

Bridging Consumer Engagement and Product Innovation: A Descriptive Investigation of Big Data Analytics in Digital Marketing Strategies in Pakistan



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Abstract

This study examines how Big Data Analytics influences Product Innovation, mediated by Digital Marketing Strategies and moderated by Consumer Engagement, within the service sector of Pakistan, a developing economy context. As Pakistani firms increasingly invest in digital infrastructure yet struggle to convert these investments into innovation outcomes, this research addresses the critical gap between analytics capability and tangible product innovation. Using a quantitative and cross-sectional research design, data were collected from a sample of 115 mid-to-senior-level professionals working across IT, telecommunications, banking, healthcare, FMCG, media, financial services, e-commerce, and education. The proposed methodology employs simple and multiple linear regression via SPSS, utilizing the Baron and Kenny approach for mediation testing and hierarchical multiple regression for moderation analysis to rigorously examine the hypothesized relationships. Data were analysed using simple and multiple linear regression via SPSS, employing the Baron and Kenny approach for mediation and hierarchical multiple regression for moderation. The expected outcomes include confirmation of a significant positive direct effect of Big Data Analytics on Product Innovation, full mediation of this relationship through Digital Marketing Strategies, and a significant moderating role of Consumer Engagement that may reveal a compensatory mechanism wherein digital marketing drives innovation more strongly in low-engagement settings. The findings indicate that Big Data Analytics has a significant positive direct effect on Product Innovation. Digital Marketing Strategies fully mediate this relationship, demonstrating that analytics capability enhances innovation primarily by enabling more effective digital marketing practices. Consumer Engagement significantly moderates the relationship between Digital Marketing Strategies and Product Innovation; however, the moderation is negative, suggesting that digital marketing strategies exert a stronger impact on innovation when consumer engagement is low. The mediation and moderation results together reveal a compensatory mechanism through which digital marketing drives innovation in the absence of rich organic consumer engagement. In conclusion, this study extends the Resource-Based View and Dynamic Capabilities Theory to Pakistan's service sector, providing managers with an evidence-based roadmap for investing in analytics and digital marketing capabilities, and

offering policymakers empirical justification for promoting digital infrastructure and analytics skills development to foster innovation in developing economies.

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