DIGITAL TECHNOLOGY READINESS: CONCEPTUALISATION AND EMPIRICAL VALIDATION

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This study aims to conceptualize and introduce a new formative construct called 'Digital Technology Readiness' (DTR), to develop a scale to operationalize this new construct and to test an integrative conceptual model for the influence of Digital Readiness on key service outcomes..

EXTENDED ABSTRACT

Research Questions

Despite growing interest in the rising popularity of emerging digital technologies, such as artificial intelligence, blockchain, internet-of-things, and robotics, there is still limited knowledge about the underlying dimensions of customers' perceptions of these technologies, such as hedonism, innovativeness, perceived performance, responsiveness and elaboration of mental imagery and their technology readiness, and how these may influence customer attitudes and usage of these emerging digital technologies. In this empirical paper, we address these research gaps, to conceptualize and introduce a new formative construct called 'Digital Technology Readiness' (DTR), develop a scale to operationalize this new construct and test an integrative conceptual model for the influence of Digital Readiness on several short- and long-term service outcomes. Besides extending current knowledge about customer response to the emerging digital technologies by introducing DTR as a key driver of customer engagement and usage of these technologies mediated by perceived control, anxiety and perceived comfort. Specifically, this study aims to address the following research questions:

RQ1: What is the conceptual definition of Digital Technology Readiness?

RQ2: What are the underlying dimensions of Digital Technology Readiness construct?

RQ3: How does Digital Technology Readiness influence key service outcomes?

Method and Data

We collected data from an American consumer panel (N=717) using an online survey. Our sample has more males (62%) than females (37%), mostly aged under 50 years (82%), married (66%), with a bachelor's degree (69%), earn above $25,000 (82%), frequent internet users (2-8 hours per day, 94%), spend ($500 to $1,500, 77%) per year via their electronic devices, shop

online frequently (67%), have used digital technologies recently (70%) and frequently (74%). Next, we used the well-established two-stage process to analyze our data.

We found a good fit for our measurement model (χ^2=2009; df=882; χ^2/df=2.278; GFI=.964; RMSEA=.042; SRMR=.0417; CFI=.964; TLI=.958; NFI=.938). All the constructs also have high factor loadings (>.80), composite reliability (>.70) and average variance extracted (>.50) showing convergent validity. Discriminant validity was also achieved as the square root of the AVE values was greater than correlations among constructs. Next, we found a good fit for our path model (χ^2=93.631; df=47; χ^2/df=1.992; RMSEA=.037; SRMR=.0279; NFI=.986; and CFI=.993) and support for most of our hypotheses.

Summary of Findings

Hedonism (H1a: β=.441, p<.001), innovativeness (H1b: β=.070, p<.05), perceived (H1c: β=.105, p<.01), responsiveness (H1d: β=.260, p<.001), and imaginativeness (H1e: β=.264, p<.001) influence DTR, which affects perceived control (H2a: β=.803, p<.001) and comfort (H2c: β=.604, p<.001) but not anxiety (H2b: β=-0.032, p>.05). Perceived control influences decision quality (H3a: β=.361, p<.001), customer engagement (H3b: β=.679, p<.001), willingness to use (H3c: β=.723, p<.001), and behavioral intentions (H3d: β=.706, p<.001). Anxiety affects decision quality (H4a: β =-0.155, p<.001) and willingness to use (H4c: β =. -0.083, p<.001), but not customer engagement (H4b: β=.032, p>.05) and behavioral intentions (H4d: β =-0.023, p>.05). Finally, perceived comfort affects decision quality (H5a: β=.304, p<.001), customer engagement (H5b: β=.335, p<.001), willingness to use (H5c: β=.337, p<.001), and behavioral intentions (H5d: β=.339, p<.001).

Perceived control mediates the influence of DTR on decision quality (H6a: β=.108, p<.05), customer engagement (H6b: β=.074, p<.10), willingness to use (H6c: β=.163, p<.01), and behavioral intentions (H6d: β=.131, p<.05). Anxiety does not mediate the effect of DTR on

decision quality (H7a: β =. 009, p>.05), customer engagement (H7b: β=-0.003, p>.05), willingness to use (H7c: β=.004, p>.05), and behavioral intentions (H7d: β=.000, p>.05). Finally, perceived comfort mediates the effect of DTR on decision quality (H8a: β =. 081, p<.05) but not customer engagement (H8b: β=.011, p >.05), willingness to use (H8c: β=.010, p >.05), and behavioral intentions (H8d: β=-0.001, p >.05).

Key Contributions

We introduce Digital Technology Readiness (DTR) as a multidimensional formative construct representing an individual or organization's level of preparedness to effectively adopt and utilize digital technologies. It includes the ability to understand, access, and leverage digital technologies to achieve strategic goals and remain competitive in the digital era. We also identify the antecedents of digital technology readiness (hedonism, innovativeness, perceived performance, responsiveness and imaginativeness), outcomes (decision quality, engagement, willingness and behavioral intentions), and mediators (perceived control, anxiety and perceived comfort) in this process. Our conceptual model would help managers design and develop solutions and systems to ensure positive outcomes for them and their customers.

This research would increase awareness and knowledge about the existence and potential benefits of digital technologies, and to develop a good understanding of the specific tools and platforms available. This would also motivate the development of adequate technological infrastructure, such as reliable internet connectivity and hardware, which is essential for digital technology readiness to ensure smooth adoption and utilization of digital technologies. Finally, it would highlight the importance of appropriate skills and training for the employees to improve their digital literacy and technical skills and equip them with the competencies needed to effectively use these new technologies and serve their customers more effectively.

Note: References are available upon request.