IMPACT OF BIG DATA ANALYTICS CAPABILITIES ON COMPETITIVE ADVANTAGE AND FIRM PERFORMANCE IN THE SRI LANKAN CONTEXT

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DECLARATION

I declare that this is my own work, and this thesis does not incorporate without acknowledgment any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgment is made in the text.

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The above candidate has carried out research for the Masters thesis under my supervision.

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Dr. Thanuja Ambegoda Date

Supervisor

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Dr. Achchuthan Sivapalan Date

External Supervisor

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ABSTRACT

Purpose: This research investigates the relationship between Big Data Analytics Capabilities (BDAC) and business performance in Sri Lanka, a developing market. The study specifically evaluates how BDAC influences Competitive Advantage (CA) and firm performance (FP). Additionally, it considers the moderating roles of organizational culture, dual innovation, and the alignment of business strategy

Approach/Design/Methodology: The present study utilizes the Resource-Based View (RBV) and Dynamic Capability View (DCV) frameworks to construct a theoretical model and develop hypotheses. Data were collected using a virtual snowball sampling method from a sample of 308 participants, including CEOs, CIOs, IT managers, data scientists, analysts, and business analysts, across various industries in Sri Lanka.

Results: The study's findings reveal that firms with strong big data analytics capabilities (BDAC) can gain a competitive advantage. The research demonstrates that BDAC significantly enhances both competitive advantage (CA) and firm performance (FP). analysis shows that BDAC explains 50% of the variance in CA ($R^2 = 0.50$) and, together with CA, explains 71% of the variance in FP ($R^2 = 0.71$). Further, the study explored the role of moderating variables. The combination of BDAC and Dual Innovation (DI) explains 76% of the variance in Competitive advantage (CA), while the combination of BDAC × Business Strategy Alignment (BSA) and CA × Organizational Culture (OC) explains 80% of the variance in FP.

Originality/Value: This study distinguishes itself by exploring the impact of BDAC on firm performance in Sri Lanka, a frontier market, while highlighting the moderating effects of organizational culture, dual innovation, and business strategy alignment. By analyzing these elements, the research offers valuable insights to help companies craft effective strategies for leveraging BDAC to enhance performance within Sri Lanka's unique economic context.

Keywords: Big Data Analytics Capabilities, Competitive Advantage, organizational culture, dual innovation, business strategy alignment, firm performance.

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Sasiraj Shanmugasundaram.

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LIST OF ABBREVIATIONS

AVE: Average Variance Extracted

BDA: Big Data Analytics

BDAC: Big Data Analytical Capabilities

BSA: Business Strategy Alignment

CA: Competitive Advantage

CEO: Chief Executive Officer

CIO: Chief Information Officer

CR: Composite Reliability

DCV: Dynamic Capability View

DI: Dual Innovation

DV: Dependent Variable

FL: Factor Loading

FP: Firm Performance

GDP: Gross Domestic Product

ICT: Information Communication Technology

IV: Independent Variable

MV: Moderating Variable

OC: Organisation Culture

PLS-SEM: Partial Least Squares Structural Equation Modeling

RBV: Resource-Based View

ROE: Return on Equity

ROI: Return on Investment

SD: Standard Deviation

SPSS: Statistical Package for Social Science

VIF: Variance Inflation Factor

VSS: Virtual Snowball Sampling

WoS: Web of Science