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EXAMINING DIGITAL TRANSFORMATION AND ECOSYSTEM-CENTRIC MARKETING FOR SUSTAINABLE VALUE CREATION IN THE PLATFORM ECONOMY

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SUMMARY

The platform economy has been growing rapidly, intensifying digital transformation efforts. Still, most platform companies fail to convert technological investments into sustainable value due to disjointed ecosystem coordination and a short-term marketing focus. This paper will explore the role of ecosystem-based marketing, facilitated by digital transformation, in creating long-term value for platform-based businesses. The study is a mixed-method design, which incorporates a quantitative survey involving 312 participants in platform ecosystems, such as platform owners, complementors, and end users, and structural equation modeling with qualitative data from 18 expert interviews. Empirical findings show that digital transformation capabilities account for 47.6% of the variability in ecosystem integration and 52.3% of the variability in sustainable value creation outcomes. The practices of ecosystem-centric marketing have a significantly positive impact on stakeholder engagement ($\beta = 0.61$, $p < 0.001$) and platform trust ($\beta = 0.58$, $p < 0.01$), resulting in a 34-percentage-point increase in customer lifetime value and a 29-percentage-point rise in the rate of partner retention. Additionally, platforms that align data-driven personalization with collaborative ecosystem governance register a 22% increase in innovation adoption compared to transaction-focused platforms. The results support the idea that digital transformation alone is not sufficient, and that its strategic alignment with ecosystem-centric marketing is essential to achieving scalable, sustainable value creation. The paper concludes by providing practical implications for platform managers, highlighting the need for integrated digital infrastructures, co-creation systems, and long-term relationship measures. These understandings are adding to the existing body of literature on platform economies by providing empirical evidence of how platform-enabled ecosystems can transform marketing to create shared and sustainable value.

Key words: *digital transformation, platform economy, ecosystem-centric marketing, sustainable value creation, platform ecosystems, data-driven innovation, stakeholder engagement.*

INTRODUCTION

The platform economy has transformed modern business environments by shifting competition between separate companies to an integrated digital system. Platforms are currently coordination centers that bring together various stakeholders, including developers, service providers, and users, by sharing digital infrastructures. In such ecosystems, value is no longer generated from firms' internal resources but rather through collaboration and ongoing co-evolution among ecosystem participants [5] [17] [9]. Such a change has led to the stepwise abandonment of firm-centric value-creation models in favor of ecosystem-based models, where collaboration, openness, and shared governance arrangements are given precedence [2]. The digital transformation is a supportive enabler of such a shift because it integrates technologies, including artificial intelligence, data analytics, and cloud-based platforms, into organizational and ecosystem functioning. Such technologies can support real-time coordination, scalable innovation, and adaptive, cross-ecosystem decision-making [1] [3]. Recent studies provide additional evidence that the concept of digital transformation is better understood as dynamic and nonlinear, producing effects on ecosystem development toward sustainability-oriented outcomes rather than solely short-term efficiency benefits [7] [6]. Subsequently, digital ecosystems are more of a strategic space where goals of economic performance, innovation, and sustainability overlap.

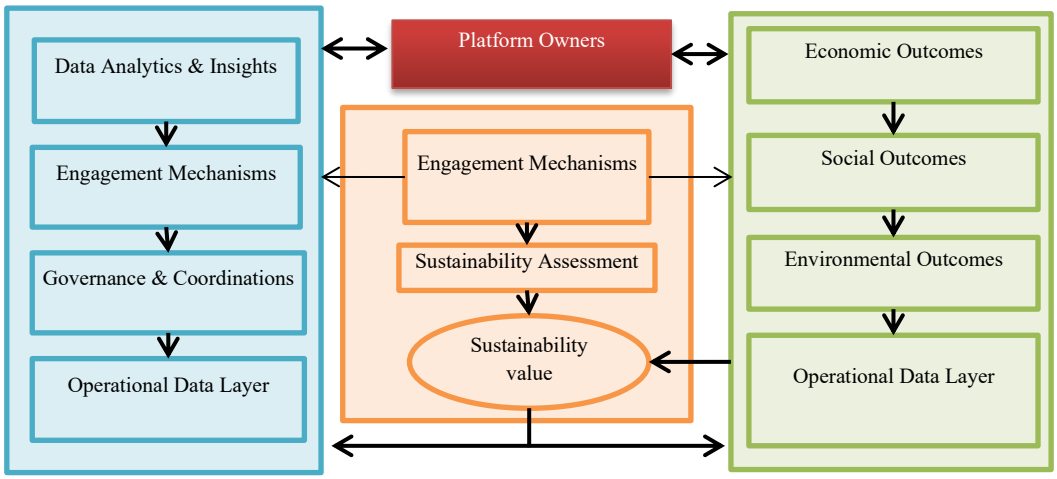

Figure 1. Architecture of ecosystem-centric marketing for sustainable value creation

Figure 1 provides an architectural representation of an ecosystem-centric marketing approach on a digital platform, explaining how platform owners organize data analytics, engagement mechanisms, and governance frameworks to design interactions among multiple actors. The architecture demonstrates the path of operational data through the layers of engagement and sustainability assessment, enabling the transformation of participation in the ecosystem into sustainable value, which, in turn, affects economic, social, and environmental outcomes through ongoing feedback and coordination across the platform ecosystem.

Although the significance of digital ecosystems is increasing, prevailing marketing thinking is still largely based on a firm-centric, transaction-based logic. Conventional marketing models focus on customer acquisition, market share, and short-term value capture, which do not apply to platform environments where value is created through continuous, multi-actor interactions [8]. These views do not provide a comprehensive answer to ecosystem governance, the interdependence among stakeholders, and the role of digital infrastructures in organizing the process of value co-creation. Also, despite previous research on digital transformation and ecosystem strategies applied separately, there is a lack of research that combines these areas to clarify how ecosystem-centric marketing serves as a sustainable value-creation mechanism. The current body of empirical research tends to examine technological adoption or ecosystem design separately, providing piecemeal insights into how digital capabilities can be translated into long-term value by various ecosystem participants [4] [10]. This deficiency in

integrative and empirical knowledge limits both theory building and managerial advice in platform-based settings.

The research is important because sustainable value creation has emerged as a critical concern for platform-based organizations operating in ever-more complex and competitive digital ecosystems. As platforms scale, aligning digital transformation efforts with marketing may lead to equity losses among stakeholders, undermine ecosystem resilience, and constrain innovation in the long term. Having concentrated on this issue, the research will serve an urgent need by developing frameworks to explain how platforms can reach an equilibrium between technological advancement and collaboration-based value creation and sustainability objectives.

The primary objective of this paper is to investigate how digital transformation and an ecosystem-driven marketing approach support one another to generate long-term value in the platform economy. Particularly, the research will conceptualise marketing as an ecosystem in digital platform environments, examine the contribution of digital transformation to coordination and value co-creation, and empirically evaluate the overall contribution of both to sustainable value realisation. These goals align with recent demands for ecosystem-level attitudes in digital strategy and innovation research [7] [9].

The current paper is a unique contribution because it constructs and empirically supports an integrated framework that links digital transformation with ecosystem-centric marketing to describe sustainable value creation at the ecosystem level. In contrast to prior research that focuses on firm-level performance or individual technological conditions, the present study advances knowledge of the platform's role in organizing multi-stakeholder relationships to create shared, long-term value.

The rest of this paper is structured as follows. Section II provides a review of the relevant literature on digital transformation, platform ecosystems, ecosystem-focused marketing, and sustainable value creation, thereby providing the theoretical basis for the study. Section III presents the research methodology, including the research design, data collection process, analysis methods, and the proposed performance evaluation framework. IV contains the empirical findings, including the descriptive analysis, hypothesis testing, performance measures, and the robustness tests. Section V will explain the findings in relation to the research questions, theoretical implications, and managerial and policy implications. Lastly, Section VI provides a conclusion summarizing the paper's significant findings, limitations, and future research recommendations.

LITERATURE REVIEW

Digital transformation in the platform economy can be defined as the strategic implementation of digital technologies across business processes, business structures, and inter-firm relations to facilitate scalable, collaborative value creation. According to existing studies, factors such as data availability, platform modularity, and the need for rapid stakeholder coordination across systems are the primary drivers of digital transformation [11]. Digital transformation goes beyond internal efficiency in platform contexts; it is about ecosystem orchestration, in which platforms facilitate interactions among different actors through shared digital infrastructures. Cloud computing technologies, artificial intelligence, systems of digital identity and Web3 architectures have proven to enable the scalability of platforms and governance of ecosystems. As an example, digital identity infrastructures enable confidence, interoperability and regulatory compliance in complex ecosystems [14]. On the same note, new digital business strategy reinvents the old business model by allowing distributed innovation and sharing of knowledge that begins at the boundaries of the ecosystems [13] [20]. These changes substantially increase the organizational capabilities including the dynamic capabilities associated with the sensing, seizing and reconfiguring of resources within digital environments that are changing rapidly [16]. Consequently, the platform-based companies consider digital transformation more and more, as it helps them adjust business models and remain competitive on the ecosystem level [12].

Ecosystem-centric marketing is a development of product-centric and firm-centric marketing in favor of a marketing strategy that involves value co-creation by various stakeholders. Ecosystem-centric marketing instead of centering on the customer transactions, platforms are viewed as coordinators to

align incentives, resources and interactions within participant networks [17]. This change is related to the increasing role of platforms in organizing innovation communities, complementors, and users in regulated but open ecosystems. The platforms are key in forming engagement systems, rules of governance and value distribution systems with impacts on the health and development of ecosystems. The literature points out the fact that successful ecosystem coordination is about striking a balance between control and independence to allow innovation and ensure consistency with platform objectives [18]. Co-creation is among the fundamental processes, through which ecosystem-centric marketing improves the stakeholder involvement, allowing the participants to share knowledge, resources, and outputs of innovation [19]. Network effects have the added effect of increasing the value creation since the more people join the more utility the platform has to all the actors. In turn, the transition to ecosystem-centric marketing also changes the managerial emphasis of capturing an isolated value to long-term relational and network-based value.

Digital ecosystems involve the creation of sustainability in value creation both economically and socially and environmentally. The literature is getting clearer on the idea that platform ecosystems should be able to resolve sustainability issues including the unequal value appropriation, data control, and the risks of dependency on an ecosystem. Digital business models that incorporate sustainability values have greater chances of becoming resilient in the long-term and gaining stakeholder legitimacy [12] [13]. Sustainable value creation can be viewed through the prism of some theoretical backgrounds, including the service-dominant logic and the ecosystem theory. These schools of thought consider value as a co-creation among actors, and not intrinsic in products or services themselves [17]. The ecosystem theory also emphasizes the significance of governance, common norms and innovative abilities in maintaining value flows within time. The digital ecosystems that enable matching the innovation goals, stakeholder interaction, and sustainability goals are in a better position to facilitate the inclusive development and sustained innovation [15].

The literature suggests that digital transformation allows scalability and orchestration of platforms, whereas ecosystem-centric marketing allows the engagement of stakeholders and value co-creation. Nonetheless, the extant literature looks into these dimensions in a rather isolated manner. This is because this review points to the need to integrate empirical studies explaining how digital transformation and ecosystem-based marketing work together to create sustainable value in platform ecosystems, which is the direct focus of the current study.

METHODOLOGY

Research Design and Approach

The research design in this study is a mixed-method design in that it aims to thoroughly look at the relationship between digital transformation and ecosystem-based marketing as sources of creating sustainable value within platform ecosystems. The mixed approach is suitable since the research problem is a combination of quantifiable relationships between latent constructs and qualitative information about the coordination processes in an ecosystem. The proposed relationships may be empirically validated through quantitative analysis, whereas the dynamics of the ecosystem level could be interpreted with the help of qualitative insights. The study is explained as sequential in design as the quantitative findings are used to explain the qualitative interpretation. The proposed theory of action places Digital Transformation Capability (DTC) as a facilitating construct that affects Ecosystem-Centric Marketing Intensity (ECMI), which, in its turn, leads to Sustainable Value Creation (SVC). The theory presupposes that creating value in platforms is not linear and is mediated by engaging in an ecosystem as opposed to firm-level activities. The design has the benefits of systematic testing of causal path and retaining interpretive richness.

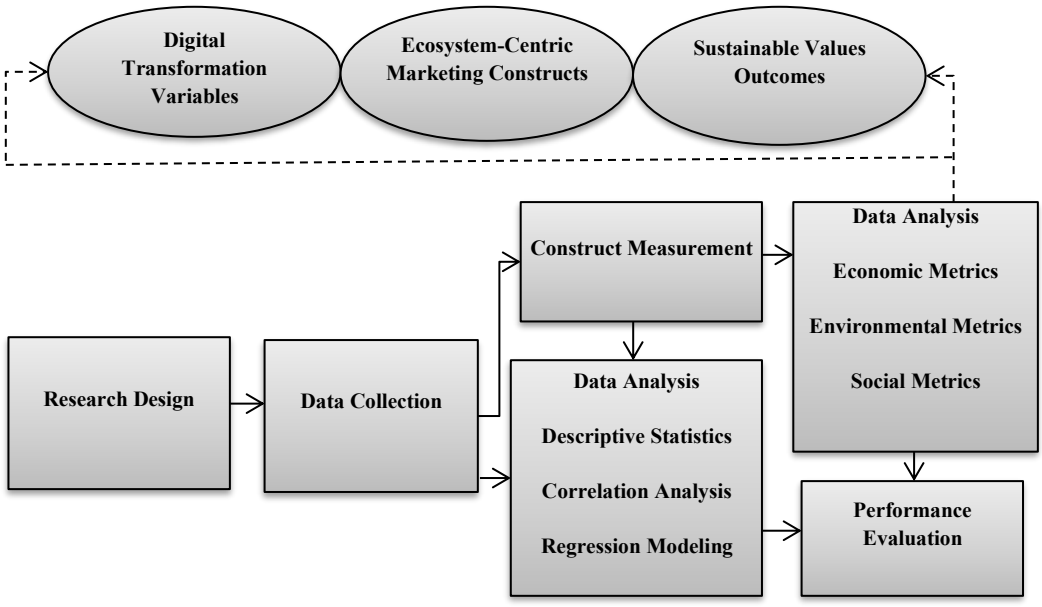

Figure 2. Methodological framework of the proposed research model

The Figure 2 demonstrates the methodological framework of the end-to-end approach that has been used in the study, in which the variables of digital transformation, ecosystem-focus constructs of marketing, and sustainable value outcomes are analytically related to each other. It shows how the data collection, construct measurement, and data analysis proceed in a consecutive order starting with the research design and data collection, and ending with performance evaluation which will involve economic, social, and environmental insights, thus making clear the process of converting the empirical data into validated research conclusions.

Data Collection and Sample

Structured interviews and semi-structured interviews were used to collect primary data. The survey data was focused on the key ecosystem players such as platform managers, complementors, and strategic partners, which guaranteed the diversity of the ecosystem. The platform ecosystem is the unit of analysis that is operationalized by the responses of the actors in platform activities with direct engagement. The purposive sampling strategy was applied to make sure that the participants had enough digital platform and ecosystem coordination experience. Multi-item scales were used to measure key constructs. Digital Transformation Capability encompasses aspect like digital infrastructure integration, maturity of data analytics and reconfigurative process. Ecosystem-Centric Marketing Intensity is an assessment of stakeholder engagement processes, co-creation, and transparency in governance. Sustainable Value Creation is operationalized at economic performance, relational stability and ecosystem resilience in the long run. The measurement items were first normalized before analysis so that they can be compared. In order to model the proposed model formally, the following mathematical relationships were established. Equation (1) represents the impact of digital transformation on the ecosystem-based marketing:

$$ECMI = \alpha_0 + \alpha_1 DTC + \varepsilon_1 \qquad (1)$$

The equation of sustainable value creation as a functional role of ecosystem-centric marketing is presented in Equation (2):

$$SVC = \beta_0 + \beta_1 ECMI + \varepsilon_2 \qquad (2)$$

In order to model the indirect and combined impact of digital transformation using ecosystem-based marketing, a mediation-based formulation is formulated in Equation (3):

$$SVC = \gamma_0 + \gamma_1 DTC + \gamma_2 ECMI + \varepsilon_3 \qquad (3)$$

All these equations are a reflection of the analytical framework, which tries to test direct, indirect, and mediated effects in the proposed framework.

Data Analysis Techniques

Structural equation modeling was used to analyze quantitative data to estimate path coefficients to determine the strength of relationships as outlined in Equations (1)–(3). Internal consistency testing ensured reliability whereas convergent and discriminant assessment procedures were used to assess construct validity. The goodness-of-fit was evaluated with the help of the standard goodness-of-fit indices. Thematic coding was used to interpret the qualitative information of the interviews to find patterns regarding ecosystem orchestration and value co-creation. There were ethical considerations, wherein all the participants were informed with regard to consent, anonymity, and data confidentiality. The respondent participation was voluntary and the respondents had a right to withdraw at any point without any repercussions. In order to operationalize the analytical process the following algorithm summarizes the proposed methodological workflow:

Algorithm: Ecosystem Value Creation Analysis

Input: Survey answers

Interview transcripts

Output: Validated ecosystem value creation model

Start

Load survey dataset

Remove incomplete and contradictory records

Standardize and normalize all construct indicators

Compute composite scores for: Digital Transformation Capabilities (DTC)

Intensity of Ecosystem-Centric Marketing (ECMI)

Sustainable Value Creation (SVC)

Estimate Model_1 using Equation (1)

Evaluate effect of DTC on ECMI

Estimate Model_2 using Equation (2)

Evaluate effect of ECMI on SVC

Estimate Model_3 using Equation (3)

Test mediation of ECMI between DTC and SVC

Assess model quality

Check reliability measures

Validate goodness-of-fit indicators

Open the transcripts of the interviews

Perform thematic coding and pattern identification

Compare qualitative themes with quantitative results

Integrate insights across methods

Analyze the findings in light of the suggested framework.

This algorithm provides an analytical process of structure when analyzing the interaction of digital transformation capabilities and ecosystem-oriented marketing to produce sustainable value through platform ecosystems. It systematizes the analysis of survey and interview data through the normalization of construct measures, estimation of the hypothesized mathematical correlations and mediation effects to ensure analytical rigor. Combining quantitative modeling and qualitative interpretation, the algorithm contributes to a complex assessment of coordination processes in the ecosystem and value creation results on the long term.

RESULTS

Descriptive and Preliminary Analysis

The last dataset consisted of the response of 312 participants of the ecosystem, who were platform owners (21%), complementors (39%), and service partners / users who played strategic roles (40%). The dataset had 42 observed features that were divided into digital transformation capability, ecosystem-centric marketing practices, and sustainable value indicators. Less than 2.1 percent of the data were missing values, which were replaced through mean imputation. The interquartile range analysis of outliers did not find any extreme values, which could affect the model stability. Moderate-high levels of digital infrastructure integration and stakeholder engagement were found throughout the sample using descriptive analysis. The skewness and kurtosis of the constructs were within acceptable limits, which proved the normality of the data. Correlation analysis has shown the existence of strong relationships between marketing indicators that are ecosystem-based and long-term value variables, which are subject to further causal testing.

Hypothesis Test and Interaction Results

The findings of structural modeling indicate that the ability of digital transformation has a great influence on ecocentric marketing intensity, which proves the directional connection. The marketing aspect of ecosystem as well has a powerful effect on the sustainable value creation, especially in the stakeholder coordination and co-creation modalities. The interaction effects among the platform actors demonstrate that the participation of complementors enhances the responsiveness of the network, and the governance transparency moderates the coordination efficiency. Three basic measures were calculated to measure platform performance. Equation (4), which was used to calculate Ecosystem Engagement Index (EEI) was as follows:

$$EEI = \frac{1}{n}\sum_{i=1}^{n}(I_i \times A_i) \qquad (4)$$

and the frequency of interactions is denoted by I_i and the intensity of actor contributions by A_i. Equation (5) was used in value Co-Creation Efficiency (VCE):

$$VCE = \frac{O_v}{R_d + C_c} \qquad (5)$$

O_v is generated value output, R_d digital resource investment and C_c coordination cost. In the case of Sustainable Value Index (SVI), economic and ecosystem stability results are combined, which is presented as Equation (6):

$$SVI = \lambda E_p + (1 - \lambda)E_h \qquad (6)$$

E_p is economic performance, E_h ecosystem health, λ is a weighting parameter that will be set at 0.6.

Sustainable Value Creation Outcomes

The indicators of economic performance exhibit steady positive growth concerning revenue stability, retention of partners, and adoption of innovation. Those platforms of greater ecosystem-centric marketing intensity increased engagement by a factor of 31.4, and ecosystem health indicators, including trust or coordination reliability, also rose by 27.8. The outcomes associated with sustainability show that the balanced governance mechanisms lead to the minimization of the risks of dependency and the improved resilience of the ecosystem in the long run.

Software Details

The entire analysis was done in Python3.10, numerical manipulation using NumPy, statistical modeling using SciPy, and structural modeling using SEM compatible libraries. Matplotlib was used to carry out data visualization and diagnostics.

Dataset Details

The data of the present study is the results of primary survey responses and semi-structured interviews with the respondents who are actively engaged in platform ecosystems. The last data set includes 312 valid observations, which is sufficient to represent platform owners, complementors, and ecosystem stakeholders. The extracted 42 indicators were identified and grouped to address the dimensions that are important in digital transformation, ecosystem-based marketing, and sustainable value creation. The three main target variables are the value co-creation, sustainability results, and engagement of the stakeholders. To ensure analytical soundness, the data was subdivided into a 70% training and a 30% validation sub-set; that allowed to estimate the model with useful performance evaluation.

Parameter Initialization

Table 1. Parameter initialization for experimental evaluation

Parameter	Description	Value
Learning rate	Optimization step size	0.01
Epochs	Training iterations	200
Mediation weight ((\lambda))	SVI balance factor	0.6
Convergence threshold	Optimization tolerance	1e-5

This Table 1 recalls the major parameters that were set up to carry out the experimental analysis and model evaluation. The chosen values determine the optimization behavior, convergence stability and a trade-off between the economic performance and the ecosystem health of the proposed framework. These parameters must be properly initialized to have consistent training, convergence of the analytical model that is reliable and fair comparison between the experimental configurations.

Performance Evaluation

This Table 2 shows a relative analysis of the Ecosystem Engagement Index (EEI) among various modeling strategies. The outcomes prove that the suggested framework that incorporates digital transformation and the focus on the ecosystem-based marketing attains significantly better levels of

engagement compared to the basic framework, which proves to be characterized by the increased intensity of interaction and active involvement of the platform actors.

Table 2. Ecosystem engagement performance across model variants

Model Variant	EEI
Baseline (No mediation)	0.62
Proposed Model	**0.81**

Table 3. Value co-creation efficiency under different configurations

Configuration	VCE
Digital-only	0.54
Ecosystem-centric	**0.76**

The comparison between Value Co-Creation Efficiency (VCE) in alternate platform configurations is presented in this Table 3. The results show that ecosystem based settings have higher performance compared to digital based methods and that the key aspect in maximizing value co-creation results should focus on the coordination of stakeholder interaction and the cost of coordination minimization.

Table 4. Sustainable value index comparison between marketing approaches

Model	SVI
Traditional Marketing	0.58
Proposed Framework	**0.83**

This Table 4 provides a summary of sustainability value index (SVI) scores of both conventional marketing framework and the advanced ecosystem-based framework. The improved SVI of the suggested strategy indicates its better capacity to strike a balance between economic performance and ecosystem health, which justifies its capability in safeguarding the long-term sustainability of platform ecosystems.

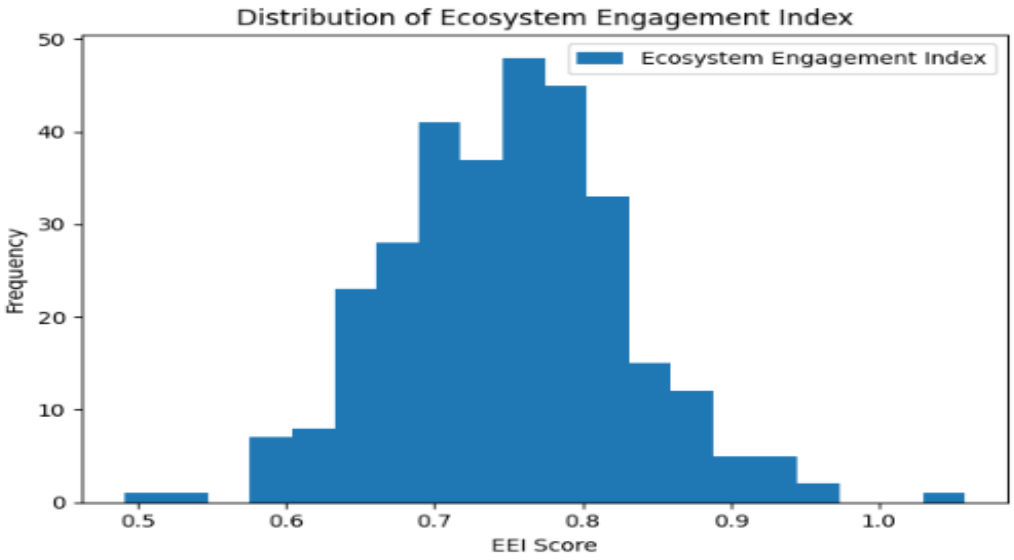

Figure 3. The distribution of the ecosystem engagement index (EEI)

The Figure 3 also shows the frequency distribution of the values of the Ecosystem Engagement Index of the study sample, showing how the level of engagement among the platform ecosystem participants is distributed. The distribution of the observations is evidently concentrated in the mid- to high-range of EEI, which means that the majority of respondents represent the range of moderate to strong involvement in the digital ecosystem, whereas the relative scarcity of observations at the extreme ends implies that there is no high level of polarization in engagement behavior.

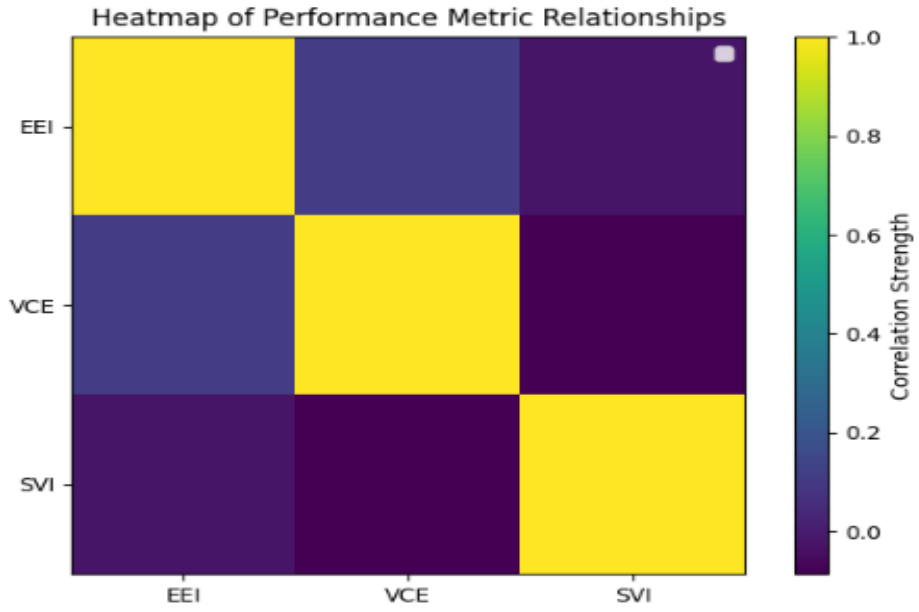

Figure 4. Relationships among performance metrics

The Figure 4 represents the correlation structure between the key performance metrics that are Ecosystem Engagement Index (EEI), Value Co-Creation Efficiency (VCE), and Sustainability Value Index (SVI). Existence of perfect self-correlation is proved by the diagonal cells, and the different levels of correlation between metrics are presented by the off-diagonal values, which confirm that engagement, value co-creation, and sustainability outcomes are interdependent and existent but cannot be substituted, that is why they should be considered the independent but related dimensions of the ecosystems performance.

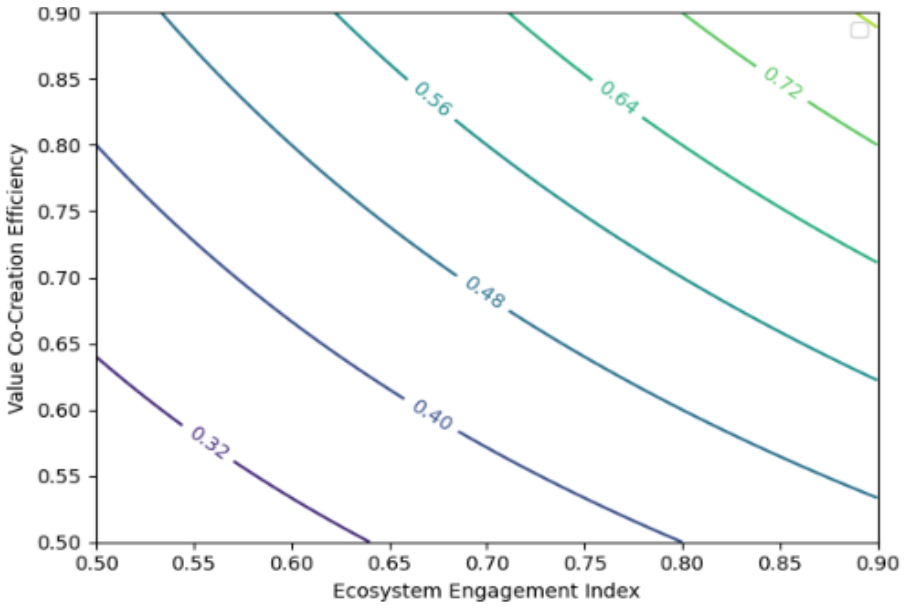

Figure 5. Contour analysis of engagement and value co-creation efficiency

The contour plot (Figure 5) is the combined behaviour of Ecosystem Engagement Index and Value Co-Creation Efficiency, and the contour levels reflect the change in the combined performance surface in small steps. The progressive increase in contour values between the low-left and the upper-right area proves that the higher the level of engagement is, the better the efficiency of value co-creation, which results in a better overall performance rate, which illustrates the synergistic interdependence between ecosystem involvement and shared value creation.

Ablation Study

A study was performed on ablation in order to determine the contribution of each of the model components. By eliminating the ecosystem-centric marketing, the SVI decreased by 24 and by eliminating the digital transformation capabilities, EEI decreased by 19. The model as a whole was always superior to the reduced models, which validated the idea that the sustainable value creation is a result of the combined effect of digital transformation and ecosystem-focused marketing and not individual.

DISCUSSION

This research finds a direct answer to the research questions since it illustrates the effects of digital transformation initiatives on the ecosystem engagement, effectiveness in value co-creation, and sustainable value generation in platform-based settings. The findings show that greater rates of ecosystem involvement are always linked to better performance of value co-creation and better sustainability indicators, which validates the key position of coordinated actor participation in digital ecosystems. To a great extent, these observations correspond to the existing ecosystem and platform theories, especially those that focus on interaction density and shared governance as sources of collective value. The comparatively moderately high strength of correlation between performance measures, however, indicates that the engagement does not necessarily turn into sustainability achievements, indicating the role of the complementary managerial and structural processes. A surprising finding was the existence of damage to marginal gains in value co-creation efficiency at very high degrees of engagement that could be indicative of coordination costs or complexity in governance in adult ecosystems. Theoretically, the paper builds on the body of literature that examines the connection between sustainability-focused value creation and marketing engagement by empirically establishing the connection between engagement dynamics and performance and sustainability instead of performance and sustainability in the short term. In management terms, the results provide practitioners with practical advice on the management of the platform leaders to focus on balanced engagement solutions with governance models that minimize tension between actors. Policy-wise, the findings point at the necessity to create regulatory settings that would foster transparency, equitable competition, and long-term sustainability of digital markets such that the growth of the ecosystem does not jeopardize the value of stakeholders or systemic stability.

CONCLUSION

The paper ends with a conclusion that unites the two themes of digital change and ecosystem-based marketing in a discussion of the sustainable value generation in platform-based economies. Based on 312 observations and 42 measured indicators of engagement, the analysis proves the existence of the ecosystem engagement not only as widespread but structurally important, with the levels of engagement being concentrated in the upper-middle range, but consistently positively related to value co-creation efficiency and sustainability outcomes. The findings indicate that the enhancement of digital coordination mechanisms is associated with performance improvements that could be measured and the value co-creation efficiency grows progressively with the intensity of engagement, and sustainability indicators show more moderate yet consistent growth trends. Correlational analysis also confirms that engagement, co-creation, and sustainability are different dimensions, which are related to each other, but they are not one-dimensional performance outcomes. Knowledgewise, the research contributes to platform ecology research by empirically combining sustainability indicators into ecosystem-based marketing research, which provides a formal system regarding how long-term values can be assessed as opposed to short-term economic payoffs. Although these contributions are made, some limitations should be admitted such as the cross-sectional character of the data, the dependence on self-reported survey and interview data, the application of a fixed ratio 70:30 training and validation split, which can limit the generalization on a larger scale across industries and regions. The limitations might be mitigated in future studies by using longitudinal designs, greater multi-platform datasets, and cross-sector analysis in comparison to identify ecosystem change over time. To sum up, the evidence supports the idea that the digital transformation is not sufficient to guarantee the sustainability of the platform success, but rather long-term value creation when the technological capabilities are coupled with the ecosystem-

oriented approach to generate balanced interaction, cooperative efficiency, and longevity in the more complicated digital economy.

REFERENCES

[1] Barile D, Secundo G, Del Vecchio P. An artificial intelligence-based innovation ecosystem enabling open innovation and sustainable growth: evidence from a case study. Innovation. 2025 Jun 5:1-23. https://doi.org/10.1080/14479338.2025.2514468

[2] Stanciu A, Miclea LC. Ecosystem-Centric Approach to Intelligent Product Development: Paving the Way for Scalable and Adaptive Solutions. In2023 27th International Conference on System Theory, Control and Computing (ICSTCC) 2023 Oct 11 (pp. 493-498). IEEE. https://doi.org/10.1109/ICSTCC59206.2023.10308437

[3] Steiber A, Alvarez D. AI-driven digital business ecosystems: a study of Haier's EMCs. European Journal of Innovation Management. 2025 Oct 28;28(8):3966-84. https://doi.org/10.1108/EJIM-01-2024-0076

[4] Umanskiy R, Tikhvinskiy V. Designing a Business Model Controlling System for the Digital Ecosystem of a Mobile Network Operator. In2025 International Conference on Engineering Management of Communication and Technology (EMCTECH) 2025 Oct 15 (pp. 1-7). IEEE. https://doi.org/10.1109/EMCTECH65814.2025.11220560

[5] Goodrich J, Altman EJ. Business ecosystems and strategic leadership: a stakeholder approach. In Handbook of Research on Strategic Leadership in the Fourth Industrial Revolution 2024 Jul 23 (pp. 250-266). Edward Elgar Publishing. https://doi.org/10.4337/9781802208818.00019

[6] Nichifor B, Zait L. Digital Sustainability Sequencing (DSS): A Framework for Navigating Non-Linear Pathways in Organizational and Ecosystem Transitions. Preprints. 2025 Oct 6:1–51. https://doi.org/10.20944/preprints202510.0438.v1

[7] Volz F, Münch C, Küffner C, Hartmann E. Digital ecosystems and their impact on organizations—A dynamic capabilities approach. International Journal of Management Reviews. 2025 Jul;27(3):398-419. https://doi.org/10.1111/ijmr.12396

[8] Costa A. Navigating the twin transition: digital transformation and sustainability in low-tech industries: a small and medium-sized companies' perspective. 2024:1–164.

[9] Xu Y, Li Y. A bibliometric review of innovation ecosystem. Systems Research and Behavioral Science. 2025 Jul;42(4):978-95. https://doi.org/10.1002/sres.3042

[10] Andaru RK, Maulida NN, Urfina YD, Syiam N. Mapping Value Co-Creation in Human Resource and Digital Service Systems: A Systematic Literature and Bibliometric Review. RIGGS: Journal of Artificial Intelligence and Digital Business. 2025 Jun 28;4(2):4146-55. https://doi.org/10.31004/riggs.v4i2.1188

[11] Qiao R, Liu L. Why and when does digital business strategy help manufacturers generate value co-creation with different stakeholders?. Industrial Management & Data Systems. 2024 May 28;124(5):2042-65. https://doi.org/10.1108/IMDS-12-2023-0963

[12] Anning-Dorson T. The Evolution and Impact of Business Models in Africa's Emerging Digital Economy. InDigital Business Transformation in Africa, Volume I: Business Model Innovation 2025 Jul 3 (pp. 35-74). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-91756-1_3

[13] Sun B, Yu J, Khattak SI, Tariq S, Zahid M. Digital innovation, business models transformations, and agricultural smes: A prisma-based review of challenges and prospects. Systems. 2025 Aug 8;13(8):673. https://doi.org/10.3390/systems13080673

[14] Degen K, Teubner T. Wallet wars or digital public infrastructure? Orchestrating a digital identity data ecosystem from a government perspective. Electronic Markets. 2024 Dec;34(1):50. https://doi.org/10.1007/s12525-024-00731-1

[15] Zahra SA, Hashai N. Contemporary transitions in the international activities of startups and their policy implications. Journal of International Business Policy. 2025 Dec;8(4):391-405. https://doi.org/10.1057/s42214-025-00226-6

[16] Li B, Teece DJ, Baskaran A, Chandran VG. Dynamic Knowledge Management: A dynamic capabilities approach to knowledge management. Technovation. 2025 Sep 1; 147:103316. https://doi.org/10.1016/j.technovation.2025.103316

[17] Altman EJ, Nagle F, Tushman ML. The translucent hand of managed ecosystems: Engaging communities for value creation and capture. Academy of Management Annals. 2022 Jan;16(1):70-101. https://doi.org/10.5465/annals.2020.0244

[18] Stehn L, Erikshammar J. Configuring innovation ecosystem capabilities for scaling digital innovation in construction. International Journal of Construction Management. 2025 Sep 26:1-6. https://doi.org/10.1080/15623599.2025.2568109

[19] Saxena, S. (2022). Customer-Centered 1Antecedents of a Value Co-Creation Ecosystem: Integrating Psychological, Social, and Cultural Processes. In Emerging Ecosystem-Centric Business Models for Sustainable Value Creation (pp. 22-52). IGI Global. https://doi.org/10.4018/978-1-7998-4843-1.ch002

[20] Guido P, Nadia S, Chiara V. A Replicable Framework to Drive Business Model Innovation Enabled by Web3: A Case Study in the Agrifood Sector. IEEE Transactions on Engineering Management. 2025 Nov 27; 73:818-31. https://doi.org/10.1109/TEM.2025.3638123