



Exploration of Human Resources in Transformational Leadership toward Business Sustainability of Indonesian Small and Medium Enterprises

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ABSTRACT

In Indonesia, Small and Medium Enterprises (SMEs) are business units providing broad socio-economic benefits to the community and absorbing 97% of the national workforce. The large role is not balanced with the ability to continue growing and surviving in the global economic arena. Therefore, this research aimed to analyze several variables influencing Business sustainability (BS) in functional relationships including exploration of human resources (EHR), transformational leadership (TL), and Network Communication (NC). Data were collected by distributing questionnaires to 398 respondents and analyzed using structural equation models - partial least square (SEM-PLS) statistical method based on SmartPLS software. The results of the analysis showed that there was a direct influence between EHR on BS, EHR on TL, and NC on BS. The influence of EHR on BS through TL was not reported. However, NC succeeded in increasing the influence of EHR and TL on BS. This research enriched the principles of strategic management science in the field of formulating measuring instruments for determining BS. At the practical level, alternative solutions were provided to the problem of low BS using knowledge from business, management, finance, and communication sciences.

Keywords: Small and Medium Enterprises, Business Sustainability, Exploration of Human Resources, Transformational Leadership, Network Communication

JEL Classification: M12, M14, L26, Q01

1. INTRODUCTION

In developing countries such as Indonesia, small and medium enterprises (SMEs) are often the main driving force of the economy in creating prosperity, reducing unemployment, and competing with a large company (Kumar et al., 2024). The Coordinating Ministry of Economic Affairs in 2023 reported that the number of SMEs in Indonesia was around 66 million, contributing 61% of the gross domestic product or IDR 9,580 trillion and absorbing 97% of the national workforce or 117 million people (<https://ekon.go.id/publikasi/detail/5113>). Therefore, SMEs are business units that can provide broad socio-economic benefits to the community (Setyaningrum et al., 2023).

The large number of SMEs in Indonesia is not balanced by the ability to continue to grow and survive in the global economy. As reported by <https://sukoharjo.pikiran-rakyat.com> in 2024, 25% of SMEs went bankrupt in the first 2 years of business, while 45% and 65% failed after 5 and more than 10 years of operation, respectively. Several obstacles are not resolved properly by SME owners, hence, cannot maintain Business Sustainability (BS) (Vedhathiri, 2020), including product service development, the ability to obtain potential customers, communication skills, as well as limited financial and human resources (Oppon et al., 2024; Zentner et al., 2021). In this context, human resources problems are the biggest challenge for SMEs in carrying out business activities (Munsamy et al., 2024).

In business research, various methods are used to build sustainability by consistently increasing the amount of profitability (Istikhoroh et al., 2024), adopting the Triple Bottom Line (TBL) method, and balancing the three pillars of social, natural, and economic capital (Castilla-Polo and Sánchez-Hernández, 2025). However, a theoretical method known as resource base value (RBV) explained that sustainability could be built by maximizing the role of strategic resources to achieve optimal growth (Acar and Polin, 2015). Based on the description, this research offered an exploration of human resources (EHR) in the field of science as a solution to the problems of SMEs in realizing BS (Niu, 2024).

In business practice, SME is the most suitable structure to receive additional knowledge (Musiello-Neto et al., 2021). Most business activities are carried out based on hunches of subjectively perceived market orientation results (Wahyono and Hutahayan, 2021) without improving human resources quality standards (Istikhoroh et al., 2023; Vedhathiri, 2020). This causes SMEs to be less focused on a particular business and quit when facing challenges (Kharub and Sharma, 2017). Therefore, connectivity of various sciences is needed as an effort to explore human resources, including (1) having business knowledge obtained formally and informally (Marinelli et al., 2024; Noerchoidah et al., 2025; Wang, 2024; Zuhroh et al., 2025), (2) understanding business ethics (Ardhiani and Latif, 2023), (3) using digital platforms, specifically in the fields of finance and human resources (Lin et al., 2022; Marinelli et al., 2024; Picón et al., 2024), and (4) carrying out social media practices by analyzing competitors' social media (Gutiérrez Navas et al., 2024; Istikhoroh et al., 2021; Nurcahyanie et al., 2022).

EHR in the field of science can increase synergy in a symbiotic relationship with a more theoretical, open, and accountable method (Horváth, 2022). All resources are mobilized to provide provisions for SME owners to survive in the digital era, including leadership, finance, human resources management (Begen and Atasoy, 2024), and connecting the fields with business partners (Gutiérrez Navas et al., 2024; Horváth, 2022; Noerchoidah et al., 2022). Science is an accurate basis for making business decisions, individual considerations, and inspiring members in the context of transformational leadership (TL) (Cuevas-Vargas et al., 2023). Furthermore, TL positively motivates workers to learn new skills and be included in innovation activities (Ngoc Huynh et al., 2024). This variable also leads to the standardization of services in health, education, and business (Ali et al., 2024). For SME owners, TL can promote innovation and motivate business resilience to survive in the era of competition (Cuevas-Vargas et al., 2023).

Strong Network Communication (NC) is needed to increase the value of EHR activities in realizing the sustainability of SMEs through TL (Takamatsu and Yamakita, 2022). Several research in developing countries provide similar results required by SMEs need to improve the quality of communication and coordination with business stakeholders such as vendors, customers, and other actors (Kumar et al., 2024). All information and work orders are transmitted properly through communication network connectivity, while public policies are distributed to members of a company (Brammer et al., 2022). Understanding and improving the

flow of communication between employees, vendors, customers, and the social environment in the hierarchy of a company optimizes decision-making procedures and increases operational cost efficiency (Wen et al., 2025). Based on the description, the conceptual framework of this research is presented in Figure 1 as follows.

Meanwhile, the research problem formulated includes the following.

1. Does EHR affect BS?
2. Does EHR affect TL?
3. Does TL affect BS?
4. Does NC affect BS?
5. Does TL mediate the influence of EHR on BS?
6. Does NC increase the influence of EHR on BS?
7. Does NC increase the influence of TL on BS?

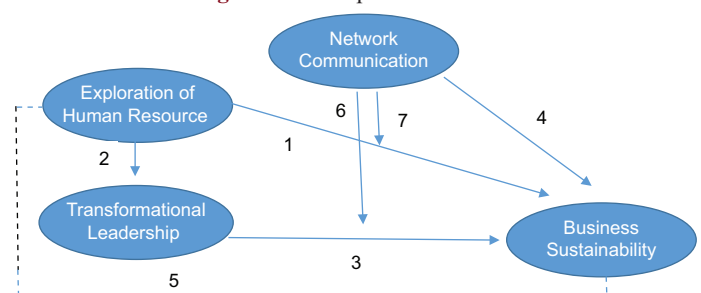
The results are useful for SME owners in determining strategies for building BS, as well as input for the government in national economic policies related to businesses in Indonesia. The existence of SMEs as the main driver of the economy should be given priority in making national economic policies. Meanwhile, this research is useful as a development of business management theory and strategic management, specifically in formulating various factors influencing BS.

2. LITERATURE REVIEW

Manotti et al. (2025) defined sustainability as an effort to meet future needs without sacrificing the present generation. In measuring BS, this research adopts the Triple Bottom Line (TBL) concept, where human resources, profit, and environmental sustainability are appropriate measuring tools (Oppon et al., 2024). The application of the TBL concept in realizing BS implies that a company should prioritize stakeholder interests over shareholders (Istikhoroh et al., 2021). This requires adequate knowledge (Castilla-Polo and Sánchez-Hernández, 2025) from all parties to increase the achievement of company sustainability.

The importance of adequate knowledge in realizing BS requires an understanding of individuals concerning skills, and experiences to achieve company goals (Niu, 2024). This concept is the core of EHR activities, and the main topic is exploring each individual with knowledge in the business field (Kumar et al., 2024). An indirect increase in knowledge influences the behavior of becoming a more authoritative and inspiring individual (Cuevas-

Figure 1: Conceptual framework



Vargas et al., 2023). Additionally, each individual will be able to carry out the concept of TL to shape changes in attitudes, values, assumptions, and commitments of company members toward company performance (Ali et al., 2024; Ngoc Huynh et al., 2024).

The success of TL is closely related to NC (Takamatsu and Yamakita, 2022) which can be identified as the exchange of information experienced in a social system (Brammer et al., 2022). NC emphasizes the relationship between actors in a particular social structure (Wen et al., 2025). From a communication perspective, the relationship between actors is important and principled. This variable is closely related to innovation as a social process of expressing the concept to company members (Kumar et al., 2024). Therefore, building a correct communication strategy is important to understand the type of information published to the general public. Based on the literature review, the hypotheses developed are (1) EHR has an effect on BS, (2) EHR has an effect on TL, (3) TL has an effect on BS, (4) Communication networks affect BS, (5) EHR has an indirect effect on BS through TL, (6) Communication networks increase the effect of EHR on BS, and (7) Communication networks increase the effect of TL on BS.

3. METHODS

This research aims to test and analyze the functional relationship of several variables that theoretically play a role in realizing BS, EHR, TL, and NC (Table 1). The population was SMEs in

East Java, Indonesia, totaling 80,790 actors divided into several business sectors (<https://www.bps.go.id/id/statistics>). The sample was determined based on the Slovin method with a margin of error of 5% for 398 actors, while the data was collected through the distribution of questionnaires. The collected data was analyzed based on a statistical analysis of structural equation models (SEM) using SmartPLS software to test the relationship between variables.

4. RESULTS AND DISCUSSION

4.1. Description of Questionnaire Results

The recapitulation of the questionnaire distribution given to 398 SME owners in East Java is presented in Tables 2-5.

Table 2 explains that EHR in the field of science must be performed by SMEs to obtain a BS. This is seen in the average variable score of 3.98 (good category). For detailed applications in SMEs, paying attention to business ethics has an average score of 4.13 points.

Table 3 explains that TL plays a role in determining the sustainability of SMEs. This variable has an average score of 4.06 with the largest point obtained from the statement of the importance of paying attention to the needs of employees.

Table 4 explains that communication in the network plays a role in determining the sustainability of SMEs. This variable has an average score of 4.05 or in the good category. Politeness in

Table 1: Variables and indicators

No.	Types and variable names	Operational definition	Indicator
1	Independent: Exploration of Human Resources (EHR)	EHR is a process of identifying and developing the competencies of individuals within a company (Niu, 2024)	1. Identifying human resources' potential 2. Identifying business knowledge background 3. Providing structured training 4. Implementing business ethics correctly 5. Understanding business competition
2	Intervening: Transformational leadership (TL)	TL is a leadership style that focuses on the personal and professional development of members to achieve goals (Cuevas-Vargas et al., 2023; Takamatsu and Yamakita, 2022)	1. Motivate others to move together. 2. Promote innovation and creativity. 3. Pay attention to individual needs. 4. Be a role model for members.
3	Moderating: Network communication (NC)	NC is the process of exchanging information between individuals, groups, or companies bound in a particular network (Wen et al., 2025)	1. Multidirectional communication 2. Structured in a specific network 3. Based on social or professional connections
4	Dependent: Business sustainability (BS)	BS is the ability of SMEs to achieve long-term profitability by balancing social, economic, and environmental capital (Istikhoroh et al., 2024).	1. Managing human resources sustainably 2. Managing long-term profits 3. Maintaining the quality of the surrounding environment properly

Table 2: Description of EHR variables

No.	Statement items	Total item score	Average item score
1	Employees can develop a business	1,579	3.97
2	Give tasks according to employee abilities	1,569	3.94
3	Observe individual business abilities	1,603	4.03
4	Analyze employee business experiences	1,523	3.83
5	Provide periodic business development information	1,611	4.05
6	Send employees to business training held by external parties	1,608	4.04
7	Run a business professionally	1,617	4.06
8	Avoid things that are not appropriate to social norms	1,643	4.13
9	Observe competitors' business strategies	1,583	3.98
10	Have a strategy to win business competition	1,511	3.80
Average total score			3.98

Table 3: Description of TL variables

No.	Statement items	Total item score	Average item score
1	Instilling a sense of belonging is important in motivating employees	1,565	3.93
2	Building harmonious relationships with employees can increase work enthusiasm	1,636	4.11
3	Employee creativity can be brought out by providing stimulation	1,630	4.10
4	Performance rewards are given to build innovation	1,613	4.05
5	Employees' needs (such as maternity leave rights) need to be considered carefully	1,650	4.15
6	A conducive work atmosphere needs to be created to improve employee performance	1,611	4.05
7	Employees tend to imitate the behavior of leaders	1,608	4.04
8	Leaders have a track record of performance that can be emulated by all employees	1,617	4.06
Average total score			4.06

Table 4: Description of NC variables

No.	Statement items	Total item score	Average item score
1	Allowing employees to express opinions openly	1,582	3.97
2	Discussion is important in the process of communicating with employees and business relations	1,616	4.06
3	Communication is carried out in a certain network that allows all members to understand its contents	1,621	4.07
4	Communication in the network should be focused, only discussing everything that is related to the company	1,605	4.03
5	Communication is carried out professionally, based on theoretical data and empirical facts	1,599	4.02
6	Communication is carried out politely, not touching on personal matters	1,638	4.12
Average total score			4.05

Table 5: Description of BS variables

No.	Statement items	Total item score	Average item score
1	Employees are valuable assets whose welfare should be taken care of	1,557	3.91
2	The company provides bonuses to employees who perform beyond targets	1,642	4.13
3	The company has a special way of increasing its profits	1,627	4.09
4	The focus of increasing profits is promotional innovation, not lowering prices by reducing product quality	1,595	4.01
5	The company pays attention to the cleanliness and safety of the surrounding environment	1,667	4.19
6	The company provides special opportunities for residents to become employees	1,590	3.99
Average total score			4.05

communicating by not mentioning personal matters is very popular with respondents and obtains the highest score of 4.12 points.

Table 5 explains that the sustainability of SMEs is expected by all respondents with an average score of 4.05 points in the good category. Respondents who are SME owners understand the importance of maintaining social, profit, and environmental sustainability in realizing BS. In this context, maintaining the cleanliness and safety of the surrounding environment must be considered by SME owners with an average score of 4.19 points.

4.2. Instrument Feasibility Test (Outer Models)

The series of data analysis processes starts with the validity and reliability test of the instrument based on the measurement model analysis, as presented in Tables 6-8.

Based on Table 6, the factor loading value is >0.5 since all statement items are valid.

Table 7 shows that all correlations between indicators and the latent variables are greater than the correlation values between

Table 6: Convergent validity test results

Indicator statement items	Loading factor	Indicator statement items	Loading factor
EHR; item 1	0.618	TL; item 6	0.700
EHR; item 2	0.599	TL; item 7	0.615
EHR; item 3	0.587	TL; item 8	0.644
EHR; item 4	0.619	NC; item 1	0.579
EHR; item 5	0.711	NC; item 2	0.688
EHR; item 6	0.625	NC; item 3	0.653
EHR; item 7	0.651	NC; item 4	0.578
EHR; item 8	0.604	NC; item 5	0.597
EHR; item 9	0.702	NC; item 6	0.601
EHR; item 10	0.701	BS; item 1	0.716
TL; item 1	0.578	BS; item 2	0.677
TL; item 2	0.628	BS; item 3	0.598
TL; item 3	0.713	BS; item 4	0.608
TL; item 4	0.666	BS; item 5	0.711
TL; item 5	0.595	BS; item 6	0.683

Source: Smart-PLS test results

indicators and other latent variables. This value shows that the indicators meet the criteria as variable measures. Therefore, the instrument test can be continued with a reliability test.

Table 7: Results of discriminant validity testing

Indicator Statement Items	EHR	TL	NC	BS	MOD NC-BS	MOD TL-BS
EHR; item 1	0.705	0.5660	0.468	0.664	-0.080	-0.434
EHR; item 2	0.766	0.537	0.577	0.605	-0.193	-0.330
EHR; item 3	0.687	0.614	0.483	0.612	0.082	-0.197
EHR; item 4	0.699	0.552	0.576	0.587	0.092	-0.068
EHR; item 5	0.725	0.658	0.680	0.614	-0.348	-0.273
EHR; item 6	0.742	0.568	0.567	0.601	-0.196	-0.247
EHR; item 7	0.684	0.622	0.546	0.472	-0.183	-0.180
EHR; item 8	0.711	0.482	0.573	0.685	-0.173	-0.498
EHR; item 9	0.687	0.484	0.517	0.582	-0.424	-0.375
EHR; item 10	0.745	0.496	0.556	0.623	-0.312	-0.236
TL; item 1	0.622	0.720	0.672	0.700	-0.307	-0.247
TL; item 2	0.643	0.808	0.785	0.647	-0.206	-0.187
TL; item 3	0.698	0.712	0.614	0.682	-0.195	-0.314
TL; item 4	0.654	0.709	0.645	0.617	-0.295	-0.169
TL; item 5	0.595	0.697	0.528	0.567	-0.286	-0.215
TL; item 6	0.627	0.675	0.543	0.594	-0.290	-0.359
TL; item 7	0.549	0.766	0.664	0.676	-0.096	0.098
TL; item 8	0.600	0.749	0.628	0.690	-0.240	-0.344
NC; item 1	0.573	0.602	0.716	0.689	-0.191	-0.185
NC; item 2	0.594	0.769	0.805	0.762	-0.870	-0.354
NC; item 3	0.582	0.654	0.793	0.698	-0.296	-0.203
NC; item 4	0.604	0.617	0.686	0.620	-0.316	-0.285
NC; item 5	0.621	0.696	0.700	0.621	-0.254	-0.247
NC; item 6	0.589	0.497	0.778	0.638	-0.274	-0.319
BS; item 1	0.665	0.708	0.651	0.783	-0.049	-0.170
BS; item 2	0.699	0.724	0.697	0.821	-0.265	0.200
BS; item 3	0.587	0.630	0.628	0.698	-0.078	0.111
BS; item 4	0.693	0.706	0.690	0.800	-0.228	-0.309
BS; item 5	0.677	0.629	0.634	0.778	0.087	0.160
BS; item 6	0.681	0.659	0.617	0.765	-0.217	-0.124
NC*EHR	-0.316	-0.361	-0.430	-0.275	1.000	0.800
NC*TL	-0.285	-0.260	-0.391	-0.169	0.700	1.000

Source: Smart-PLS test results. Note: Bold values represent the highest correlation for each indicator within its construct, demonstrating adequate discriminant validity.

Table 8 shows that each variable has a composite reliability of more than 0.7. This is because the variables meet the requirements to be used as data sources.

4.3. Hypothesis Testing (Inner Models)

This research uses Structural Equation Models - Partial Least Square (SEM-PLS) analysis through Smart-PLS software to answer the hypothesis based on the conceptual framework presented in Figure 1. The structural model formed from the test results is presented in Figure 2:

Figure 2 explains that all latent variables predicted to influence the continuity of SMEs, namely EHR, TL, and NC are accepted as true. The significance value of the relationship between variables in the structural model is analyzed based on the inner model value (Table 9) as follows:

Table 9 explains the significance value of the relationship between variables as a basis for concluding the accepted or rejected hypothesis.

- EHR has a direct effect on BS with a variable coefficient of 0.138 significant at a value of $0.041 < 0.05$. This value shows that the first hypothesis is accepted as true.
- EHR has a direct effect on TL with a coefficient of 28.399

Table 8: Reliability test results

Variable	Composite reliability
Exploration of human resources (EHR)	0.757
Transformational leadership (TL)	0.824
Network communication (NC)	0.794
Business sustainability (BS)	0.810
Moderating NC*EHR	1.000
Moderating NC*TL	1.000

Source: Smart-PLS test results

Table 9: Significance value of structural model

Indicator Statement Items	Original sample (O)/path coefficient	T statistics (O/STDEV)	P-values	Description
EHR -> BS	0.138	0.564	0.041	Significant
EHR -> TL	0.886	28.399	0.000	Significant
TL -> BS	0.047	0.197	0.063	Not significant
NC -> BS	0.593	7.305	0.004	Significant
EHR -> TL-> BS	0.041	0.193	0.071	Not significant
Mod_NC*EHR -> BS	0.203	2.151	0.032	Significant
Mod_NC*TL -> BS	0.133	0.764	0.044	Significant

Source: Smart-PLS test results

significant at a value of $0.000 < 0.05$. This value shows that the second hypothesis is accepted as true.

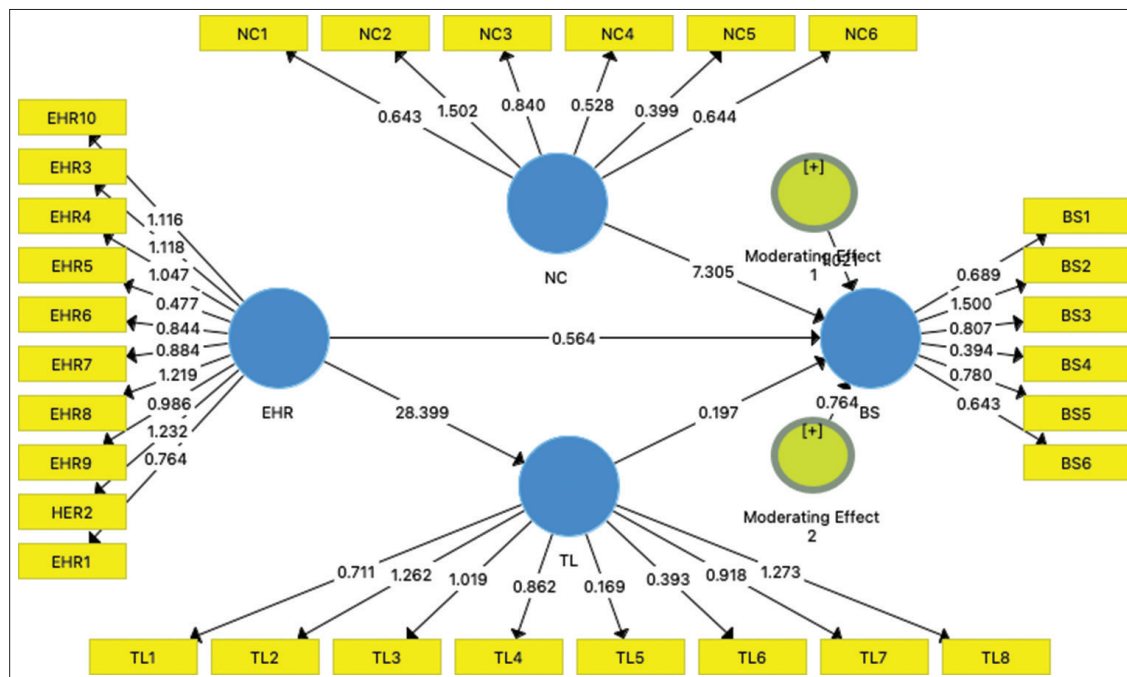
- TL does not have a direct effect on BS with a coefficient of 0.047 significant at 0.063 more than 0.05. This value shows that the third hypothesis is rejected as true.
- NC has a direct effect on BS with a coefficient of 0.593 significant at $0.004 < 0.05$. This value shows that the fourth hypothesis is accepted as true.
- TL does not mediate the effect of EHR on SB with a coefficient of 0.041 significant at 0.071 more than 0.05. This value shows that the fifth hypothesis is rejected as true.
- NC increases the effect of EHR on BS with a coefficient of 0.203 significant at 0.032. This value shows that the sixth hypothesis is accepted as true.
- NC increases the effect of TL on BS with a coefficient of 0.133 significant at a value of $0.044 < 0.05$. This value shows that the seventh hypothesis is accepted as true.

5. DISCUSSION AND CONCLUSION

This research concludes that EHR affects BS by measuring instruments capable of managing human resources sustainably to obtain profits and environmental quality. Different knowledge to support business capabilities brings fundamental changes in governance. This business capability can be obtained through formal or non-formal education levels to improve the quality of human resources. SME owners are expected to detect the quality of education and employee competency to obtain a clear understanding of the knowledge possessed by employees. Furthermore, competency improvement is carried out by sending employees to attend various training held by the business community, service programs of universities, sub-districts, or social groups.

The importance of EHR with knowledge is applied to employees and SME owners. This is because business knowledge must

Figure 2: Structural model



be understood from production, finance, and administrative management, to determining market targets, setting prices, serving potential customers, and formulating strategies to win the competition. In addition, business ethics must be maintained to prevent actors from losing potential customers. Business actors need to uphold the values of honesty and norms of living in the community. At the empirical level, this research proves that knowledge influences the leadership skills of SME owners. Therefore, knowledge about businesses has an impact on the ability to manage human resources and realize BS.

Business managers understand that success lies in customer loyalty. Therefore, a good leader is needed to improve employee and company performance. The knowledge possessed by SME owners has been proven to open up insights into the professionalism of business management and TL. Some TL activities include (1) motivating others to be enthusiastic in advancing the business, (2) motivating others to behave innovatively and have high creativity in creating new products or increasing the selling value of existing products, (3) paying attention to the needs of others with an individual method without damaging the company, (4) being sincere in working to become a role model.

For SME owners, understanding knowledge about business science and the impact on TL is not accompanied by the ability to implement the theory. The statement is based on the results of this research where TL does not have a direct or indirect influence on BS. This unique phenomenon needs attention from all parties, specifically the government when wanting the success of SMEs as a benchmark for the success of the economy. Training needs to be carried out on leading a company properly and correctly to increase long-term profits. Based on the results obtained, this research recommends good and correct communication training in a structured manner for SME owners.

NC regulates patterns of interaction and information flow between individuals or groups through transmission media in a computer network. This variable functions as a channel for ideas and the exchange of multidirectional information. Business information originally received can be known quickly, responded to, and given feedback by all company members through NC. There is a saving of energy, costs, and time to carry out the decision-making process quickly and accurately. This allows improvements and other fundamental changes for the progress of the company when errors occur.

This research proves that NC improves the relationship between EHR and TL with BS. Therefore, the most important point needed by SME owners in improving the quality of human resources and leadership skills is to provide (1) public speaking training to increase self-confidence and build personal branding, (2) interpersonal communication training to build empathy and good relationships between individuals, (3) digital communication training to communicate using content strategies and online reputation management, (4) marketing communication training to improve advertising skills in a particular strategy and obtain profitable business partners, and (5) leadership communication training to enhance decision-making skills by including all members of the company.

This research provides theoretical and practical benefits. The strategy of continuously improving company performance to achieve BS should receive a more concrete explanation from the academic world. Future research should be directly applied to the industrial world, including SMEs. Academics can formulate technical matters supported by relevant theories. The collaboration between the government and various elements of the community produces strategies with high feasibility. This can be achieved by (1) EHR through the development of business knowledge, (2) offering mentoring and training in TL, and (3) providing good

communication training in certain networks to obtain business partners.

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