



ENTREPRENEURIAL ECOSYSTEM AND ENTREPRENEURIAL BEHAVIOUR AMONG ACADEMIC STAFF: THE MEDIATING ROLE OF INSTITUTIONAL SUPPORT IN SELECTED TERTIARY INSTITUTIONS IN PLATEAU STATE, NIGERIA

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ABSTRACT

The study examined how the entrepreneurial ecosystem is associated with entrepreneurial behaviour among academic staff in selected tertiary institutions in Plateau State, Nigeria, with institutional support as a mediator. Using a cross-sectional survey and PLS-SEM analysis, the findings showed that entrepreneurial policies, human capital, and entrepreneurial culture are significantly and positively related to entrepreneurial behaviour, both directly and through institutional support. Institutional support partially mediated these relationships, indicating that pathways such as research funding, incubation centres, mentorship, commercialization policies, and industry partnerships strengthen the statistical association between the entrepreneurial ecosystem and entrepreneurial behaviour. The study concludes that improving entrepreneurship-oriented policies, human capital, and institutional support structures is essential for promoting innovation and knowledge commercialization in higher education institutions.

1.0 INTRODUCTION

Entrepreneurship has emerged as one of the principal drivers of innovation, economic growth, employment generation, and sustainable national development. In contemporary knowledge-based economies, universities are increasingly expected to extend beyond their traditional teaching and research responsibilities by contributing directly to innovation, commercialization of research outputs, technology transfer, and venture creation (Cortellazzo et al., 2020). Consequently, academic staff are no longer viewed solely as producers of knowledge but also as potential entrepreneurs capable of transforming scientific discoveries into commercially viable products, services, and enterprises (Hughes et al., 2021). This evolving role has intensified scholarly interest in understanding the institutional and environmental conditions that stimulate entrepreneurial behaviour within higher education institutions.

The entrepreneurial ecosystem provides an important framework for explaining how institutional environments shape entrepreneurial activities (Kirkley, 2016). Rather than focusing exclusively on individual entrepreneurial characteristics, the entrepreneurial ecosystem perspective emphasizes the interaction among policies, human capital, institutional culture, financial resources, support organizations, and collaborative networks that collectively facilitate entrepreneurial action (Woldesenbet et al., 2024). A well-developed ecosystem reduces barriers to innovation, enhances access to resources, encourages collaboration among stakeholders, and creates conditions that promote entrepreneurial opportunity recognition and venture creation (Queissner et al., 2024). Within universities, these ecosystem components are associated with whether academic staff actively engage in commercialization, consulting, technology transfer, patenting, and business creation (Hughes et al., 2021).

Although considerable investments have been made globally to strengthen university entrepreneurship, evidence suggests that many developing countries continue to experience relatively weak entrepreneurial engagement among academic staff (Rizvi et al., 2025). Universities frequently remain dominated by traditional teaching and publication activities, while commercialization of research findings, university spin-offs, and faculty entrepreneurship receive comparatively limited attention (Zhao et al., 2020). In many African countries, including Nigeria, institutional bureaucracies, inadequate commercialization policies, limited access to research funding, weak industry collaboration, and insufficient entrepreneurial support systems continue to constrain entrepreneurial behaviour among academics (Tula et al., 2024). These institutional deficiencies limit universities' contribution to national innovation systems despite increasing government emphasis on entrepreneurship-driven economic development. The Nigerian higher education sector has experienced increasing pressure to contribute to economic diversification, youth employment, technological advancement, and sustainable development (Qian & Acs, 2022). Government initiatives have encouraged universities to strengthen entrepreneurship education, research commercialization, innovation hubs, incubation centres, and university-industry partnerships. Nevertheless, entrepreneurial activities among academic staff remain inconsistent across institutions (Audretsch et al., 2017). While many academics possess significant technical expertise and research capabilities, relatively few transform these competencies into entrepreneurial ventures or commercially valuable innovations. This disparity suggests that possessing knowledge alone may be insufficient; institutional environments capable of supporting entrepreneurial initiatives may likewise be associated with entrepreneurial outcomes (Mwesigwa et al., 2024).

Existing empirical studies (Dias et al., 2022; Yang & Yu, 2022; Adeniji et al., 2020; Liguori et al., 2019) have established positive relationships between entrepreneurial ecosystem dimensions and entrepreneurial outcomes. Research has shown that entrepreneurial policies are associated with lower regulatory uncertainty, human capital is associated with opportunity recognition and innovation capabilities, while entrepreneurial culture is associated with creativity, risk-taking, and proactive behaviour (Yang & Yu, 2022; Adeniji et al., 2020). However, most previous studies have examined these relationships independently, focused primarily on developed economies, or concentrated on student entrepreneurship and small business owners. Comparatively fewer studies have investigated academic entrepreneurship within Nigerian tertiary institutions while simultaneously examining institutional support as the statistical pathway through which ecosystem resources are associated with entrepreneurial behaviour. Institutional support represents a critical component of university entrepreneurship because it provides structures through which ecosystem resources can be accessed and utilized (Woldesenbet et al., 2024). Support structures such as entrepreneurship centres, technology transfer offices, mentorship programmes, research

grants, incubation facilities, commercialization policies, industry collaborations, and administrative support are associated with lower uncertainty and entrepreneurial capability (Bachama et al., 2021). Drawing on Institutional Theory and the Theory of Planned Behaviour, this study argues that favourable ecosystem conditions alone may not necessarily be associated with entrepreneurial action unless supported by institutional pathways associated with resource access, capability development, and opportunity exploitation.

Against this background, this study investigates the association of entrepreneurial ecosystem dimensions—entrepreneurial policies, human capital, and entrepreneurial culture—on entrepreneurial behaviour among academic staff in selected tertiary institutions in Plateau State, Nigeria. It further examines whether institutional support mediates these relationships. By integrating ecosystem factors with institutional pathways, the study contributes to entrepreneurship literature by providing evidence from a developing economy where empirical investigations of academic entrepreneurship remain limited. The findings are expected to inform policymakers, university administrators, and development agencies seeking to strengthen innovation ecosystems and promote entrepreneurial universities capable of driving regional and national economic development.

2.0 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 LITERATURE REVIEW

2.1.1 Entrepreneurial Ecosystem and Entrepreneurial Behaviour

The entrepreneurial ecosystem has emerged as one of the dominant frameworks for explaining entrepreneurial activities across regions, organizations, and institutions. It emphasizes that entrepreneurship is associated not only with individual characteristics but also with interactions among institutional, social, economic, and cultural factors that create an enabling environment for venture creation and innovation. Entrepreneurial ecosystems comprise interconnected elements such as government policies, human capital, institutional culture, financial systems, support organizations, markets, and collaborative networks that collectively facilitate entrepreneurial development (Isenberg, 2010; Stam & Spigel, 2016). Recent studies further argue that ecosystem effectiveness depends on the quality of interactions among these components rather than the mere presence of individual elements (Queissner et al., 2024).

Within higher education institutions, entrepreneurial ecosystems play a particularly important role because universities increasingly serve as centres for knowledge creation, innovation, and commercialization. Universities that establish entrepreneurship centres, technology transfer offices, research partnerships, incubation facilities, and innovation funding create favourable conditions that encourage academic staff to engage in entrepreneurial activities. Such institutional arrangements are associated with knowledge commercialization and university–industry collaboration, alongside entrepreneurial outcomes among academics.

Drawing on Liguori et al. (2019), this study conceptualizes the entrepreneurial ecosystem using three dimensions—entrepreneurial policies, human capital, and entrepreneurial culture—which represent institutional, capability, and behavioural dimensions associated with entrepreneurship within tertiary institutions. These dimensions are considered particularly relevant because they are directly associated with the entrepreneurial decisions and actions of academic staff.

Conceptual Framework

The conceptual framework posits that entrepreneurial policies, human capital, and entrepreneurial culture are directly associated with entrepreneurial behaviour and with institutional support. Institutional support, in turn, is associated with entrepreneurial behaviour and mediates the relationships between each ecosystem dimension and entrepreneurial behaviour. The model therefore comprises seven direct paths (H1–H7) and three indirect (mediated) paths (H8a–H8c), as follows: Policy → Entrepreneurial Behaviour (H1); Human Capital → Entrepreneurial Behaviour (H2); Culture → Entrepreneurial Behaviour (H3); Policy → Institutional Support (H4); Human Capital → Institutional Support (H5); Culture → Institutional Support (H6); Institutional Support → Entrepreneurial Behaviour (H7); Policy → Institutional Support → Entrepreneurial Behaviour (H8a); Human Capital → Institutional Support → Entrepreneurial Behaviour (H8b); and Culture → Institutional Support → Entrepreneurial Behaviour (H8c).

2.2 HYPOTHESES DEVELOPMENT

2.2.1 *Entrepreneurial Policies and Entrepreneurial Behaviour*

Entrepreneurial policies refer to formal governmental and institutional regulations, incentives, programmes, and strategic interventions designed to encourage entrepreneurial activities by reducing barriers and increasing access to entrepreneurial resources. Policies are associated with entrepreneurial behaviour by providing favourable legal frameworks, tax incentives, entrepreneurship education, innovation support, research funding, and commercialization opportunities (Meng et al., 2023).

Supportive policies reduce uncertainty and transaction costs while increasing entrepreneurs' confidence to pursue innovative opportunities. Conversely, restrictive regulatory environments discourage entrepreneurial activities through excessive bureaucracy, administrative bottlenecks, and limited institutional flexibility. Within universities, entrepreneurship policies facilitate technology commercialization, industry collaboration, intellectual property protection, and startup development, thereby encouraging academics to engage in entrepreneurial initiatives.

Empirical evidence generally supports a positive association between entrepreneurial policies and entrepreneurial behaviour. Meng et al. (2023) reported that entrepreneurship policies significantly enhance entrepreneurial willingness and behaviour among university graduates. Kantis et al. (2020) further argued that effective entrepreneurship policies strengthen ecosystem performance by addressing structural barriers that constrain entrepreneurial activities in developing economies.

Accordingly, the study proposes:

H1: Entrepreneurial policies have a significant positive relationship with entrepreneurial behaviour among academic staff.

2.2.2 *Human Capital and Entrepreneurial Behaviour*

Human capital represents the knowledge, competencies, experience, creativity, and skills that individuals accumulate through education, training, and professional experience. Human Capital Theory suggests that investments in education and capability development improve individuals' productivity, innovation capacity, and entrepreneurial performance (Becker, 1964; Schultz, 1961). Within entrepreneurial ecosystems, human capital enhances opportunity recognition, innovation capability, and resource mobilization, thereby increasing entrepreneurial effectiveness.

Academic staff possess specialized knowledge and research expertise capable of generating commercially valuable innovations. However, transforming academic knowledge into entrepreneurial ventures requires technical competence, entrepreneurial skills, business knowledge, and commercialization capabilities. Consequently, stronger human capital is expected to increase academics' willingness and ability to identify entrepreneurial opportunities and successfully exploit them (Sharma, 2021).

Previous empirical studies consistently demonstrate positive relationships between human capital and entrepreneurial outcomes. Gielnik et al. (2020) demonstrated that higher educational attainment and entrepreneurial experience reduce venture abandonment and improve entrepreneurial persistence.

Therefore, the study hypothesizes:

H2: Human capital has a significant positive relationship with entrepreneurial behaviour among academic staff.

2.2.3 Entrepreneurial Culture and Entrepreneurial Behaviour

Entrepreneurial culture comprises the shared values, norms, beliefs, and attitudes that encourage innovation, creativity, calculated risk-taking, autonomy, and opportunity recognition. A supportive entrepreneurial culture creates psychological acceptance for experimentation and reduces fear of failure, thereby motivating entrepreneurial action (Abanumay et al., 2025). Within universities, entrepreneurial culture shapes how academic staff perceive commercialization activities, interdisciplinary collaboration, innovation, and industry engagement. Institutions that recognize entrepreneurial achievements, reward innovation, and encourage knowledge commercialization are more likely to produce entrepreneurial academics than institutions emphasizing only traditional teaching and publication outputs.

Empirical studies provide substantial support for this relationship. Ogunsade et al. (2021) demonstrated that prevailing societal norms are significantly associated with entrepreneurial decision-making among university students. Kirkley (2016) similarly reported that entrepreneurial culture and values are significantly associated with entrepreneurial engagement through their relationship with attitudes toward risk-taking, independence, and innovation.

Accordingly, the following hypothesis is proposed:

H3: Entrepreneurial culture has a significant positive relationship with entrepreneurial behaviour among academic staff.

2.2.4 Entrepreneurial Policies and Institutional Support

Existing studies demonstrate the importance of institutional support and the broader institutional environment in promoting entrepreneurship and entrepreneurial outcomes. Yang and Yu (2022) found that institutional support is positively associated with the innovation performance of new ventures. Collectively, these studies indicate that supportive policies, institutional structures, culture, and other forms of institutional support are important in encouraging entrepreneurial behaviour and and entrepreneurial outcomes. Hence this study proposes:

H4: Entrepreneurial policies have a significant positive relationship with institutional support.

2.2.5 Human Capital and Institutional Support

Existing empirical studies highlight the significant role of institutional support, human capital, government policies, and individual resources in promoting entrepreneurial behaviour and academic

entrepreneurship. Wang et al. (2022) demonstrated that individual human capital and the institutional context of higher education institutions significantly contribute to promoting academic entrepreneurship. Collectively, these studies suggest that supportive institutional environments, policies, resources, and individual capabilities are crucial for and entrepreneurial behaviour and and entrepreneurial outcomes. Therefore, this study hypothesizes that:

H5: Human capital has a significant positive relationship with institutional support.

2.2.6 Entrepreneurial Culture and Institutional Support

Existing studies demonstrate that institutional environment, culture, social norms, and institutional support play important roles in shaping entrepreneurial and other behavioural outcomes. Collectively, these studies suggest that culture and institutional conditions interact in shaping individual behaviour and outcomes, highlighting the importance of a supportive institutional culture in and entrepreneurial behaviour. Accordingly, the study proposes:

H6: Entrepreneurial culture has a significant positive relationship with institutional support.

2.2.7 Institutional Support and Entrepreneurial Behaviour

The reviewed studies demonstrate the importance of institutional support in and entrepreneurial behaviour and improving academic outcomes. In the Nigerian university context, Falola et al. (2020) found that institutional support strategies, including research, pedagogical, and technical support, are associated with faculty outcomes such as research productivity, knowledge sharing, and administrative efficiency. Collectively, these studies suggest that appropriate institutional structures, resources, and support structures can create an enabling environment that strengthens entrepreneurial behaviour and improves the effectiveness of academic staff. Based on these arguments, the following hypothesis is advanced:

H7: Institutional support has a significant positive relationship with entrepreneurial behaviour among academic staff.

2.2.8 Institutional Support as a Mediating Pathway

Institutional support refers to the formal and informal structures established by organizations to facilitate entrepreneurial activities through research funding, mentorship, commercialization support, entrepreneurship centres, incubation facilities, administrative assistance, and university-industry collaboration. Institutional Theory argues that institutional arrangements provide legitimacy, reduce uncertainty, and facilitate access to entrepreneurial resources necessary for venture creation (Khoi, 2020).

Although entrepreneurial ecosystems create opportunities for innovation, these opportunities are often accompanied by institutional support structures before they are associated with individual entrepreneurial behaviour. Universities with supportive institutional environments provide academics with practical resources required to transform research outputs into entrepreneurial ventures. Consequently, institutional support serves as the statistical pathway through which ecosystem resources become associated with entrepreneurial opportunities.

Recent empirical studies support this mediating perspective. Yang and Yu (2022) found that institutional support is significantly associated with innovation performance among new ventures. Based on these theoretical and empirical arguments, the following hypotheses are advanced:

H8a: Institutional support significantly mediates the relationship between entrepreneurial policies and entrepreneurial behaviour.

H8b: Institutional support significantly mediates the relationship between human capital and entrepreneurial behaviour.

H8c: Institutional support significantly mediates the relationship between entrepreneurial culture and entrepreneurial behaviour.

2.3 THEORETICAL FRAMEWORK

This study is anchored on Institutional Theory, Human Capital Theory, and the Theory of Planned Behaviour (TPB).

Institutional Theory provides the principal explanation for the relationship between the external institutional environment and entrepreneurial activities. The theory proposes that behaviour is shaped by formal and informal institutions that establish rules, norms, incentives, expectations, and constraints. In the context of this study, entrepreneurial policies and entrepreneurial culture represent important dimensions of this institutional environment. Policies establish formal rules, incentives, regulatory conditions, and opportunities that encourage or constrain entrepreneurial activities, while culture reflects informal norms, values, beliefs, and social expectations concerning entrepreneurship. Institutional Theory therefore explains the association between favourable policy and cultural conditions and entrepreneurial behaviour among academic staff. Institutional Theory is also particularly relevant in explaining the role of institutional support. Favourable ecosystem conditions may not automatically result in entrepreneurial action unless they are translated into accessible resources and support structures. Institutional support therefore serves as an organizational pathway through which broader ecosystem conditions can be converted into resources and opportunities that are associated with entrepreneurial behaviour.

Human Capital Theory complements Institutional Theory by explaining the specific role of human capital in entrepreneurial activity. Human Capital Theory maintains that investments in education, knowledge, skills, training, and experience enhance individuals' productive capabilities and their ability to perform economic activities effectively (Becker, 1964; Schultz, 1961). In an entrepreneurial context, individuals possessing relevant knowledge, technical skills, managerial competencies, professional experience, and entrepreneurial capabilities are better positioned to recognize opportunities, evaluate their feasibility, mobilize resources, solve business-related problems, and undertake entrepreneurial activities. Applied to academic staff, Human Capital Theory suggests that the knowledge and competencies accumulated through education, professional experience, research activities, training, and exposure to entrepreneurial opportunities can enhance their capacity to engage in entrepreneurial behaviour. Human capital can therefore be associated with entrepreneurial behaviour directly by strengthening the capabilities required to identify and exploit entrepreneurial opportunities. It may also facilitate academics' ability to access and utilize available institutional support.

The Theory of Planned Behaviour (TPB) provides a complementary behavioural perspective. TPB explains behaviour through behavioural intention, which is associated with attitudes towards the behaviour, subjective norms, and perceived behavioural control (Ajzen, 1991). In the present model, TPB is not operationalized through a separate intention construct; rather, its components are used to interpret how ecosystem conditions and institutional support shape the psychological antecedents of entrepreneurial action. Specifically: (a) entrepreneurial culture is mapped onto subjective norms, because

shared institutional values and expectations regarding commercialization, innovation, and industry engagement shape the social pressure and legitimacy that academic staff experience when considering entrepreneurial activity; (b) human capital and institutional support are mapped onto perceived behavioural control, because knowledge, skills, and accessible organizational resources are associated with academics' perceptions that entrepreneurial action is feasible; and (c) entrepreneurial policies are associated with both attitudes (by signalling institutional desirability of entrepreneurship) and perceived behavioural control (through their association with lower regulatory barriers). Because the study measures actual entrepreneurial behaviour rather than intention, TPB is used to explain why supportive norms and enabling conditions are expected to be associated with observed entrepreneurial action, rather than to model intention as an intervening variable. Integrating these theoretical perspectives provides a multi-level explanation: at the environmental level, policy and culture represent formal and informal ecosystem conditions interpreted through Institutional Theory; at the capability level, human capital is explained by Human Capital Theory; at the organizational level, institutional support represents the pathway through which ecosystem conditions become accessible; and at the individual behavioural level, TPB clarifies how norms and control perceptions link these conditions to entrepreneurial action.

2.4 RESEARCH GAP

Recent studies have established that entrepreneurial ecosystems are associated with entrepreneurial outcomes through interconnected factors such as policy, human capital, culture, resources, and institutional arrangements (Audretsch et al., 2017). However, the effectiveness of these elements varies across institutional and regional contexts. In Nigeria, evidence indicates that entrepreneurial motivation is associated with academics' entrepreneurial intentions, but the transition from intention to actual entrepreneurial engagement is weaker, highlighting the importance of institutional conditions and support. Despite these contributions, the statistical pathway through which specific ecosystem dimensions are associated with actual entrepreneurial behaviour among academic staff remains insufficiently explained. Existing Nigerian university research has frequently emphasized entrepreneurial intentions, education, innovation support, or student entrepreneurship rather than simultaneously examining policy, human capital, and culture as predictors of entrepreneurial behaviour with institutional support as a mediating pathway. Therefore, studying academic staff in selected tertiary institutions in Plateau State, Nigeria, provides context-specific evidence from an institutional and regional setting that has received comparatively limited attention. The study consequently addresses an outcome gap by focusing on entrepreneurial behaviour, a pathway gap by examining institutional support as a mediator, and a contextual gap by investigating these relationships among academic staff in Plateau State tertiary institutions.

3.0 METHODOLOGY

3.1 Research Design

This study adopted a quantitative research approach using a cross-sectional survey design to examine the relationships among entrepreneurial ecosystem, institutional support, and entrepreneurial behaviour among academic staff in selected tertiary institutions in Plateau State, Nigeria. A cross-sectional design was considered appropriate because it enables the collection of data from respondents at a single point in time while providing an efficient means of testing hypothesized relationships among latent constructs. Because of this design, the study reports statistical associations rather than causal interpretations.

3.2 Population, Sample and Data Collection

The target population comprised academic staff from selected tertiary institutions in Plateau State, Nigeria. A structured questionnaire was used as the primary instrument for data collection. The questionnaire consisted of two sections. The first section collected respondents' demographic information, while the second measured the study constructs using previously validated measurement scales adapted from existing literature and modified to reflect the context of academic entrepreneurship. Responses were measured on a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The questionnaire was administered directly to academic staff across the selected institutions, and only properly completed questionnaires were retained for analysis.

3.3 Measurement of Variables

The entrepreneurial ecosystem was operationalized as a multidimensional construct comprising entrepreneurial policies, human capital, and entrepreneurial culture. Entrepreneurial behaviour served as the dependent variable, while institutional support was specified as the mediating construct. Entrepreneurial policies measured respondents' perceptions regarding institutional and governmental policies that facilitate entrepreneurial activities. Human capital assessed the knowledge, competencies, entrepreneurial skills, and professional capabilities possessed by academic staff. Entrepreneurial culture captured institutional values, norms, and practices that encourage innovation, creativity, collaboration, and calculated risk-taking. Institutional support measured the availability of organizational resources such as research funding, mentorship, incubation programmes, commercialization support, administrative assistance, and university-industry collaboration. Entrepreneurial behaviour assessed respondents' involvement in opportunity recognition, innovation, commercialization, venture creation, and other entrepreneurial activities.

4.0 DATA ANALYSIS

The study employed Partial Least Squares Structural Equation Modelling (PLS-SEM) for hypothesis testing using SmartPLS software. The analysis followed the recommended two-stage procedure. First, the measurement model was evaluated by assessing indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Indicator reliability was examined through factor loadings, while Cronbach's alpha and Composite Reliability (CR) were used to assess internal consistency. Convergent validity was evaluated using the Average Variance Extracted (AVE), whereas discriminant validity was assessed using the Heterotrait-Monotrait (HTMT) ratio. Following satisfactory measurement model assessment, the structural model was evaluated by examining path coefficients, coefficients of determination (R^2), effect sizes (f^2), out-of-sample predictive relevance (Q^2_{predict}), and hypothesis significance. Statistical significance of the direct and indirect effects was determined through the bootstrapping procedure using 5,000 bootstrap resamples. Mediation was assessed by examining the significance of indirect effects and the variance accounted for by institutional support in accounting for the statistical association of entrepreneurial ecosystem dimensions with entrepreneurial behaviour.

Table 1

Common Method Bias

Construct	VIF	Threshold	Decision
EB → CMB	1.561	< 3.3	No CMB concern
EEC → CMB	1.018	< 3.3	No CMB concern

Construct	VIF	Threshold	Decision
EEH → CMB	1.358	< 3.3	No CMB concern
EEP → CMB	1.296	< 3.3	No CMB concern
IS → CMB	1.648	< 3.3	No CMB concern

Common method bias was assessed using the full collinearity VIF approach to determine whether the use of a common data collection method posed a potential threat to the validity of the study findings. Under this approach, VIF values below the threshold of 3.3 indicate that common method bias is unlikely to constitute a serious concern.

4.1 RESULTS

4.1.1 Respondent Profile

A total of 367 questionnaires were distributed to academic staff across selected tertiary institutions in Plateau State, Nigeria. Of these, 348 usable questionnaires were returned, representing a response rate of 94.8%, which is considered adequate for structural equation modelling. The respondents were almost equally distributed by gender (51.15% male and 48.85% female), while the sample represented diverse age groups, academic ranks, and years of service, thereby providing a broad representation of academic staff.

4.1.2 Measurement Model Assessment

Table 2

Indicator Loadings, Reliability and Convergent Validity

Construct	Indicators (range)	Cronbach's α	rho_A	rho_C	AVE
EB	0.607–0.785	0.906	0.909	0.922	0.544
EEC	0.731–0.861	0.808	0.832	0.873	0.633
EEH	0.731–0.865	0.824	0.838	0.883	0.655
EEP	0.824–0.852	0.857	0.857	0.903	0.701
IS	0.646–0.797	0.901	0.904	0.918	0.530

As shown in Table 2, outer loadings ranged from 0.607 to 0.865. Most indicators exceeded the recommended loading threshold of 0.70. However, four indicators recorded loadings below 0.70: EB7 (0.607), IS1 (0.697), IS9 (0.694), and IS10 (0.646). These indicators fall below the conventional 0.70 threshold but were retained because their loadings remained above 0.60, the respective constructs demonstrated satisfactory internal consistency reliability and convergent validity, and item deletion would potentially reduce content coverage of the constructs. Internal consistency reliability was satisfactory across all constructs. Cronbach's alpha ranged from 0.808 to 0.906, rho_A from 0.832 to 0.909, and rho_C from 0.873 to 0.922, with all values exceeding the recommended minimum of 0.70. Convergent validity was also established, as all constructs recorded AVE values above the recommended threshold of 0.50 (EB = 0.544; EEC = 0.633; EEH = 0.655; EEP = 0.701; IS = 0.530).

Table 3*Discriminant Validity (HTMT)*

	EB	EEC	EEH	EEP	IS
EB					
EEC	0.359				
EEH	0.517	0.266			
EEP	0.442	0.167	0.418		
IS	0.712	0.385	0.567	0.487	

Discriminant validity was assessed using the Heterotrait-Monotrait ratio (HTMT). The results revealed that HTMT values ranged from 0.167 to 0.712, with all values below the conservative threshold of 0.85.

Table 4*Coefficient of Determination (R^2)*

	R-square	R-square adjusted
EB	0.459	0.453
IS	0.369	0.364

The R^2 results indicate that the model has moderate explanatory power. Culture, human capital, policy, and institutional support jointly explain 45.9% of the variance in entrepreneurial behaviour (EB), while culture, human capital, and policy explain 36.9% of the variance in institutional support (IS).

Table 5*Effect Size (f^2)*

Structural Path	f^2
EEC → EB	0.016
EEH → EB	0.029
EEP → EB	0.018
IS → EB	0.284
EEC → IS	0.078
EEH → IS	0.165
EEP → IS	0.103

The effect size (f^2) was assessed to determine the individual contribution of each predictor construct to the endogenous constructs. Culture had a negligible effect on entrepreneurial behaviour ($f^2 = 0.016$), human capital a small effect ($f^2 = 0.029$), and policy a negligible effect ($f^2 = 0.018$). Institutional support had the strongest effect on entrepreneurial behaviour, with a medium effect size ($f^2 = 0.284$). For institutional support, culture had a small effect ($f^2 = 0.078$), human capital a medium effect ($f^2 = 0.165$), and policy a small effect ($f^2 = 0.103$).

Table 6
Out-of-Sample Predictive Relevance ($Q^2_{predict}$)

Endogenous indicators	$Q^2_{predict}$ range
IS indicators (IS1–IS10)	0.107 – 0.263
EB indicators (EB1–EB10)	0.112 – 0.189

The out-of-sample predictive relevance of the structural model was assessed using the PLSpredict procedure in SmartPLS 4. The $Q^2_{predict}$ statistic was used to evaluate predictive relevance for the indicators of the endogenous constructs (institutional support and entrepreneurial behaviour). A $Q^2_{predict}$ value greater than zero indicates that the PLS-SEM model provides out-of-sample predictive relevance for the respective endogenous indicator. All reported $Q^2_{predict}$ values were greater than zero, supporting the predictive relevance of the model. These values should not be confused with the traditional blindfolding-based Q^2 statistic; the procedure used here is PLSpredict, and the statistic reported is $Q^2_{predict}$.

Table 7
Structural Path Significance (Direct and Indirect Effects)

Structural Path	β	STDEV	t-value	p-value	Significance
EEC → EB	0.098	0.044	2.257	0.024	Significant
EEC → IS	0.228	0.044	5.219	<0.001	Significant
EEH → EB	0.146	0.049	2.978	0.003	Significant
EEH → IS	0.350	0.044	8.009	<0.001	Significant
EEP → EB	0.111	0.045	2.472	0.013	Significant
EEP → IS	0.273	0.048	5.693	<0.001	Significant
IS → EB	0.493	0.052	9.453	<0.001	Significant
EEP → IS → EB (H8a)	0.135	0.027	5.009	<0.001	Significant
EEH → IS → EB (H8b)	0.173	0.030	5.687	<0.001	Significant
EEC → IS → EB (H8c)	0.112	0.026	4.345	<0.001	Significant

Table 7 reports path coefficients (β), standard deviations, t-statistics, and p-values. At the 5% significance level, a structural relationship was considered statistically significant where the t-value exceeded 1.96 and the p-value was less than 0.05. All structural paths examined were statistically significant.

4.2 HYPOTHESIS TESTING

Table 8
Test of Hypotheses

Hyp.	Hypothesized Relationship	β	t-value	p-value	Decision
H1	EEP → EB	0.111	2.472	0.013	Supported
H2	EEH → EB	0.146	2.978	0.003	Supported
H3	EEC → EB	0.098	2.257	0.024	Supported

Hyp.	Hypothesized Relationship	β	t-value	p-value	Decision
H4	EEP $\rightarrow$ IS	0.273	5.693	<0.001	Supported
H5	EEH $\rightarrow$ IS	0.350	8.009	<0.001	Supported
H6	EEC $\rightarrow$ IS	0.228	5.219	<0.001	Supported
H7	IS $\rightarrow$ EB	0.493	9.453	<0.001	Supported
H8a	EEP $\rightarrow$ IS $\rightarrow$ EB	0.135	5.009	<0.001	Supported
H8b	EEH $\rightarrow$ IS $\rightarrow$ EB	0.173	5.687	<0.001	Supported
H8c	EEC $\rightarrow$ IS $\rightarrow$ EB	0.112	4.345	<0.001	Supported

The hypotheses were tested using path coefficients obtained from the PLS-SEM bootstrapping procedure. Because the hypotheses are formulated as directional positive relationships, a hypothesis was considered supported where the path was positive, the t-value exceeded 1.96, and the p-value was less than 0.05.

H1: Entrepreneurial policies and entrepreneurial behaviour. Entrepreneurial ecosystem policies (EEP) had a positive and statistically significant association with entrepreneurial behaviour (EB) ($\beta = 0.111$, $t = 2.472$, $p = 0.013$). H1 is supported.

H2: Human capital and entrepreneurial behaviour. Entrepreneurial ecosystem human capital (EEH) had a positive and statistically significant association with entrepreneurial behaviour ($\beta = 0.146$, $t = 2.978$, $p = 0.003$). H2 is supported.

H3: Entrepreneurial culture and entrepreneurial behaviour. Entrepreneurial ecosystem culture (EEC) had a positive and statistically significant association with entrepreneurial behaviour ($\beta = 0.098$, $t = 2.257$, $p = 0.024$). H3 is supported.

H4: Entrepreneurial policies and institutional support. Entrepreneurial ecosystem policies had a significant positive association with institutional support ($\beta = 0.273$, $t = 5.693$, $p < 0.001$). H4 is supported.

H5: Human capital and institutional support. Entrepreneurial ecosystem human capital had a significant positive association with institutional support ($\beta = 0.350$, $t = 8.009$, $p < 0.001$). H5 is supported. Among the three entrepreneurial ecosystem dimensions, human capital exhibited the strongest direct association with institutional support.

H6: Entrepreneurial culture and institutional support. Entrepreneurial ecosystem culture had a positive and statistically significant association with institutional support ($\beta = 0.228$, $t = 5.219$, $p < 0.001$). H6 is supported.

H7: Institutional support and entrepreneurial behaviour. Institutional support had a strong positive and statistically significant association with entrepreneurial behaviour ($\beta = 0.493$, $t = 9.453$, $p < 0.001$). H7 is supported.

H8a: Mediation of the policy-behaviour relationship. Institutional support significantly mediated the relationship between entrepreneurial ecosystem policies and entrepreneurial behaviour ($\beta = 0.135$, $t = 5.009$, $p < 0.001$). The positive and significant direct and indirect effects indicate complementary partial mediation. H8a is supported.

H8b: Mediation of the human capital–behaviour relationship. Institutional support significantly mediated the relationship between entrepreneurial ecosystem human capital and entrepreneurial behaviour ($\beta = 0.173$, $t = 5.687$, $p < 0.001$). Complementary partial mediation is indicated. H8b is supported.

H8c: Mediation of the culture–behaviour relationship. Institutional support significantly mediated the relationship between entrepreneurial ecosystem culture and entrepreneurial behaviour ($\beta = 0.112$, $t = 4.345$, $p < 0.001$). Complementary partial mediation is indicated. H8c is supported.

4.3 DISCUSSION OF FINDINGS

The findings demonstrate that the entrepreneurial ecosystem is significantly associated with entrepreneurial behaviour among academic staff, although the contribution of the ecosystem extends beyond the mere presence of favourable environmental conditions. Specifically, policies, human capital, and culture were found to have significant positive associations with entrepreneurial behaviour. The positive association of policies suggests that clear and supportive regulatory arrangements can reduce institutional barriers and are associated with conditions under which academic staff engage in entrepreneurial activities. This finding is consistent with prior evidence that favourable policy environments are associated with entrepreneurial activity by reducing regulatory constraints and creating incentives (Meng et al., 2023; Kantis et al., 2020). The present study extends these findings to academic staff in Nigerian tertiary institutions, where entrepreneurial activities may involve not only conventional business creation but also research commercialization, consultancy, innovation, and the transformation of academic knowledge into economically useful ventures. From the perspective of Institutional Theory, this finding demonstrates the importance of formal institutions in establishing rules, incentives, and legitimacy for entrepreneurial action.

Human capital also had a significant positive association with entrepreneurial behaviour. This indicates that academic staff who possess relevant knowledge, professional experience, technical competencies, and entrepreneurial capabilities are better positioned to identify opportunities and transform them into entrepreneurial activities. The finding is consistent with Human Capital Theory and with evidence emphasizing the importance of knowledge, skills, and experience in entrepreneurial activity (Gielnik et al., 2020; Sharma, 2021). In the Nigerian tertiary-institution setting, academic qualifications and technical expertise constitute potential entrepreneurial resources, but their economic and social value depends on whether academic staff can apply these capabilities to opportunity recognition, innovation, consultancy, commercialization, and venture-related activities.

Culture similarly exhibited a significant positive association with entrepreneurial behaviour, indicating that entrepreneurial action is partly embedded within the social environment in which academic staff operate. This finding supports prior work showing that cultural values are associated with entrepreneurship by shaping attitudes towards innovation, autonomy, risk-taking, and entrepreneurial careers (Kirkley, 2016). The finding can also be interpreted through the Theory of Planned Behaviour, particularly the role of subjective norms: when entrepreneurship is socially accepted and institutionally valued, academic staff may perceive greater social approval for engaging in entrepreneurial activities.

The findings further revealed that policies, human capital, and culture were significantly associated with institutional support. The positive culture–institutional support relationship suggests that institutional support structures are more likely to develop and be utilized where entrepreneurship is embedded within the values and expectations of the institutional environment. The positive relationship between policies and institutional support indicates that policy does not operate independently of organizational

implementation structures. The statistical association of entrepreneurship policies may be weaker where they remain formal statements without corresponding funding arrangements, administrative procedures, incubation facilities, or commercialization support. Human capital was also significantly associated with institutional support, suggesting that the quality and utilization of support may depend on the human capabilities available within institutions.

A particularly important contribution of the study is the finding that institutional support significantly mediated the relationships between policies, human capital, culture, and entrepreneurial behaviour. This demonstrates that the entrepreneurial ecosystem is associated with behaviour not only directly but also through an indirect statistical pathway involving institutional structures that link environmental conditions to accessible opportunities and resources. The policy–institutional support–entrepreneurial behaviour pathway (H8a) indicates that favourable policies are more strongly associated with entrepreneurial action when operationalized through tangible support structures. The mediation of the human capital–entrepreneurial behaviour relationship (H8b) shows that possessing knowledge and skills does not necessarily guarantee their conversion into entrepreneurial action; institutional structures provide platforms through which human capital can be deployed. The mediation of the culture–entrepreneurial behaviour relationship (H8c) demonstrates that favourable entrepreneurial values alone may be insufficient; cultural acceptance of entrepreneurship needs to be reinforced by concrete institutional arrangements that make entrepreneurial action feasible.

Overall, the findings reveal complementary relationships among environmental conditions, individual capabilities, institutional structures, and entrepreneurial action. Institutional Theory explains how policies, culture, and organizational support structures shape the opportunities and constraints surrounding entrepreneurship; Human Capital Theory explains the relationship between knowledge, skills, and experience and the capacity of academic staff to exploit entrepreneurial opportunities; and TPB provides a behavioural interpretation of how supportive norms and enabling conditions can be associated with entrepreneurial action. More importantly, the mediation results demonstrate that favourable ecosystem conditions do not operate solely through direct associations. In the Nigerian tertiary-institution context, institutional support represents an important statistical pathway through which policy provisions, human capabilities, and supportive cultural conditions are linked to entrepreneurial behaviour.

5.0 CONCLUSION

This study examined the association between the entrepreneurial ecosystem and entrepreneurial behaviour among academic staff in selected tertiary institutions in Plateau State, Nigeria, with particular emphasis on the mediating role of institutional support. The findings demonstrate that entrepreneurial policies, human capital, and entrepreneurial culture are significantly and positively related to entrepreneurial behaviour both directly and indirectly through institutional support. Furthermore, institutional support emerged as the strongest predictor of entrepreneurial behaviour, highlighting its pivotal role in linking favourable ecosystem conditions to entrepreneurial actions in the statistical model.

The findings suggest that entrepreneurial behaviour among academics cannot be explained solely by individual competencies or supportive policies. Rather, entrepreneurial activities are more likely to be observed when universities establish effective institutional structures that facilitate research commercialization, provide entrepreneurship training, strengthen industry partnerships, support technology transfer, and improve access to funding and mentoring. Consequently, developing

entrepreneurial universities requires an integrated approach that combines supportive policies, capable human capital, an innovation-oriented institutional culture, and robust institutional support systems.

5.1 RECOMMENDATIONS

1. The Federal and State Ministries of Education, the National Universities Commission (NUC), and tertiary institution management should implement entrepreneurship-friendly policies that simplify academic staff participation in innovation, consultancy, commercialization, and venture creation.
2. Tertiary institution management and staff development units should provide regular entrepreneurship, innovation, business development, and commercialization training to strengthen the entrepreneurial capabilities of academic staff.
3. Institutional management, faculties, departments, and entrepreneurship centres should promote an entrepreneurial culture by recognizing and rewarding staff innovation, commercialization, industry collaboration, and entrepreneurial initiatives.
4. Government education agencies, NUC, TETFund, and tertiary institutions should support entrepreneurship policies with adequate funding, incubation facilities, technology-transfer structures, and clear implementation guidelines.
5. Tertiary institutions and staff development units should strengthen the competencies of personnel responsible for entrepreneurship, innovation, incubation, and technology-transfer activities through continuous professional development.
6. Institutional leadership and entrepreneurship centres should encourage the utilization of entrepreneurship-support services through awareness programmes, mentorship, innovation events, industry engagement, and recognition schemes.
7. Tertiary institutions, entrepreneurship centres, technology-transfer offices, and funding agencies should provide accessible incubation, mentorship, seed funding, intellectual property assistance, industry linkages, and commercialization support for academic staff.
8. Government policymakers, NUC, TETFund, and tertiary institution management should translate entrepreneurship policies into practical programmes with adequate funding, clearly assigned responsibilities, implementation timelines, and monitoring arrangements.
9. Tertiary institutions, entrepreneurship centres, and technology-transfer offices should establish innovation hubs, industry partnerships, commercialization programmes, and mentorship platforms that enable academic staff to transform their knowledge and research into entrepreneurial activities.
10. Institutional leaders, faculties, departments, and entrepreneurship centres should translate supportive entrepreneurial values into practical actions by rewarding innovation, supporting staff-led ventures, and providing networking and mentorship opportunities.

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