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The role of dynamic capabilities and innovation on the competitiveness of the manufacturing firms in Indonesia

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This study seeks to explore how dynamic capabilities and innovation impact competitiveness within the Indonesian manufacturing sector. It specifically investigates how Domestic Component Level (DCL) certification, influenced by government involvement, mediates this relationship. The focus is on how government support shapes the certification process, ultimately affecting competitiveness. Through quantitative methods and surveys conducted among 344 manufacturing firms holding DCL certification in Indonesia, the research finds that while enhanced dynamic capabilities may not directly correlate with increased competitiveness, they play a crucial role in a company's journey toward competitiveness, requiring a gradual process. Additionally, companies with higher DCL values are better positioned to compete for government contracts and services.

1. Introduction

In the realm where market dynamics hold sway over economic outcomes, competitiveness emerges as a pivotal notion. It delineates the capacity to seize new market territories, surpass fellow market players, allure investments, and foster expansion. This aspect assumes paramount importance for policymakers tasked with gauging their nation's competitive standing vis-à-vis others and tracking its evolutionary trajectory over time (Falciola et al., 2020). Porter (1998) characterizes competitiveness as a company's prowess in attaining economic supremacy over its rivals within the same industry. From a national perspective, competitiveness manifests in the form of economic growth stemming from the production of goods and services within a specified timeframe (Mankiw, 2020), typically quantified by the value added, as encapsulated in Gross Domestic Product (GDP). Competitiveness is strongly linked to a company's capabilities and its ability to innovate. Numerous studies, including those by Abd Aziz and Samad (2016), Chiu and Yang (2019), Joshi et al. (2013), Kafetzopoulos et al. (2015), Kwak et al. (2018), and Nauhria et al. (2011), have demonstrated the significant impact of competitiveness, particularly within the manufacturing sector. Research often explores the interplay between innovation and other factors like process quality, revealing a causal relationship. For instance, Rosa et al. (2021) highlighted competitive priorities in manufacturing, including quality, cost, delivery, flexibility, customer focus, relationship management, innovation, and technology. In the public sector, fostering innovation becomes crucial for enhancing the production of competitive goods and services. Indonesia's innovation performance, as per the Global Innovation Index 2022, ranks 75th, trailing behind Vietnam and the Philippines, though showing improvement from the previous year's 87th position. To foster the growth of national industries, the government has instituted various certification policies aimed at both industries and their products. Standardization and conformity assessment play pivotal roles in safeguarding society, enhancing national quality standards, and bolstering the competitiveness of domestic products in both local and international markets. One such certification scheme in Indonesia pertains to the procurement of local products, which hinges on Domestic Component Level (DCL) certification. While DCL is not mandatory,

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the Indonesian government has mandated DCL certification since 2011 to enhance the competitiveness of domestic products and strengthen local industries. Domestic industries achieving significant DCL ratings hold the potential to propel national development, as depicted in Table 1.5. The higher the current DCL attainment, the greater the utilization of domestic components, underscoring the imperative of elevating DCL achievements across industrial sectors. Since its inception in 2011, the certification policy has spurred companies to innovate by prioritizing local resources in their product manufacturing processes, thereby augmenting DCL values and potentially curbing imports of raw materials. In the manufacturing sector, it is anticipated that investment values will ascend in tandem with the proliferation of DCL-certified products.

This study examines the manufacturing sector, encompassing activities involving the transformation of materials or components into new products through chemical or physical processes. Unlike prior research, this inquiry specifically delves into the Indonesian manufacturing landscape, where companies integrate local content into their operations. While existing studies predominantly center on extractive industries, such as those cited by Ablo (2020), Adedeji et al. (2016), Calignano and Vaaland (2018), and Hilson and Ovadia (2020), there is a notable gap in the exploration of local content within manufactured industrial products. Prior scholarly work has primarily addressed certification within the context of ISO standards, halal certification, and product certification, as evidenced by the studies conducted by Cândido and Ferreira (2021), Han et al. (2012), Latan et al. (2020), Lertpachin et al. (2013), Terziovski and Guerrero (2014), Ab Talib et al. (2017), Ab Talib and Ai Chin (2018), Zailani et al. (2015), Chen, Chen, et al. (2020), and Purwanto et al. (2020). In contrast, this research sheds light on the relatively unexplored terrain of local content certification, particularly in the Indonesian context. Furthermore, previous studies have largely examined market-driven forces behind certification adoption, as noted by Ab Talib et al. (2017), Bhatia and Awasthi (2018), Cândido and Ferreira (2021), Han et al. (2012), Latan et al. (2020), Lertpachin et al. (2013), Purwanto et al. (2020), and Terziovski and Guerrero (2014), there exists a paucity of research centering on government initiatives. This study, therefore, focuses on the government's role in promoting certification through DCL certification and regulations mandating the use of locally sourced materials in government procurement processes.

Previous studies have predominantly explored certification within the realm of voluntary initiatives such as ISO (Cândido & Ferreira, 2021; Han et al., 2012; Latan et al., 2020; Lertpachin et al., 2013; Terziovski & Guerrero, 2014), halal certification (Ab Talib et al., 2017; Ab Talib & Ai Chin, 2018; Zailani et al., 2015), and product certification (Chen, Chen, et al., 2020; Purwanto et al., 2020). However, this study diverges by employing DCL Certification as a mediator between dynamic capabilities and innovation for competitiveness. Beyond the distinction in the focus of motorcycle taxi services examined, this research also shifts the spotlight to government support as a moderating factor in the certification process, leading to enhanced competitiveness. While earlier research has underscored the significance of government regulations or policies in bolstering competitiveness (Agusman Aris et al., 2019; Chadee and Roxas, 2013; Oluka et al., 2021; Yoon et al., 2015), innovation facilitation by governments (Sahrom et al., 2016; Zhao et al., 2019), and the role of government in certification (Ab Talib & Ai Chin, 2018; Zailani et al., 2015), this study illuminates how government support shapes the certification framework, thereby influencing competitiveness outcomes.

This study provides a valuable theoretical contribution by enhancing scientific understanding within the realm of strategic management, particularly regarding the competitiveness of manufacturing firms holding DCL certification, a government initiative. Furthermore, it enhances the framework for assessing company competitiveness by integrating a Resource-Based Value (RBV) perspective rooted in the Theory of Competitiveness and Dynamic Capabilities.

2. Literature Review

This research explores the central concept of competitive advantage within the Resource-Based View (RBV) framework. Foundational works by Hamel and Prahalad (1990), Barney (1991), Peteraf (1993), and Helfat et al. (2009) are pivotal in RBV research, highlighting that organizations are distinguished by their unique and specialized resource bases. According to RBV, close competitors demonstrate enduring differences in their resources and capabilities (Agusman Aris et al., 2019), fostering heterogeneous competition. Teece (2011) extends this by emphasizing the importance of organizations continually adapting their resources and capabilities to navigate evolving business landscapes, termed dynamic capabilities theory. Ferreira et al. (2020) show the indirect impact of dynamic capabilities on competitiveness, while Ferreira and Coelho (2017) illustrate how dynamic capabilities influence marketing capabilities and, subsequently, competitiveness. Kuo et al. (2017) and Liu et al. (2018) both affirm the significant role of dynamic capabilities in shaping competitiveness. Shafia et al. (2016) add that technological innovation capabilities mediate the relationship between dynamic capabilities and competitiveness, emphasizing the profound influence of dynamic capabilities on organizational competitiveness.

Research conducted by Sahrom, Tan, & Yahya (2016) indicates a lack of significant correlation between government incentives and individual innovative behavior. Similarly, Chadee & Roxas (2013) found that regulatory quality, rule of law, and corruption exert a notably adverse and direct influence on both innovation capacity and company performance. Conversely, Jun, Ali, Bhutto et al. (2021) discovered that factors such as organizational and human resource dynamics, market and customer considerations, and governmental support alongside technological aspects significantly foster innovation. However, they noted that external partnerships, regulatory elements, and cooperation have a negligible impact on green environmental innovation. In a study on sustainable innovation among ISO 9001-certified manufacturing firms, Latan,

Chiappetta Jabbour, Lopes de Sousa Jabbour, de Camargo Fiorini, & Foropon (2020) found that such certification positively affects company performance, underlining a beneficial relationship between innovation and organizational success. Correspondingly, Purwanto et al. (2020) investigated the effects of implementing the ISO 38200:2018 management system on company competitiveness, concluding that this implementation significantly enhances business competitiveness by bolstering customer satisfaction, increasing sales, boosting productivity, and enhancing both employee safety and satisfaction.

This study addresses the limitations of both the resource-based view (RBV) theory and dynamic capability theory by introducing innovation as a catalyst for the DCL certification process within companies, aiming to enhance their competitiveness. Fig. 1 illustrates the conceptual framework depicting the interplay of variables as discussed in this research.

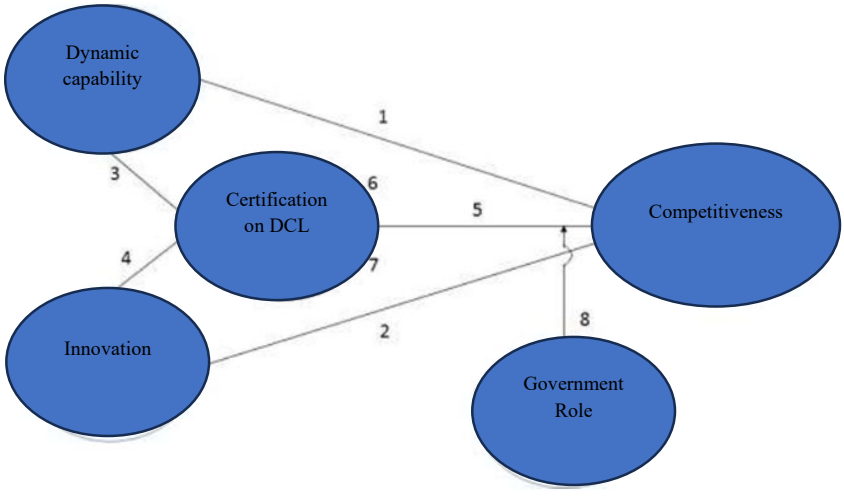

Fig. 1. Research Conceptual Framework

This research puts forward eight hypotheses. Firstly, it suggests that improving dynamic capabilities can strengthen a company's competitive edge, drawing on findings from various studies (Ferreira and Coelho, 2017; Kuo et al., 2017; Liu et al., 2018; Pervan et al., 2018; Wilden and Gudergan, 2015, 2018) that highlight the impact of dynamic capabilities on competitive advantage. Additionally, it proposes that enhancing innovation can similarly boost competitiveness, supported by studies (Latan et al., 2020; Lertpachin et al., 2013; Lii and Kuo, 2016; Hwang et al., 2020; Chen et al., 2020; Chiu and Yang, 2019; Kafetzopoulos et al., 2015; Kwak et al., 2018) linking innovation with improved company performance. Furthermore, the study suggests that increasing dynamic capabilities and innovation will elevate DCL (Dynamic Capabilities Level) certification, influenced by earlier research indicating various drivers for certification implementation, such as profitability, organizational commitment, and external factors like government intervention and consumer pressure (Han, Sim, and Ebrahimpour, 2012; Terziovski and Guerrero, 2014; Ab Talib and Ai Chin, 2018). It also posits that DCL certification positively impacts company competitiveness, proposing mediation effects where increasing DCL certification mediates the relationship between dynamic capabilities and company competitiveness, and between innovation and company competitiveness. These propositions are drawn from the works of Han et al. (2012), Purwanto et al. (2020), Hernández-Perlines et al. (2019), Latan et al. (2020), and Ab Talib et al. (2017). Lastly, the study hypothesizes that increasing the government's role as a moderator will further enhance DCL certification's impact on company competitiveness, citing studies by Chadee and Roxas (2013), Oluka, Okoche, and Mugurusi (2021), Zhao et al. (2019), and Yoon et al. (2015) to support this assertion.

3. Research Methods

This study aimed to explore how dynamic capabilities and innovation impact competitiveness within the Indonesian manufacturing industry, with the mediating role of DCL certification and the moderating influence of government involvement. Employing a quantitative approach, the research utilized surveys among manufacturing firms. Questionnaires were employed to gather primary data. Following Ferdinand's definition (2014), the research falls under causality research, which seeks to establish cause-effect relationships between variables. Its focus is on elucidating the causal connections between various factors and drawing overarching conclusions.

The study's population consisted of manufacturing companies in Indonesia holding DCL certification for their products within the past five years. According to data from the Ministry of Industry's Increased Use of Domestic Products (P3DN) report as of March 24, 2022, there were 2,496 eligible companies. Employing the Slovin Formula with a 5% margin of error, a sample of 344 companies was selected from this population for the research.

Moreover, this study utilized Chi-square analysis and covariance-based Structural Equation Modeling (CB-SEM) via AMOS Software. CB-SEM, which relies on covariance, surpasses variance-based PLS-SEM. CB-SEM necessitates a robust theoretical foundation, adherence to various parametric assumptions, and successful model feasibility tests (goodness of fit). Consistent with this study's objectives, CB-SEM was employed to scrutinize the theory and validate the test through a series of intricate analyses involving a sizable sample. Meanwhile, Structural Equation Modeling (SEM) integrates regression models and path analysis to discern direct and indirect causal influences by incorporating indicators and latent variables. In SEM, reflective indicators are crucial for gauging latent variables, ensuring that SEM modeling is ideally grounded in theory and prior research findings. The modeling process consists of seven key steps. Initially, it involves Developing a Model Based on Theory, which entails analyzing the causal links between exogenous and endogenous variables while ensuring the research's validity and reliability. Next, a Cross Diagram is constructed to visualize the flow of these causal relationships. Multiple models are then generated and tested using Structural Equation Modeling (SEM) to select the most fitting model based on Goodness of Fit criteria. Thirdly, the Input Matrix Type is determined, with this research utilizing a covariance matrix. The fourth step involves Model Identification, followed by the Determination of Model Suitability Criteria, as outlined in Table 1. Finally, the sixth step entails Model Interpretation and Modification, where the model is analyzed and refined as necessary.

Table 1
Measurement of Fit Models

Measurement	The level of acceptability
Chi-square	The smaller, the better.
Probability	≥ 0,05
GFI	Higher values are better. GFI ≥ 0.90 indicates a good fit, while 0.08 ≤ GFI < 0.90 indicates a marginal fit.
AGFI	Higher values are better. AGFI ≥ 0.90 indicates a good fit, while 0.80 ≤ AGFI < 0.90 indicates a marginal fit.
RMR	Average residual between observed and estimated matrices. RMR ≤ 0.05 indicates a good fit.
RMSEA	Average difference per degree of freedom expected to occur in the population rather than in the sample. RMSEA ≤ 0.08 indicates a good fit, RMSEA ≤ 0.05 indicates a close fit.

4. Result and Discussion

4.1 Descriptive of Respondents' Profiles

The respondent's profiles are presented in Table 2. The data reveals that 59.01% were male, indicating a gender skew towards men. Moreover, a striking 80.79% of respondents held bachelor's degrees, with a notable emphasis on management and economic qualifications, encompassing 48.71% of the total. Among these, 44.55% held managerial positions, while 31.59% boasted work experience ranging from 5 to 10 years on average. This prevalence of bachelor's degree holders with substantial work experience underscores the demand for competent leadership within the manufacturing sector. Management and economic prowess emerged as the most sought-after skills, with technical expertise ranking as a secondary priority among respondents. Additionally, a staggering 84.16% of companies belonged to the IBS category, boasting a workforce exceeding 50 individuals. Notably, 75.24% of companies allocated resources to research and development, signaling a commitment to fostering innovation. This dedication is further evidenced by the substantial majority, 74.65%, engaging in company innovation endeavors. Among these, product innovation held sway at 41.10%, while information technology innovation lagged at 6.55%. Concerning product certification, electrical and electronic goods claimed the top spot at 16.67%, closely followed by machinery and equipment at 14.06%. More than half of the manufacturing companies surveyed, 51.48%, boasted portfolios comprising over 10 products, with a significant portion, 42.77%, holding between 5 to 10 DCL-certified products. Many of these certified products exhibited component values ranging from 25% to 40%, comprising 33.66% of the total, while values between 41% and 60% trailed closely behind at 31.49%.

Table 2
Respondents' Profile

Profiles	Frequency	Percentages (%)		Frequency	Percentages (%)
Gender			Experience		
Male	203	59,01	< 5 Year	83	24,16
Female	141	40,99	5 – 10 Year	108	31,49
Education			Expertise		
Associates	31	8,91	Economic and	168	48,71
Bacholar	278	80,79	Engineriing	136	39,60
Master	35	10,10	Natural science	31	9,11
PhD.	1	0,20	Other	9	2,57
Role					
Directorate	87	25,35			
Project	39	11,29			
Senior Project	18	5,15			
General	47	13,66			
Vice President	153	44,55			

5. Empirical Results

The data analysis (shown in Table 3) did not support the initial hypothesis about dynamic capabilities significantly affecting company competitiveness, indicated by a *p*-value of 0.140. This aligns with previous research by Kuo et al. (2017) and Ferreira & Coelho (2017), indicating that dynamic capabilities exert influence within marketing domains but may not directly correlate with competitiveness. Similarly, studies by Ferreira et al. (2021) and Shafia et al. (2016) underscore this point within exploration and exploitation realms. Lin and Chen (2017) also demonstrate the influence of dynamic capabilities on competitiveness within green activities. The discrepancy in outcomes between this study and prior research can be elucidated by the time-intensive nature of dynamic capability development, involving intricate processes of sensing, seizing, and transforming resources amidst change. This emphasizes the necessity for robust learning mechanisms and knowledge sources in fostering dynamic capabilities within a company (Chien & Tsai, 2012). Furthermore, the divergence in research results is bolstered by the expansive coverage of competitiveness variables compared to other studies (Wilson, 2020). Previous research suggests that dynamic capabilities may not directly impact competitiveness but rather indirectly influence it through avenues such as innovation capabilities (Ferreira et al., 2020), green service innovation (Lin & Chen, 2017), differential strategies (Liu et al., 2018), and technological innovation capabilities (Shafia et al., 2016).

Table 3
Results of Hypothesis Testing on Direct Effects

Hypothesis	Path	Estimate	C.R	*p-value*	Conclusion
H1	COM ← DC	0,211	6,400	0,140	Rejected
H2	COM ← INV	0,382	3,112	0,002	Accepted
H3	CER ← DC	0,654	6,400	0,000	Accepted
H4	CER ← INV	0,091	0,894	0,372	Rejected
H5	COM ← CER	0,559	3.708	0,000	Accepted

Additionally, we examined the impact of innovation on company competitiveness. The analysis findings indicate a significant correlation between innovation and company competitiveness. These findings are consistent with various prior investigations such as those conducted by Abd Aziz et al. (2016), Chatzoglou et al. (2018), C.-J. Chen (2019), Kafetzopoulos et al. (2015), Kuncoro et al. (2018), Lertpachin et al. (2013), Valdez-de la Rosa et al. (2021), Ferreira et al. (2020), and Hwang et al. (2020). Innovation plays a pivotal role in influencing competitiveness as it serves as a driving force in industry and is indispensable for a company's development. Through innovation, a company can enhance its operational efficiency relative to its competitors (Carlino & Kerr, 2015). According to the doctrine of innovation economics, the ultimate determinant of economic success in a nation is the capacity of all institutions—be they private, non-profit, or governmental—to innovate and adapt (Acs, 2003). Innovation economics emphasizes policies geared towards fostering corporate and entrepreneurial learning and innovation. The measurement of innovation has evolved across generations, commencing in the 1960s with the assessment of R&D indicators and progressing to the fourth generation, which encompasses broader and intangible indicators such as knowledge and networks (Audretsch & Walshok, 2013).

The research outcomes reveal that dynamic capabilities significantly impact DCL (Dynamic Capability Level) certification. Several prior studies yield congruent findings with respect to other variables, namely company performance (S. Chien et al., 2012; Pervan et al., 2018; Sarkar et al., 2016; Wilden et al., 2015), creativity (Ferreira et al., 2015), service capability (Kuo et al., 2017), service innovation (Lin et al., 2017), differential strategy (Liu et al., 2018), and technological innovation capability (Shafia et al., 2016). There is limited existing research examining DCL certification due to the simplicity, cost-effectiveness, and widespread market availability of the dynamic capabilities that companies possess in meeting DCL certification requirements. Meanwhile, the findings from the examination of the Company's DCL certification's impact on innovation reveal no significant influence. While numerous past studies have established connections between innovation and performance as well as competitiveness, few have explored its correlation with DCL certification. This disparity can be attributed to the intricate nature of innovation processes, which unfold across various stages from fundamental research to the market introduction of new products (Ferreira et al., 2017). Innovation endeavors demanding substantial costs, prolonged timelines, and adequate resources have yet to be embraced by Indonesian manufacturing firms, which predominantly prioritize low value-added operations. Typically, companies with high value-added activities are foreign investments (PMA), boasting an added value 6.6 times greater than their non-PMA and export-oriented counterparts (Sjöholm, 2018). Concurrently, DCL certification initiatives predominantly revolve around substituting locally available raw materials. Indonesia's historical efforts to promote the use of domestic content date back to the 1950s but gained traction, particularly within the automotive sector, from 1974 onwards (Aswicahyono et al., 2022). Subsequent analysis delves into the impact of DCL certification on company competitiveness, revealing a significant effect. Consistent with prior research, certification activities yield both internal and external benefits, akin to those garnered from management certification (Cândido et al., 2021; Sfreddo et al., 2021; Siltori et al., 2021; Han et al., 2012). These benefits encompass enhanced corporate image, facilitated access to government markets, augmented market share, and improved government relations, all of which positively influence internal facets such as productivity, cost efficiency, process optimization, product conformity, and service quality. Further examination assesses the indirect effect (Table 3) between Dynamic Capabilities and Innovation on Company Competitiveness, with DCL serving as an intervening variable. Dynamic capabilities are shown to exert influence on company competitiveness via the intermediary role of DCL certification. This aligns with prior studies demonstrating that dynamic capabilities necessitate intervening

variables to impact competitiveness (Ferreira et al., 2020; Lin & Chen, 2017; Liu et al., 2018; Shafia et al., 2016). It underscores how external benefits associated with DCL certification can catalyze the company's dynamic capabilities in sensing, seizing, and transforming. Several factors bolster the company's dynamic capabilities in advocating for DCL certification, including: 1) Sufficient capacity within the domestic industry to meet domestic component requirements; 2) Clarity in DCL and BMP calculations; 3) Certainty and transparency in timeframes, costs, and procedural aspects of DCL certification applications; and 4) Incentives such as price preference provisions for domestically sourced products meeting the minimum 25% DCL requirement in government procurement processes.

Table 4
Testing of the Hypothesis of Indirect effect or Intervening

Hyphothesis	Path	Estimate	t test	t-table	Conclusion
H6	DC → CER → COM	0.365	3.526	1.967	Accepted
H7	INV → CER → COM	0.051	1.312	1.967	Rejected

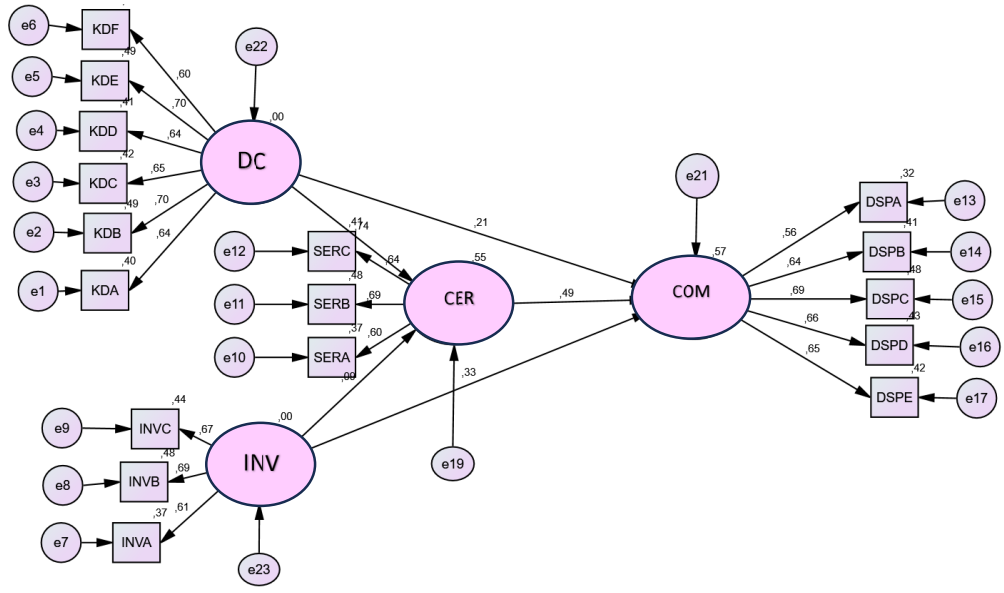

Fig. 2. The output of structural Equation Modelling

Finally, we explore how government support acts as a mediator in enhancing the competitiveness of companies through increased DCL certification. The moderating influence of government support significantly bolsters the relationship between SER and DSP. These findings align with prior research illustrating the positive impact of governmental support or intervention on economic performance (Ju et al., 2014), the implementation of halal standards (Ab Talib et al., 2018), and innovation (Jun et al., 2021). Government policies regarding industrial procurement of goods and services intersect with international trade policies. Government procurement represents a form of Non-Tariff Measure (NTM) or Non-Tariff Barrier (NTB) permitted under international foreign trade policies by the World Trade Organization (WTO). Many of Indonesia's NTMs manifest as Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) measures, primarily addressing consumer safety concerns and predominantly confined to government procurement policies (Ing et al., 2018). The primary motivations behind DCL involve shielding local industries from intense competition posed by imported goods, fostering local employment, and stimulating export growth (Aswicahyono et al., 2022).

6. Conclusion

Based on the analysis of data, it can be inferred that the enhancement of a company's dynamic capabilities may not directly heighten its competitiveness. This is because the development of dynamic capabilities necessitates a gradual process, involving time and distinct stages, to effectively bolster a company's competitive edge. While continuous improvement of dynamic capabilities remains essential, its immediate impact on a company's competitiveness in manufacturing may not be substantial. Conversely, a company's level of innovation significantly correlates with its competitiveness. Innovation serves as a pivotal factor in confronting competitive challenges, whether through product innovation, process refinement, or restructuring of business models. Regarding certification, it was observed that stronger dynamic capabilities within a company correlate with its ability to meet Dynamic Capability Certification (DCL) standards. Companies equipped with robust dynamic capabilities can adeptly reallocate resources to satisfy DCL certification requisites. Conversely, heightened innovation within a company does not necessarily translate to improved DCL certification, as evidenced by a lack of interest in certification,

potentially due to an export-oriented focus or other market priorities. Companies boasting a high DCL value stand a greater chance in government procurement processes, as outlined in technical instructions for implementing LKPP regarding price preferences and high DCL value priorities. While DCL certification mediates the impact of dynamic capabilities on competitiveness, innovation alone does not exhibit such a direct relationship. Domestic companies require incentives to pursue DCL certification to bolster their competitiveness, with government backing playing a crucial role in fostering this relationship. Policies and incentives, both fiscal and monetary, are imperative for encouraging the utilization of local content.

Future research endeavors should delve into more specific aspects of innovation, such as product, process, or information technology innovation. Furthermore, deeper exploration of dynamic capability dimensions—sensing, seizing, and transforming—is warranted to ascertain their relevance to manufacturing companies. Given the theoretical alignment of these constructs with the Resource-Based View (RBV) approach, further exploration is essential. Additionally, expanding the scope of competitiveness evaluation to include industrial, regional, national, and international levels would enrich the understanding of this construct.

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