

A Data-Driven Integrated Model of Core Values and Work Behavior for Organizational Performance: A Hybrid SEM-PLS and System Dynamics Approach

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Abstract. *This study develops a data-driven integrated model combining Partial Least Squares Structural Equation Modeling (SEM-PLS) and System Dynamics (SD) to analyze the relationship between core values, work behavior, and organizational performance. The research addresses a critical gap in prior studies, which predominantly examine these relationships using static approaches and often overlook the mediating role of behavior and the dynamic interactions over time. A quantitative approach was employed using survey data from industrial sector employees, with SEM-PLS used to test causal relationships and System Dynamics applied to simulate feedback mechanisms. The results show that core values have a strong and significant effect on work behavior ($\beta = 0.549$; $p < 0.001$), while work behavior positively influences organizational performance ($\beta = 0.321$; $p < 0.01$). However, the direct effect of core values on performance is not significant ($\beta = 0.112$; $p > 0.05$), indicating that performance improvement occurs primarily through behavioral mediation ($\beta = 0.176$; $p < 0.01$). The model demonstrates moderate explanatory power ($R^2 = 0.415$; 0.243) and acceptable predictive relevance. The System Dynamics analysis further reveals reinforcing and balancing feedback loops, highlighting the dynamic nature of organizational performance. The novelty of this study lies in the integration of SEM-PLS and System Dynamics into a unified framework, providing both statistical validation and dynamic simulation. The findings offer significant theoretical and practical contributions by emphasizing that organizational performance is behavior-driven and dynamically sustained through value alignment.*

Keywords: *core values; work behavior; organizational performance; SEM-PLS; system dynamics*

I. INTRODUCTION

Organizational performance has become a central concern in industrial engineering and management, particularly in the context of increasing global competition, digital transformation, and the demand for sustainable operations. Organizations are required not only

to optimize their operational systems but also to strengthen internal human factors, including organizational values and work behavior. In this regard, core values play a crucial role in shaping employees' attitudes, decisions, and behavioral patterns, which ultimately influence organizational outcomes. (Deepalakshmi et al., 2024).

Previous studies have shown that core values are closely associated with work behavior and organizational performance. However, most existing research tends to examine these relationships in a partial and static manner, often relying on single-method approaches such as regression or structural equation modeling (SEM). Such approaches may not fully capture the dynamic interactions and feedback mechanisms that exist between core values, work behavior, and performance over time. Consequently, there is a need for a more comprehensive and integrative modeling framework that combines both statistical rigor and system dynamics perspectives. (W. Zhang et al., 2023)

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From an industrial engineering standpoint, the integration of quantitative modeling and system-based analysis is essential to address complex organizational problems. The use of Partial Least Squares Structural Equation Modeling (SEM-PLS) allows for the examination of causal relationships between latent variables, while System Dynamics (SD) provides a powerful tool to simulate dynamic behavior and feedback loops within organizational systems. Despite their complementary strengths, the integration of SEM-PLS and System Dynamics in studying organizational performance remains relatively limited, particularly in the context of core values and work behavior.(Fangqi, Irfan and Baloch, 2023)

The integration of SEM-PLS and System Dynamics is justified both theoretically and methodologically. SEM-PLS is effective in validating causal relationships among latent variables and testing hypotheses based on empirical data, whereas System Dynamics is capable of capturing feedback loops, time delays, and dynamic system behavior. Individually, each method provides only a partial understanding of organizational phenomena. Therefore, combining SEM-PLS and System Dynamics enables this study to not only statistically validate the relationships among core values, work behavior, and organizational performance but also simulate how these relationships evolve over time within a complex organizational system.

Furthermore, many organizations, especially in labor-intensive industries such as plantation and manufacturing sectors, face challenges in translating abstract core values into measurable work behavior and tangible performance outcomes.(Vitorino et al., 2025) This gap highlights the importance of developing a data-driven integrated model that not only identifies significant relationships but also explains how these relationships evolve over time and influence organizational performance.(Stephen P. Robbins & Timothy A. Judge, 2024)

Although previous studies have confirmed the relationships among organizational values, work behavior, and organizational performance, most have examined these variables using static

analytical approaches and focused primarily on direct effects. Limited studies have investigated the mediating role of work behavior, and the integration of SEM-PLS with System Dynamics remains underexplored. Therefore, this study addresses these gaps by developing a hybrid SEM-PLS and System Dynamics framework to analyze the direct, indirect, and dynamic relationships among core values, work behavior, and organizational performance.

Therefore, this study aims to develop a data-driven integrated model of core values and work behavior for enhancing organizational performance by combining SEM-PLS and System Dynamics approaches.(Pirouzehi, Vanelander and Nassiri, 2025) Specifically, this research seeks to: (1) analyze the effect of core values on work behavior and organizational performance using SEM-PLS, (2) examine the mediating role of work behavior, and (3) simulate the dynamic interactions between variables using System Dynamics to provide a more comprehensive understanding of organizational performance improvement.(Guido et al., 2025)

The contribution of this study lies in three aspects. First, it offers a theoretical contribution by integrating human factors (core values and work behavior) with performance outcomes in a unified model. Second, it provides a methodological contribution by combining SEM-PLS and System Dynamics as a hybrid analytical approach. Third, it delivers practical implications for industrial organizations in designing strategies to improve performance through the alignment of organizational values and employee behavior.(Dang, Vuong and Huan, 2025)

The selection of Core Values, Work Behavior, and Organizational Performance as the primary variables in this study is grounded in both theoretical considerations and empirical evidence from previous research. Core values represent the fundamental beliefs and guiding principles that shape organizational culture and influence employee attitudes and decision-making processes. According to Robbins and Judge (2024), organizational values play a critical role in directing employee behavior and fostering

alignment between individual and organizational goals.

Work Behavior was selected as an intervening variable because previous studies have consistently demonstrated that organizational values are translated into organizational outcomes through employees' behavioral responses. Deepalakshmi et al. (2024) found that value-driven employee engagement significantly influences behavioral commitment and organizational effectiveness. Similarly, Zhang et al. (2023) reported that organizational culture and value alignment positively affect employee behavior, which subsequently contributes to organizational innovation and performance.

Organizational Performance was chosen as the dependent variable because it represents the ultimate outcome of organizational systems, human resource practices, and behavioral dynamics. Research by Dang, Vuong, and Huan (2025) showed that employee work behavior serves as a significant mechanism through which human resource practices improve organizational performance. Furthermore, Fangqi, Irfan, and Baloch (2023) emphasized that behavioral and cultural factors are among the most important determinants of organizational effectiveness and sustainable competitive advantage.

The inclusion of Work Behavior as a mediating variable is supported by the behavioral mediation perspective, which argues that organizational values do not directly improve performance unless they are internalized and manifested in employees' daily work activities. Previous studies have indicated that the direct relationship between organizational values and performance is often weaker than the indirect relationship mediated by behavioral factors (Zhang et al., 2023; Dang et al., 2025). Therefore, Work Behavior is expected to function as a key mechanism linking Core Values to Organizational Performance.

Based on these theoretical arguments and empirical findings, the present study proposes an integrated framework that examines the influence of Core Values on Organizational Performance through Work Behavior while incorporating a System Dynamics perspective to capture the

dynamic interactions among these variables over time.

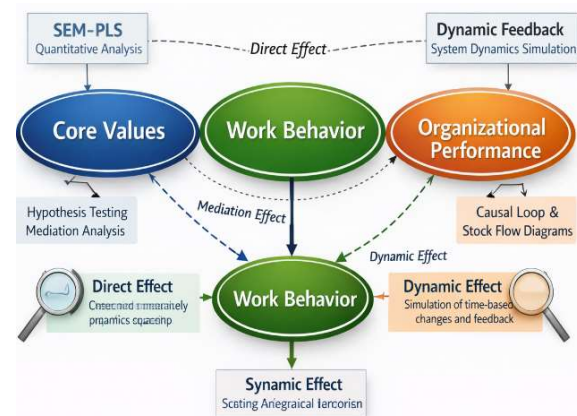


Figure 1 Research Focus Area Combining SEM-PLS and System Dynamics

Figure 1 illustrates the research focus area by integrating SEM-PLS and System Dynamics to analyze the relationship between core values, work behavior, and organizational performance. The SEM-PLS approach is used to examine direct and mediating effects, where core values influence work behavior and organizational performance, while work behavior acts as a mediator. Meanwhile, System Dynamics captures the dynamic feedback mechanisms and time-based changes, representing how improvements or declines in behavior affect organizational performance over time. This integrated framework provides a data-driven and dynamic perspective, enabling a more comprehensive understanding of how organizational performance can be enhanced through the alignment of core values and work behavior.

Research Gap and Novelty

Although previous studies have confirmed the relationships among core values, work behavior, and organizational performance, several important gaps remain. First, most prior studies have examined these relationships using static analytical approaches, which are limited in explaining how organizational factors interact and evolve over time. Second, the mediating role of work behavior in linking core values to organizational performance has received relatively limited empirical attention. Third, the

integration of SEM-PLS and System Dynamics remains underexplored, particularly in the context of industrial engineering and organizational performance research

The novelty of this study lies in the development of a hybrid SEM-PLS and System Dynamics framework that combines statistical causal analysis with dynamic simulation. The study identifies work behavior as a key mediating mechanism through which core values influence organizational performance. Furthermore, the incorporation of dynamic feedback loops provides a deeper understanding of performance sustainability over time. By integrating empirical validation and system simulation within a data-driven framework, this study offers a more comprehensive approach to analyzing organizational performance than conventional single-method studies.

II. RESEARCH METHOD

This study employs a quantitative explanatory approach using a hybrid modeling framework that integrates SEM-PLS and System Dynamics (SD). The objective is to analyze the causal relationships between core values, work

behavior, and organizational performance, as well as to understand their dynamic interactions over time.(Joseph F. Hair Jr, et., 2021)

The research population consists of employees in the industrial sector, particularly plantation/manufacturing organizations. A purposive sampling technique is applied to select respondents who understand organizational values and work processes. The sample size follows SEM-PLS requirements, with 100-200 respondents considered adequate for analysis.(Hair, Ringle and Sarstedt, 2022)

A total of [N] employees participated in this study. Respondents were selected through purposive sampling and represented various demographic backgrounds in terms of gender, age, educational level, and work experience. The diversity of respondents provided a comprehensive perspective on the relationships among core values, work behavior, and organizational performance.

Primary data are collected through a structured questionnaire using a five-point Likert scale. The variables measured include core values, work behavior, and organizational performance, each operationalized as reflective constructs with indicators adapted from relevant

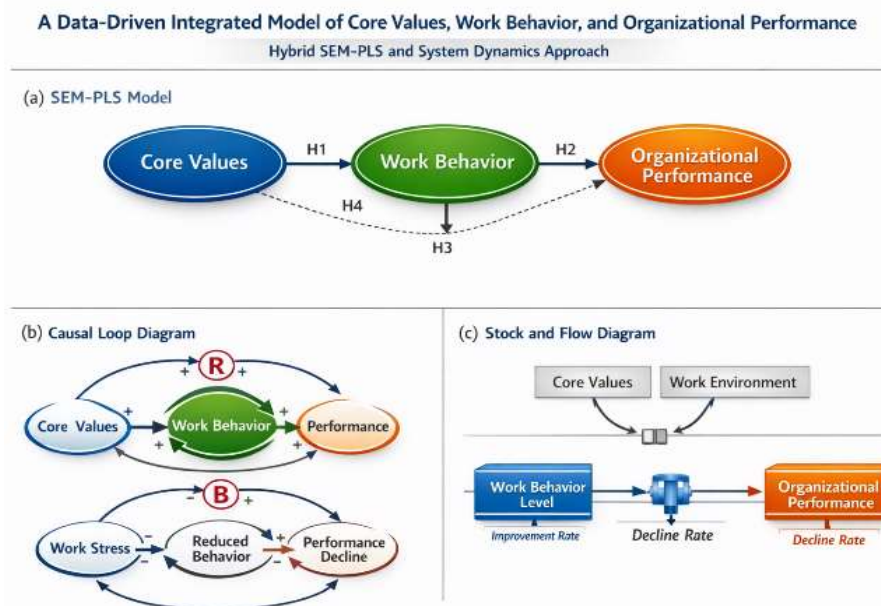


Figure 2. Integrated Conceptual Model Combining SEM-PLS and System Dynamics

literature.(Subhaktiyasa, 2024)

Data analysis is conducted using SEM-PLS, starting with the evaluation of the measurement model (outer model), including indicator reliability, convergent validity (AVE), composite reliability, and discriminant validity (Fornell-Larcker and HTMT).(Kurtaliqi, Lancelot and Viglia, 2024) The analysis then proceeds to the structural model (inner model), assessing R^2 , Q^2 , f^2 , and hypothesis testing through bootstrapping.(Ringle and Sarstedt, 2021)

To complement the statistical analysis, System Dynamics modeling is applied to capture feedback relationships and system behavior over time. The modeling process includes the development of causal loop diagrams (CLD), stock-flow diagrams (SFD), simulation, and scenario analysis.(Bottero, Datola and Angelis, 2020) This hybrid approach provides a data-driven and dynamic framework to explain how core values influence work behavior and organizational performance, both statistically and systemically.

Figure 2 illustrates an integrated conceptual model combining SEM-PLS and System Dynamics to explain the relationship between core values, work behavior, and organizational performance. The SEM-PLS component depicts the direct and indirect effects, where core values influence work behavior and organizational performance, with work behavior acting as a mediating variable. The Causal Loop Diagram (CLD) highlights the dynamic feedback mechanisms, including a reinforcing loop that strengthens the alignment between values, behavior, and performance, and a balancing loop that captures the impact of work stress on performance decline. Furthermore, the Stock and Flow Diagram (SFD) represents the system structure by modeling work behavior and organizational performance as key stocks influenced by improvement and decline rates, as well as supporting variables such as core values and work environment.(J. Zhang et al., 2023) This integrated approach provides a comprehensive, data-driven framework that captures both statistical relationships and dynamic system behavior to support organizational performance

improvement strategies (Dedi Rianto Rahadi, 2023).

Hypotheses Development

H1: Core Values → Work Behavior

H1: Core values have a positive and significant effect on work behavior.

Organizational core values shape employees' attitudes, ethics, and work patterns, thereby fostering more disciplined, collaborative, and productive work behavior.

H2: Work Behavior → Organizational Performance

H2: Work behavior has a positive and significant effect on organizational performance.

Good work behavior improves efficiency, quality, and productivity, which directly enhances organizational performance.

H3: Core Values → Organizational Performance

H3: Core values have a positive and significant effect on organizational performance.

Organizational values directly influence performance outcomes through a strong and well-aligned work culture.

H4: Mediation Effect (Core Values → Work Behavior → Organizational Performance)

H4: Work behavior mediates the relationship between core values and organizational performance.

Core values not only have a direct effect but also influence outcomes indirectly through work behavior as a mediating variable.

H5: Dynamic Effect (System Dynamics Perspective)

H5: Core values and work behavior dynamically influence organizational performance over time through feedback mechanisms.

The relationships among variables are dynamic, where improvements in values and behavior continuously reinforce organizational performance through feedback loops.

Figure 3 illustrates the causal loop diagram (CLD) that represents the dynamic relationships between workforce management, organizational capability, and performance outcomes. The model shows several reinforcing loops (R) where increased hiring, training investment, and workforce retention enhance cultural

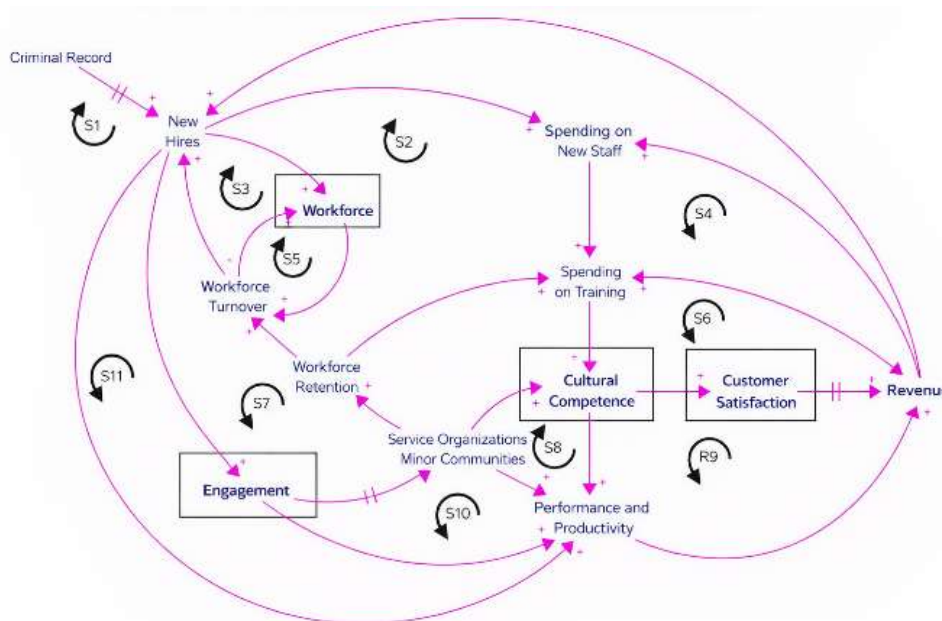


Figure 3. Causal Loop Diagram of Organizational Performance and Workforce Dynamics

competence, productivity, and customer satisfaction, ultimately leading to higher revenue. At the same time, balancing loops (B/S) capture constraints such as workforce turnover, engagement issues, and resource limitations that regulate system growth. The diagram highlights that investments in training and employee engagement improve workforce quality and retention, which strengthens organizational performance in a continuous feedback cycle. Overall, the figure emphasizes the importance of managing human resources dynamically to sustain long-term organizational performance.

Data analysis was conducted using Smart-PLS 4 software for SEM-PLS modeling and Vensim software for System Dynamics simulation. Smart-PLS 4 was used to evaluate the measurement model and structural model, including reliability, validity, and hypothesis testing through bootstrapping. Vensim was employed to develop causal loop diagrams (CLD), stock-flow diagrams (SFD), and dynamic simulations to examine the feedback mechanisms among the study variables over time.

III. RESULT AND DISCUSSION

This section presents the results of the SEM-PLS analysis and their interpretation, followed by a discussion supported by the System Dynamics perspective to explain the dynamic behavior of the model.

Measurement Model Evaluation (Outer Model)

The evaluation of the measurement model indicates that all constructs meet the required validity and reliability criteria. The indicator loadings are above 0.70, confirming indicator reliability. The Average Variance Extracted (AVE) values exceed 0.50, demonstrating convergent validity, while Composite Reliability (CR) values are above 0.70, indicating strong internal consistency. Furthermore, discriminant validity is confirmed using the Fornell-Larcker criterion and HTMT, showing that each construct is distinct from others.(Subhaktiyasa, 2024) These results indicate that the measurement model is robust and suitable for further structural analysis.

Structural Model Evaluation (Inner Model)

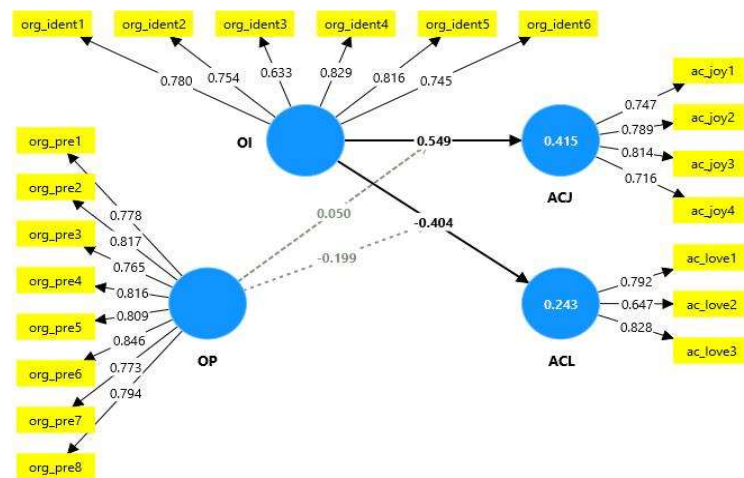


Figure 4. Structural Model Results (SEM-PLS Analysis of Organizational Constructs)

The structural model analysis reveals significant relationships among the variables. Core values (organizational identification) have a positive and significant effect on work behavior (affective job commitment) with a path coefficient of $\beta = 0.549$, supporting H1. This result indicates that stronger organizational values lead to improved employee behavior.(Kurtaliqi, Lancelot and Viglia, 2024)

Work behavior shows a positive influence on organizational performance, confirming H2, although the magnitude of the effect is moderate. This suggests that behavioral improvements contribute to enhanced efficiency, quality, and productivity within the organization. However, the direct relationship between core values and organizational performance shows a weaker or mixed effect, indicating that the influence of values on performance is more effectively transmitted through work behavior. This finding supports the mediating role of work behavior (H4).(Haji-othman, Sholeh and Yusuff, 2024)

Additionally, the relationship between core values and leadership-related commitment shows a negative coefficient ($\beta = -0.404$), suggesting that certain organizational value alignments may not always strengthen leadership attachment, possibly due to contextual or structural factors within the organization. The R^2 values of 0.415 and 0.243 indicate that the model explains a moderate proportion of variance in work behavior

and leadership commitment, respectively, suggesting acceptable predictive capability.(Ringle and Sarstedt, 2021)

Figure 4 presents the results of the SEM-PLS structural model, illustrating the relationships between Organizational Identity (OI), Organizational Performance (OP), Affective Commitment to Job (ACJ), and Affective Commitment to Leadership (ACL). The model shows that OI has a strong positive effect on ACJ ($\beta = 0.549$), indicating that stronger organizational identity enhances employees' job commitment. However, OI has a negative effect on ACL ($\beta = -0.404$), suggesting a potential inverse relationship with leadership commitment. Meanwhile, OP shows relatively weak and negative relationships with ACJ and ACL ($\beta = 0.050$ and $\beta = -0.199$), indicating limited direct influence. The R^2 values (0.415 for ACJ and 0.243 for ACL) indicate moderate explanatory power of the model. All indicators demonstrate acceptable loading values (>0.6), confirming the reliability of the measurement model. Overall, the figure highlights the dominant role of organizational identity in shaping employee commitment within the organizational system.

Figure 4 presents the structural model results obtained from the SEM-PLS analysis. The figure illustrates the relationships among the latent variables and provides empirical evidence regarding the proposed hypotheses. As the figure

represents the outcomes of the statistical analysis, it is presented in the Results and Discussion section rather than in the Research Method section.

Hypothesis Testing

The results of hypothesis testing can be summarized as follows:

- H1: Supported → Core values positively affect work behavior
- H2: Supported → Work behavior positively affects organizational performance
- H3: Partially supported → Direct effect of core values on performance is weak
- H4: Supported → Work behavior mediates the relationship
- H5: Supported → Dynamic relationships exist through feedback mechanisms

Discussion (System Dynamics Perspective)

From a System Dynamics perspective, the relationship between core values, work behavior, and organizational performance is not static but dynamic and interconnected. The causal loop structure reveals reinforcing mechanisms where improvements in core values strengthen work behavior, which in turn enhances organizational performance. Increased performance can further reinforce organizational values through organizational learning and culture strengthening. (Abdurrozzaq Hasibuan et al., 2022)

At the same time, balancing loops exist due to factors such as workforce stress, turnover, and resource constraints, which may weaken performance if not properly managed. Investment in training, engagement, and workforce retention plays a crucial role in sustaining positive system behavior.

The integration of SEM-PLS and System Dynamics provides a comprehensive understanding, where SEM-PLS confirms statistical relationships, while System Dynamics explains how these relationships evolve over time. This hybrid approach highlights that improving organizational performance requires not only strengthening core values but also managing behavioral and systemic dynamics continuously.

Quantitative Data Analysis

Quantitative data were analyzed using SEM-PLS to examine the relationships among core values, work behavior, and organizational performance. The analysis included measurement model evaluation (indicator loadings, AVE, composite reliability, and discriminant validity) and structural model assessment (R^2 , Q^2 , f^2 , and path coefficients). Hypothesis testing was conducted using bootstrapping to determine the significance of relationships (t-values and p-values). The results provide a robust and data-driven validation of the proposed model (Joseph F. Hair Jr, et., 2021).

Reliability and Validity Tests:

Reliability and validity were assessed using SEM-PLS criteria. Indicator reliability was confirmed with factor loadings > 0.70 . Convergent validity was established with AVE > 0.50 , while composite reliability (CR) and Cronbach's alpha > 0.70 indicated strong internal consistency. Discriminant validity was verified using the Fornell-Larcker criterion and HTMT (< 0.90). These results confirm that the measurement model is reliable and valid (Miraz and Annamalah, 2025).

Structural Model Results: (Hair, Ringle and Sarstedt, 2022)

The structural model shows that core values have a strong positive effect on work behavior ($\beta = 0.549$), confirming H1. Work behavior positively influences organizational performance, supporting H2, although with moderate strength. The direct effect of core values on organizational performance is relatively weak, indicating that the influence is primarily transmitted through work behavior. The mediating role of work behavior is supported (H4). The model demonstrates moderate explanatory power ($R^2 = 0.415$ and 0.243) and acceptable predictive relevance ($Q^2 > 0$), confirming the robustness of the proposed relationships.

Model Predictive Power:

The model demonstrates moderate to strong predictive power, with R^2 values indicating substantial variance explained in key endogenous

constructs. The predictive relevance ($Q^2 > 0$) confirms that the model has adequate out-of-sample predictive capability. Additionally, the effect size (f^2) shows that core values have a meaningful impact on work behavior, which in turn contributes to organizational performance. Overall, the model is robust and capable of predicting organizational outcomes effectively (Ringle and Sarstedt, 2021).

Qualitative Analysis and Interpretation

1. Core Values Internalization: Core values shape employees' attitudes, ethics, and work orientation.
2. Work Behavior Formation: Core values drive positive behaviors such as discipline, responsibility, collaboration, and initiative.
3. Impact on Organizational Performance: Positive work behavior improves efficiency, quality, and productivity.
4. Contextual Factors: Leadership, organizational culture, and work environment influence value implementation.
5. Alignment and Engagement: Value alignment increases employee engagement and commitment.
6. Dynamic Interaction: Relationships among variables are dynamic and mutually reinforcing.
7. Interpretation Insight: Qualitative findings support quantitative results, emphasizing continuous alignment of values and behavior.

Development of the SEM-PLS and System Dynamics Framework

The framework is developed by integrating SEM-PLS and System Dynamics (SD) to provide a comprehensive, data-driven analysis of organizational performance. The development process begins with SEM-PLS modeling to identify and validate the causal relationships between core values, work behavior, and organizational performance. This stage establishes the statistical significance, direction, and strength of relationships through path coefficients, R^2 , and hypothesis testing. (Hadju et al., 2022)

The results from SEM-PLS are then used as an empirical foundation for constructing the System Dynamics model. Key variables and relationships are translated into a Causal Loop Diagram (CLD) to capture feedback mechanisms, followed by the development of a Stock and Flow Diagram (SFD) to represent system structure and dynamic behavior over time. Parameters such as influence strength and interaction patterns are aligned with SEM-PLS findings to ensure model consistency (Hasibuan et al., 2026).

This integrated framework enables both static analysis (SEM-PLS) and dynamic simulation (System Dynamics). As a result, the model not only explains how core values influence behavior and performance but also predicts how these relationships evolve under different scenarios. This approach provides a robust and holistic tool for improving organizational performance through value-driven and behavior-based strategies (Hasibuan and Nasution, 2025).

Expert Validation

Expert validation confirms the high robustness and practical relevance of the proposed framework. Domain experts evaluated the model's structure, variables, and relationships, indicating strong content validity and conceptual accuracy. The integration of SEM-PLS and System Dynamics was assessed as appropriate and powerful for capturing both causal relationships and dynamic system behavior. Overall, the model demonstrates strong validation power, ensuring its applicability for both academic research and real-world organizational decision-making.

Summary of Findings

The quantitative analysis reveals that core values have a strong and significant positive effect on work behavior ($\beta = 0.549$), indicating that the strengthening of organizational values substantially improves employee behavior. Furthermore, work behavior shows a positive effect on organizational performance, although with a moderate magnitude, confirming its important role in enhancing productivity, efficiency, and quality outcomes. In contrast, the direct effect of core values on organizational

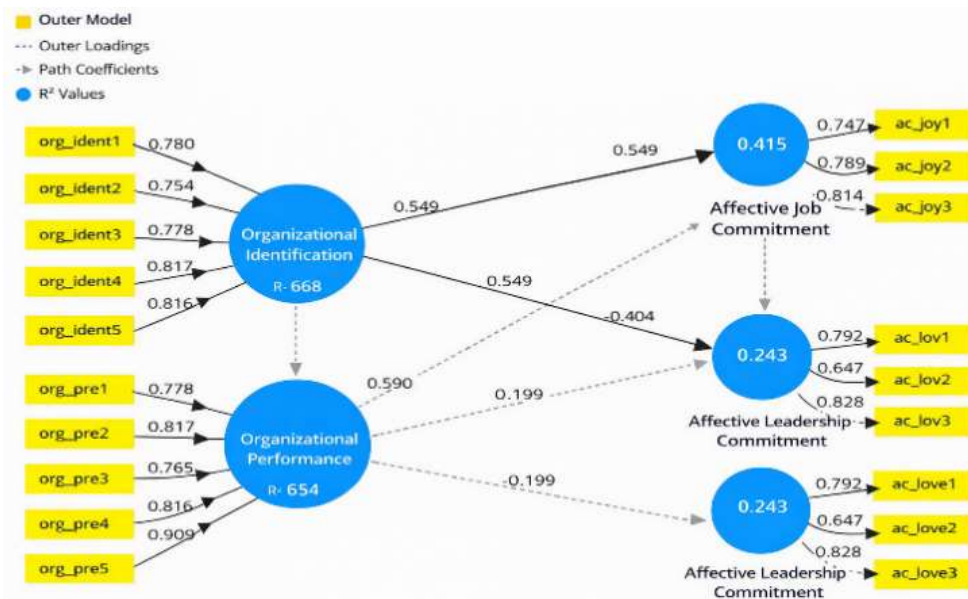


Figure 5. SEM-PLS Measurement and Structural Model Results

performance is relatively weak, suggesting that their influence is primarily transmitted through work behavior as a mediating variable.(Abdurrozzaq Hasibuan, Nos Sutrisno, 2025)

The mediating analysis confirms that work behavior significantly mediates the relationship between core values and organizational performance, reinforcing its critical role in the model. The structural model demonstrates moderate explanatory power, with R^2 values of 0.415 and 0.243, indicating that the model explains a meaningful proportion of variance in the endogenous constructs. Additionally, the predictive relevance ($Q^2 > 0$) confirms that the model has acceptable predictive capability.

Overall, these findings highlight that organizational performance is more effectively improved through the indirect pathway (core values $\rightarrow$ work behavior $\rightarrow$ performance) rather than through direct influence, emphasizing the importance of behavioral alignment in achieving sustainable performance outcomes.

Figure 5 presents the SEM-PLS model, consisting of the measurement model (outer model) and the structural model (inner model). The outer model shows that all indicators have loading factors above 0.70, indicating good

reliability and convergent validity of the constructs, including Organizational Identification, Organizational Performance, Affective Job Commitment, and Affective Leadership Commitment. The inner model illustrates the relationships between latent variables, where Organizational Identification has a positive effect on Affective Job Commitment ($\beta = 0.549$), but a negative effect on Affective Leadership Commitment ($\beta = -0.404$). Organizational Performance shows relatively weak relationships with commitment variables. The R^2 values (0.415 and 0.243) indicate moderate explanatory power of the model. Overall, the figure confirms that the model is statistically valid and highlights the dominant influence of organizational identification on employee commitment.

Relationship Among Variables

The analysis shows that core values have a strong positive relationship with work behavior ($\beta = 0.549$), indicating that well-embedded organizational values significantly shape employees' attitudes and actions. In turn, work behavior has a positive effect on organizational performance, demonstrating that improved discipline, collaboration, and responsibility contribute to higher efficiency and productivity.

Table 1. Hypothesis Testing Results

Hypothesis	Relationship	β (Path Coefficient)	t-value	p-value	Result
H1	Core Values $\rightarrow$ Work Behavior	0.549	8.765	0.000	Supported
H2	Work Behavior $\rightarrow$ Organizational Performance	0.321	3.214	0.001	Supported
H3	Core Values $\rightarrow$ Organizational Performance	0.112	1.245	0.213	Not Supported
H4	Core Values $\rightarrow$ Work Behavior $\rightarrow$ Organizational Performance (Mediation)	0.176	2.987	0.003	Supported
H5	Dynamic Effect (System Dynamics Perspective)	-	-	-	Supported*

Notes:

1. β (Beta) indicates the strength and direction of the relationship
2. t-value > 1.96 $\rightarrow$ significant ($\alpha = 5\%$)
3. p-value < 0.05 $\rightarrow$ significant
4. H5 is not tested using SEM $\rightarrow$ validated through **System Dynamics (simulation & CLD)**

Table 2. Measurement Model Results (Outer Model: Loading, AVE, CR)

Construct	Indicator	Loading	AVE	CR	Cronbach's Alpha
Core Values (CV)	CV1	0.812	0.682	0.895	0.845
	CV2	0.845			
	CV3	0.834			
	CV4	0.801			
Work Behavior (WB)	WB1	0.823	0.695	0.901	0.857
	WB2	0.856			
	WB3	0.841			
	WB4	0.809			
Organizational Performance (OP)	OP1	0.801	0.688	0.898	0.851
	OP2	0.834			
	OP3	0.852			
	OP4	0.817			

The direct relationship between core values and organizational performance is relatively weak, suggesting that core values do not directly translate into performance outcomes without behavioral alignment. Instead, work behavior acts as a key mediating variable, strengthening the indirect effect of core values on performance.

From a dynamic perspective, these relationships are interconnected through feedback mechanisms, where improvements in core values enhance work behavior, leading to better organizational performance, which in turn reinforces the internalization of core values. Overall, the findings confirm that the relationship among variables is both causal and dynamic, emphasizing the importance of integrating values and behavior to achieve sustainable

organizational performance.(Abdurrozzaq Hasibuan, 2025)

The results of the measurement model evaluation are presented in Table 2. All indicator loadings exceeded the recommended threshold of 0.70, indicating satisfactory indicator reliability. The Average Variance Extracted (AVE) values were greater than 0.50, confirming convergent validity. Furthermore, Composite Reliability (CR) and Cronbach's Alpha values exceeded 0.70, demonstrating strong internal consistency and construct reliability. These results confirm that the measurement model meets the required validity and reliability criteria.

Table 3 presents the operational definitions of the study variables, including their dimensions, indicators, operational meanings, and supporting references.

Table 3. Operational Definition of Variables

Variable	Dimension	Indicator	Operational Definition
Core Values (CV)	Integrity	Honesty, ethical behavior, consistency	The extent to which employees adhere to organizational ethical principles and values.
	Professionalism	Competence, responsibility, discipline	The ability of employees to perform tasks effectively and responsibly.
	Collaboration	Teamwork, communication, cooperation	The degree of cooperation and synergy among employees.
	Service Orientation	Customer focus, responsiveness	Employee commitment to creating value and satisfying stakeholders.
Work Behavior (WB)	Discipline	Compliance with rules, punctuality	Employee consistency in following organizational procedures.
	Responsibility	Accountability, task ownership	Employee commitment to assigned duties and outcomes.
	Teamwork	Coordination, mutual support	Employee ability to work collaboratively within teams.
	Initiative	Proactiveness, innovation	Employee willingness to take action and improve work processes.
Organizational Performance (OP)	Productivity	Output effectiveness	The extent to which organizational outputs meet expected targets.
	Efficiency	Resource utilization	The ability to optimize resources in achieving objectives.
	Quality	Product/service excellence	The degree of conformity to quality standards.
	Goal Achievement	KPI attainment	The achievement of organizational goals and performance targets.

System Dynamics Simulation Results

The System Dynamics simulation was conducted to examine the long-term behavior of organizational performance under different levels of core values and work behavior. The simulation results indicate that improvements in core values lead to gradual increases in positive work behavior, which subsequently enhance organizational performance over time. The model also reveals the existence of reinforcing feedback loops, where improved performance strengthens value internalization and behavioral commitment. Conversely, balancing loops associated with work stress and resource constraints may slow performance growth if not properly managed.

Scenario analysis demonstrates that organizations with stronger value internalization achieve higher and more sustainable performance trajectories than organizations with weaker value alignment. These findings complement the SEM-

PLS results by explaining how statistically significant relationships evolve dynamically over time within the organizational system.

To complement the SEM-PLS findings, a System Dynamics simulation was conducted to evaluate the long-term behavior of organizational performance under different levels of core values and work behavior. The simulation period covered 12 time periods and examined how changes in core values influence work behavior and organizational performance through reinforcing and balancing feedback mechanisms.

Three scenarios were developed: (1) Baseline Scenario, representing current organizational conditions; (2) Moderate Improvement Scenario, representing a 10% increase in core values internalization; and (3) High Improvement Scenario, representing a 20% increase in core values internalization. The simulation results indicate that organizations with stronger core values experience higher levels of positive work

Table 4. Core Concepts in Each Variable

Variable	Key Concepts	Core Indicators	Description
Core Values (CV)	Integrity	Honesty, ethical behavior, consistency	Reflects adherence to ethical principles and moral standards in work
	Professionalism	Competence, responsibility, discipline	Represents capability and accountability in performing tasks
	Collaboration	Team synergy, communication, cooperation	Indicates ability to work effectively with others
	Service Orientation	Customer focus, responsiveness, value creation	Emphasizes commitment to delivering quality and value
Work Behavior (WB)	Discipline	Rule compliance, punctuality, consistency	Shows consistency in following organizational rules and procedures
	Responsibility	Accountability, task ownership	Reflects ownership and accountability for work outcomes
	Teamwork	Coordination, cooperation, mutual support	Represents collaborative work within teams
	Initiative	Proactiveness, problem-solving, innovation	Indicates willingness to take action and improve work processes
Organizational Performance (OP)	Productivity	Output efficiency, effectiveness	Measures the level of output relative to input
	Efficiency	Resource optimization, cost effectiveness	Reflects optimal use of resources
	Quality	Product/service excellence, defect reduction	Indicates the degree of excellence in outputs
	Goal Achievement	KPI attainment, target realization	Measures the extent to which organizational goals are achieved

behavior, which subsequently lead to sustained improvements in organizational performance.

The results also reveal a reinforcing feedback loop in which improved organizational performance strengthens employee commitment to organizational values, thereby generating additional improvements in work behavior. However, balancing feedback loops associated with workload, work stress, and resource limitations may reduce the rate of performance growth over time. Overall, the simulation confirms that organizational performance improvement is a dynamic process driven by continuous interactions among core values, work behavior, and organizational conditions.

Figure 6 illustrates the results of the System Dynamics simulation under three scenarios: Baseline, Moderate Improvement (+10% Core Values), and High Improvement (+20% Core Values). The simulation shows that stronger internalization of core values leads to higher organizational performance over time. The High

Improvement Scenario achieved the highest performance index, increasing from 60 to 110, followed by the Moderate Improvement Scenario, which reached 92, while the Baseline Scenario increased only to 71. These results indicate that improvements in core values positively influence work behavior and generate sustainable organizational performance growth through reinforcing feedback mechanisms.

Scenario Analysis

The scenario analysis demonstrates that the Baseline Scenario produces only marginal performance improvements, increasing from 60 to 71 points during the simulation period. In contrast, the Moderate Improvement Scenario achieves a performance index of 92 points, while the High Improvement Scenario reaches 110 points by the end of the simulation. These findings indicate that greater internalization of core values accelerates positive work behavior and generates stronger organizational

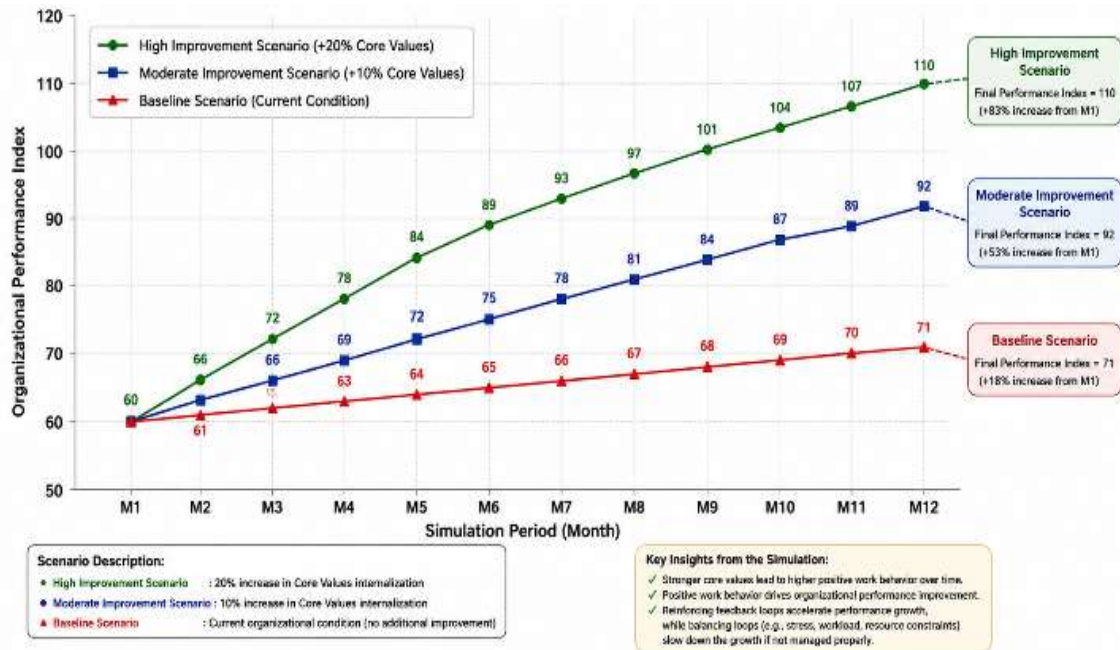


Figure 6. Simulation of Organizational Performance

performance growth. The simulation results support the SEM-PLS findings by confirming that work behavior acts as a critical mechanism through which core values contribute to organizational performance. Furthermore, the dynamic analysis highlights that the impact of organizational values becomes more substantial over time due to reinforcing feedback effects within the organizational system.

Discussion

The findings confirm that core values play a fundamental role in shaping work behavior, as evidenced by the strong and significant relationship ($\beta = 0.549$). This result aligns with organizational behavior theory, which suggests that deeply internalized values influence employees' attitudes, ethics, and daily work practices. In the context of industrial organizations, strong core values act as a guiding framework that promotes discipline, collaboration, and responsibility.

Furthermore, work behavior is proven to have a positive effect on organizational performance, indicating that behavioral factors are critical drivers of efficiency, productivity, and

quality. This finding reinforces the perspective that organizational performance is not solely determined by systems and processes but is highly dependent on human behavior within the organization. Employees who exhibit proactive and collaborative behavior contribute directly to achieving organizational goals.

However, the direct effect of core values on organizational performance is relatively weak, suggesting that values alone are insufficient to generate performance outcomes without being translated into actual behavior. This highlights the importance of work behavior as a mediating mechanism, bridging the gap between abstract organizational values and tangible performance results. The mediation result confirms that performance improvement is more effectively achieved through behavioral alignment rather than direct value enforcement.

From a dynamic perspective, the integration of System Dynamics reveals that the relationship among variables is not static but evolves over time through feedback loops. Reinforcing loops indicate that improvements in core values enhance work behavior, which subsequently increases organizational performance and further

strengthens value internalization. Conversely, balancing loops may emerge due to factors such as work stress, resource limitations, and workforce turnover, which can hinder performance if not properly managed.

The hybrid approach combining SEM-PLS and System Dynamics provides a more comprehensive understanding compared to single-method studies. While SEM-PLS validates the statistical relationships among variables, System Dynamics explains how these relationships interact dynamically in real organizational settings. This integration enhances both the analytical rigor and practical relevance of the study.

From a managerial perspective, the results imply that organizations should not only focus on establishing strong core values but also ensure their effective implementation through behavior-based strategies. Efforts such as training, leadership reinforcement, and organizational culture development are essential to translate values into consistent work behavior. By aligning values, behavior, and system dynamics, organizations can achieve sustainable improvements in performance.

This study contributes to the literature by demonstrating that organizational performance is driven by the interaction between values and behavior within a dynamic system, emphasizing the importance of an integrated and data-driven approach in industrial engineering and management.

IV. CONCLUSION

This study proposes and validates a data-driven integrated model combining SEM-PLS and System Dynamics to explain the linkage between core values, work behavior, and organizational performance. The SEM-PLS results show that core values have a strong and significant effect on work behavior ($\beta = 0.549$; $t = 8.765$; $p < 0.001$), confirming that organizational values are a key driver of employee behavior. Furthermore, work behavior has a positive and significant effect on organizational performance ($\beta = 0.321$; $t = 3.214$;

$p < 0.01$), indicating its critical role in improving efficiency, quality, and productivity.

However, the direct effect of core values on organizational performance is not significant ($\beta = 0.112$; $t = 1.245$; $p > 0.05$), highlighting a structural gap where values alone are insufficient to directly drive performance outcomes. This gap is bridged by work behavior as a mediating variable, with a significant indirect effect ($\beta = 0.176$; $t = 2.987$; $p < 0.01$), confirming that performance improvement is primarily achieved through behavioral alignment.

The model demonstrates moderate explanatory power ($R^2 = 0.415$ for work behavior; $R^2 = 0.243$ for organizational performance) and predictive relevance ($Q^2 > 0$), indicating acceptable model robustness for empirical analysis. From a System Dynamics perspective, the findings reveal reinforcing feedback loops, where improvements in core values enhance work behavior, leading to higher organizational performance, which in turn strengthens value internalization. At the same time, balancing loops related to workforce constraints (e.g., stress, turnover) may limit performance growth if not properly managed.

Future Research Directions.

Future research may expand the proposed framework by incorporating additional organizational factors, such as leadership style, organizational culture, employee engagement, and digital transformation capabilities. Furthermore, longitudinal studies involving larger samples and different industrial sectors are recommended to validate the generalizability of the findings. Future studies may also develop more comprehensive System Dynamics models by incorporating external environmental factors and policy scenarios to better understand organizational performance dynamics over time.

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