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ORIGINAL ARTICLE

The effect of levers of control, firm's capability, and transformational leadership on competitive advantage: A study on manufacturing firms in Indonesia

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ABSTRACT

This research uses the Input-Process-Output model to investigate the impact of levers of control (LoC) on organizational aspects in Indonesia. The study views LoC as both internal and external input to an organization. It examines how transformational leadership (TL) and firm capability (FC) act as processes to integrate these elements, leading to competitive advantage (CA) as the output. Using data from 260 questionnaires, the study conducted a series of analyses, including reliability and validity checks, confirmatory factor analysis (CFA), and structural equation modelling (SEM). The results indicate that LoC significantly influences TL, FC, and CA. TL and FC have notable effects on a company's CA, with both factors mediating the relationship between LoC and CA. TL and FC have a sequential mediation effect on the link between LoC and CA. The study also touches on its implications, boundaries, and potential areas for future exploration.

KEYWORDS

levers of control; transformational leadership; firm capability; competitive advantage; structural equation model

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1. Introduction

Gaining and maintaining a competitive advantage (CA) has emerged as an imperative goal for organizations in the dynamic and intensely competitive global business world (Ferreira et al., 2016). Firms continually look for efficient management techniques and strategies to help them stand out from the competition and deal with these difficulties (Porter, 1985). The study of the interaction between levers of control (LOC), company capabilities, transformational leadership, and their combined impact on attaining a competitive advantage has been one such area of interest

(Bass, 1985; Fiedler and Simons, 1995; Yousaf et al., 2023). According to Herath (2007), levers of control are a collection of strategic, diagnostic, boundary, and interactive control systems used by management to steer and govern many elements of organizational functioning.

These control mechanisms substantially impact decision-making, performance evaluation, and coordination processes when they align with an organization's strategic goals (Henri, 2006; Makhdoom et al., 2023). The complex combination of a firm's resources, knowledge, skills, and processes, as described by Buckley and Carter (1999), allows it to respond effectively to market needs, innovate, and eventually attain superior performance. By encouraging a feeling of shared vision, intellectual stimulation, individualized concern, and idealized influence, transformational leadership, as described by Reza (2019) and Ullah et al. (2023), is a leadership style that goes beyond transactional interactions and seeks to inspire and motivate followers. It has been demonstrated that this leadership style significantly affects staff dedication, creative thinking, and overall organizational success (Ahmad et al., 2019; Fatima et al., 2023).

The investigation applies a rigorous research methodology to untangle the dynamics in light of the complex relationships between levers of control, company capabilities, transformational leadership, and competitive advantage (Dóci and Hofmans, 2015). This study intends to collect empirical data that supports the theoretical foundations of these constructs by conducting a thorough literature review and using quantitative research methods. It wants to do this in order to offer Indonesian manufacturing companies valuable insights they may use to strengthen their competitive posture (Kanji and Wallace, 2000).

In numerous important ways, our research adds to the corpus of knowledge already in existence. First, it fills a vacuum in the literature by investigating how transformational leadership interacts with control levers, company capacities, and the particular setting of Indonesian manufacturing enterprises (Lazari and Kanellopoulos, 2007). While studies have looked at each of these factors independently, only some have sought to thoroughly study how they interact to affect the manufacturing landscape in Indonesia. The studies also have applications for leaders and managers in the industrial industry. The research offers practical insights for boosting overall competitiveness by highlighting how Levers of Control practices can improve business capabilities and how transformational leadership can amplify these benefits (Tarigan et al., 2023). Managers can use these insights to adopt particular control methods and leadership philosophies that align with the company's strategic goals (Wu and Wang, 2015). The study adds to the larger scholarly conversation about organizational behaviour, competitive advantage, and strategic management. It investigates the existence of transformational leadership and strengthens the positive effects of coordinated levers of control practices on the growth of company capabilities, resulting in a tremendous competitive advantage. It uses Bass' groundbreaking study on transformative leadership (Dvir et al., 2002).

Furthermore, there is a possibility that the inquiry will produce new understandings that will increase the theoretical understanding of strategic management and organizational behaviour (Shaikh et al., 2022). This study has the potential to unearth fresh nuances that enrich previously established frameworks and theories by looking further into the intricate relationships that exist between levers of control, firm capabilities, and transformational leadership. This contribution has the potential to spark further scholarly discussions and lead future research endeavours to comprehend better the

complex dynamics underpinning organizational achievement. In addition, the study's investigation of the manufacturing sector in Indonesia provides a valuable chance to bridge the gap between theory and practice (Sabbar et al., 2023).

As the study continues to unpack the links between levers of control, firm capabilities, and transformational leadership, it may bring to light the necessity of tailoring one's approach to fit particular circumstances. It is possible that the unique characteristics of the Indonesian manufacturing sector, such as its legal framework and cultural diversity, highlight the significance of adapting business strategies to meet the requirements of the local environment. This consequence could serve as a guide not only for managers in Indonesia but also in economies comparable to Indonesia's, presenting a template for adapting management practices to the particular challenges of an area.

2. Literature review and hypothesis development

2.1. The positive effect of LOC and CA

Scientists have examined several organizational elements contributing to excellent performance to gain a competitive advantage. Among these elements, the levers of control (LOC) and their strategic function in obtaining competitive advantage have drawn much interest. According to Doeleman et al. (2012) conceptualization of levers of control, these mechanisms give management the power to steer and control organizational operations and mould employee behaviour to fit with strategic goals. Many academics have looked into the relationship between competitive advantage and levers of control. According to McFadden et al. (2009), thoroughly planning and implementing control systems can help businesses develop long-lasting competitive advantages. These control systems assist businesses in concentrating on strategic objectives, allocating resources wisely, and responding to changing market conditions, all of which help them gain an advantage over rivals—by emphasizing the role of company capacities in mediating the relationship between levers of control and competitive advantage, Jaca and Psomas (2015) expanded on this subject. They made the case that control systems that align with a company's inherent capabilities can foster the growth of distinctive skills, boosting competitive advantage. This viewpoint highlights the significance of a congruent alignment between control mechanisms and the organizational core strengths. The literature on competitive advantage also emphasizes the importance of strategic innovation and adaptation. Here, transformative leadership becomes an important consideration. Oakland (2017) and John William et al., (2023) popularized the idea of transformational leadership, characterized by leaders who inspire and motivate followers to put the common good ahead of their self-interests. It is well known that transformational leaders encourage employees to accept change, foster creativity, and support new thinking. The combination of transformational leadership with levers of control has been investigated from the perspective of boosting competitive advantage. The argument is that transformational leaders may successfully promote and encourage the adoption of regulatory frameworks that foster creative problem-solving and tactical flexibility. This viewpoint is consistent with Lu and Wu's (2018) interactive control systems theory, wherein managers encourage staff members to question presumptions and offer original ideas.

H1: levers of controls (LOC) positively affect competitive advantage (CA).

2.2. The positive effect of LOC on TL and FC

An organization's primary objective is to gain a competitive advantage, leading scholars to investigate how firm capabilities, transformational leadership, and control levers interact. While transformational leadership, first described by Al Marshoudi et al. (2023), encourages followers to put the needs of the group ahead of their interests, levers of control, included control mechanisms that direct organizational actions towards strategic objectives. According to Pascual-González et al. (2016), firms can effectively adapt to market needs thanks to their distinctive resources and talents. Researchers have looked into the favourable effects of levers of control on both firm capabilities and transformational leadership. It has been shown through research on the relationship between LOC and TL that robust control systems can help develop and sustain transformational leaders. Transformational leaders are better positioned to foster employees' collaborative creativity and flexibility when control mechanisms are created to empower and stimulate innovative thinking (Mehralian et al., 2016). It is also important to highlight how positively levers of control affect firm capabilities. Control strategies that align with a company's core competencies help organizations build distinctive capabilities that can provide them with a competitive edge (Valmohammadi and Roshanzamir, 2015). The concentration of efforts on tasks that directly contribute to developing specialized competencies is made possible by these processes, which assist firms in prioritizing resource allocation and improving operational efficiency. Due to the region's dynamic business environment, these interactions become more important in the context of Indonesian manufacturing firms. Challenges brought on by evolving technologies, market trends, and legislative changes must be managed by organizations. The interaction between Levers of Control, Transformational Leadership, and Firm Capabilities is crucial for firms looking to succeed in this climate.

H2: levers of control (LOC) positively affect transformational leadership (TL).

H3: levers of control (LOC) positively affect the firm's capability (FC).

2.3. The positive effects of LOC and FC on CA

Levers of control (LOC) and firm capabilities (FC) have been extensively researched as critical factors in determining organizational success due to the quest for competitive advantage. At the same time, Ten Have et al. (2003) defined company capabilities as unique resources and talents that allow firms to flourish in their markets. The favourable effects of levers of control and firm capabilities on competitive advantage (CA) have been studied in the literature. According to research (Oakland, 2017), aligning LOC with strategic goals improves a firm's capacity to achieve CA by directing efforts towards initiatives that support differentiation or cost leadership. Firms are better prepared to respond to dynamic market conditions and capture emerging opportunities when control methods that emphasize long-term strategic objectives are integrated.

Similarly, there is strong evidence linking firm capabilities to competitive advantage. Prakash et al. (2015) contend that FC can result in long-term competitive advantage by allowing firms to develop, use, and safeguard priceless resources and information. Firms can create distinctive capabilities challenging for rivals to imitate by concentrating on core competencies, enabling the delivery of distinctive value to customers.

H4: transformational leadership (TL) positively affects competitive advantage (CA).

H5: a firm's capability (FC) positively affects competitive advantage (CA).

2.4. The positive effects of TL on FC

Given that both ideas are crucial for determining the competitiveness and performance of organizations, scholars have given considerable attention to the junction of transformational leadership (TL) and firm capabilities (FC). Pantouvakis and Karakasnaki (2017) first described transformational leadership as a leadership approach that inspires and motivates subordinates to perform at higher levels. Kocoglu et al. (2012) defined firm capabilities as the distinctive assets, know-how, and aptitudes that enable firms to innovate and adapt successfully. The research highlights how transformational leadership contributes to the growth of firm capabilities and explains how these two characteristics interact. Transformational leaders are recognized for fostering a culture of innovation, learning, and continuous improvement (Al Marshoudi et al., 2023; Olazo, 2023).

Furthermore, transformational leadership strategies have positively impacted employee commitment and engagement, two crucial factors in developing company capacities. According to Chiarini et al. (2017), The growth of competencies that aid the organization in achieving its strategic goals is aligned with the shared purpose and vision that transformational leaders foster. In the specific context of the Indonesian manufacturing industry, this relationship between transformational leadership and firm capabilities assumes particular significance. The market dynamics, changing consumer preferences, and emerging technologies contribute to the industry's dynamic environment. Transformational leaders may support the growth of competencies that enable businesses to successfully address these problems by promoting a culture of learning, flexibility, and creativity.

H6: transformational leadership (TL) positively affects a firm's capability (FC).

2.5. The mediating effect hypothesis

In order to create a new management structure, the current research employs the IPO (Input-Process-Output) model based on the prior review, analysis, and hypotheses. The study aims to develop a thorough comprehension of the interactions between LOC, TL, FC, and CA. Exploring the beneficial impact of LOC (input) on CA (output) via TL and FC (Process) is one of the critical goals of this study in order to test the subsequent hypotheses.

H7: competitive advantage (CA) and levers of control (LOC) are mediated by transformational leadership (TL).

H8: The relationship between levers of control (LOC) and competitive advantage (CA) is mediated by the Firm's Capability (FC).

In addition, LOC has a favourable impact on FC based on H6, and the following is proposed for Hypothesis 9:

H9: The relationship between levers of control (LOC) and competitive advantage (CA) is serially mediated by transformational leadership (TL) and firm capability (FC).

The conceptual framework depicted in **Figure 1** is based on the conventional paradigm. It illustrates the central study area and the integrated consequences of the present research.

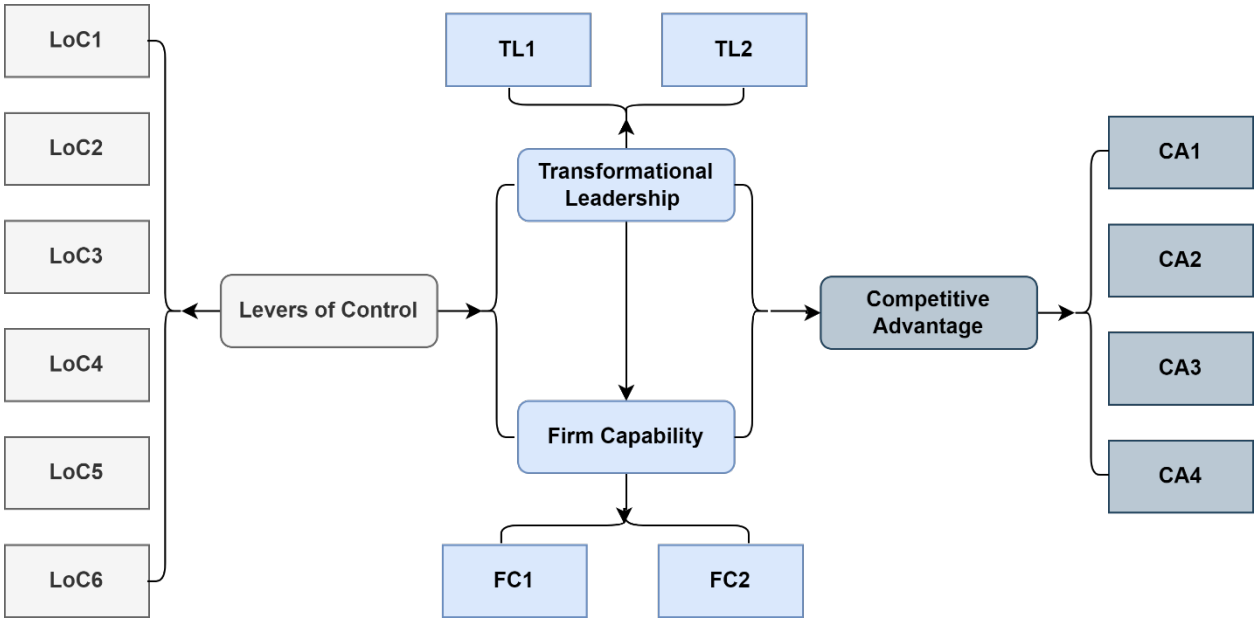

Figure 1. Conceptual framework.

3. Methodology

3.1. Questionnaire development and pilot-test

Data on LOC, TL, FC, and CA are necessary to test the hypotheses. The primary research methodology used in the present investigation was a poll with several items. All questions were first constructed in order to gather the necessary data. The structures, descriptions, and sources of scales are listed in **Table 1**.

Table 1. Measurement of constructs**.**

Construct	Construct definition	Construct source
Levers of controls	The firm embraces a customer-centric approach, fostering internal and external collaboration, striving for constant enhancement, prioritizing staff satisfaction and development, and implementing effective process oversight.	Wang et al. (2012)
Transformational leadership	Influential leaders possess a strong sense of goal and vision and an optimistic and enthusiastic outlook. They prioritize the execution of plans and demonstrate attentive and proactive attitudes.	McFadden et al. (2009)
Firm's capability	The extent to which personnel have been granted authorization and provided adequate communication across all facets.	Neilson et al. (2008)
Competitive advantage	The company achieves excellence in leadership, operational efficiency, coherence, and feedback.	Doeleman et al. (2012)

The LOC construct, which reflected LOC-oriented actions, was assessed using a 7-point scale adapted from Wang et al.'s (2012) earlier-released LOC survey in Taiwan, which included 30 items across seven categories and a composite reliability (CR) score of 0.80. Thirty-three objects

on a scale with six categories were chosen for this study. Several items based on a verified scale developed by Wang et al., (2012) were used to assess the TL construct. This scale stated the leader as having a purpose, goal, enthusiasm, and passion, emphasizing execution and showing account and initiative via his or her actions in the workplace. The initial scale had three parameters and eight elements, with a CR value of 0.8333 and an AVE value of 0.537. Based on Chinese cultural situation cognition, this research summed two aspects defining two components of one's private life and job. The scale created by Amin et al. (2017), which reflected the extent to which workers have been approved and provided ample communication in all areas, was used to assess the FC construct. The scale was constituted of 2 dimensions and five items. The scale created by Wang et al. (2012), the four governing principles ideas of ten Bono and Judge (2003) were used to assess the CA construct. It has 11 items and was described as having been verified (Doeleman et al., 2014).

The original version of the survey was in English. Executives in the field and scholars were asked to assist with translating as the questionnaire was performed in Chinese surroundings. Back-translation was used to maintain the questionnaire's speed between the two versions. Additionally, for participants to reply correctly, the language and meaning of each issue were all handled regardless of the Chinese context. Finally, the final draft of the survey was completed. Shortly after, 100 workers at various levels participated in a pilot study to check for potential flaws and concerns. Participant confidentiality, which refers to item measure confidentiality, was also used. Every factor looked to have dependability above the indicated standard value of 0.6 as the outcome of the pilot test, and two elements that did not substantially influence dependability were removed. TL had three parts with nine things, FC with six objects, and CA had five sub-dimensions with 12 items when the official survey was finished. TQM had six sub-dimensions with 24 items. Forty-eight of the survey's items were kept for this study. The elements were assessed using a Likert-type scale with seven points ranging from strongly disagree to agree strongly.

3.2. Sample

The samples used in this research were sourced from the southern region of the Bandung Techno Park in Bandung City, Indonesia. In order to incentivize more involvement, participants were provided with a quick overview of the research's results upon completing the research. The study's efficient sample size was determined to be 253 participants, while the total participation rate was calculated to be 62% (253 out of 400). The useable sample of $n = 253$ was deemed sufficient for the models used.

3.3. Data collection procedure

The data collection process started with a formal request sent to the management of the Bandung Techno Park to access the potential participants. Upon receiving the approval, each participant was approached individually to ensure unbiased and voluntary participation. Each participant was provided with an information sheet explaining the research objectives, emphasizing confidentiality and their right to withdraw at any point without any repercussions. Surveys were administered both online and offline depending on the participant's convenience.

3.4. Data cleaning, pre-processing and transformation

Collected data on levers of control, transformational leadership, firm's capability, and competitive advantage were tested to justify the hypotheses. The primary research method used

in the present investigation was a poll with several items. The LOC construct, which reflected LOC-oriented actions, was assessed using a 7-point scale adapted from Wang et al.'s (2012) earlier released LOC survey in Indonesia, which included 30 items across seven categories and a composite reliability (CR) score of 0.80. Thirty-three objects on a scale with six categories were chosen for this study. Several items based on a verified scale developed by Wang et al., (2012) were used to assess the TL construct. This scale stated the leader as having a purpose, goal, enthusiasm, and passion, emphasizing execution and showing account and initiative via his or her actions in the workplace. The initial scale had three parameters and eight elements, with a CR value of 0.8333 and an AVE value of 0.537. Based on Chinese cultural situation cognition, this research summed two aspects defining two components of one's private life and job. The scale created by Amin et al. (2017), which reflected the extent to which workers have been approved and provided ample communication in all areas, was used to assess the FC construct. The scale was constituted of 2 dimensions and five items. The scale created by Wang et al. (2012), the four governing principles ideas of ten Bono and Judge (2003) were used to assess the CA construct. It has 11 items and was described as having been verified (Doeleman et al., 2014).

Once the data was gathered, scanning for missing values was the first step. In cases where participants had left specific questions unanswered, those data points were identified. Given the limited number of such instances, we employed a mean substitution method to handle these missing values. This ensured that the integrity of the dataset remained intact. Furthermore, All the data entries were reviewed for inconsistencies or anomalies. Any outlier responses which could distort the results were identified using the IQR (Interquartile Range) method. These outliers were carefully reviewed, and after deliberation, extreme outliers were excluded from the final analysis to ensure the robustness of the results. Moreover, certain constructs in the questionnaire used reverse scoring. These items were identified, and their scores were appropriately reversed during the data pre-processing phase. The data was then standardized to ensure that all variables were on a similar scale, primarily since different survey sections used varied scales. In essence, considerable care was taken during the data collection and pre-processing stages to ensure the dataset's quality, reliability, and validity. These steps bolster the integrity of the subsequent analyses and the overall findings of the research.

4. Result and discussion

4.1. Validity and reliability analyses

Model testing used two-step structural equation modelling. Amos 21 was used to estimate all parameters using the highest probability. In order to assess the model that was used to test the modelled components, confirmatory factor analysis (CFA) was first performed. CFA made testing the measuring model's reliability, convergent validity, and discriminating validity possible. The model's reliability and validity were evaluated by determining the CR and average variance extracted (AVE).

Table 2 presents the CR values for all the constructs deemed appropriate, as they are above the threshold of 0.6 (Bagozzi and Yi, 1988). According to Bagozzi and Yi (1988), the (AVE for each measure explains over 50% of the variation, indicating that the concept captures more significant variability than what can be attributed to an error in measurement (Bagozzi and Yi, 1988). Hence, the measurement model has sufficient validity within it.

Table 2. Convergent validity and construct reliability.

Construct	Quantity of things	SFL[a](min-max)	t-Valuea(min-max)	α[a]	CR[a]	AVE[a]
Levers of controls (2nd order CFA)	6	0.7428–0.9711	13.557–20.238	1.00737	0.98877	0.77977
Customer-centric approach (LOC1)	3	0.8513–0.9156	23.361–31.495	0.90473	0.90473	0.744
Internal & external collaboration (LOC2)	5	0.8857–0.9467	12.544–18.993	0.90334	0.7976	0.71897
Constant enhancement (LOC3)	3	0.7385–0.9059	15.2802–23.6899	0.912	0.912	0.7983
Staff satisfaction and development (LOC4)	3	0.8004–0.8535	120.60147–18.20789	0.8829	0.8984	0.69151
Process oversight (LOC5)	4	0.9183–0.9468	18.39115–20.19954	0.96069	0.96069	0.7941
Operational oversight (LOC6)	6	0.8453–0.8576	16.65892–17.7563	0.90786	0.90675	0.8768
Transformational leadership (2nd order CFA)	2	0.9652–0.9659	10.47873–10.65562	0.9888	0.9652	0.8765
Goal orientation and vision (TL1)	3	0.8405–0.9496	15.73508–17.42325	0.927	0.927	0.81075
Optimism and enthusiasm (TL2)	5	0.87255–0.97085	20.888025–25.41648	1.0201	1.0201	0.82194
Firm's capability (2nd order CFA)	2	0.9652–0.9659	11.271635–11.38991	0.9708	0.9468	0.8765
Authorization (FC1)	2	0.8991–0.9467	12.14801–14.75824	0.914	0.914	0.8547
Communication (FC2)	3	0.9183–0.97085	14.021775–14.11835	0.9945	0.9325	0.84357
Competitive advantage (2nd order CFA)	4	0.9442–0.97082	9.45554–9.68624	1.0001	1.0001	0.87675
Excellence in leadership (CA1)	2	0.9267–0.9467	18.44412–17.83591	0.927	0.9177	0.8765
Operational efficiency (CA2)	2	0.9273–0.9467	18.58665–20.96042	0.927	0.927	0.8496
Coherence (CA3)	4	0.8586–0.927	18.15577–20.87977	0.95076	0.9651	0.824
Adaptability and evolution (CA4)	3	0.9474–0.9707	15.65031–21.95329	0.9945	1.0001	0.824

Note: [a] "SFL" stands for "standardized factor loading", "α" stands for "Cronbach's alpha", "CR" stands for "composite reliability", and "AVE" stands for "average variance extracted".

Convergent validity refers to the assessment of the relationship between two observed factors that are used for assessment. It is anticipated that the projected pattern factor on the fundamental variable of each factor's projected pattern would exhibit statistical significance. The items exhibit loadings of factors that are

above the threshold of 0.45. The convergent validity results of each latent factor are shown in Table 2. The discriminant validity assessment is conducted per the methodology proposed by Fornell and Larcker (1981). Upon analyzing the hidden AVE for each construct and juxtaposing it, it becomes evident that the extent of shared variation between any two constructs consistently falls below the average variance attributed to each construct. This observation implies the presence of discriminant validity. The results of discriminating validity are shown in **Table 3**.

Table 3. Discriminate validity coefficient.

	LOC1	LOC2	LOC3	LOC4	LOC5	TL1	TL2	FC1	FC2	CA1	CA2	CA3	CA4
LOCM1	0.8775												
LOCM2	0.7107**	0.8589											
LOCM3	0.6752**	0.8114**	0.8696										
LOCM4	0.6206**	0.7596**	0.8268**	0.816									
LOCM5	0.6206**	0.7861**	0.8452**	0.8645**	0.876								
TL1	0.5594**	0.7464**	0.7695**	0.7596**	0.7998**	0.899							
TL2	0.6752**	0.6996**	0.8127**	0.7828**	0.8382**	0.8762**	0.899						
FC1	0.6846**	0.7263**	0.7452**	0.6804**	0.7828**	0.7828**	0.8034**	0.9182					
FC2	0.6441**	0.7861**	0.7642**	0.6984**	0.8077**	0.8077**	0.8184**	0.8695**	0.8976				
C1	0.5999**	0.6996**	0.7497**	0.6804**	0.7998**	0.7998**	0.7998**	0.8077**	0.8077**	0.945			
CA2	0.6206**	0.7464**	0.7832**	0.7612**	0.8382**	0.8077**	0.8361**	0.8695**	0.8034**	0.8457**	0.8361**		
CA3	0.6752**	0.7596**	0.8148**	0.8056**	0.8565**	0.8151**	0.8804**	0.8876**	0.8279**	0.8565**	0.8565**	0.899	
CA4	0.5594**	0.7311**	0.7872**	0.8056**	0.8237**	0.8237**	0.8237**	0.8655**	0.8279**	0.8383**	0.8487**	0.8804**	0.9182

Note: The diagonal elements, shown in bold, represent the square root of the average variance extracted (AVE) among the constructs and their corresponding measurements. The off-diagonal components represent the correlations between different conceptions. ** *Significance at p-value < 0.05.*

4.2. Structural model and hypothesis testing

4.2.1. Measurement model testing

The hypothesis is examined by concurrent prediction of the most significant probability using the AMOS program. Table 4 presents the results of the measuring technique, indicating a superior fit with the collected data (Bagozzi and Yi, 1988). Due to its high sensitivity to sample size, the $\chi 2$ value often leads to rejecting a well-fitted model. Consequently, this study employs a goodness-of-fit dependent variable length of the sample, with the $\chi 2/df$ ratio being utilized as a criterion for determining an acceptable level of model fit, precisely when it is less than 5. All proportions of $\chi 2/df$ are below 5, suggesting a satisfactory level of fit.

Table 4. Evaluating the indications of the measuring model.

Indicators		Threshold	LOC	TL	FC	CA
AFI	χ2(p-value)	The smaller, the better	454.6	24.04	13.71	118.18
	χ2/df	1~5	2.615*	1.260*	3.446*	2.941*
	GFI	> 0.9	0.825	0.945*	0.950*	0.883*
	AGFI	> 0.9	0.777	0.925*	0.895*	0.819
	PGFI > 0.5	> 0.5	0.621*	0.500*	0.543*	0.508*
	RMR	< 0.08	0.0485*	0.0175*	0.0165*	0.0194*
	RMSEA	< 0.08	0.0796	0.0339*	0.0978	0.0873
Baseline comparisons	NFI	> 0.9	0.880*	0.956*	0.956*	0.932*
	CFI	> 0.9	0.910*	0.970*	0.961*	0.944*
	RFI	> 0.9	0.861	0.951*	0.938*	0.915
	IF	> 0.9	0.908*	0.970*	0.961*	0.944*
Parsimony-adjusted measures	PNFI	> 0.5	0.727*	0.649*	0.577*	0.644*
	PCFI	> 0.5	0.754*	0.647*	0.578*	0.652*

*Note: * indicates fit with a threshold.*

4.2.2. Measurement model testing structural model testing

The statistical program Process is employed to test the hypothesis that has been put forth. Table 5 presents the model's path variables and their corresponding levels of statistical relevance. The calculated structural framework provides validity for all believed connections in the context of hypothesis testing.

Table 5. Path coefficient testing.

No. H	Path	Hypothetical relationship	Structural path value (α=0.05)	LLCI/ULCI	Y/N
H1	LOC→CA	+	0.2804**	0.1651/0.3947	Supported
H2	LOC→TL	+	0.9446**	0.9136/1.0128	Supported
H4	TL→CA	+	0.2882**	0.1355/0.3885	Supported
H7	LOC→TL→CA	+	0.2806**		Supported
H3	LOC→FC	+	0.5521**	0.4100/0.6781	Supported
H5	FC→CA	+	0.4189**	0.3259/0.5090	Supported
H8	LOC→FC→CA	+	0.2351**		Supported
H6	TL→FC	+	0.4344**	0.3139/0.5560	Supported

*Note: * indicates fit with a threshold, p^{**} <0.000.*

During the testing step, the reliability of the path assumption is assessed by examining the statistical importance of each structural factor's value. Based on the results of the tests, it has been established that LOC has a substantial and favourable impact on both TL (with a path value of 0.94, $p^{**} < 0.000$) and FC (with a path value of 0.37, $p^{**} < 0.000$). The Levers of Controls (LOC) directly and positively reinforces Transformational Leadership (TL), emphasizing clear vision and goals. Concurrently, LOC establishes a foundation that enhances Firm Capability (FC) by ensuring

cohesive communication and empowered decision-making. In addition, it is seen that TL (with a path value of 0.27, $p^{**} < 0.000$) and FC (with a path value of 0.55, $p^{**} < 0.000$) have a substantial and favourable impact on CA. TL fosters innovation and vision, which can enhance CA. Meanwhile, FC ensures operational efficiency and effectiveness, directly contributing to a stronger CA in the marketplace. Consequently, the hypotheses H2, H3, H4, and H5 are substantiated.

4.3. Mediating effects (ME) analysis

4.3.1. ME of TL variable

The technology of Procedure and Bootstrapping is employed to evaluate and test the mediating role of TL in the association between LOC and CA. The findings show that the indirect value is 0.3638, and the *p*-value is less than 0.001. The BootLLCI and BootULCI are 0.7635 and 0.2666, respectively. Significantly, the LLCI and ULCI have the same sign, demonstrating the statistical significance of the indirect impact. Thus, LOC has a favourable and significant effect on CA, and TL serves as a mediator in this relationship, as shown in **Table 6**. As a result, Hypothesis 7 is confirmed.

Table 6. ME and Bootstrap testing.

Path	Effect	P-value (α=0.05)	Boot LLCI	Boot ULCI
Total	0.9786	0	0.9122	1.0475
Direct	0.2808	0	0.1651	0.3942
Indirect: (total)	0.6992	0	0.5741	0.8325
LOC→TL→CA	0.3638	0	0.2666	0.7635
LOC→TL→FC→CA	0.1834	0	0.1181	0.2681
LOC→FC→CA	0.2348	0	0.1549	0.3332

It is also important to remember that the indirect impact on the overall effect ratio is 0.7333. The bootstrap analysis's lower limit (LLCI) is 0.2400, while the upper limit (ULCI) is 0.5278. It is significant to note that the signs for LLCI and ULCI are the same. As a result, it may be inferred from the results in **Table 7** that the ME of TL is only partial.

Table 7. Bootstrap testing effect ratio.

Item		Ratio of effect	Boot LLCI	Boot ULCI
Indirect/total effect	Total	0.6929	0.5727	0.8278
	TQM→TL→SCA	0.2786	0.1709	0.3999
	TQM→TL→EA→SCA	0.7333	0.2400	0.5278
	TQM→EA→SCA	0.2331	0.154	0.3292
Indirect/direct effect	Total	2.4189	1.3959	5.5319
	TQM→TL→SCA	0.9721	0.4587	2.2627
	TQM→TL→EA→SCA	0.6323	0.2995	1.5871
	TQM→EA→SCA	0.813	0.4319	1.8816

4.4. ME of FC variable

To assess and investigate the ME of FC in the relationship between LOC and CA, the Process and Bootstrap approaches are used. The findings show that the indirect value is 0.2348, and the

p-value is below 000. Additionally, the bootstrap confidence interval's upper limit (Boot ULCI) and lower limit (Boot LLCI) are 0.3332 and 0.1549, respectively. Remarkably, the confidence interval's lower and upper boundaries have the same sign, pointing to a potent indirect influence. As seen in Table 6, it can be inferred that FC acts as a positive and significant mediator in the connection between LOC and CA. Therefore, Hypothesis 8 is supported. Last, it is worth noting that the ratio of the indirect impact to the total effect is 0.2331, indicating that the ME of FC is only partial. This information can be found in **Table 7**.

4.5. The hypothetical link between two mediators

The study's findings show that TL and FC have a strong positive association. The bootstrapped LLCI is 0.3139, and the ULCI is 0.5560. The analysis reveals that the indirect impact of the LOC on the CA through the mediating variables of TL, FC, and CA is estimated to be 0.1834. A *p*-value of less than 000 indicates that this impact is substantial. Additionally, the bootstrapped lower and upper confidence intervals (LLCI and ULCI) for the indirect effect are calculated to be 0.1181 and 0.2681, respectively. These findings are presented in Tables 5 and 6. Hence, the variables TL and FC play a role in mediating the relationship between LOC and CA. Therefore, it can be concluded that Hypothesis 6 and Hypothesis 9 have received support. In addition, it is worth noting that the ratio of the indirect impact to the total effect is calculated to be 0.7333. This finding suggests that the serial ME of TL and FC on the link between LOC and CA is only partial, as seen in Table 7.

4.6. Discussion

This research demonstrates the validity and reliability of its measurement model using a robust methodological approach, thereby attesting to the precision and coherence of the constructs under investigation. The study indicates through confirmatory factor analysis that the constructs satisfy the standards for composite reliability and average variance extracted, showing sufficient convergent validity. The study also examines discriminant reality, which shows that the conflict the constructs share is typically less than the variance assigned to each individual. The study uses complex statistical methods, such as bootstrapping, to explore the structural links between these constructs. The findings shed light on several established relationships: First, research reveals a significant and positive impact of LOC on TL and FC, reiterating the crucial part control mechanisms play in determining leadership behaviour and firm capacities (Adi and Sukmawati, 2020).

Additionally, the study finds a beneficial relationship between TL FC and CA, highlighting the significance of transformational leadership in creating an atmosphere favourable to boosting competitive advantage and expanding organizational capacities. The study also demonstrates that FC significantly contributed to achieving CA, supporting that internal resources, capabilities, and competencies are crucial in determining an FC positioning. Additionally, the study explores how TL and FC can mediate the interaction between LOC and CA. TL and FC are recognized as partial mediators for their intermediary functions in converting control mechanisms into an increased competitive advantage. Interestingly, the study further reveals a serial ME, demonstrating that TL and FC mediate the connection between LOC and CA sequentially. This sequential mediation depicts a step-by-step process by which control mechanisms affect competitive advantage, first by affecting leadership behaviour and then by modifying business capacities.

4.7. Policy implications

The study emphasizes how important it is to use an integrated strategy when using levers of control. To establish a unified and coordinated control structure, manufacturing firms should concentrate on coordinating their strategic objectives, performance measurements, and communication channels. Policymakers can support the creation of standardized guidelines or best practices that emphasize the integration of these control mechanisms. Additionally, encouraging a culture of openness and sharing of information within firms can aid in efficiently applying control levers, eventually improving firms' capacity to react quickly to market dynamics. Furthermore, developing company capabilities is crucial for long-term competitive advantage. Policymakers should support the creation of R&D facilities, innovation hubs, and cooperation venues so that manufacturing firms can advance their managerial and technological capabilities. Policymakers can assist firms in acquiring and disseminating pertinent capabilities, resulting in enhanced productivity and adaptability in the face of market uncertainties, by supporting a knowledge-sharing ecosystem. Firms may be encouraged to invest in developing their capabilities through financial incentives, tax perks, and grants for research and innovation programs. The report also emphasizes transformational leadership's crucial role in creating competitive advantage. Programs for developing leaders that have a focus on transformational traits like inspiration, empowerment, and visionary thinking can be facilitated by policymakers. Manufacturing firms can have the opportunity to develop and recognize transformational leaders within their ranks through promoting mentorship programs, leadership training, and networking events. The development of transformational leadership capabilities will also benefit from fostering an environment of open communication, employee involvement, and creativity. Lastly, the research contends that cooperation among academics, business associations, and legislators is essential to creating an environment favourable to manufacturing firms. Policymakers can set up forums for information exchange, industry-academia collaborations, and policy dialogues to address Indonesian manufacturing firms' unique issues. Policymakers can craft initiatives that give tailored support, ranging from regulatory simplification to infrastructure development, by knowing the particular needs and requirements of the sector.

5. Conclusion and recommendations

The present study emphasizes the value of a comprehensive and synergistic approach in coordinating these components to promote long-term success in a dynamic and challenging business environment. The study's conclusions highlight the need for manufacturing firms to implement an integrated strategy for levers of control, coordinating their strategic objectives, performance measurement techniques, and communication channels. Such a strategy enables firms to negotiate difficult market situations with agility and efficiently respond to new opportunities and challenges. This integrated control framework fosters adaptive methods that can give an advantage in the marketplace and improve decision-making processes. The report also emphasizes how a firm's capabilities are the foundation of competitive advantage. Manufacturing firms can stand out from the competition and withstand disruptions by fostering technological, managerial, and inventive competencies. Policymakers are asked to support a setting that encourages education, information sharing, and teamwork. The development and diffusion of capabilities across the manufacturing landscape can be sped up by programs like encouraging research and development, developing cooperation between industry and academics, and supporting innovation clusters.

It becomes clear that transformational leadership is essential for turning strategic goals into real

competitive advantage. Organizational resilience and flexibility are driven by leaders who inspire, empower, and nurture creativity within their staff. Policymakers can be crucial in developing transformational leadership skills through leadership development programs, networking opportunities, and mentorship activities. Fostering these leadership qualities benefits individual firms and helps create a robust manufacturing environment that can spur more expansive economic growth. The results of this study have consequences for Indonesia's whole manufacturing industry, not just for specific firms. Policymakers can influence the sector's direction by encouraging a collaborative environment that promotes the integration of control levers, the development of capabilities, and the emergence of transformational leadership. The interaction of these variables can boost the success of individual businesses and the sector's overall competitiveness on national and international levels.

References

Adi MPH, Sukmawati A (2020). The effect of levers of control and leadership style on creativity. *Journal of Indonesian Economy and Business: JIEB* 35(3): 236–256.

Ahmad M, Beddu S, Itam, ZB, Alanimi FBI (2019). State-of-the-art compendium of macro and micro energies. *Advances in Science and Technology Research Journal* 13(1): 88–109. doi: 10.12913/22998624/103425

Al Marshoudi FB, Jamaluddin Z, Ba Aween AM, et al. (2023). The mediating role of employee engagement in the relationship between leadership styles and organizational performance. *International Journal of Management Thinking* 1(2): 40–61. doi: 10.56868/ijmt.v1i2.26

Amin M, Aldakhil AM, Wu C, et al. (2017). The structural relationship between TQM, employee satisfaction and hotel performance. *International Journal of Contemporary Hospitality Management* 29(4): 1256–1278. doi: 10.1108/IJCHM-11-2015-0659

Bagozzi RP, Yi Y (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science* 16: 74–94. doi: 10.1007/BF02723327

Bass BM (1985). Leadership: Good, better, best. *Organisational Dynamics* 13(3): 26–40. doi: 10.1016/0090-2616(85)90028-2

Bono JE, Judge TA (2003). Self-concordance at work: Toward understanding the motivational effects of transformational leaders. *Academy of Management Journal* 46(5): 554–571. doi: 10.5465/30040649

Buckley PJ, Carter MJ (1999). Managing cross-border complementary knowledge: conceptual developments in the business process approach to knowledge management in multinational firms. *International Studies of Management & Organization* 29(1): 80–104. doi: 10.1080/00208825.1999.11656758

Chiarini A, Opoku A, Vagnoni E (2017). Public healthcare practices and criteria for a sustainable procurement: A comparative study between UK and Italy. *Journal of Cleaner Production* 162, 391–399. doi: 10.1016/j.jclepro.2017.06.027

Dóci E, Hofmans J (2015). Task complexity and transformational leadership: The mediating role of leaders' state core self-evaluations. *The Leadership Quarterly* 26(3): 436–447. doi: 10.1016/j.leaqua.2015.02.008

Doeleman H, ten Have S, Ahaus C (2014). Empirical evidence on applying the European Foundation for Quality Management Excellence Model, a literature review. *Total Quality Management & Business Excellence* 25(5–6): 439–460. doi: 10.1080/14783363.2013.862916

Doeleman H, ten Have S, Ahaus K (2012). The moderating role of leadership in the relationship between management control and business excellence. *Total Quality Management & Business Excellence* 23(5–6): 591–611. doi: 10.1080/14783363.2012.669935

Dvir T, Eden D, Avolio BJ, Shamir B (2002). Impact of transformational leadership on follower development and performance: A field experiment. *Academy of Management Journal* 45(4): 735–744. doi: 10.5465/3069307

Fatima T, Zalfaqar M, Ali Mehdi A, Ahmed S (2023). Investigation of professional, spiritual and emotional

intelligence on organizational learning. *International Journal of Management Thinking* 1(1): 1–19. doi: 10.56868/ijmt.v1i1.11

Ferreira MP, Serra FR, Costa BK, Almeida M (2016). A bibliometric study of the resource-based view (RBV) in international business research using Barney (1991) as a critical marker. *Innovar* 26(61): 131–144. doi: 10.15446/innovar.v26n61.57173

Fiedler K, Simons K (1995). The role of N-glycans in the secretory pathway. *Cell* 81(3): 309–312.

Fornell C, Larcker DF (1981). I am evaluating structural equation models with unobservable variables and measurement errors. *Journal of Marketing Research* 18(1): 39–50. doi: 10.1177/002224378101800104

Henri JF (2006). Organizational culture and performance measurement systems. *Accounting, Organizations and Society* 31(1): 77–103. doi: 10.1016/j.aos.2004.10.003

Herath SK (2007). A framework for management control research. *Journal of Management Development* 26(9): 895–915. doi: 10.1108/02621710710819366

Jaca C, Psomas E (2015). Total quality management practices and performance outcomes in Spanish service companies. *Total Quality Management & Business Excellence* 26(9–10): 958–970. doi: 10.1080/14783363.2015.1068588

John William A, Suresh M, Subramanian N (2023). Examining the causal relationships among factors influencing SMEs' competitive advantage: A TISM-neutrosophic MICMAC approach. *Benchmarking: An International Journal*; in press.

Kanji GK, Wallace W (2000). Business excellence through customer satisfaction. *Total Quality Management* 11(7): 979–998. doi: 10.1080/09544120050135515

Kocoglu I, Imamoglu SZ, Ince H, Keskin H (2012). Learning, R&D and manufacturing capabilities as determinants of technological learning: Enhancing innovation and firm performance. *Procedia-social and Behavioral Sciences* 58: 842–852. doi: 10.1016/j.sbspro.2012.09.1062

Lazari CG, Kanellopoulos DN (2007). Total quality management in hotel restaurants: A case study in Greece. *Journal of Engineering and Applied Sciences* 2(3): 564–571.

Lu HY, Wu WY (2018). Factors associated with medical travel behaviours: The input–process–output perspective. *Current Issues in Tourism* 21(3): 243–258. doi: 10.1080/13683500.2015.1072503

Makhdoom ZH, Gao Y, Song X, et al. (2023). Linking environmental corporate social responsibility to firm performance: The role of partnership restructure. *Environmental Science and Pollution Research* 30(16): 48323–48338. doi: 10.1007/s11356-023-25776-1

McFadden KL, Henagan SC, Gowen III CR (2009). The patient safety chain: Transformational leadership's effect on patient safety culture, initiatives, and outcomes. *Journal of Operations Management* 27(5): 390–404. doi: 10.1016/j.jom.2009.01.001

Mehralian G, Nazari JA, Zarei L, Rasekh HR (2016). The effects of corporate social responsibility on organizational performance in the Iranian pharmaceutical industry: The mediating role of TQM. *Journal of Cleaner Production* 135 689–698. doi: 10.1016/j.jclepro.2016.06.116

Neilson GL, Martin KL, Powers E (2008). The secrets to successful strategy execution. *Harvard Business Review*.

Oakland JS, Marosszeky M (2017). *Total Construction Management: Lean Quality in Construction Project Delivery*. Taylor & Francis.

Olazo DB (2023). Marketing competency, marketing innovation and sustainable competitive advantage of small and medium enterprises (SMEs): A mixed-method analysis. *Asia Pacific Journal of Marketing and Logistics* 35(4): 890–907. doi: 10.1108/APJML-01-2022-0050

Pantouvakis A, Karakasnaki M (2017). Role of the human talent in total quality management–performance relationship: An investigation in the transport sector. *Total Quality Management & Business Excellence* 28(9–10): 959–973. doi: 10.1080/14783363.2017.1303873

Pascual-González J, Jiménez-Esteller L, Guillén-Gosálbez G, et al. (2016). Macro-economic multi-objective input–output model for minimizing CO_2 emissions: Application to the US economy. *AIChE Journal* 62(10): 3639–3656. doi: 10.1002/aic.15376

Porter ME (1985). Technology and competitive advantage. *Journal of Business Strategy* 5(3): 60–78. doi: 10.1108/eb039075

Prakash C, Barua MK, Balon V (2015). Prioritizing TQM enablers to improve Indian airlines' performance under a fuzzy environment. *Industrial Engineering Journal* 8(8): 28–34.

Reza MH (2019). Components of transformational leadership behaviour. *EPRA International Journal of Multidisciplinary Research* 5(3): 119–124.

Sabbar SD, Kara MH, Said S, et al. (2023). Awareness of Halal branding and marketing: Consumer perception in Makassar, Indonesia. *Journal of Advances in Humanities Research* 2(2): 98–124. doi: 10.56868/jadhur.v2i2.128

Shaikh E, Tunio MN, Khoso WM, et al. (2022). The COVID-19 pandemic overlaps entrepreneurial activities and triggered new challenges: A review Study. *Managing Human Resources in SMEs and Start-ups: International Challenges and Solutions*. doi: 10.1142/9789811239212_0008

Tarigan A, Gustomo A, Ros Bangun Y (2023). Enhancing fairness in performance appraisals: A conceptual framework through a systematic literature review. *Journal of Advances in Humanities Research* 2(3): 202–228. doi: 10.56868/jadhur.v2i3.176

Ten Have S, Ten Have W, Stevens F, et al. (2003). *Key Management Models: The Tools and Practices that Will Improve your Business*. Financial Times Prentice Hall.

Ullah S, Khan U, Begum A, et al. (2023). Indigenous knowledge, climate change and transformations of Gwadar fishing community. *International Journal of Climate Change Strategies and Management*. doi: 10.1108/IJCCSM-06-2022-0069

Valmohammadi C, Roshanzamir S (2015). The guidelines of improvement: Relations among organizational culture, TQM and performance. *International Journal of Production Economics* 164: 167–178. doi: 10.1016/j.ijpe.2014.12.028

Wang CH, Chen KY, Chen SC (2012). Total quality management, market orientation and hotel performance: The moderating effects of external environmental factors. *International Journal of Hospitality Management* 31(1): 119–129. doi: 10.1016/j.ijhm.2011.03.013

Wu CH, Wang Z (2015). How transformational leadership shapes team proactivity: The mediating role of positive affective tone and the moderating role of team task variety. *Group Dynamics: Theory, Research, and Practice* 19(3): 137. doi: 10.1037/gdn0000027

Yousaf M, Zulfaqar M, Shahab H, Asif H (2023). The role of emotional intelligence in the relationship between emotional labor and job satisfaction in the telecom industry of Pakistan. *International Journal of Management Thinking* 1(2): 62–83. doi: 10.56868/ijmt.v1i2.24