

Designing a Transformative Smart Business Model Based on the Synergy of Artificial Intelligence and Blockchain

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The present study was conducted with the aim of designing a transformative smart business model based on the synergy between artificial intelligence and blockchain. In terms of purpose, this study is categorized as an applied-developmental research and was carried out using a mixed-method approach, including a qualitative phase for model design and a quantitative cross-sectional survey for model validation. The overall research approach was exploratory mixed-methods (qualitative-quantitative). The statistical population in the qualitative phase consisted of 15 senior managers, experts, and experienced specialists from technology-based knowledge firms. Using purposive sampling, individuals with practical and specialized experience in the fields of artificial intelligence, blockchain, and digital transformation were selected. In the quantitative phase, data were collected from 300 managers of technology-based knowledge firms, and sampling was conducted using a cluster random sampling method. Data collection instruments included semi-structured interviews and questionnaires. The construct, convergent, and discriminant validity of the instruments were confirmed, and their reliability was evaluated at a desirable level using Cronbach's alpha and composite reliability coefficients. Qualitative thematic analysis was employed to identify the dimensions and components of the model. To assess the reliability of the qualitative analysis, Holsti's inter-coder agreement index was used, yielding a coefficient of 0.76, which indicates an acceptable level of agreement among coders. Subsequently, Interpretive Structural Modeling (ISM) was applied to determine the relationships among the components, and Partial Least Squares (PLS) was used to validate the proposed model. The findings revealed that the three components of data and technology governance, digital human capital, and digital technological infrastructure play foundational roles in the application of artificial intelligence and blockchain. These two technologies, through synergistic interaction, shape the strategy of transformative smartness, which in turn affects process integration, digital transformation of processes, and process automation. Ultimately, business intelligence, as the final outcome of the model, reflects data-driven maturity and the enhancement of intelligent decision-making capabilities in technology-based knowledge firms.

Keywords: Transformation, Smart Business, Artificial Intelligence, Blockchain, Technology Knowledge-Based Companies.