

Chapter 13

Innovation Leadership: Understanding Its Potential for Adoption of Big Data Analytics in Healthcare Organizations

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ABSTRACT

Motivated by the significant role and importance of big data analytics in health care sector and the critical influence of innovation leadership, the authors study the impact of innovation leadership on adoption of big data analytics in Indian health care sector. Besides, the authors study the mediating effect of organization readiness on the relationship of innovation leadership and big data analytics adoption. The conceptual framework is built keeping in view the organization information processing theory as the theoretical lens. To conduct the study, the authors adopted survey method that was administered to the sample of general managers, senior and junior managers and other healthcare professionals acting as decision authorities for adopting new technologies within organization.

INTRODUCTION

Across industries, there has been rapid digitalization over the last decade. With the increasing penetration of Electronic Medical Records (EMRs), Healthcare Information Systems (HIS), handheld wearables, and smart devices, healthcare has also undergone this digital change. As a result, other than clinical data, a vast amount and variety of health-related data is now available in digital form, including omic data, socio-demographic data, and insurance claims data. This digital data can potentially improve healthcare

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delivery by offering high-quality information. Unfortunately, this huge amount of data i.e., “*big data*” is still seen as a “by-product” of healthcare delivery rather than a strategic tool for competitive advantage (Mehta & Pandit, 2018).

The necessity for turning raw data into valuable and actionable information exists because electronic health data is frequently underutilized and thus wasted. Unstructured or semi-structured data makes up a large portion of instrumental healthcare data. Furthermore, typical data analyzing methods and methodologies struggle to extract usable information due to the data’s complex, dynamic, and heterogeneous properties. In fact, without proper decision support, a human’s ability to process this data is limited (Wang & Hajli, 2017; Cyganek et al., 2016). Therefore, to help solve this problem, ‘*Big Data Analytics*’ is increasingly seen as a promising solution that *is continuously being integrated into healthcare*.

Big data analytics (BDA), in its broadest sense, can be elucidated as the analytical process deploying techniques to analyze large and diverse sets of structured, semi-structured, and unstructured data from different sources, and in various sizes from terabytes to zettabytes (Zakir et al., 2015). It can analyze a variety of complex data as well as provide useful insights that otherwise would be impossible to obtain. When applied to healthcare data, it has the potential to uncover trends, resulting in enhanced healthcare quality and cost savings, as well as the ability to make timely decisions. As per the report by McKinsey Global Institute, by utilizing big data effectively, healthcare can create a value of more than \$300 billion every year, of which two-thirds would reduce healthcare expenditure by about 8%. Big data technologies can reveal hidden knowledge and automated examination of outcomes. Easy access to longitudinal patient data is now possible, thanks to advancements in cloud computing and the greater adoption of EMRs. Integration of longitudinal patient data with data from heterogeneous, structured, and unstructured big data sources opens up the possibility of a much better and faster comprehensive understanding of diseases. Big data analytics capacity to detect illness heterogeneity helps for speedy and accurate diagnosis and therapy evaluation. The predictive capability of big data analytics can also be utilized to transform continuous real-time data into meaningful information by integrating data from many sources and recognizing trends. In emergency medical settings, this is critical since it can mean the difference between life and death.

The promising value of big data technology in healthcare has created an increasing interest in academic & industry investigators. However, the adoption of big data analytics is still in its early stages and must be coordinated to address healthcare delivery problems and improve healthcare quality. Besides, there are certain enabling factors that affect the derived value from big data analytics such as data capturing and storage capabilities, data integration capabilities, top management’s willingness to adopt big data analytics, financial feasibility, organization structure, and change management programs etc. Most importantly, ‘*organizational leadership*’ acts as backbone to the process for the potential application of these enablers and execution of such change management programs (Bag et al., 2021; Ajmal et al., 2012).

More specifically, amongst all other leadership styles, innovative leadership includes the proper way to encourage individuals to take various initiatives, develop a transparent performance measurement system, and build an environment in which quality relationships would be treasured. Innovation is related to “out-of-the-box” thinking and introducing something new, such as new ideas, methods, or devices. Good innovation leadership will lead to increased creativities and readiness in the organization to adopt new technology, in our case, big data analytics. Besides, innovation leadership motivates individuals to be risk tolerant and readily accept any form of change management programs occurring within organizations.

Notwithstanding the significant potential impact of innovative leadership on adoption of big data analytics, the extant literature has failed to contemplate on this particular construct (Toufaily et al., 2021).

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