

## Do task, technology, individual, and data characteristics impact firm innovation performance?

The mediating role of big data analytics routinization

Mohsen Javdan [javdanm@mcmaster.ca](mailto:javdanm@mcmaster.ca); Maryam Ghasemaghaei [ghasemm@mcmaster.ca](mailto:ghasemm@mcmaster.ca)

Big data analytics (BDA) as a comprehensive approach to process big data has been suggested the next frontier for innovation (Manyika et al. 2011). However, it is not clear once BDA is incorporated and routinized in firms' processes, how it could influence the performance of innovation. On the one hand, routines and innovation are considered as competitors (Ford and Gioia 2000). On the other hand, routinization could free cognitive resources and save time for reflecting new ideas and imaginations (Chae and Choi 2019; Ohly et al. 2006). Furthermore, theories of routinization propose that in implementing information technologies (ITs) there is an 'assimilation gap' which means the speed of organizations to routinize and use IT in post-adoption stage fall behind the rate of IT initial adoption (Fichman and Kemerer 1999; Rai et al. 2009). Given these challenges, it is an important research question to ask what factors could influence BDA routinization and firm innovation performance.

Few studies review organizational behaviors regarding the post-adoption of technology, and most of them discover the variables impacting initial adoption (Huh and Kim 2008; Son and Han 2011). For example, Sun et al. (2018), Verma and Bhattacharyya (2017), Soon et al. (2016) and Lai et al. (2018) have drawn mostly upon the diffusion of innovation theory (DOI), the technology acceptance model (TAM), and the institutional theory to uncover significant characteristics influencing big data analytics initial adoption in organizations and also applied the technology-organization-environment (TOE) framework to categorize them. In order to study the determinants of BDA routinization in organizations, the present research intends to rely on the task-technology fit (TTF) perspective (Goodhue and Thompson 1995) and contingency theory (Kast and Rosenzweig 1973).

Based on TTF, task characteristics (i.e. task complexity and time pressure (Becker 2005)) technology characteristics (i.e. data infrastructure capability and tools functionality (Ghasemaghaei 2019)), and individual characteristics (i.e. analytical skills and domain knowledge (Ghasemaghaei et al. 2018)) could be critical factors leading organizations to routinize BDA and improve innovation performance. Besides, grounded in contingency theory, data characteristics including volume, variety, velocity, and veracity can cause uncertainty and influence the ways and routines in which data are analyzed. For research methodology, a cross-sectional survey of middle-level managers will be used to evaluate the impact of the above-mentioned factors on BDA routinization and innovation performance.

The idea of the research is to review a legitimate explanation for the mixed results about how routinization might affect innovation performance in organizations. The findings will extend the literature in big data, technology routinization, and innovation performance. Practically speaking, the results could suggest insights for firms looking for innovation through using BDA. Also, managers can leverage the understanding of the significant determinants of BDA routinization, which enhance innovation performance.

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