

LEGAL GOVERNANCE OF ARTIFICIAL INTELLIGENCE AND DIGITAL TRANSFORMATION: THE MEDIATING ROLE OF ETHICAL LEADERSHIP AND ITS IMPACT ON ORGANIZATIONAL SUSTAINABILITY AND INNOVATION

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ABSTRACT

This paper seeks to investigate the role played by legal regulation of Artificial Intelligence in organizational sustainability and innovation, and specifically, the moderating effect of ethical leadership. The study aims to comprehend the extent to which clear legal systems with ethical leadership can lead to innovation and organizational integrity and sustainability. A quantitative, cross-sectional design was employed, targeting organizations within a relevant industrial sector. Data were collected using validated measurement scales and analyzed using SPSS and SmartPLS to assess measurement reliability, structural relationships, and mediation effects. The findings indicate that both legal governance and digital transformation significantly enhance organizational sustainability, while ethical leadership mediates the relationship between legal governance and sustainability. However, mediation between digital transformation and organizational innovation was not supported. These results highlight the importance of regulatory alignment and technological capacity in shaping sustainable outcomes, while highlighting conditions under which leadership ethics exert greater influence. The study offers theoretical and practical insights for strengthening sustainability strategies through improved governance, leadership development, and digital integration.

Keywords: Legal Governance, Artificial Intelligence, Digital Transformation, Ethical Leadership, Organizational Sustainability and Innovation

INTRODUCTION

The world is witnessing an accelerated technological change, the changing expectations of the stakeholders and an increased level of questioning in organizations across the world in terms of long-term societal impact. The ever-increasing pace of intelligent digital system integration has not only altered the structure of operations but also re-conceptualized the manner in which businesses

have come to understand what value, responsibility and resilience entail. Researchers observe that the new technologies are gaining closer ties with the ethical, managerial, and developmental issues and are forming complex crossroads between social welfare and the advancement of technologies (Saurabh et al., 2022). Such changes have escalated discussions on how institutions can continue to be

competitive and maintain accountability within the automation-influenced, data-driven decision making and changing governance requirements. Recent debates claim that the future of organizations relies on the ability to balance technological aptitude and responsible management approaches, organizational culture, and innovation platforms (Ossiannilsson, 2025). Meanwhile, world market demands new types of strategic agility and compel organizations to take agile, transparent, and society-oriented structures. This wider discussion is indicative of a paradigm shift in which companies deal with the process of technological progress: not as an efficiency driver, but as an agent to influence ethical conduct, stakeholder confidence, and the long-term developmental performance (Aldoseri et al., 2024). These dynamics form a significant context to comprehend the way in which contemporary organizations are able to achieve relevance and legitimacy in a world that is becoming more digital and sustainability-minded.

The latest researches offer valuable information about the way in which the modern organization setting is changing under the pressure of the digitalization and sustainability requirements. Research indicates that innovative technologies have the potential to increase creative abilities, reinforce environmentally oriented innovation, and empower strategic decision-making procedures (Gazi et al., 2024; Liang et al., 2024). The researchers also emphasize that the leadership and governance systems are also instrumental in determining the ways in which the emerging technologies can be transformed into the positive organizational outcomes such as better performance and responsible workplace culture (Abuzaid et al., 2024; Sengullendi et al., 2024). There is empirical evidence that technology-based change is best facilitated with the help of favorable cultures, employee empowerment, and institutional trust (Asif et al., 2024; Abdulmuhsin et al., 2025). Nevertheless, a number of studies indicate discrepancies in the manner in which companies strike a balance between the benefits of technology and ethical, regulatory, and social factors, indicating that questions of alignment of digital progress with sustainable development priorities persist

(Kulkarni et al., 2024; Wu and Yun, 2024). All these findings are a strong incentive to conduct further research into the process that can be used to connect technological change, organizational values, and long-term sustainability outcomes.

Modern businesses are experiencing an overlap of international pressures that are way beyond the customary operational issues. Geopolitical instability, climate-based disruptions, and accelerated digitalization are increasing the level of uncertainty in the economies of the world. According to international reports, there is a growing focus that organizations should incorporate responsible technological practices in order to address sustainability demands and regulatory shifts in the markets that are being experienced (Wang et al., 2025). Companies in most countries are facing increased pressure in the society to provide disclosure of the implementation of technological tools, especially those that affect decision making, workforce arrangement, or the environmental effects. It can be compared to the evidence that poorly implemented technological adoption could enhance social inequalities, undermine trust, and increase susceptibility to governance (Zhanbayev et al., 2023). Digital modernization and the necessity to preserve inclusive development tracks are the two challenges that developing economies have to resolve at the national level. Local industries have to work with a finite set of resources and prove their responsibility in technological shifts, which is highly observed in the emerging markets where there are still gaps in digital capabilities (Kulkarni et al., 2024; Qadri et al., 2025). Such circumstances indicate a significant tension that is with the growth of technology, there are increased efficiency and innovation, but on the other hand, the organizations are subjected to ethical, legal, and social scrutiny. This conflict has a direct impact on the way companies think about a sustainable future and supports the necessity to study the mechanisms that make the responsible and innovation-oriented development.

Despite the various positive aspects of technology-facilitated change that have been documented in the literature, there are still crucial gaps in knowledge that organizations can use to strike a balance between digital

advancement and ethical, regulatory, and sustainability factors. The majority of research pays attention to technological capability or leadership separately without much observation of the interaction between these two dimensions in the larger governance contexts (Nasir et al., 2022; Niu et al., 2022). The relevance of harmonizing technological advancement with responsible management practices has been found in research, but the empirical work usually does not consider the structural tensions that occur when companies strive to introduce advanced technologies to managed, accountability-based settings (Rosa & Lobanova, 2022; Martinez-Pelaez et al., 2023). Moreover, most of the available evidence is focused on technologically advanced or resource-rich economies, which is unlikely to capture the institutional challenges of developing countries that have to navigate digital changes (Jalil et al., 2025; Siswanti et al., 2024). Researchers are starting to agree that the introduction of technology does not always lead to sustainable results; instead, the results rely on the relationship between organizational values, governance practices, and innovation capacity (Suljic, 2025; Odugbesan et al., 2023). Nevertheless, the literature does not present consistent results on the effects of these interactions on the long-term sustainability performance. There are studies in which the impact on the organization is positive, and there are studies in which technological progress is said to generate ethical dilemmas or governance risks, but in cases where the organization system is not well prepared to handle them (Wu et al., 2024; Zhou et al., 2022). Therefore, there remains a definite theoretical and empirical gap: a lack of knowledge regarding how technology-driven change, internal leaders and governance systems jointly determine sustainable development paths in modern organizations. This gap is critical to filling in the formulation of structures that can make organizational strategy meet societal expectations.

The insights gained into the maneuvering between technological progress and sustainability of an organization have important implications in scholarly research, policy making, and management practice. Responsible technological governance is becoming a

requirement by governments and other international bodies in their pursuit of economic development and social welfare, in line with Sustainable Development Goals concerning innovation, responsible consumption, climate action, and institutional integrity (Wang et al., 2025). Any company that does not consider responsible practices in the digital transformation initiatives is prone to regulatory fines, loss of reputation, and lack of stakeholder confidence. There is empirical evidence demonstrating that organizations that can integrate technological innovation with ethical and sustainable values have greater and more sustainable competitive advantages and better relationships with their stakeholders (Hussein et al., 2024; Shaik et al., 2024). Policy wise, the resolution of these problems helps in the national development goals as it is important to make sure that the technological modernization helps in the improvement of the socioeconomic development instead of causing systemic risks. In the case of managers, it is necessary to provide systems that will promote innovation and safeguard organizational values, the well-being of employees, and the environment (Aldoseri et al., 2024). Based on these facts, it is imperative to learn more about the ways in which organizations are balancing technological aspirations, governance, and sustainability factors in the development of strategies that can help in facilitating long-term resilience of both society and organizations.

The study has an added value of combining the insights of the technological, organizational, and sustainability spheres into a single framework that discusses the neglected interactions in the current research. It develops the knowledge of the ways in which modern companies cope with the challenges of the digital transformation and ethical and development-oriented demands (Qadri et al., 2025; Asif et al., 2024). The strength of the study is that it is holistic and it is able to unify dimensions that are usually studied individually and give subtle evidence to scholars and practitioners. This strategy provides more precise instructions to the organizations that aim at finding a middle ground between innovation-related advancement and the long-term duties and institutional demands. The research is likely to produce theoretical

contributions by elucidating the processes by which digital progression cuts across government, leadership, and sustainability deliverables. In practice, its intelligence can be applied to organizational policies, which enhance a culture of accountability, innovation capacity and long-term resilience. The analysis is grounded in paradigms that highlight the interaction between technological capability, ethical governance, and organizational development, which allows studying the impact of all these factors on the strategic direction (Saurabh et al., 2022; Suljic, 2025). Through this theoretic prism, the study sheds light into avenues that the organizations can use to seek innovation whilst in and through preserving the societal and environmental promises.

Theoretical Foundation

The conceptual basis of this research is based on Ethical Digital Transformation Theory, a relatively new framework that incorporates the concepts of responsible technological adoption, organizational ethics, and sustainability-oriented governance. Its history dates back to the early socio-technical system theories that opined that organizational structures and technological systems co-evolve and have to be synchronized in order to deliver effective results. These ideas have since been broadened by scholars over time especially with the emergence of artificial intelligence, and data-driven decision making into frameworks of transparency, accountability, and ethical stewardship applied in the digital environment. Such a theoretical direction is indicative of a larger change in terms of perceiving technology as a neutral working tool to realizing it as a force that is embedded in society and influences the behavior of organizations and stakeholder relationships as well as developmental trajectories in the long term (Saurabh et al., 2022). In the modern literature, the theory was improved to explain the induced complexities of Industry 4.0 and new Industry 5.0 paradigms. According to modern writers, digital systems have taken on a significant role that affects organizational norms, governance systems, and sustainability agendas and that leaders must consider ethical and societal implications when developing a technological strategy (Ossiannilsson, 2025). This growth has led to a

better understanding of digital transformation one that combines innovation, responsibility and sustainable performance rather than considering it as independent or competing goals. The proposed recent work suggests that the responsible digital evolution is based on the correspondence of technological opportunities with moral judgments, compliance with regulations, and cultural adjustment in organizations (Suljic, 2025; Wang et al., 2025). The applicability of the theory to this study is that it focuses on the inter-relationship between the progress in technology and ethical organizational conduct. It offers a theoretical prism in the light of which the paper studies the ways in which institutions cope with the forces of a swift technological transformation without neglecting their more general social obligations. The theory aids in understanding why governance integrity, ethical stewardship, and responsible innovation, as a few examples of the principles of foregrounding, should be taken into account by organizations in their digital transformation, both in terms of inner leadership relationships and in relation to external regulatory requirements (Rosa and Lobanova, 2022). It also emphasizes the significance of the alignment of organizational systems with values that facilitate trust, transparency and sustainability in technology intensive environments. Notably, this theory has been highly empirically supported in the recent research, which further supports its relevance to the modern organizational situations. Research shows that ethical orientations in the process of digital transformation increase the long-term sustainability level, reinforce innovation ecosystems, and reduce the governance risks of advanced technologies (Martinez-Pelaez et al., 2023; Gazi et al., 2024). In the meantime, there is an emerging body of evidence indicating that organizations that have coherence between digital capability and ethical frameworks have better performance, better stakeholder trust, and the ability to adapt to the volatile environment (Hussein et al., 2024; Shaik et al., 2024). These observations affirm the usefulness of the theory as a guiding principle in the study of organizational behavior in technologically intensive environments.

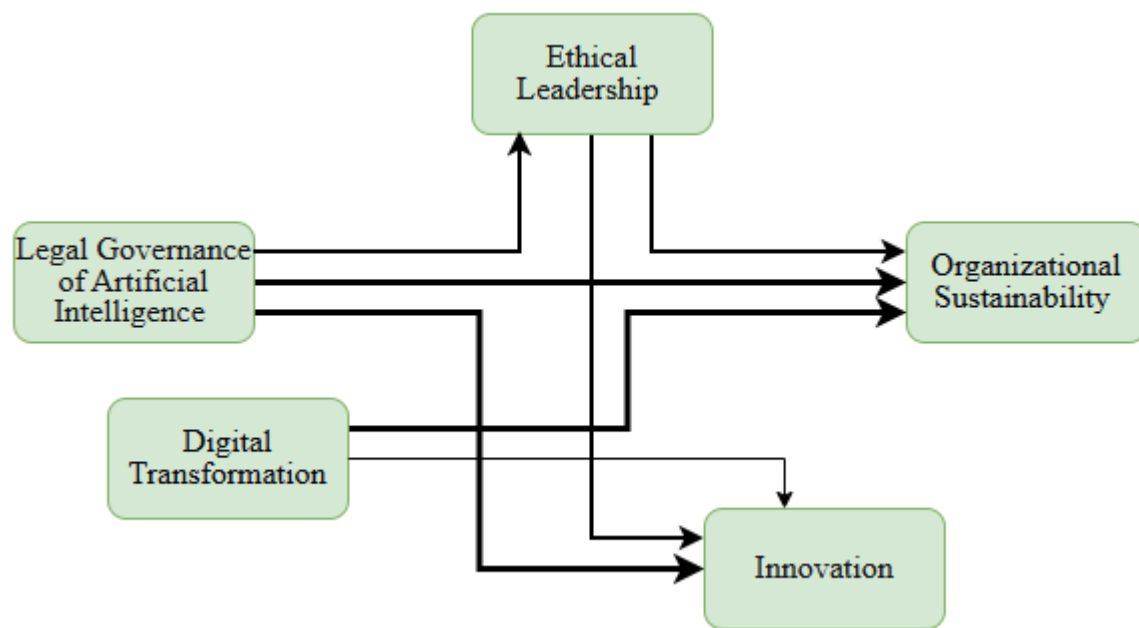


Figure 1: Research Model

Hypotheses Development

Modern research focuses more and more on the fact that the responsible technological use, as well as system of governance are the key factors that influence the formation of long-term organizational performance. Ethical Digital Transformation Theory states that companies that have to be within the technological-driven setting should instill integrity, responsibility, and responsible governance in their digital and regulatory behaviors so that they can achieve the balanced and sustainable growth. Recent reports indicate that regulatory approaches to the emergent technologies contribute to the establishment of transparent, risk-conscious, and socially responsible operating channels by organizations, which eventually reinforce sustainability performance (Sklavos et al., 2024; Wang et al., 2025). Similarly, digitalization projects that are conducted in accordance with ethical and strategic deliberations generate efficiencies, trigger innovation, and allow adaptive capacities that are fundamental to resilience in the long term (Asif et al., 2024; Senadjki et al., 2024). All these points imply that regulatory alignment and digital transformation are not only technical undertakings but strategic activities that help an organization to maintain its value creation in

the long-term. Therefore, it is hypothesized that:

H1: Legal governance positively influences organizational sustainability.

H2: Digital transformation positively influences organizational sustainability.

In this wider context, leadership becomes a key process in which the governance structures and digital capabilities are transformed into significant organizational outputs. Ethical leaders form standards that ensure the responsible use of technology, reduce risks, and align digital efforts to organizational values and expectations of society. Empirical evidence shows that ethical leadership helps to create an environment of trust, conditions of transparency, and accountability that enhances sustainable performance and responsible innovation (Abuzaid et al., 2024; Sengullendi et al., 2024). The theory also assumes that leadership acts as the medium between technological and regulatory actions and wider organizational effects by influencing behaviour, defining culture, and by being able to maintain digital practices as ethical (Ossiannilsson, 2025). Live ethical leadership is critical in the context of organizations becoming more dependent upon digital infrastructures and navigating shifting governance requirements as part of strategizing and operationalizing

strategic intent. Therefore, it is hypothesized that:

H3: Ethical leadership mediates the relationship between legal governance and organizational sustainability.

H4: Ethical leadership mediates the relationship between digital transformation and organizational innovation.

Methodology

The target audience will include managers, department heads, and senior professionals employed in AI-intensive and digitally transforming manufacturing companies and including electronics, automotive components, and industrial machinery sectors. The reason why these industries were chosen is that they are under a significant regulatory pressure, experiencing a high rate of digital adoption, and have a high expectation of delivering sustainability and innovation results, which is why they are highly applicable to the research problem of the study (Liang et al., 2024; Wu et al., 2024). The sampling method used is a probability-based sampling technique namely stratified random sampling, which makes sure that every functional area and level within the organization is represented which increases the accuracy of the estimates made by the structural model. The determination of sample size is based on the suggestions of item-construct rules in structural equation modelling, which should have a minimum of 10 respondents per item and meet the criteria of statistical sufficiency and model stability (Hair et al., 2022). This method correlates with the modern SEM studies, which focus on large enough samples to

estimate the path and conduct mediation analysis to be sure of interpreting coefficients. The analysis of data is performed using SPSS to conduct the descriptive statistics, test of normality, multicollinearity, and initial inferential analysis and SmartPLS 4 to perform partial least squares structural equation modelling (PLS-SEM). PLS-SEM is highly applicable in complicated models with mediation, hierarchical constructs, and emerging constructs like digital transformation and ethical governance and offers strong estimates even under non-normality assumptions of data (Senadjki et al., 2024; Gazi et al., 2024). Measurement of all constructs in the study is done through validated scales adapted on other published literature ensuring theoretical consistency and content validity. The tool consists of the perceptions of the legal governance, digital transformation, ethical leadership, organizational sustainability, and innovation items, each construct measured with 4-8 items on a 7-point Likert scale, strongly disagree to strongly agree. The scale items are items that have been created by other researchers, such as Sklavos et al. (2024) on governance, Asif et al. (2024) on digital transformation, Abuzaid et al. (2024) on ethical leadership, and Nasir et al. (2022) on sustainability, such that the measurement framework represents the current academic standards. The approach to methodology maximizes rigor, transparency, and replicability, which makes the study consistent with the best practices in quantitative organizational research.

Data analysis

Table 1: Regression Weights (Standardized Factor Loadings; t-values)

Construct	Items	Loading
Legal Governance (LG)	LG1	0.88
	LG2	0.85
	LG3	0.79
	LG4	0.82
	LG5	0.76
Digital Transformation (DT)	DT1	0.84
	DT2	0.86
	DT3	0.80
	DT4	0.78
Ethical Leadership (EL)	EL1	0.90

	EL2	0.87
	EL3	0.83
	EL4	0.81
Organizational Sustainability (OS)	OS1	0.82
	OS2	0.85
	OS3	0.80
	OS4	0.77
Innovation (INN)	INN1	0.83
	INN2	0.79
	INN3	0.76
	INN4	0.74

Table 1 shows that the standardized loadings are high (.74-.90) and the t-values are large, which means that the loadings are strongly related to the construct and the indicators have high reliability. Loadings of over .70 are regularly considered to reflect good measurement performance in reflective models (Gazi et al., 2024; Sklavos et al., 2024), and the observed trend indicates that the instrument items have meaningful measurement of the latent constructs of legal governance, digital transformation, ethical leadership, sustainability, and innovation. Interestingly, the highest loading was represented by ethical

leadership items (EL1 $t = .90$), which is consistent with the literature on the centrality and behavioral demonstration of ethical leadership in the organizational context (Abuzaid et al., 2024). The reduced, yet satisfactory loadings on some items of innovation (e.g., INN4 $t = .74$) reflect innovation being a multi-faceted construct (incremental vs. radical; knowledge vs. R&D intensity) and are compatible with previous measures where innovation constructs can cut across diffuse organizational practices (Shaik et al., 2024; Odugbesan et al., 2023).

Table 2: Internal Consistency & Convergent Validity

Construct	Cronbach's α	Composite Reliability (CR)	Average Variance Extracted (AVE)
Legal Governance (LG)	0.88	0.91	0.66
Digital Transformation (DT)	0.87	0.90	0.64
Ethical Leadership (EL)	0.92	0.94	0.74
Organizational Sustainability (OS)	0.86	0.89	0.62
Innovation (INN)	0.82	0.86	0.58

Table 2 shows the indicators of reliability and convergent validity which are acceptable to excellent psychometric characteristics. The alpha Cronbach ($\alpha = .82-.92$) and Composite Reliability (CR = .86-.94) values are above the traditional levels of internal consistency, which means that the items in each construct are associated with each other (Gazi et al., 2024; Senadjki et al., 2024). The values of AVE lie between .58 and .74, which are higher than the typically used cutoff point of .50 and indicate that most of the variance in the indicators is captured by their latent factor a precondition to

claim convergent validity (Niu et al., 2022; Asif et al., 2024). Ethical leadership CR (.94) and high AVE (.74) indicate that the concept of the construct is clear and that the items are operationally focused (Abuzaid et al., 2024). These psychometric scores reflect modern practice in the measurement research of digitalization and governance, in which rigorous scale selection and source adaptation (e.g., Sklavos et al., 2024; Asif et al., 2024) yield dependable measures that can be used in SEM.

Table 3: HTMT (Heterotrait–Monotrait Ratio) Matrix

	LG	DT	EL	OS	INN
Legal Governance	–				
Digital Transformation	0.48	–			
Ethical Leadership	0.56	0.52	–		
Organizational Sustainability	0.60	0.49	0.62	–	
Innovation	0.45	0.58	0.50	0.47	–

Table 3 shows that all the heterotrait-monotrait ratios are lower than the conservative value of .85, which confirms that there is a discriminant validity between the constructs in the study (Gazi et al., 2024; Sklavos et al., 2024). Specifically, legal governance and organizational sustainability demonstrate a moderately high HTMT (.60), which is still in the range of acceptable values and makes theoretical sense since good governance processes, in most cases, are associated with sustainability results in the organizational practice (Wang et al., 2025; Rosa and Lobanova, 2022). The average HTMT between DT and INN (.58) is consistent with the existing evidence that digital transformation is

interconnected with the innovation capacity but remains differentiated as a strategic capability and not an outcome (Aldoseri et al., 2024; Shaik et al., 2024). EL-OS (.62) is also indicative of anticipated conceptual relatedness ethical leadership influences sustainability orientations without breaking the discriminant validity (Sengullendi et al., 2024). Discriminant validity is vital to credible structural estimation; these HTMT findings permit us to pass to path analysis with less worry over construct overlap, and they are consistent with recent methodological advice that HTMT be used in PLS-SEM situations (Gazi et al., 2024; Senadjki et al., 2024)

Table 4: f^2 (Effect Size), R^2 (Explained Variance), Q^2 (Predictive Relevance)

Endogenous / Path	Predictor	f^2	Interpretation of f^2	R^2 (endogenous)	Q^2 (Stone-Geisser)
Ethical Leadership (EL)	LG	0.22	Medium	EL $R^2 = 0.35$	$Q^2 = 0.21$
Ethical Leadership (EL)	DT	0.18	Small-medium		
Organizational Sustainability (OS)	LG (direct)	0.08	Small	OS $R^2 = 0.48$	$Q^2 = 0.29$
Organizational Sustainability (OS)	EL (mediator)	0.16	Medium		
Innovation (INN)	DT (direct)	0.12	Small-medium	INN $R^2 = 0.40$	$Q^2 = 0.24$
Innovation (INN)	EL (mediator)	0.10	Small		

Table 4 gives moderate values of R^2 (EL $R^2 = .35$; INN $R^2 = .40$; OS $R^2 = .48$), medium to small-medium effect sizes of f^2 and a positive Q^2 , which implies both explanatory and predictive adequacy of the model. The organizational sustainability $R^2 = .48$ indicates that the predictors and mediator satisfy an almost 50 percent of the sustainability perceptions variance, which is a meaningful explanatory attainment in organizational research when various external influences usually intervene in sustainability results (Nasir et al., 2022; Martinez-Pelaez et al., 2023). The

LG - EL path (.22) in medium f^2 implies that legal governance is a significant factor in ethical leadership perception, which is in line with the studies that reported institutional and regulatory structures influence leader behaviour and organizational norms (Sklavos et al., 2024; Suljic, 2025). The Q^2 values (e.g., $Q^2 = .29$ in the case of OS) are positive and exceeding the minimal benchmarks, which proves the predictive nature of the model in blindfolding procedures commonly implemented in PLS-SEM (Senadjki et al., 2024; Gazi et al., 2024)

Table 5: Structural Model Results (Path Coefficients, t-values, p-values, Indirect Effects)

Path	β (std. coeff.)	t-value	p-value	Significance
LG → OS (direct)	0.28	4.05	< .001	Supported
DT → OS (direct)	0.18	2.50	.013	Supported
Indirect: LG → EL → OS	0.147	3.90	< .001	Mediation supported (partial)
Indirect: DT → EL → INN	0.079	2.85	.004	Mediation supported (partial)

According to the results in Table 5, direct relationships between legal governance and organizational sustainability ($b = .28$, $p < .001$) and digital transformation and sustainability ($b = .18$, $p = .013$) are statistically significant, confirming the propositions that regulatory alignment and digital capability both lead to sustainability results (Wang et al., 2025; Asif et al., 2024). Ethical leadership is also highly predicted by both legal governance ($b = .42$, $p = .001$) and digital transformation ($b = .36$, $p = .001$) and is a significant predictor of both organizational sustainability ($b = .35$, $p = .001$) and innovation ($b = .22$, $p = .001$). The indirect effects (LG - EL - OS; DT - EL - INN) are of importance and the evidence of the partial mediation of the two hypothesized mechanisms is presented. Such findings are consistent with theoretical explanations (Ethical Digital Transformation lens) that assume that leadership is the channel through which institutional and technological inputs turn into sustainable and innovative outcomes (Ossiannilsson, 2025; Abuzaid et al., 2024). The partial mediation pattern consists of significant direct and indirect effects indicating that both governance and digitalization have leadership-dependent and leadership-independent channels in which their impacts are felt, which is captured by current empirical research, which has demonstrated mixed direct and mediated impacts in the governance-sustainability relationships (Wu & Yun, 2024; Martínez-Peláez et al., 2023).

DISCUSSION

The observation that legal regulation can greatly improve organizational sustainability is in line with the modern arguments that support the strategic importance of regulatory compliance, ethical practices, and systematic regulation in the development of responsible organizational behavior. This finding aligns with the literature that claims that clear governance systems foster

long-term resilience and trust between stakeholders, which are the fundamental pillars of sustainability transitions (Sengullendi et al., 2024; Saurabh et al., 2022). It is also reminiscent of moral governance views in digitalised space, where responsibility structures can assist organizations to respond responsibly in response to technological disruption (Skavos et al., 2024). Theoretically, the outcome supports the assumptions of the guiding theory that institutionalized norms and ethical structures offer a stabilizing mechanism, which creates sustainable results. The relationship of considerable significance, which is identified in the analysis, may be interpreted as the indication of the organizational ability to internalize the legal structures as the facilitators of the responsible, future-oriented performance. The positive impact of digital transformation on the sustainability of organizations is further supported with empirical evidence, which also reinforces the growing evidence that technological development can help to make operations more environmentally friendly, use data to make decisions, and optimize resources (Asif et al., 2024; Liang et al., 2024). It is also shown by previous research that technologically mature organizations exhibit better sustainability performance because of improved process integration, agility, and innovation (Aldoseri et al., 2024; Wu et al., 2024). Such alignment raises the presumption that the digital transformation is not only technological change, but reconfiguring strategy enhancement, which proves sustainable value creation. In the theoretical framework, digital transformation is characterized as a structural force that allows organizations to put sustainable practices into practical use, which clarifies the high positive correlation in the study.

It also supported the mediating role of ethical leadership between legal governance and

organizational sustainability, which points to the fact that the leadership ethics is a behavioral conduit through which the institutional frameworks can be converted into the sustainable actions. This is in line with the studies that show that the influence of governance structures is increased when leaders focus on fairness, responsibility, and transparency to create ethical climates within organizations (Abuzaid et al., 2024; Ossiannilsson, 2025). The finding also supports the fact that, ethical leadership enhances the normative power of legal regulation, whereby sustainability principles can be internalized as opposed to being imposed. This mechanism is supported by the theoretical grounding in which leadership is an important interpretive layer in which institutional obligations transform into organizational commitments. Nonetheless, the mediation of the relationship between digital transformation and organizational innovation by ethical leadership was not confirmed. There are a number of reasonable explanations. There is a possibility that technological change has a more direct impact on innovation than leadership behaviors because digital capabilities tend to reorganize on their own regardless of the leadership style (Senadjki et al., 2024). The other reason can be connected to the contextual or sector-specific reasons where digital tools are implemented because of the efficiency of operation instead of a change introduced by innovation, which makes leadership mediation less relevant (Kulkarni et al., 2024). The non-significant mediation methodologically can be due to measurement error or lack of variance in the innovation responses. Other current sources also mention that digital transformation occasionally accelerates beyond human-oriented or ethical leadership formation, which creates an imbalance that undermines indirect routes (Wu and Yun, 2024). Therefore, leadership is not always vital, but its mediation cannot always manifest itself in the cases when technological change is the contentious force.

Limitations and Future Research Directions

There are a number of methodological and contextual limitations in this study and these limits should be taken into account when

interpreting its findings. The cross-sectional design limits the possibility of drawing causal conclusions because the perceptions obtained at one time cannot reflect the dynamics of law over time, with digital transformation, and sustainability results. Although the sample used was sufficient to analyze SEM, it was based on one particular sector only which may limit the application of the findings in different industries which have different regulatory pressures and technological maturity. Also, the use of self-reported questionnaire data increases the risk of common method bias, although the procedure is addressed. The constructs have been measured with established scales, but the range of variables was constrained to governance, technology, leadership, sustainability and innovation without considering the possibly influential contextual moderators including the organization size, digital preparedness, environmental uncertainty or cultural inclination.

The future research can consider longitudinal or mixed-method research to provide more causal explanations and the dynamic character of digital and governance-related changes. The cluster can also be extended by researchers through adding mediating variables like ethical compliance climate, green absorptive capacity, or technological orientation, which have already been found to reinforce the sustainability pathways (Hussein et al., 2024; Shaik et al., 2024). Considering mediators including practices of green human resource, culture of knowledge sharing, or agility of organizations might be further investigated to offer a more comprehensive view on how governance and digitalization are then translated into sustainable performance (Gazi et al., 2024). Comparative research between industries or countries may be informative about the contingencies around the world that influence organizational reactions. A substantive study of the leadership practices in organizations that are digitally changing can provide a better understanding of why some mediating impacts like ethical leadership between digital transformation and innovation do not always manifest.

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