises (SMEs) includes developing documented, consistent and procedures which is repeated for the enhancement of operational efficiency, it helps in the reduction of errors facilitating the growth of the business enterprise. Process standardization helps SMEs in lowering the cost, training employees on fast track, and enhance work quality by executing the task uniformly across the organization. Process standardization facilitates central as well as integrated planning of distributed resources and activities improving operational efficiency for planning of production, controlling inventory, and handling of material. Standardization of process formalize everyday activities across every unit of business enterprise, which were categorized by comparatively limited activities of value chain and substantially interdependencies. Thus, process standardization was highly motivated by interdependencies across the organization. Process standardization fits in a better way in the functional structure as well as operational control that is found in SMEs to pursue global incorporation, whereas it is little needed disturbing the financial control to

seek local receptiveness (**Fatemah et al. 2016**). Automation has appeared as a main element that transforms modern business operations, it makes significant reduction in errors, streamlines the workflow, and enhance operational efficiency as well as management of cost. Standardization of process and automation has revolutionized industries as it improves efficiency, accuracy and effectiveness of cost. Automation of the process helps in the reduction of human errors for improving compliance and scalability, the benefits of automation are measurable as well as influencing. AI-driven automation and its application in emerging industries would keep shaping the future of business processes. With the evolving automation, business organizations who are adopting such technologies would attain a competitive edge, it also ensures long-term sustainability as well as growth (**Sheth, 2021**). Culture supporting process standardization is highly concentrated on internal operational efficiency and reduction of cost, while that for customization is market as well as customer oriented. As the intrinsic contradiction include immediate pursuit of standardization as well as customization, the offerings of resulting services might be of doubtful quality that compromise customer evaluation and satisfaction. The main goal process standardization is controlling the output of activity and service quality by management of services scientifically for minimization of risk related to human factor. Not just the process is controlled, the cost is also reduced, and efficiency gets maximised with process standardization. The service would be delivered in less time and cost with maximum reliability. The customer would not therefore meet with unfriendly surprise that might lead to satisfaction (**Wang et al. 2010**). A standardized process is continuously performing by following the same steps in same order. Process standardization is attained as it sets formal rules for guiding activities to employees that are operational in business enterprise through work instructions, manuals, guidelines and procedures of work. Process standardizations help in reducing errors as it is a source of organizational memory, expressing the best accessible knowledge and past experience (**Nissinboim & Naveh, 2018**). Standard operating procedures (SOP) assist business organizations in maintaining the service quality facilitating the process of evaluation and monitoring performance of employees. Therefore, SOPs do not just play an important role in process standardization, but it also supports the achievement of overall operational performance. A good SOP works as a guideline for constant and efficient implementation of work reducing work errors, increases speed of the process ensuring the result of production quality. A main role is played by SOPs that creates work stability and efficiency. Too much concentration of operational efficiency comes at the expense of service quality, which suggests that enhancement in efficiency that do not always go hand in hand with enhancement in service quality and vice versa (**Hartl, 2022**).

Literature Review

Koval, Nabareseh, & Chromjaková (2019) stated that for achievement of high competitiveness, the business organizations must satisfy different requirements of customers. The varying nature of preferences of customers might lead to rising complications of the process in business enterprise. For delivering high quality services at accepted cost, the companies adopt process standardization. However, excessive process standardization might also lead to instability in company to cater to the requirements of the customers, that might also hamper competitiveness of the firm. Process standardization is intrinsic to constant enhancement, still there is a lack, if not absence of studies with regards to how elements impacting constant enhancement impact standardization and operational performance of the company. Process standardization is an important part in continuous enhancement including factors that develops operational effectiveness. It is also revealed that business organizations that embark on journey of standardization must concentrate on their investments and efforts on proper reward and recognition system, provide training to employees and management commitment.

Salma et al. (2021) highlighted that business process that are modernized permit increasing the conversion of leads, amount and growth of contracts, growth and size of revenue, productivity of labor,

and efficacy of marketing cost. The outcome and method used by author can be used by top managers of SMEs for modernization of their business process for enhancing the efficiency of their business enterprise. About half of the nation's added value is generated by SMEs that makes a substantial weight in the country. Similarly, there is very little used of business process management in the activities of SMEs providing them the flexibility in the business, turning ideas into actions.

Romero et al. (2015) revealed that the goal of business process standardization is ensuring that an enterprise performs the same activity in different locations. Business process standardization can be defined as a set of related tasks logically that are being performed for the achievement of a defined business result. Process standardization is a vital step for the system of ERP as it provides a uniform implementation of ERP system, it also reduces future maintenance cost, increase agility in process change. The budget for expensive customization of ERP can be utilised for funding the license and application of management of analytics and artificial intelligence solutions. However, the process standardization also brings some drawbacks. Business organization must balance the advantages of process standardization with competitive benefits of inventive or distinguished process approach.

Silva & Goncalves (2022) stated that using artificial intelligence is constantly expanding new domains and implemented in different applications. Artificial Intelligence and management analytics are two highly essential digital technologies that are implanted in many applications. However, using management analytics and artificial intelligence for solving problems and supporting decision-making need custom development and experts, which is not easily available for SMEs. Process standardization permits integration of artificial intelligence and management analytics capabilities into application of IT business used by SMEs.

Gupta & Kumar (2018) highlighted that work process standardization reduces errors and discrepancies making contribution towards overall enhancement and service quality. Process standardization has been widely accepted among SMEs for improving operational efficiency. Adopting Kaizen principles and process standardization among SMEs represent a valuable strategy to improve operational efficiency and deliver high-quality.

Realyvasquez-Vargas et al. (2019) reported a case study by using a process standardization for improving efficiency and improved optimization of resources. It was observed that work which is non-standardized increased the time of processing, wastage in process, and also increases the rate of defective parts, unsafe and inadequate handling of material and other equipment can lead to unwanted amount of inventory, defects of products and delay in final delivery. As an outcome, all such issues cause main problem of low level of production and non-compliance with demand.

Mohanasundaram & Mohandhas (2021) studied that the process standardization is mainly led by government, with BIS (Bureau of Indian Standards) that publishes most of the voluntary services and product associated standards. Standards in other domain are developed and published by other specialist bodies. Benefits of traceability and tangibility has been provided by "BIS (Bureau of Indian Standards)" to national economy in many different ways, it provides safe and good quality of goods, minimize health hazards to customers, promote substitute of exports and imports, control over proliferation of variabilities by standardization, testing as well as certification. Large and small business organizations usually have a well-developed method of doing a business. A system of quality management is regarding how a business organization manages their business activities related to service quality.

Tan (2021) stated that preserving service quality is important through standardization though there are distinct individual bringing customers through service experience. Standardization of service include work process consistency, attitude and capability of creating similar experience for customers who support the enterprise. The way in which businesses differentiate themselves are through, products and services for attracting customers. Features of services including its tangibility, perishability and dependency on the individual performing the services, makes it a valued asset and competitive advantage for company when it is managed well. Efforts of standardization can be observed in majority of flexible practices in SMEs that are found to be unusual ways to survive in competition for SMEs.

Shafeek, Bahaitham & Soltan (2018) revealed that process standardization is the way of setting, interacting, following and enhancing present standards. Work standards are the best methods of completing the task for best results and best possible quality. Operators must follow strict standards that are involved in the work cell ensuring to meet work standards. Work standardization needs many tools of work methods as well as measurements, along with the possibility in personnel culture, in order to avoid resistance in implementation. The assembly line becomes highly productive after using work standards for redesigning the assembly process, proving the efficacy of implementation of work standardization.

Dave (2012) stated that implementation of the concept of work standardization, business organizations can attain many potentially advantages like enhanced safety, improved productivity, and high service quality. It can also be accompanied by augmentation of moral of the workforce. Therefore, work standardization is a strong tool for increasing the performance of the firm. The advantages of work standardization include process documentation, reduced variability, easy trainings for new operators, reduced strains and injuries, and a baseline for enhanced activities.

Objective

To study the “Effect of Process Standardization on Operational Efficiency and Service Quality in Small and Medium Enterprises”

Methodology

267 participants were surveyed from operators in different scale of business. The method of sampling was “Random sampling” for collection of data and examination was done by “Explanatory Factor Analysis” for results.

Findings

Table 1 demonstrates demographic details, it shows that 52.06% are Male, 47.94% are female. Looking at the age, 34.08% are between 30 to 35 years of age, 31.09% are between 35 to 40 years of age, and 34.83% are above 40 years of age. With regards to Industry level, 29.59% are small scale business, 37.83% are medium scale business, and 32.58% are large scale business.

Table. 1 Respondent’s Details

Variables	Participants	Percentage
Gender		
Male	139	52.06%
Female	128	47.94%
Total	267	100
Ages in years		
30 to 35	91	34.08%
35 to 40	83	31.09%

Above 40	93	34.83%
Total	267	100
Industry level		
Small scale business	79	29.59%
Medium scale business	101	37.83%
Large scale business	87	32.58%
Total	267	100

“Factor Analysis”

“KMO and Bartlett's Test”

Table. 2 “Kaiser-Meyer-Olkin Measure of Sampling Adequacy”

“Kaiser-Meyer-Olkin Measure of Sampling Adequacy”		.763
“Bartlett's Test of Sphericity”	“Approx. Chi-Square”	4736.011
	df	91
	Significance	.000

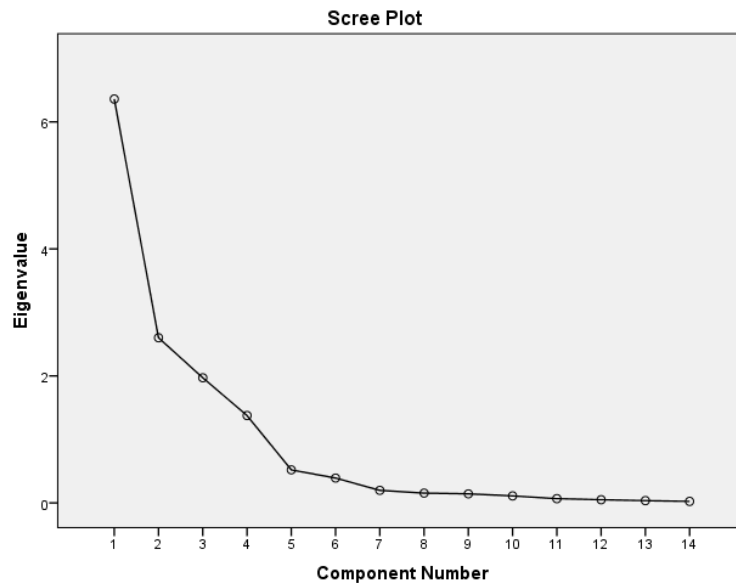
“KMO and Bartlett's Test”, value of KMO is .763 (Table 2).

Table 3 “Total Variance Explained”

“Component”	“Initial Eigenvalues”			“Rotation Sums of Squared Loadings”		
	“Total”	“% Of Variance”	“Cumulative %”	“Total”	“% Of Variance”	“Cumulative %”
1.	6.360	45.427	45.427	3.859	27.562	27.562
2.	2.601	18.576	64.004	3.635	25.962	53.525
3.	1.970	14.075	78.079	2.477	17.692	71.216
4.	1.375	9.825	87.903	2.336	16.687	87.903
5.	.520	3.713	91.616			
6.	.392	2.797	94.413			
7.	.197	1.410	95.823			
8.	.154	1.103	96.926			

9.	.143	1.021	97.948			
10.	.110	.789	98.736			
11.	.067	.476	99.213			
12.	.050	.357	99.570			
13.	.036	.259	99.829			
14.	.024	.171	100.000			

The four factors contribute towards explaining total 87.903% of variance. Variance explained by Process consistency and uniformity is 27.562%, Employee productivity and performance is 25.962%, Quality control and monitoring is 17.692%, and Process documentation and formalization is 16.687%. (Table 3).



“Scree Plot”

Table. 4 “Rotated Component Matrix”

S. No.	Statements	Factor Loading	Factor Reliability
	Process consistency and uniformity		.953
1.	Process standardization reduces variability in service delivery	.951	
2.	Uniform procedures ensure consistent output quality	.908	

3.	Customer receive consistent service experience	.852	
4.	Similar tasks are performed in the same way across different departments	.846	
	Employee productivity and performance		.962
1.	Employees perform their task more efficiently under standardized procedures	.961	
2.	Process standardization reduces the need for constant supervision	.901	
3.	Training new employees is easier due to clear process guidelines	.898	
4.	Employee accountability has improved with defined procedures	.876	
	Quality control and monitoring		.873
1.	Standardization enables easier monitoring of performance metrics	.918	
2.	Quality deviations are quickly identified due to clear process standards	.855	
3.	Continuous improvement initiatives are supported by process standardization	.786	
	Process documentation and formalization		.839
1.	Employees understand the standardized steps required to complete the task	.934	
2.	Process documentation reduces confusion and role ambiguity	.930	
3.	Standardized procedures are regularly updated to reflect operational changes	.638	

Factors of the study and its related variables

Process consistency and uniformity is the first factor, it includes variables like Process standardization reduces variability in service delivery, Uniform procedures ensure consistent output quality, Customer receive consistent service experience, and Similar tasks are performed in the same way across different departments. Employee productivity and performance is the second factor, the variables it includes are Employees perform their task more efficiently under standardized procedures, Process standardization reduces the need for constant supervision, Training new employees is easier due to clear process

guidelines and Employee accountability has improved with defined procedures. Third factor is Quality control and monitoring, its variables are Standardization enables easier monitoring of performance metrics, Quality deviations are quickly identified due to clear process standards, and Continuous improvement initiatives are supported by process standardization. Last and fourth factor is Process documentation and formalization, it includes variables like Employees understand the standardized steps required to complete the task, Process documentation reduces confusion and role ambiguity, and Standardized procedures are regularly updated to reflect operational changes.

Table 5 “Reliability Statistics”

“Cronbach's Alpha”	“Number of Items”
.897	14

Total reliability of 14 items that includes variables for Factors exploring the “Effect of Process Standardization on Operational Efficiency and Service Quality in Small and Medium Enterprises” 0.897 (Table 5).

Conclusion

Process standardization plays an important role in improving operational efficiency and service quality in small and medium scale enterprises (SMEs). The study concludes that clearly defined procedures, documented workflow, and uniform operational guidelines significantly reduce process variability, minimize errors, and improve time management. By establishing consistent standards, SMEs are better positioned to optimize resource utilization, reduce operational cost, and improve overall productivity. The findings further indicate that process standardization contributes positively to service quality by ensuring consistency in service delivery, reducing customer complaints, and strengthening reliability and responsiveness. Standardized processes enable employees to perform task with clarity and accountability, thereby enhancing service accuracy and customer satisfaction. Moreover, it facilitates performance measurement, continuous improvement, and easier monitoring of service benchmark. The factors identified to find the result of the study are Process consistency and uniformity, Employee productivity and performance, Quality control and monitoring, and Process documentation and formalization.

References

- [1] Fatemah, R., Charles, M. & Lars, H. (2016). Succeeding in process standardization: Explaining the fit with international management strategy, *Business Process Management Journal*, 22(6), 1212-1246. <https://doi.org/10.1108/BPMJ-12-2015-0180>.
- [2] Sheth, H. (2021). The Impact of Automation on Business Process Efficiency and Accuracy: Enhancing Operational Performance in the Digital Age, *ICONIC Research and Engineering Journals*, 4(12), 317-321.
- [3] Hartl, G. (2022). Quality Control and Risk Management in Biobanks, In *Biobanks in Lowand Middle-Income Countries: Relevance, Setup and Management* (pp. 65–71). https://doi.org/10.1007/978-3-030-87637-1_10.
- [4] Wang, G., Wang, J., Ma, X. & Qiu, R.G. (2010). The Effect of Standardization and Customization on Service Satisfaction, *Journal of Service Science*, 2, 1-23, DOI 10.1007/s12927-010-0001-3.

- [5] Nissinboim, N. & Naveh, E. (2018). Process standardization and error reduction: A revisit from a choice approach, *Safety Science*, 103, 43-50.
- [6] Koval, O., Nabareseh, S. & Chromjakova, F. (2019). Standardization In Services: Assessing The Impact on Customer Satisfaction, *Marketing and Trade*, 22(3), 186-203, 10.15240/tul/001/2019-3-012.
- [7] Salma, A.J.B., Prasolov, V., Glazkova, I. & Rogulin, R. (2021). The Impact of Business Processes on the Efficiency of Small and Medium-Sized Enterprises, *Montenegrin Journal of Economics*, 17(3), 131-143.
- [8] Romero, H. L., Dijkman, R. M., Grefen, P. W. P. J., & Van Weele, A. J. (2015). Factors that Determine the Extent of Business Process Standardization and the Subsequent Effect on Business Performance, *Business Information of System and Engineering*, 57(4), 261–270.
- [9] Silva, J. P. & Gonçalves, J. (2022). Process standardization: the driving factor for bringing artificial intelligence and management analytics to SMEs, *10th International Symposium on Digital Forensics and Security (ISDFS)*, 1-5, doi: 10.1109/ISDFS55398.2022.9800804.
- [10] Gupta, A., & Kumar, A. (2018). Improvement of laboratory turnaround time using lean methodology, *International Journal of Health Care Quality Assurance*, 31(5), 1-12, <https://doi.org/10.1108/ijhcqa-08-2016-0116>.
- [11] Realyvasquez-Vargas, A., Flor-Moltalvo, F.J., Blanco-Fernandez, J., Sandoval-Quintanilla, J.D., Jimenez-Macias, E. & Garcia-Alcaraz, J.L. (2019). Implementation of Production Process Standardization—A Case Study of a Publishing Company from the SMEs Sector, *Processes*, 7, 1-22, doi:10.3390/pr7100646.
- [12] Mohanasundaram, K. & Mohandhas, B. (2021). SME Quality Standards in India - An Overview, *International Journal of Innovative Research in Technology*, 7(11), 672-674.
- [13] Tan, Y.Y. (2021). Standardization Efforts in Small Businesses, *International Journal of Service Science, Management, Engineering, and Technology*, 12(5), 53-67, DOI:10.4018/IJSSMET.2021090104.
- [14] Shafeek, H., Bahaitham, H. & Soltan, H. (2018). Lean Manufacturing Implementation using Standardized Work, *Journal of Computational and Theoretical Nanoscience*, 15(6), 1814–1817, <http://dx.doi.org/10.1166/jctn.2018.7316>.
- [15] Dave, Y. (2012). Benefits Of Standardized Work: A Study, *International Journal of Latest Research in Science and Technology*, 1(1), 95-97.