Deepening big data sustainable value creation: Exploring the IPMA and NCA perspectives

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Abstract

The impact of big data analytics capabilities (BDAC) on firms' sustainable performance (SP) is exerted through a set of underlying mechanisms that operate as a 'black box.' Our previous research demonstrated that a serial mediation of supply chain management capabilities (SCMC) and circular economy practices (CEP) is required to improve SP from BDAC. However, further insights regarding the role of BDAC in the processes of SP creation can be provided by deploying complementary analytics techniques, namely the importance-performance map analysis (IPMA) and the necessary condition analysis (NCA). This paper runs these techniques on a sample of 210 Spanish companies with the potential for circularity and environmental impact. The results show that BDAC are essential for achieving SP. However, companies still have enough room for improvement to take further advantage of these capabilities. Additionally, BDAC are a necessary (must-have factor) and sufficient (should-have factor) condition for the rest of the variables in the model. Furthermore, high levels of BDAC are required to achieve excellence in SP.

Keywords: Big data analytics capabilities; Circular economy practices; Supply chain management capabilities; Sustainable performance; Importance-performance map analysis (IMPA); Necessary condition analysis (NCA).