Impact of Technological Capabilities and Employee's Capabilities on Productivity of the Small-Scale Industries

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Abstract: ***Improvement of productivity is crucial for manufacturing industries to remain competitive and achieve breakthroughs. The widespread adoption of technology in the manufacturing industry has been proven to increase productivity through process optimization and operational efficiency. Raising the level of efficiency would be a solution to it, as technical development has an effect on the demand for employees. It is observed that technical development will be a complement with more skilled employees but a substitute with less skilled employees. The main objective of this research is to study the impact of technological capabilities and employees' capabilities on the productivity of the small-scale industries in the Peenya industrial area in Bangalore. The research sample consisted of 107 customers who were involved in the production of auto parts, electronics, and industrial supplies. The study includes the respondents who offered their full cooperation in providing all of the information. A purposive sampling strategy is used in this study. Respondents such as directors, production operators, supervisors, and managers, as well as R&D and IT staff and HR managers, were targeted to make up the sample size. Regression analysis was used as a statistical tool for the study. The research found that both technological capabilities and employees' capabilities are significantly influencing the productivity of the small-scale industries in the Peenya industrial area in Bangalore.***

Keywords: Technological, Employee, Capabilities, Productivity, Small Scale Industries

1. Introduction

The manufacturing industry plays a crucial role in both national and global economies by making significant contributions to economic growth, job creation, and exports (Najjari, H., et al., 2021). This sector not only produces various products that support daily life but also serves as a primary driver of technological advancements and industrial innovation. The development of Small Scale Industry (SSI) has been considered a sine qua non to industrial development. This sector was given the special task to generate employment, regional dispersal, and equitable distribution of income and wealth in the countryside with the lowest capital investment (Machnik-Słomka, J., & Kordel, P. 2016). These industries are playing a key role in the development of economies with their effective, efficient, flexible, and innovative entrepreneurial spirit and are widely scattered all over the country, producing a large number of consumer goods, industrial goods, and services. The small industrial sector is often driven by individual creativity. A major strength of the sector is its potential for greater innovation both in terms of products as well as processes (Lundstrom, A., & Stevenson, L. 2002). An inherent strength of the sector is that these enterprises can be set up with very small amounts of investments and have the locational flexibility, and moreover, since the small industries operate at a moderate level of technology with low financial requirements, the sector is always taken as a platform for young entrepreneurs to start their businesses (Linton, J.D., & Xu, W. (2021). The use of advanced technology in small businesses contributed a lot to restructuring a business from outmoded. Small business is that business where it is done on a small scale; it only requires less capital, less labor, and low material compared to large-scale business. Therefore, implementation of advanced technology is very difficult for those types of businesses to accept the immediate changes, but sometimes it helps to achieve the continuous growth (Keikhakohan, J., et al., 2020). Continuous growth of a small business is only possible through its customers; therefore, the business needs the financial and mental support from the people. There are several reasons for establishing advanced technology in business (Hosseini, E., et al., 2020b). Maybe people want modern technology or the use of advanced technology in business to carry out business activities; otherwise, it is the requirement of business according to its circumstances. For example, traditional business uses tools like registers, books, paper, and pens for recording the transactions (Cota, V.R., et al., 2020). Every transaction and detail is recorded manually, and billings are done in the same way. This kind of traditional style of recording was eliminated by the introduction of advanced technology in small businesses. Computerized recording, online payment systems, newly developed software, easy availability of information for business through online media, and newly invented machines are the significant parts of advanced technology (Bridge, S., & O'Neill, K. 2012). Implementation of advanced technology in small businesses was a revolution for business because it changes or restructures the existing business to a new one.

2. Literature Review

The adoption of technologies such as the Internet of Things (IoT), artificial intelligence (AI), robotics, and automation has revolutionized production processes, creating smarter and more efficient manufacturing systems (Babaei Fishani, M., et al., 2020). Digitalization in production processes, such as smart manufacturing and the use of big data analytics, allows companies to optimize their operations by increasing flexibility, reducing human errors, and improving resource efficiency. The benefits of these technological applications are evident, ranging from reduced production costs and improved product quality to faster production times, ultimately enhancing the competitiveness of the manufacturing industry in the global market (Xue, T. & Xi,

X. 2024). The widespread adoption of technology in the manufacturing industry has been proven to increase productivity through process optimization and operational efficiency. Previous studies have shown that companies implementing advanced technologies, such as automation systems and data-driven analytics, tend to achieve higher output levels at lower costs. Innovative technologies such as cloud computing can enable SMEs to become more competitive against large companies by achieving economies of scale via appropriate software and the latest business systems (Ramaswamy, K. V. 1994). To accomplish this, however, suppliers must understand the needs of SMEs, and these SMEs must continually update and adapt. Technological updating in SMEs is associated with six driving forces: social capital, links with multinationals and transnationals, innovation, exchange and networking, information technology, and the adoption of technology that improves productivity (Radam, L., et al., 2008). In addition, successful adaptation depends on three conditions: the availability of technologically trained labor, the timely identification of opportunities for new technologies, and support from the workforce and the prevailing political culture. Updating and innovation follow from the exploration and exploitation of technology (Nikiado, Y. 2004). Investing in cleaner, more eco-efficient technologies enables SMEs to reduce the environmental impacts of their operations. In this respect, relevant technologies include pollution control equipment, efficient production machinery, cogeneration systems, smart building controls, and fleet telematics. Digital platforms such as sensors, the IoT, and big data analytics facilitate the tracking, analysis, and transparency of sustainability metrics, which in turn support performance management (Mukherjee, D., 2007). However, cost concerns, a perceived lack of expertise, and limited access to financing often limit SMEs' adoption of sustainability technologies. Distinct from computer-integrated manufacturing, digital transformation empowers the informatization process of enterprises, leveraging key technologies such as the Internet of Things (IoT), cyber and physical systems (CPS), cloud computing, and big data analytics to achieve synergy in internal research and development (R&D), design, and supply chain management (Kumar, S., & Singh, P. 2011). Another factor influencing labor productivity is technological change and progress. Technological progress entails the combination of knowledge development, innovation, and the integration of such innovation into the production of new products and services. Drawing on dynamic capability theory, digital technology strengthens manufacturing innovation capabilities by synergizing organizational learning and resource reconfiguration to drive total factor productivity growth (Kumar, M., & Mishra, T. 2002). Through embedded digital platforms spanning R&D, production, and supply chains, enterprises establish real-time data symbiosis that fuels continuous organizational learning. Big data analytics and AI tools convert fragmented market signals into structured knowledge capital, enabling agile responses to consumer demands through personalized product innovation, while cloud collaboration systems dismantle functional silos, allowing cross-departmental teams to co-interpret market feedback and prototype solutions within IoT-enhanced ecosystems (Jajri, I., & Ismail, R. 2009). Artificial intelligence algorithms serve as efficient R&D assistants, applicable in the product design and simulation testing phases, rapidly iterating design schemes and accelerating the R&D process while reducing R&D risks and unnecessary resource investment. The application of these digital technologies enables enterprises to introduce innovative products more swiftly, meet diverse market demands, increase output without additional input, and thereby enhance total factor productivity (Etemad, H., et al., 2001). The proportion of R&D expenditure gauges the intensity and emphasis placed on R&D investment within various manufacturing industries. R&D expenditure encompasses funds allocated for research and development activities, including expenses for new product development, technological improvements, sustainability, and exploration of new processes, such as salaries for R&D personnel, purchases of R&D equipment, and costs of experimental materials. A higher proportion of R&D expenditure signifies greater investment in technological innovation, indicating a stronger focus on enhancing product competitiveness, exploring new markets, and promoting industry-wide technological progress (Admassie, A. M., & Francis, A. 2002). Conversely, a lower proportion of R&D expenditure may suggest insufficient impetus for technological innovation, potentially affecting the industry's long-term sustainable development and market competitiveness. Additionally, the lack of human resources with the necessary technological skills poses another challenge in implementing digital-based systems (Zhang, Y., et al., 2019). Technological updating in SMEs is associated with six driving forces: social capital, links with multinationals and transnationals, innovation, exchange and networking, information technology, and the adoption of technology that improves productivity. In addition, successful adaptation depends on three conditions: the availability of technologically trained labor, the timely identification of opportunities for new technologies, and support from the workforce and the prevailing political culture. Raising the level of efficiency would be a solution to it, as technical development has an effect on the demand for labor (Singh, D., Khamba, J. S., & Nanda, T. 2017). It is observed that technical development will be a complement with more skilled labor but a substitute with less skilled labor. also observed that instead of using better technology to produce value-added goods, firms may be simply investing in labor-displacing technology and deskilling labor, which is not favorable where unemployment is a major concern (Pan, X., Ai, 2019). As a labor-intensive industry, active measures to promote labor efficiency and productivity to improve efficient utilization of all resources should be undertaken. The firms should make investments to enrich skills through training apart from providing fair compensation to labor. Technological updating in SMEs is associated with six driving forces: social capital, links with multinationals and transnationals, innovation, exchange and networking, information technology, and the adoption of technology that improves productivity (Ouyang, X., et al., 2020). In addition, successful adaptation depends on three conditions: the availability of technologically trained labor, the timely identification of opportunities for new technologies, and support from the workforce and the prevailing political culture (Liu, J., Chang, H., et al., 2020).

3. Statement of the Problem

The productivity improvement is not only reflected in increased production volume but also in enhanced product quality and supply chain efficiency. However, the success of technology implementation depends on various factors, including organizational readiness, workforce capability, and government policies supporting industrial transformation. Thus, a deeper understanding of the relationship between technology and employees' capabilities and its influence on productivity is essential to ensure the success of small-scale industries. The research findings may serve as a reference for policymakers in supporting industrial transformation through appropriate regulations and incentives. Overall, this study aims to contribute both academically and practically to efforts in enhancing the competitiveness and sustainability of the manufacturing industry in the digital era. Since the last two decades, the SSI sector of India has been a hotbed of reforms, including a major shift from the controlling regulation-nationalization-protection regime to a liberalization, privatization, and globalization environment. Although the significance of small-scale industries has been acknowledged worldwide, the absence of sufficient quantitative research on technical efficiency is surprising, which provides a great scope for the sector to improve its technical efficiency. Further, there is relatively very little literary contribution in the field of estimating technical and employee efficiency and consequently dealing with technical inefficiency of small-scale industries' production in Peenya, Bangalore. Therefore, there is an urgent need to study the technical and employee capabilities for the growth of productivity and efficiency of the SSI sector. With this background, the present study has been conducted to investigate the level of technical efficiency and sources of technical inefficiency of small-scale industries in Peenya, Bangalore.

4. Objectives of the Study

1) To examine the technological capability that influence productivity of the small-scale industries in Peenya industrial area (Bangalore).
2) To explore the impact of employee's that influence productivity of the small-scale industries in Peenya industrial area (Bangalore).

5. Hypotheses

H01: There is no significant influence of technological capability that influence productivity of the small scale industries in Peenya industrial area (Bangalore).

H1: There is a significant influence of technological capability that influence productivity of the small scale industries in Peenya industrial area (Bangalore).

H02: There is no significant impact of employee's that influence productivity of the small scale industries in Peenya industrial area (Bangalore).

H2: There is a significant impact of employee's that influence productivity of the small scale industries in Peenya industrial area (Bangalore).

6. Scope of the Study

The goal of this study is to identify and examine the technological and labor capabilities affecting the small-scale industries in the Peenya industrial area (Bangalore). The study's scope is limited to investigating how technological and labor capability determinants affect the productivity of the small-scale industries in the Peenya industrial area (Bangalore).

7. Research Methodology

This study employs a quantitative approach as it aims to objectively examine the relationship between technological capabilities and labor capabilities affecting the small-scale industries in the Peenya industrial area (Bangalore). Through this method, the research can obtain numerical data that can be statistically analyzed to identify patterns of relationships between the studied variables. The analysis technique used is linear regression, which allows the researcher to measure the extent to which technological and labor capabilities influence the productivity of small-scale industries. The population in this study includes all manufacturing companies or workers in the manufacturing industry who have adopted or are in the process of adopting technological innovations with updated skills of employees. The research sample is drawn from various manufacturing sectors, including automotive, electronics, components, and processing industries. The sampling technique used is purposive sampling, which involves selecting respondents who play a direct role in technology implementation and productivity improvement, such as production operators, supervisors, and managers, as well as R&D and IT staff and HR managers. In this study, a total of 107 respondents were collected, representing variations in job positions and levels of involvement in the technological and HRD development process.

8. Population, Sampling Method and Sample Size

To achieve this, cluster sampling was used. Peenya industrial area was selected as the primary research area. The research sample consisted of 107 customers who were involved in the production of auto parts, electronics, and industrial supplies. The study includes the respondents who offered their full cooperation in providing all of the information. A purposive sampling strategy is used in this study. Respondents such as directors, production operators, supervisors, and managers, as well as R&D and IT staff and HR managers, were targeted to make up the sample size. To determine the factors that substantially impact the productivity of the small-scale industries in the Peenya industrial area (Bangalore).

9. Data Collection

Primary Data

A self-administered structured questionnaire was created and requested to be completed in order to collect data for the first time. Respondents were also interviewed in-person. The "5-point Likert scale" was included in a structured questionnaire that was created. The interview was semi-structured and included open-ended conversation in Kannada, the state of Karnataka's official language.

Secondary Data
The secondary data was gathered from the following sources, including information from a selection of peer-reviewed articles found in bibliographic databases (Emerald, Sage journals online, Science Direct, Scopus, Taylor & Francis online, Web of Science, and Wiley (online library). Based on their knowledge validity and greatest influence on the field of study, peer-reviewed journals were taken into consideration. E-Sources Online, publications such as research articles, periodicals, theses, journals, reports, and newspapers.

10. Data Analysis

The primary statistical method employed to determine the variables impacting productivity of the small-scale industries in the Peenya industrial area (Bangalore) was multiple regression analysis. The research instrument's stability and consistency are determined using the reliability analysis. Consistency demonstrates how accurate the model is conceptually.

11. Analysis and Interpretation

Technological Capability
H01: There is no significant influence of technological capability that influence productivity of the small scale industries in Peenya industrial area (Bangalore).
H1: There is a significant influence of technological capability that influence productivity of the small scale industries in Peenya industrial area (Bangalore).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.898[a]	0.807	0.782	0.57386

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	129.268	12	10.772	32.711	.000[a]
	Residual	30.956	94	0.329		
	Total	160.224	106			

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.206	0.257		4.698	0
	Artificial Intelligence (AI)	1.554	0.249	1.229	6.246	0
	Automation in Production Processes	0.05	0.091	0.05	0.551	0.583
	Internet of Things (IoT)	-0.282	0.108	-0.297	-2.598	0.011
	Robotics	0.896	0.14	0.897	6.422	0
	Cloud Computing	-1.276	0.278	-1.316	-4.595	0
	Information Technology	0.431	0.208	0.383	2.069	0.041
	Digital Transformation of Enterprises	-1.128	0.148	-1.174	-7.628	0
	Computer Integrated Manufacturing	-0.651	0.2	-0.553	-3.253	0.002
	Supply Chain Management (BPR)	-0.167	0.113	-0.18	-1.483	0.141
	Innovations and R&D	0.443	0.17	0.457	2.601	0.011
	Product Design & Simulation Testing Phases	0.421	0.135	0.435	3.118	0.002
	Computer Numeric Control Machines	0.3	0.133	0.345	2.256	0.026

a. Dependent Variable: Satisfaction with Productivity

The regression analysis shows that, the value of "R" indicates high degree of correlation co-efficient (.898[a]) between technological capabilities and Satisfaction with Productivity of small scale industries in Peenya Bangalore. R^2 measure the variation explained by the regression model is (.807) being moderate indicating model fits the data well. Significant of F change is less than 0.05 which indicates marketing factors have significant relationship with Satisfaction with Productivity. 12 variables of technological capabilities were used to predict Satisfaction with Productivity. Thus, answering the hypothesis H1: There is a significant influence of technological capability that influence productivity of the small scale industries in Peenya industrial area (Bangalore), is accepted. The coefficient table shows the contribution of technological capabilities to the Satisfaction with Productivity. From the above table, the beta values demonstrate the unique contribution for the variables of technological capabilities such Artificial Intelligence (AI) (β=1.554), (p=.000), Internet of Things (IoT) (β=-.282) (p=.011), Robotics (β=.896) (p=.000), Cloud Computing (β=-1.276) (p=.000), Information Technology (β=.431) (p=.041), Digital Transformation of Enterprises (β=-1.128) (p=.000), Computer Integrated Manufacturing (β=-.651) (p=.002), Innovations and R&D (β=.443) (p=.011), Product Design & Simulation Testing Phases (β=.421) (p=.002) and Computer Numeric Control Machines (β=.300) (p=.026) were the variables able to predict the Satisfaction with Productivity.

Employee's Capabilities
H02: There is no significant impact of employee's capabilities that influence productivity of the small scale industries in Peenya industrial area (Bangalore).
H2: There is a significant impact of employee's capabilities that influence productivity of the small scale industries in Peenya industrial area (Bangalore).

The regression analysis shows that, the value of "R" indicates high degree of correlation co-efficient (.947[a]) between employee's capabilities and Satisfaction with Productivity of small scale industries in Peenya Bangalore. R^2 measure the variation explained by the regression model is (.897) being moderate indicating model fits the data well. Significant of F change is less than 0.05 which indicates marketing factors have significant relationship with Satisfaction with Productivity. 12 variables of employee's capabilities were used to predict Satisfaction with Productivity. Thus, answering the hypothesis H2: There is a significant impact of employee's capabilities that influence productivity of the small scale industries in Peenya industrial area (Bangalore), is accepted. The coefficient table shows the contribution of technological capabilities to the Satisfaction with Productivity. From the above table, the beta values demonstrate the unique contribution for the variables of employee's capabilities such Permanent Employees (β=.604) (p=.000), Quality Circles (β=.490) (p=.000), Technical Skills (β=-.256) (p=.015), Employees Commitment/ Workforce Readiness (β=.394) (p=.000), Experience and Technical Exposure (β=.388) (p=.001), Employees Adapt to New Systems (β=-.289) (p=.015), Employee AI and Digital Capability (β=.322) (p=.001) and Employee-Hours Spent (β=-.534) (p=.000) were the variables able to predict the Satisfaction with Productivity.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.947[a]	.897	.884	.42082

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	144.905	12	12.075	68.187	.000[a]
	Residual	16.647	94	.177		
	Total	161.551	106			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.217	.169		-1.281	.203
	Permanent Employees	.604	.138	.571	4.384	**.000**
	Quality Circles	.490	.092	.546	5.326	**.000**
	Skilled Labours (Operational)	-.027	.106	-.025	-.259	.796
	Well Qualified Employees	-.039	.144	-.036	-.271	.787
	Technical Skills	-.256	.103	-.225	-2.479	**.015**
	Employees Commitment/ Workforce Readiness	.394	.095	.380	4.139	**.000**
	Experience and Technical Exposure	.388	.117	.331	3.312	**.001**
	Participation in R&D Activities	.147	.082	.152	1.784	.078
	Employees Adapt to New Systems	-.289	.116	-.293	-2.490	**.015**
	Employee AI and Digital Capability	.322	.096	.308	3.358	**.001**
	Number of Employees (Size)	-.104	.097	-.111	-1.080	.283
	Employee-Hours Spent	-.534	.118	-.483	-4.509	**.000**

a. Dependent Variable: Satisfaction with Productivity

12. Findings

The unique contribution for the variables of technological capabilities such as Artificial Intelligence (AI), Internet of Things (IoT), robotics, cloud computing, information technology, digital transformation of enterprises, computer-integrated manufacturing, innovations and R&D, product design & simulation testing phases, and computer numeric control machines were the variables able to predict the satisfaction with productivity. Similarly, the unique contribution for the variables of employee's capabilities, such as permanent employees, quality circles, technical skills, employee's commitment/workforce readiness, experience and technical exposure, employee adaptation to new systems, employee AI and digital capability, and employee-hours spent, were the variables able to predict the satisfaction with productivity.

13. Suggestions

Improving the productivity of small-scale industries (SSIs) can significantly boost their competitiveness, profitability, and sustainability. Based on the variables you've listed, here are targeted suggestions: Adopt Low-Cost Automation (LCA): Use affordable automation tools (e.g., pneumatic systems, simple conveyors, sensors) to handle repetitive tasks. Invest in Modular Machinery: Purchase scalable machines that can grow with the business rather than heavy, one-time investments. Leverage Digital Tools: Implement simple digital tools like IoT sensors to monitor machine performance and reduce downtime. Use CNC and PLC Technologies: For manufacturing-related industries, use CNC machines and programmable logic controllers to automate precision tasks. Digitize Inventory Management: Use simple inventory management systems (e.g., Zoho Inventory, QuickBooks) to track raw materials and finished goods. Improve Supplier Relationships: Build strategic partnerships with suppliers to ensure timely delivery and better credit terms. Just-In-Time (JIT) Inventory: Reduce inventory holding costs by aligning production with real-time demand. Map & Reengineer Processes: Apply BPR principles to eliminate redundant steps in procurement, warehousing, and distribution. Regular On-the-Job Training (OJT): Conduct skill enhancement workshops tailored to specific machinery or production processes. Certifications & Skill Assessments: Encourage employees to take certifications (like NSDC courses in India) and assess skill levels regularly. Cross-Training: Train workers on multiple roles to build flexibility and reduce dependency on specific individuals. Hire or Upskill in Key Areas: Focus on hiring qualified personnel in areas like production planning, quality

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assurance, finance, and marketing. Encourage Continuing Education: Provide incentives for employees to pursue diplomas, MBAs, or technical courses part-time. Involve Qualified Staff in Decision Making: Include technically and academically qualified employees in business strategy and process improvement initiatives. Collaborate with Universities/Institutes: Partner with local technical colleges or R&D centers to work on innovation at low cost. Utilize Government Grants: Apply for R&D grants, subsidies, or technology upgradation schemes (e.g., MSME innovation schemes in India). Create a Micro-Innovation Lab: Even with a small team, set aside time and resources for experimenting with process or product improvements. Collect Customer Feedback: Use insights from customers to drive product enhancements and process improvements. Right-Size the Workforce: Assess workload and redistribute tasks to avoid overstaffing or underutilization. Use Workforce Planning Tools: Even basic Excel models can help track productivity per employee and plan hiring needs. Outsource Non-Core Functions: Outsource administrative or specialized functions (e.g., payroll, IT) to reduce overhead. Encourage Employee Ownership: Introduce small-scale profit-sharing or suggestion schemes to motivate employees.

14. Conclusions

The small-scale sector represents a sector of growing significance and plays an imperative role in the growth of emerging nations, especially with regard to providing employment and driving economic development. As more and more firms enter the international business environment, there is increased competition. Increasing competition results in a reduction in the ability of SSIs to control their own developmental paths. In a very competitive environment, there is a need to identify and understand technological factors that impact the performance of the small-scale industries. The variables of technological capabilities, such as Artificial Intelligence (AI), Internet of Things (IoT), robotics, cloud computing, information technology, digital transformation of enterprises, computer-integrated manufacturing, innovations and R&D, product design & simulation testing phases, and computer numeric control machines, were the variables able to predict the satisfaction with productivity. Similarly, the unique contribution for the variables of employee's capabilities, such as permanent employees, quality circles, technical skills, employee's commitment/workforce readiness, experience and technical exposure, employee adaptation to new systems, employee AI and digital capability, and employee-hours spent, were the variables able to predict the satisfaction with productivity.

15. Limitations and Future Research

Limitations and future research Although the present study had significant contributions, there were some shortcomings as well. Regarding the study population, a few nanotechnology business managers were reluctant to take part in this survey because of their partial responses or their conservative nature. Furthermore, it was impossible to include all the affective factors and different characteristics of technological entrepreneurship due to various cultures. These limitations may affect the generalizability of the study outcomes. Consequently, the authors would recommend other academicians to implement the same model in order to perform parallel studies in different cultures or different companies. They can also make a comparison between the conclusions of their research and the results of the present study that leads to the advancement of the generalizability of the outcomes. In addition, it is suggested to conduct further comprehensive studies on nanotechnology subjects because of the significant effects of various factors on the accomplishment of the technological entrepreneurship process, particularly in small and medium enterprises. The improvement of the performance of these factors may also lead to the evolution of SMEs involved in the nanotechnology perspective.

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