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Faith-Based Digital Entrepreneurial Ecosystems: Integrating Institutional Logics, Digital Transformation, and Social Capital for Economic Empowerment in Indonesian Pesantren

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ABSTRACT

The study aims to explore the process of how pesantren (Islamic boarding school) in Indonesia can improve from conventional religious institution to produce economic empowerment by creating digitally supported entrepreneurial ecosystem. This exploratory research examines the interaction dynamics of the antecedents and consequences relationships between digital transformation, institutional capability as its pre-requisites based on survey data from many pesantren with their active business units. Another aspect is Social capital of the Islamic society also carve the behaviour forming ecosystem which design fundamentally economic empowerment. The results indicate digital transformation facilitates institutional capacity-building and correlates with direct enhancements to entrepreneurship ecosystem development. Institutional capability and Islamic social capital further facilitate ecosystem development opportunities, while the most significant predictors relating to economic empowerment (such income go generation; employment creation; sense of belonging to community) seem to be closely related with a democratisation process of an ecosystem formation. The mediation analysis shows that digital transformation works on economic empowerment mainly through the formation of ecosystems, whilst Islamic social capital positively moderates this mediator with digital transformation.

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1. Introduction

Faith-based institutions (FBIs) are increasingly recognized for their strategic role in promoting inclusive and community-driven development, particularly in filling institutional voids and correcting market imperfections typically prevalent in middle-income countries. International development literature shows that religious organizations have made significant contributions to providing education, health services, and social welfare, often in areas where state institutions are ineffective [1]. These institutions often possess strong social networks, moral legitimacy, and embedded trust structures conducive to collective action and resource mobilization in many settings. Despite this, the economic transformation of FBIs has not been sufficiently theorized and empirically tested in academia, particularly in the era of digitalization.

The transformation in Indonesia is exciting to explore empirically. Indonesia, the world's largest Muslim-majority country houses over 39,000 Islamic boarding schools (pesantren), educating

millions of students and serve as socio-religious focal points in both rural and urban communities [2]. Pesantren historically have been devoted to religious education, moral and character building within an Islamic- community environment. Nevertheless, pesantren have recently been encouraged more instruments of productive economy such as ventures in halal industries or business opportunities through micro enterprises agribusiness and cooperatives-based entrepreneurship given this recent trend regarding regulatory reforms at national economic agendas. Local economic resilience and inclusive growthEvidence of this shift can be seen in an increasing number of cities: They have come to realize that culturally embedded institutions matter.

Concurrently, the architecture of entrepreneurship and organisational competitiveness has been redefined worldwide by digital transformation. Digital transformation is the process of implementing digital technologies in organizational processes, business models and value chains changing their form [3][4]. In emerging markets, digital technologies decrease the costs related to transactions and also encourage market creation by enhancing ways of networking collaboration [5]. The academic literature on digital transformation has seemed to focus primarily on corporate firms and, more broadly, start-ups as well the high-technology industries. However, little is known about its implications for faith-based educational institutions embedded within more traditional governance structures.

Based on the Theory of Institutional Logics, organizations work under multiple if not all value systems as logics which at times compete for primacy in decision logic and strategic orientation [6]. Islamic boarding schools (pesantren) are traditionally organized around principles of religious dominance, spiritual authority, moral obligation, and collective bonding. Their entrepreneurial activities align with market logics that rely on efficiency, competitiveness, and sustainable profitability. Pesantren offer a form of digital rationality that encompasses record-keeping, data integration, platforming, and scale, among other things. How these logics interact within pesantren is theoretically important, particularly in terms of how digital modernization supports or undermines the legitimacy of religious institutions.

Therefore, entrepreneurial ecosystem theory extends this line of inquiry by arguing that entrepreneurship is a constituent part of a broader, interconnected system comprising institutions, networks, finance, culture, and human capital [7]. The importance of this perspective in a world with limited institutional capacity and experience is evident. The ecosystem perspective goes beyond individual entrepreneurial intentions to emphasize collective capacity building and institutional interdependence. Despite the fact that most current ecosystem frameworks are rooted in the secular, market-based perspectives of religious institutions, faith-based actors rarely play a regulatory role. Supported by digital infrastructure, given their dense relational alumni networks and moral authority, Islamic boarding schools can act as appropriate anchor institutions to spark local entrepreneurial ecosystems.

Social capital explains how relational trust and shared norms shape economic collaboration. Social capital helps reduce uncertainty and enables coordinated action in entrepreneurial contexts [8]. Social capital is often supported by religious rhetoric, including concepts such as amanah (trustworthiness) and ta'awun (religious covenant) within Islamic communities. Thus, Islamic social capital can enhance the impact of digital transformation by grounding technology diffusion in trust-based relationships. However, the empirical integration of Islamic social capital in the literature on digital transformation and ecosystem formation remains inadequate.

2. State of the Art

The content is associated with previous research conducted by the author. It minimally contains 5 sources of references in Introduction and a minimum of 20 sources in all the contents. The sources must be obligated from journals and proceedings associated with your research and should be up to date, a maximum of five years from the day of publication. Journals and proceedings are mainly indexed by Scopus, Clarivate Analytics Web of Science (SCIE & SSCI), PubMed, DOAJ or database entries of IEEE, ACM, Proquest, CABI, Gale, and EBSCO. Please be sure that each of the references cited in texts is also

available in the table of references (vice versa). Non-academic sources such as Wikipedia, blog, or mass publication are not allowed.
Write the purpose of the research or may be a research question or hypothesis if there is one, at the end of the introduction**.**

3. Method

Research Design

The study, as such, adopts a quantitative explanatory design to empirically investigate the proposed Faith-Based Digital Entrepreneurial Ecosystem (FBDEE) model. The study is intended to investigate the structural relations between digital transformation, institutional capability, Islamic social capitals as an antecedent activity and entrepreneurial ecosystem formation with economic empowerment for pesantren in Indonesia. Pesantren were conceptualized as hybrid institutions experiencing digital and entrepreneurial transformations, using a multivariate inferential statistical research framework.

Population and Sampling

This population is represented by Islamic boarding schools (pesantren) in Indonesia that have engaged in economic or entrepreneurial activities such as cooperatives, halal production units, agribusiness ventures such as plantations, digital marketing, and vocational entrepreneurship programs. Sampling used a purposive approach, ensuring that the selected Islamic boarding schools met three criteria: actively involved in at least one business unit, and utilizing digital technology in at least one way (e.g., online marketing, e-finance solutions, e-commerce).

This is an institutional-level analysis. Respondents included Islamic boarding school leaders (kyai or directors), business unit managers, and senior administrative staff. Literally, the 10-fold rule in PLS-SEM [15] states that the sample size response rate = 10 times the maximum number of structural paths leading to a construct. For the proposed model with up to four predictors of economic empowerment, a minimum sample size of 40 institutions is required.

Structural Model Specification

The proposed structural model includes the following hypothesized relationships:

H1: Digital Transformation → Institutional Capability
H2: Digital Transformation → Entrepreneurial Ecosystem Formation
H3: Institutional Capability → Entrepreneurial Ecosystem Formation
H4: Islamic Social Capital → Entrepreneurial Ecosystem Formation
H5: Entrepreneurial Ecosystem Formation → Economic Empowerment
H6: Institutional Capability → Economic Empowerment
H7: Islamic Social Capital moderates the relationship between Digital Transformation and Ecosystem Formation

This model conceptualizes ecosystem formation as a mediating mechanism linking digital transformation and economic empowerment.

4. Results and Discussion

This section provides the results of empirical findings from PLS-SEM analysis to test Faith-Based Digital Entrepreneurial Ecosystem (FBDEE) model. The analysis is conducted based on the two-stage evaluation procedure that was suggested by [16]. containing measurement model evaluation (confirmatory factor analysis) and structural model validation.

Sample Characteristics

This data is based on 212 usable questionnaires completed by Islamic boarding school leaders and business unit managers in five provinces in Indonesia. Of these, 61% are located in rural areas, and the remaining 39% serve semi-urban or urban areas. Approximately 74% have implemented digital platforms for marketing or financial management, and 48% reported collaborating with private sector partners.

Measurement Model Evaluation

Indicator Reliability

All outer loadings exceeded the recommended threshold of 0.70, indicating strong indicator reliability. Loadings ranged from 0.72 to 0.91.

Table 1.

Construct	Cronbach's Alpha	Composite Reliability	AVE
Digital Transformation (DT)	0.89	0.92	0.69
Institutional Capability (IC)	0.87	0.91	0.67
Islamic Social Capital (ISC)	0.90	0.93	0.71
Entrepreneurial Ecosystem (EEF)	0.88	0.92	0.70
Economic Empowerment (EE)	0.91	0.94	0.75

Construct Reliability and Convergent ValiditySource(s): Authors' own work

Source(s): Authors' own work

All constructs exceeded the recommended thresholds (CR ≥ 0.70; AVE ≥ 0.50), confirming convergent validity.

Discriminant Validity

Discriminant validity was assessed using the Heterotrait-Monotrait ratio (HTMT). All HTMT values ranged between 0.52 and 0.83, below the conservative cut-off of 0.85, indicating satisfactory discriminant validity.

Structural Model Evaluation

Collinearity Assessment

Variance Inflation Factor (VIF) values ranged from 1.42 to 3.11, well below the threshold of 5, indicating no multicollinearity concerns.

Path Coefficients

Bootstrapping with 5,000 resamples was conducted to test hypothesis significance.

Table 2. Structural Path Results

Hypothesis	Path	β	t-value	p-value	Result
H_1	DT → IC	0.61	11.42	<0.001	Supported
H_2	DT → EEF	0.29	4.76	<0.001	Supported
H_3	IC → EEF	0.33	5.88	<0.001	Supported
H_4	ISC → EEF	0.27	4.21	<0.001	Supported
H_5	EEF → EE	0.54	9.34	<0.001	Supported
H_6	IC → EE	0.22	3.71	<0.001	Supported
H_7	ISC × DT → EEF (Moderation)	0.14	2.67	0.008	Supported

Source(s): Authors' own work

All hypothesized relationships were statistically significant.

Coefficient of Determination (R^2)

Table 3. Explained Variance

Endogenous Variable	R^2	Interpretation

Institutional Capability (IC)	0.37	Moderate
Entrepreneurial Ecosystem (EEF)	0.62	Substantial
Economic Empowerment (EE)	0.68	Substantial

Source(s): Authors' own work

The model explains 68% of the variance in Economic Empowerment, indicating strong predictive power in the context of emerging institutional transformation.

Mediation and Moderation Analysis

Digital transformation positively contributes to the formation of the entrepreneurial ecosystem, which we find is a partial mediator between this and economic empowerment (indirect effect $\beta = 0.16$, $p < 0.01$). Findings show that although the moderating effect of digital transformation and Islamic social capital on ecosystem formation is insignificant. An interaction plot visualizing the results demonstrates how these benefits are amplified among Islamic boarding schools with a higher level of Islamic social capital.

5. Conclusions

This research explore Islamic boarding schools (pesantren) in Indonesia which imparts a crescent entrepreneurial ecosystem both digitally-embedded, and self-reliance empowerment sustains economy. The study conceptualized and empirically validated the Faith-Based Digital Entrepreneurial Ecosystem (FBDEE) model through synthesizing institutional logics theory, digital transformation theory and entrepreneurial ecosystem perspectives.

The results suggest that digital transformation underpins institutional capability as part of an enabling environment, which strengthens ecosystem formation and economic empowerment outcomes. But having a digital adoption is not enough. The strengthening effect of Islamic social capital depends on the alignment among hybrid governance. The formation of an entrepreneurial ecosystem is the primary mechanism by which digital and institutional transformation can translate into real economic gains, measured in terms such as increased earnings, new jobs , and community participation.

In theory this research makes several significant contributions to the literature. First, by offering an empirical perspective on how religious, market, and technological logics may coexist, this paper extends institutional logics theory while shedding light on potential developmental pathways in the case of faith-based organizations. Second, we extend digital transformation literature beyond the corporate landscape by revealing that a tech makeover may not weaken but fortify culturally ingrained institutions. Third, this study adds to entrepreneurial ecosystem theory by illustrating faith-based institutions as potential orchestration players in emerging economies.

In terms of policy implications, the study established that pesantren are culturally legitimate commercial centers when enabled by a digital entrepreneurial ecosystem corresponding with governance reform and establishment of relational trust. This constitutes a reorientation of pesantren from educational entities with incidental business services to organizational foundations for broadened digital economic development. Limitations The contributions of the study are not without limitations.

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