

BIG DATA ANALYTICS CAPABILITIES, INNOVATION AND ORGANIZATIONAL CULTURE: SYSTEMATIC LITERATURE REVIEW AND FUTURE RESEARCH AGENDA

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ABSTRACT

Big data analytics (BDA) have the power to modernize traditional ways of doing business. Nevertheless, the impact of BDA capabilities on a firm's innovation performance is still not fully understood. The 'Age of Data' is thriving because new data is being produced at an unprecedented rate and with an increasing volume, due to global usage of different electronic devices and gadgets which are connected to each other through internet and other networks. Such Big data has the potential to become a key source of competitive advantage. However, proper analyses of both structured and unstructured data need to be conducted to get deeper insights into customer behaviour. Innovation is a key part of the obtaining business value. Since there is very little research on how organizations need to change in order to leverage such innovations, and how business value can be obtained from them, a growing number of studies has been investigating and theorizing about the strategies and structures that might help firms acquire the capacity to continuously innovate by introducing new products with the help of Process Oriented Dynamic Capabilities (PODC). Most researchers explored the phenomenon of Big Data Analytics, from either a theoretical point of view or neglected intermediate and moderate factors, such as PODC, Organizational Culture. In this connection, the "dynamic" resource-based view of the firm identifies dynamic capabilities as the main source of sustainable competitive advantage in a changing competitive landscape. However, to be able to innovate, there is a need to have an organization wide culture that encourages such innovation in the first place. As a result, the current study aims to show the impact which Big Data Analytics (BDA) Capabilities have on the organizational innovation performance with organizational culture as a moderator. The current study will use data from surveys of CFOs, CEOs or CIOs of the pharmaceutical companies of Pakistan and will test a proposed model, using bootstrapped moderated mediation analysis. This research considers the resource-based view of the firm as well as the socio-materiality theory. Practical implications for top executives are also discussed. To this end, this research focuses on identifying the gaps in the existing literature as well as proposing the course of action which can be undertaken for empirical study.

KEYWORDS

BDA Capabilities (BDA Cap), Big Data, Process Oriented Dynamic Capabilities (PODC), Innovation, Organizational Culture (OC).

1. INTRODUCTION

The contemporary time period is considered as the age of big data as newer data is being produced at an unprecedented rate, from all organizations, industrial sectors as well as public organizations and bodies (Mikalef, Boura, Lekakos, & Krogstie, 2019). The exponential growth in the volume of data has resulted in big data being considered as the key source of competitive advantage, business performance and innovation (Chaudhary, Pandey, & Pandey, 2015; Grover, Chiang, Liang, & Zhang, 2018; Jelinek & Bergey, 2013; Mikalef *et al.*, 2019; Shahzad, Xiu, & Shahbaz, 2017). At present, over 3.2 billion people, of the world's population are connected onto the internet with 46% of them being connected through the usage of smart phones (Clement, 2020). Furthermore, this massive shift of IP traffic (web traffic, flow of data across the internet) from fixed networks to wireless based networks is likely to lead to a number of challenges for organizations. It is forecasted that global mobile data traffic from 2017-2022 (in exabytes per month) is from 11.51-77.49 (Clement, 2020). By 2050 these figure are likely to be 95% of world population (Khan, Khan, Alam, & Ali, 2018). According to one estimate, the amount of global digital healthcare data will grow to 25,000 petabytes in 2020, from 500 petabytes in 2012 (Gardner, 2013).

Organizations are required to analyse, in a meaningful manner, structured as well as unstructured data in order to obtain deeper insights into customer related behaviour, their service usage as well as interests on a real-time basis (Mikalef *et al.*, 2019; Riaz, Alam, & Ali, 2017) to enhance business performance, competitive advantage and innovation. Due to the rapid increase of data volume, variety, velocity and veracity, considerable developments have taken place and have also been documented, relating to such technologies and techniques which involve the analysis, visualization as well as storage, of data (Mikalef *et al.*, 2019). Many organizations of different sizes are searching for ways with the aim of improving their performance, innovation and business value, by extensive usage of big data analytics (BDA) tools (Mikalef *et al.*, 2019; Shinwari & Sharma, 2018; Yin & Kaynak, 2015). The pharmaceutical industry is essentially defined by innovation (Petrova, 2014).

The prevalence of big data and the usage of the same can result in enhancement in innovative performances, which then leads to further improvement in economic development (Douglas, 2012; Shahzad *et al.*, 2017). In other words, innovation, which can be termed

as the implementation of creative ideas within the organization, in a very efficient and effective manner, can and does lead to businesses achieving and sustaining competitive advantages (Shahzad *et al.*, 2017; Soares de Almeida, Del Corso, Rocha, da Silva, & da Veiga, 2019; Tidd & Bessant, 2018).

Based upon the upcoming research on BDA Capabilities (Gupta, 2016; Mikalef, Pappas, Krogstie, & Giannakos, 2018; Wamba *et al.*, 2017), studies have shown that although big data is an important resource, yet in itself is insufficient to create any gains related to business value. There are other complementary resources which are necessary and create a synergy to drive an organization's overall BDA Capabilities, in this regard big data is supporting and giving guideline for decision making at strategic level for business value, competitive advantage and innovation performance. BDA Capabilities, can be explained as firm's ability to capture and analyse data so as to be able to generate data insights by effective orchestration and usage of the organizational data, its technology as well as skills (Gupta, 2016; Mikalef *et al.*, 2018).

Organizations which are users of big data proved to be the fundamental pillar in economic development of any region in the world because they have the knowledge, skills and ability to transform ideas to new products through innovation (Duval-Couetil, Shartrand, & Reed, 2016). There is need for continuous improvement of their existing processes and products, as well as the requirement to develop new products as per the requirements of the market. As a result, an increasing number of studies have investigated and theorized about the strategies and the structures which firms may need in order to build the capacity for innovation on a continuous basis, by introducing new products with the help of Process Oriented Dynamic Capabilities (PODC) (Kim, Shin, Kim, & Lee, 2011; Kohlbacher & Reijers Hajo, 2013; Wamba *et al.*, 2017). In this regard, the organisation's dynamic resource-based view indicates the dynamic capabilities as the main source of competitive advantage which is sustainable for the firm, within a changing and competitive landscape (Mikalef *et al.*, 2019; Teece, Pisano, & Shuen, 1997; Wamba *et al.*, 2017).

To be able to innovate, there is a need to have an organization wide culture that encourages such innovation in the first place (Shahzad *et al.*, 2017). It relates to the collection of the norms and values shared by individuals and groups within in the organization (Hill, Jones,

& Schilling, 2014). These norms and values are likely to have an impact on the behavior of the members of the organization when they interact with each other as well as with stakeholders. According to (Shahzad *et al.*, 2017) a significant relationship exists between organizational innovation performance and organizational culture. The flexibility/support to alter as well as the organizational climate is relatively significant factors for the creativity and the innovation performance (Shahzad *et al.*, 2017).

Due to the emergence of big data within the pharmaceutical industry, it has played a very important role in streamlining different complicated business procedures as well as improving efficiency across the board (Joshi, 2019). Data-driven approach taken by pharmaceutical companies gives leverage, related to the usage of big data to identify several business procedures (Ibid). Based upon real-time information, it is possible to take relevant actions without waiting for the extraction of data or manual data mining. Consequently, investments worth \$4.7 billion have been made in big data within the healthcare and pharmaceutical industries (Joshi, 2019). The aim of such investments and further similar investments within the pharmaceutical businesses is the development of several innovative applications (Joshi, 2019). The theoretical framework in the current study provides the guidance related to the systematic literature review and identifies some findings, related to the value of BDAC. At the same time, it provides a path for several promising research areas for the future.

2. METHODOLOGY

According to review Kitchenham *et al.* (2009) different stages followed for the establishment of systematic literature review for the current study. Review protocol developed at first stage. On second stage current study had identified the main criteria for the inclusion and exclusion of the latest and relevant publications. Thirdly, study carried out in the detailed assessment for the current study, with the step followed by critical appraisal, extracting data and synthesizing previous literature. All previously mentioned stages are described in the next sub-sections. Fourthly, a detailed search for studies was conducted, followed by critical appraisal, data extraction and a synthesis of past findings. The next sub-sections describe in detail the previously mentioned stages.

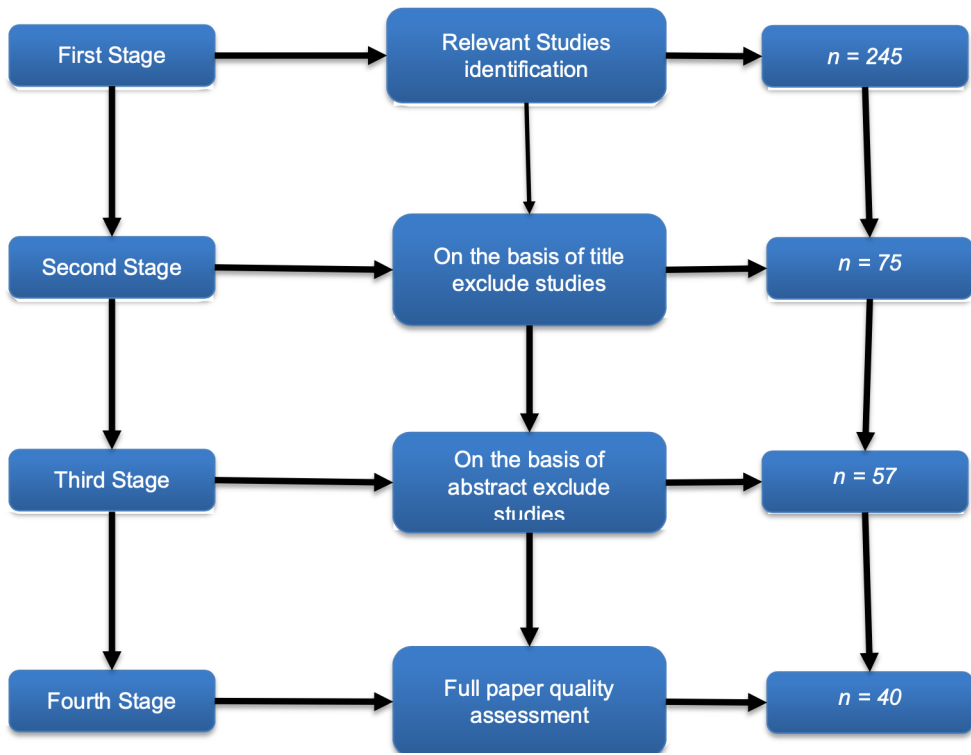


Figure 1. Review Protocol.
Source: own elaboration.

2.1. DEVELOPMENT OF PROTOCOL

For the development of systematic literature review as per Cochrane Handbook for Systematic Reviews of Intervention (Barclay, Higgins, & Thompson, 1995; O’Connor, Green, & Higgins, 2008). According to the mentioned guidelines, the procedures and the policies of the protocol helped in establishing the main research question which played an important role in the selection of papers, the strategy used to conduct the search, the criteria used for inclusion and the quality of material, as well as the method of synthesis. The following research question guided the review process: What are the main aspects of definitions, distinctive characteristics, problems, transformational changes in organizations, innovation performance and business value associated with BDA and BDAC? Critically focusing on above mentioned research questions, the relevant subject areas and relevant publications and materials were searched.

2.2. INCLUSION AND EXCLUSION CRITERIA

Due to the importance of the selection phase in determining the overall validity of the literature review, a number of inclusion and exclusion criteria were applied. Under the selection phase, studies were identified for including in the research, if they emphasised on how big data could provide business value through the use of innovation. Publications from 2016 onwards, were selected as that is when the term gained momentum in the business environment as well as the academic field. The systematic review included the research papers which had been published in the academic outlets, for example the conference proceedings and journal articles, as well as reports focusing on business executives and a larger audience, like scientific magazines. In progress research and thesis were not included in this review. In this research our main aim was to identify quantitative, qualitative, survey reports and business report in which business transformation that big data plays a role in.

2.3. SOURCES AND STRATEGY OF DATA AND QUALITY ASSESSMENT

Big data, Big data analytics capability, innovation performance, firm performance, organizational performance, dynamic capabilities, process oriented dynamic capabilities, socio-materiality, resource-based view, data scientist, competitive advantage and organizational culture were the key words used. Keywords were searched within the title, abstract, and keyword sections of the manuscripts. The search strategy included electronic databases such as Sage, Scopus, Wiley, Emerald, Taylor & Francis, Springer, Web of Knowledge, ABI/inform Complete and the Association of Information Systems (AIS) library. To further complement our search, we applied the search terms in the search engine Google Scholar. The search was started on the 25th of September, 2019 and was concluded on the 30th of June, 2020. At that stage, 245 identified papers were entered into the EndNote. In the second stage, all authors went through the titles of the different studies compiled in the first stage to determine the relevance of these studies to the systematic review. At this stage, studies which were not related to the topic of business value of big data were excluded from the research, regardless of whether they were empirical. Additionally, articles which focused on big data for public administration were also not included in the next stage of the research. The number of articles which were retained after the process abovementioned were 170. In the third stage, all of the remaining articles were assessed in

terms of their abstracts as well as their focus, related to the research question which had been identified. However, there were few abstracts which were of varying quality. Some lacked information about the contents of the article, whereas there were others which apparently were not connected with their title and therefore did not fit in our review. At this stage, just like the previous stage, each papers' abstracts were reviewed independently by author. From the remaining 170 abstracts assessed, a further 57 were excluded. At the final stage of this process only 40 quality papers were identified for review of this study.

2.4. EXTRACTION OF DATA AND SYNTHESIZE OUTCOMES

The first step was taken to synthesize the research findings and to categorize the studies based upon the scope of our research. This step involved the researcher identifying the main concepts from each of the studies, by using the authors' original terms. Then the key concepts were organized in a spreadsheet so as to enable comparing them across different studies and translating the findings into higher-order interpretations.

An analysis was the carried out based upon the following areas of focus: big data, firms' performance results of big data, human skills and knowledge, innovation, tangible and intangible resources, culture as well as organizational culture, the adoption as well as diffusion of big data initiatives within the context of the business environment. For empirical studies, the researcher also recorded the kind of the study that was conducted (e.g. quantitative, qualitative, case study etc), the size of the sample, the different instruments used (e.g. surveys, observations, interviews), as well as factors surrounding the study in a contextual manner (e.g. industry, country, firm size). Constant consensus meetings of all the researchers established the data extraction stage and the categorization of publications. The remaining 40 papers were thoroughly reviewed as per the coding scheme, and relevant data were the extracted, analysed, and synthesized.

3. LITERATURE REVIEW

3.1. BIG DATA ANALYTICS (BDA)

There are some definitions of big data which focus exclusively on the data and the defining characteristics of data (Abbasi, Sarker, & Chiang, 2016; Akter, Wamba, Gunasekaran,

Dubey, & Childe, 2016; Davis, 2014) while other definitions cover the tools and techniques as well as analytical procedures being used (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013; Russom, 2011). There are others who have explained the effect of analyzing and presenting of big data on the business’s value (Beyer & Laney, 2012; De Mauro, Greco, & Grimaldi, 2016; Schroeck, Shockley, Smart, Romero-Morales, & Tufano, 2012; White, 2011). Whereas the BDA’s definition includes a broad range of different elements which are critically important for the success of big data, the organizational resources needed to convert big data into actionable insight are not included in these definitions. It is indeed a complex and multifaceted task to become a data-driven organization and requires attention from managers at different levels. To focus on the change towards a data-driven time period and hence provide guidelines to the practitioners on deploying their big data initiatives, the term ‘BDA Capabilities’ is being used. This is with reference to an organization’s skill in utilizing big data so as to obtain insight of both strategic and operational nature. BDA Definitions showed in (Table 1).

Table 1. Definitions BDA.

YEARS & AUTHORS	DEFINITIONS
Loebbecke and Picot (2015)	BDA: an approach for the analysis and interpretation of any type of information which is digital in nature. Advances in BDA which are of technical and analytical nature and which mainly identify the functional scope of current services and products which are digital in nature, are essential for developing improved artificial intelligence, business intelligence, and computing capabilities which are cognitive in nature
Ghasemaghaei, Hassanein, and Turel (2015)	BDA, defined as different processes and tools usually applied to large and varied datasets with the aim of attaining insights which are meaningful, has received considerable attention in Information Systems research due to its ability to enhance an organization’s performance
Müller, Junglas, Brocke, and Debortoli (2016)	BDA: the statistics-based modelling of large size, and varied datasets of content as well as digital traces which has been user-generated.

Source: own elaboration.

3.2. BDA CAPABILITIES

It is broadly defined as an organizational capability to provide insights into the use of data management, infrastructure, and human capabilities to convert business into a competitive

force (Akter *et al.*, 2016; Kiron, Prentice, & Ferguson, 2014). The research conducted so far in this domain has focused on strategic BDA Capabilities as well as the approaches by which competitive advantages and the associated gains are obtained (LaValle, Lesser, Shockley, Hopkins, & Kruschwitz, 2011). As per different scholars, BDA Capabilities which are focusing on the processes that need to be put in place so that the advantages of using big data can be obtained (Cao & Duan, 2014; Olszak, 2014). The crux of the matter is that the concept of BDA Capabilities focuses on inclusion of all related organizational resources which are essential in utilizing big data to their full strategic potential. Important definitions explained in (Table 2).

Table 2. BDA Capabilities Definitions.

YEARS & AUTHORS	DEFINITIONS
Davenport Thomas and Harris (2007)	BDA Capabilities is defined as an organisation's specific capability in establishing a price which is optimal, in the detection of important issues, deciding the minimum inventory level which can be possibly held, or trying to identify profitable and loyal customers, all within the environment of big data.
Kung, Kung, Jones-Farmer, and Wang (2015)	Competencies of Big data: an organizational capability of acquiring, storing, processing, and analysing large quantities of data in different forms, and delivering required information to the related users thereby allowing organizations in extracting value from big data in a timely manner. The resources of big data are considered to be a combination different resources of Information Technology, complementary in nature, which are relevant in utilizing big data to improve the performance of the concerned organizations.
Shuradze and Wagner (2016)	A data analytics capability is treated as the organizational capability in mobilizing and deploying resources which are related to data analytics, together with resources and capabilities for marketing, which comprise an innovation focused IT capability leading to enhancement in organizational performance

Source: own elaboration.

Till today, there is very little empirical research related to the concept of BDA Capabilities. A lot of the studies constitute of evidence which can best be considered as unreliable and anecdotal and, specifically related to the effect of an organizational BDA Capabilities on organizational performance (Agarwal & Dhar, 2014; Akter *et al.*, 2016). At the same time,

there are different views about what comprises BDA Capabilities. This is because different theoretical perspectives are often considered.

3.3. BDA CAPABILITIES RESOURCES

There is limited published research on BDA Capabilities. However, there are some studies which relate to the resources required for developing such capability. These resources are the fundamental building blocks upon which the organization's overall BDA Capabilities is developed. Most of studies till now have focused on both the resources and the processes which are required for the strategic usage of the big data. However not much insight is offered into the ways with which organizations tend to form a strong BDA Capabilities (Gupta, 2016).

3.3.1. BDA TANGIBLE CAPABILITY

In an economy which is considerably data-oriented, the resources of data which possess the characteristics specified previously are considered to be important for an organization in order to achieve the competitive advantage (Kiron *et al.*, 2014). Wamba, Akter, Edwards, Chopin, and Gnanzou (2015) has mentioned that having data available and integrated from various sources is very important. Traditionally this could be the result of extant architectures related to Information Technology. The concerns relating to the availability of data is also specified by Mikalef and Pateli (2017), who have found that commonly companies purchase data to complement their analytical results and obtain better results related to their operations and customers.

In addition to data itself, an infrastructure which is capable of storing, sharing, and analyzing data is also important for the organizations. One of the main characteristics of Big data is that it is unstructured and requires investments in sophisticated infrastructure in order to derive meaningful and valuable information (Ren, Fosso Wamba, Akter, Dubey, & Childe, 2017). Some scholars consider organizational big data infrastructure in relation to the amounts of investments made in specific kinds of technologies (Kamioka & Tapanainen, 2014), while other scholars emphasize on the technological aspects themselves (Akter *et al.*, 2016; Garmaki, Boughzala, & Wamba, 2016; Gupta, 2016; Wamba *et al.*, 2015).

3.3.2. BDA INTANGIBLE CAPABILITY

Keeping knowledge, skills, effective coordination of activities, resources, and tasks up to date depends a lot on the capability to form and maintain networks, within the organization as well as outside the organization (Ravichandran, Lertwongsatien, & Lertwongsatien, 2005). Hence the role of intangible resources is essential as it reflects structures, ties and roles which are developed for managing the different types of the available resources. One of the most commonly used terms for including all the activities and decision-appropriation mechanisms related to IT based resources is governance. Sambamurthy and Zmud (1999); Tallon, Ramirez, and Short (2013) put forward a proposed framework particularly for understanding the practices and structures which are meant for governing information artifacts.

3.3.3. BDA HUMAN SKILLS AND KNOWLEDGE CAPABILITY

Human resources-based skills and knowledge level is one of the most important factors related to the organizational capability to use big data tools and technologies (like the ones specified above) and then be able to make strategic level decisions based on such outcomes. Such knowledge and skills can be further divided into technical knowledge, business knowledge, relational knowledge and business analytics knowledge. Technical knowledge includes aspects related to management of databases, retrieval of data, programming knowledge, and management of cloud services. Business knowledge relates to organizational decision making, utilization of strategic foresight for deployments of big data, and using the insights obtained. Related know how involves the communicating and collaborating of employees' skills from backgrounds of different types. Business analytics knowledge involves mathematical and statistical modeling, simulation and developing different scenarios as well as visualization of interactive data. Although an important things about data science is having the capability to analytically think about the data, this skill set is critical for the data scientist as well as for organization wide employees (Prescott, 2014).

3.4. ORGANIZATION INNOVATION PERFORMANCE

Henderson and Clark (1990) conducted a research on architectural innovation in order to identify what exists in between the above-mentioned extremes. The researchers discovered

that very small changes can also, sometimes, have a significant effect on the competitive position. As a result, they included the levels of component and architectural innovation. From the economic point of view the focus on innovation is related to the implication which innovation has on the relevant markets (Abernathy & Clark, 1985). It is important to understand that innovations which are incremental, lead to small improvements in the existing products, and in this manner, they are not new to the market. On the other hand, innovations which are of a radical nature, result in a product which is totally new for the market.

3.4.1. ORGANIZATIONAL CULTURE AND INNOVATION PERFORMANCE

Innovation is defined by Amabile, Conti, Coon, Lazenby, and Herron (1996) as being when creative thoughts are executed efficiently within an organization. A very important point for innovation is to be able to implement creativity practically. This encourages creative ideas to continue and hence be able to play their role in the innovation and its implementation.

Market based innovation relates to either using a new marketing related program for existing products or trying to develop new markets for existing or new products. A number of studies show that there exists a significant relationship between culture and innovation (De Clercq, Thongpapanl, & Dimov, 2010; Hislop, Bosua, & Helms, 2018; Laforet & Tann, 2006; Mavondo & Farrell, 2003; Miron, Erez, & Naveh, 2004). Wang and Ahmed (2004) considered innovations as the introduction of methods which are modern and current and are related to management and production, adopting technologies which are innovative in nature, and improving management related systems which relate to products. Organizations further develop such cultures which encourage their employees to focus on innovation in terms of ideas and also participate in management-based decisions and innovation related strategies. The study by Hislop *et al.* (2018) showed that organizational values and beliefs, knowledge sharing, work environment and all the cultural happenings within an organization have a substantial impact on organizational innovation and learning.

In accordance with the KBV theory of organization related culture, ideas generated by individuals are treated as intangible asset, thereby playing an important role within the development of the organization. An organization's culture is considered as the employees' beliefs and values, which are shared within the organization at all levels and showing

the organization related characteristics (Schein, 1984). Although creativity is related to individuals and/or a team, changes happen within the organization. An organization's culture is essential to enhance the sharing of knowledge amongst the creative minds within the organisation, which are considered essential for the success of an organization (De Long & Fahey, 2000).

3.5. ORGANIZATIONAL DYNAMIC CAPABILITIES RESOURCES

Organizational dynamic capabilities manage to alter its resources including physical, human, and organizational assets. As a result, organizations should constantly adapt to such changes by consistently renewing, reconfiguring and recreating their own resources and capabilities within the competitive environment. The organization must be able to respond to external changes via developing their core capabilities, although the process by which dynamic capabilities are embedded within each organization is likely to be specific to the organization and the industry (Wang & Ahmed, 2007). Helfat *et al.* (2007) had described dynamic capabilities as an organization's purposefully developed capacity to create, extend, and improve its resources. These resources include organization's tangible, intangible, and human resources as well as those capabilities which are owned and controlled by the organization so that the organization can achieve higher economic value than its competitors. Mathiassen and Vainio (2007) had claimed that dynamic capabilities are intended to capture the organizational capability to adapt to unpredictable and rapidly changing environments by allowing the organization to alter its resources and respond to market changes effectively.

3.5.1. COMPETING VALUES MODEL (CVM)

Organizational culture relates to a system of beliefs, values and assumptions shared throughout the organizations and which helps both individuals and groups to function effectively within the organizations (Lee & Kim, 2017). By way of managerial values and rituals, an organization's culture can mould the behaviour of the employees and influence the organizational investment as well as resource allocation decisions (Chan, Shaffer, & Snape, 2004).

Several alternative ways have been proposed by different scholars for categorizing organizational culture (like relationship- and transaction-oriented culture (McAfee, Glassman, & Honeycutt Jr, 2002) and focus- and control-oriented culture (Khazanchi, Lewis, & Boyer, 2007)), so that the role of organizational culture in improving innovation performance can be explored. In one particular research the framework for CVM (Competing Values Model) which had been put forward by both Cameron and Quinn (Cameron & Quinn, 2011) had been used for investigating an organization's culture. The main reasons for choosing the Competing Values Model for studying an organization's culture are mentioned below.

Firstly the organizational culture's measures, which assess the CVM, both directly and indirectly had been managed in over 10,000 organizations worldwide, within such academics related disciplines as accounting, marketing, management, supply-chain management, social services, health care as well as hospitality (Hartnell, Ou, & Kinicki, 2011). Secondly, the CVM focuses on those problems associated with organizational change which are of great relevance to understanding innovation (Naranjo-Valencia, Jiménez-Jiménez, & Sanz-Valle, 2011). Thirdly, the CVM revealed the complexity involved in value orientations and allowed comparing organizations' value orientations. It is therefore considered a suitable model in "Fig 2." for such studies which are related to organization based culture and which are conducted with reference to developing economies which have considerable potential for evolutionary dynamics (Liu, Ke, Wei, Gu, & Chen, 2010) (p. 375).

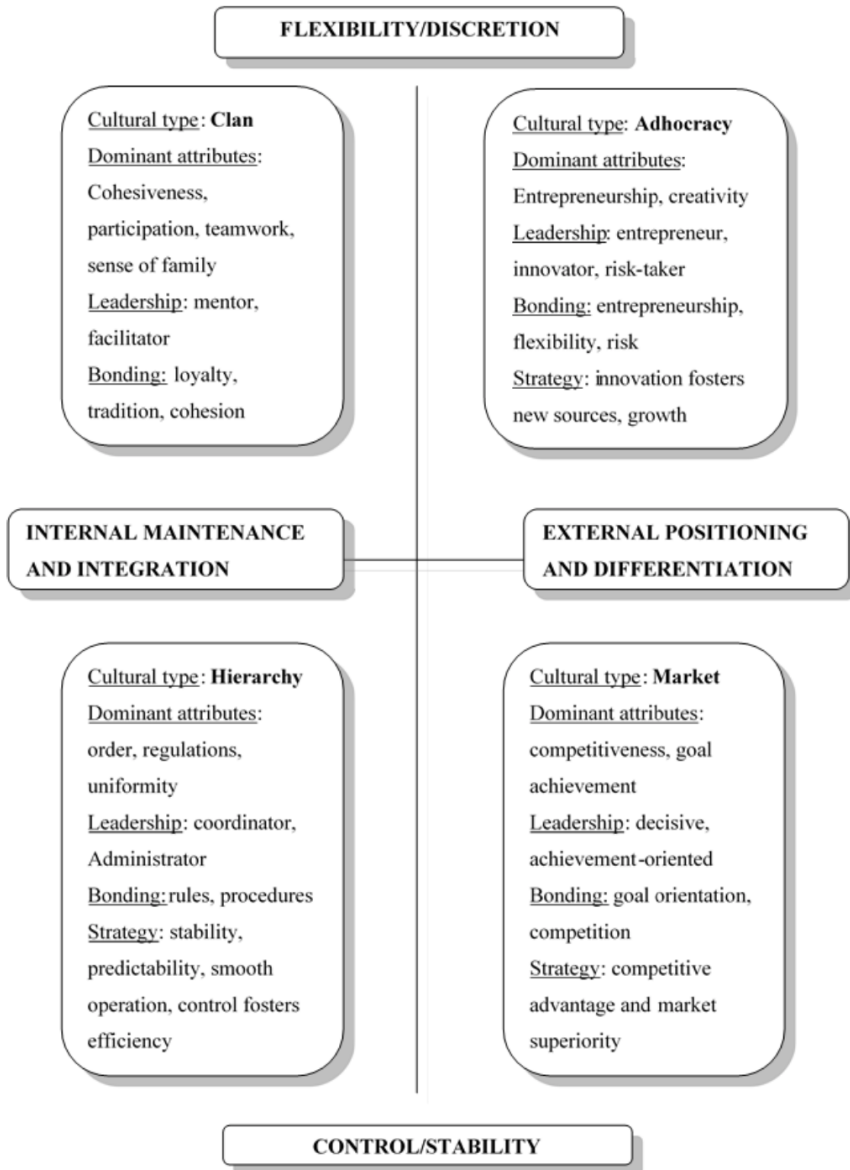


Figure 2. The competing values model of organizational culture
Source: (Ralston *et al.*, 2006, p. 830).

4. THEORETICAL AND PRACTICAL CONTRIBUTION BY THE STUDY

This study contributes to the knowledge within the domain of BDA Capabilities and innovative performance theoretically, practically as well as methodologically. This study will investigate the impact which BDA Capabilities have on the organizational innovative performance. It will also include the impact of the organizational culture. The study will focus on top management among pharmaceutical companies in Pakistan. On the behalf of organization, the CEOs, CIOs or CFOs who represents top management, will be contacted through a questionnaire-based survey to collect data. Provided a conceptual framework and empirical support by determining the relationships among BDA Capabilities and the impact upon OIP in Pakistan. Current study will be answered the call for more research of BDA Capabilities in contextualization of industry under developing countries

5. CONCLUSIONS

From the above-mentioned systematic literature review, some of the important aspects in the field of BDA Capabilities and its impact on the Organizational innovation performance via the process oriented dynamic capabilities and the role of organizational culture have been discussed. The important thing is to consider how the BDA Capabilities can be utilized into developing the organization's innovation performance. This is because it is innovation; through the development of process oriented dynamic capabilities which can help the organization develop its business value in changing environment and hence changing business situations. All this is possible in an organizational culture which encourages such innovations and risk taking to take place. If such a culture is not present in the organization, the potential benefit which BDA Capabilities can deliver will likely not be obtained and the optimum business value which could be generated will be left untapped. The current study anticipates examining the effect of BDA Capabilities on the Organizational Innovative Performance (OIP) through its impact on the process oriented dynamic capabilities (PODC). It also examines this relationship considering the organizational culture (OC) as moderator. More specifically, the study aims to examine the following research questions: To what extent BDA Capabilities affect OIP? How PODC mediates the relationship between

BDA Capabilities and OIP? How organizational culture (OC) moderates the relationship between BDA Capabilities and OIP?

Based on the above-mentioned research questions, the following are the research objectives of this research. To determine the impact of BDA Capabilities on OIP. To determine the extent to which PODC mediates the relationship between BDA capabilities and OIP. To determine the extent to which Organizational Culture moderates the influence of BDA capabilities on OIP.

Literature has been extensively reviewed on the relationships in this study so as to develop a sound foundation of the framework. The framework of this research study and relationship among the selected variables lays its foundation on the integration of two famed and largely recognized theories that is resource-based theory and socio-materiality theory. Thereafter the model of this study will be tested empirically.

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