# Influence of national culture on knowledge management process: literature review and research agenda

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## Abstract

**Purpose** – The purpose of this study is to explore, understand and investigate the relationship between national culture and knowledge management (KM) process.
**Design/methodology/approach** – This study is based on systematically and objectively capturing the contents of extant research papers published by researchers in this area by using the literature review methodology.
**Findings** – The study demonstrates significant relationship between national culture and KM process. Further, it also provides directions for future research.
**Practical implications** – The study will help top management to understand and appreciate the impact of national culture on KM process in organization, where people from different nations are working together. The management may apply appropriate organizational interventions to manage people of different national cultures in effective manner and effective utilization of knowledge of the organization through KM process. This paper will be considered as a quick reference and resource for anyone interested in this area.
**Originality/value** – This study is a comprehensive literature review of influence of national culture on KM process. Further, it also sets the research agenda for future researchers.

**Keywords** National culture, Knowledge management process, Collectivism, Individualism, Cross-cultural knowledge transfer, Cultural interplay

**Paper type** Literature review

## Introduction

It today's fast-changing and dynamic business environment, it is becoming more and more important and necessary for an organization to make effective and efficient utilization of various key resources, mainly its people and the knowledge they possess, for gaining competitive advantage. Knowledge is "not just an object or artefact, but also the outcome of people working together, sharing experiences, and constructing meaning out of what they do" (Choo, 2000, p. 395). It is a strategic resource of the organization to meet their present and future requirements (Goswami and Agrawal, 2018). It makes society and individuals to act intelligently (Dalkir, 2013). People in organization accumulate their learning, past experiences and expertise into knowledge, which resides at individual and/or group and/or organizational level. This accumulated knowledge is a key and strategic resource that requires to be leveraged, used and managed effectively for the benefit and growth of the organization. Knowledge management (KM) is very significant in today's context (Gupta, 2008). Management of organization's knowledge is very critical and essential for an organization's growth and competitiveness. Knowledge-based human resource management practices play crucial roles in influencing innovative behaviour of people in

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the organization (Noopur and Dhar, 2019). KM process consists of a group of actions that is organized and associated with each other to manage knowledge resources of the organization. It is a dynamic process (Claver-Cortes *et al.*, 2007) of using, sharing, capturing and storing of knowledge (Davenport and Prusak, 1998) in an effective manner that determines the value of an organization (Hutahayan, 2020).

Ang and Massingham (2007) found that there is lack of consensus among researchers regarding the influence of national culture over KM process. There are scholars who found empirical evidences that signify the existence of the relationship between national culture and KM process, in contrary to other scholars who have not found any significant relationship between the two (Ang and Massingham, 2007). KM concepts may not be applicable universally in cross-cultural context due to differences among various countries in terms of histories, cultures and institutional forces (Zhu, 2004). National culture is a significant factor that influences KM process in the organization (Iske and Boersma, 2005; Wang *et al.*, 2011) and affects KM by controlling the way people think, gather information, respond and manifest their feelings in a society (King, 2007). The multi-national companies have employees from both home nations as well as host nations. These employees from different national cultures come to work under one umbrella and thus create complex cultural environment. This complex cultural environment may have impact on various organizational processes, and one of such key process is KM process. Difference in cultures may lead to have distinguishing competencies (Goswami, 2018). Sackmann and Friesl (2007) concluded that cultural complexity of multicultural environment has significant impact on the sharing of knowledge. However, no sufficient research took place to establish relationship between national culture and knowledge sharing and national culture and knowledge creation (Wang *et al.*, 2011; Wei *et al.*, 2008). Understanding the relationship of national culture with KM process will be very helpful for the organization to manage its knowledge assets and to gain competitive advantage. Inspite of having significant relationship between national culture and KM, relatively limited studies have been undertaken by researchers in this direction (Liu *et al.*, 2019). Further, no sufficient research (theoretical and practical) has been conducted to establish relationship between national culture and knowledge sharing and knowledge creation (Wang *et al.*, 2011; Wei *et al.*, 2008), the two important key components of KM process.

The purpose of this paper is to explore, understand and investigate the relationship between national culture and KM process by systematically and objectively capturing the contents of research papers and then synthesising the findings of existing studies. Further, the study also provides the future directions for researchers. For the above purpose, this study utilizes the literature review methodology of extant research papers published in this area. In literature review for this study, research papers were identified and extracted by searching from various databases using various keywords present in title or abstract or keyword sections of the article. These papers were scrutinized, and thus relevant research papers for the study were identified, studied and then systematically presented in this study. This study will contribute to theory and practice in a number of ways. In many organizations, people from different nations are working together; hence, the findings will help top management to understand the relationship between their national culture and its impact on KM process, which will facilitate effective people management for exploiting knowledge assets to benefit the organization. The paper is organised as follows. The next section provides the conceptual understanding of KM process and national culture. The following section systematically captures the contents of different studies conducted to investigate the link between national culture and KM process and then synthesizes various findings objectively. The last section gives the implications and conclusion of the study.

## Conceptual understanding

### *Knowledge management (KM) process*

The theory of KM has emerged because of extensive use of knowledge in business organizations. Knowledge is "mix of framed experiences, values, contextual information, and expert insight" (Davenport and Prusak, 1998, p. 2) It is "interaction between insights (from the past), information (the present) and imagination (the future)" (Iske and Boersma, 2005, p. 128) and it includes "the experiences, skills, ideas and attitudes of people in a context where value can be created" (Iske and Boersma, 2005, p. 127). KM process has no universally accepted definition. However, various scholars have given various definitions of KM process (Ang and Massingham, 2007). Broadly, KM process refers to the managing of knowledge of an organization in a systemic, objective, efficient and effective way for achieving the organizational aims. It is "systemic and organizationally specified process for acquiring, organizing, and communicating both tacit and explicit knowledge of employees that other employees may make use of to be more effective and productive in their work" (Chang and Lin, 2015, p. 435). KM is a process facilitating the flow of knowledge along with its creation and distribution (Hislop, 2009). It is a process that shares, creates and deploys knowledge among people, business processes and various departments/units in an organization and also with its external partners whenever the need arises (Anantatmula, 2010). Bhatt (2001) grouped KM process into knowledge application, knowledge presentation, knowledge distribution, knowledge creation and knowledge validation activities. According to Anantatmula (2010), two important activities of KM process are: knowledge creation and knowledge transfer. Ray (2014) has grouped KM process into just two activities namely knowledge creation and knowledge sharing. Xu *et al.* (2010) synthesized KM process into three groups namely knowledge creation consisting of production, generation, creation and development of knowledge, knowledge application consisting of utilization use/reuse and application of knowledge, and knowledge sharing consisting of transferring, sharing, processing, codification, storage and evaluation of knowledge. Dalkir (2013) has also grouped KM process into three major groups, namely, knowledge capture and/or creation, knowledge sharing and dissemination and knowledge acquisition and application. Table 1 summarises KM process given by various authors.

Knowledge sharing is a learning process (Goswami and Agrawal, 2019a) and involves "the movement of knowledge across individual and organizational boundaries, into and from repositories, and into organizational routines and practices" (Bock *et al.*, 2005, p. 88). It has

| Author(s) | KM process |
|---|---|
| Bhatt, 2001 | Knowledge presentation, knowledge creation, knowledge application and knowledge distribution, knowledge validation |
| Alavi and Leidner, 2001 | Knowledge transfer, knowledge creation, knowledge storage, knowledge application |
| Bouthillier and Shearer, 2002 | Knowledge sharing, knowledge creation, knowledge discovery, knowledge acquisition, knowledge use and application, knowledge storage and organization |
| Claver-Cortes *et al.*, 2007 | Knowledge acquisition, knowledge organization, storage and retrieval, and knowledge dissemination |
| Roknuzzaman *et al.*, 2009 | Knowledge transfer, knowledge creation, knowledge application |
| Anantatmula, 2010 | Knowledge transfer, storage and retrieval, knowledge acquisition and creation, knowledge organization, knowledge application and presentation |
| Abd Rahman *et al.*, 2013 | Knowledge conversion, knowledge acquisition, knowledge protection, knowledge application |
| Dalkir, 2013 | Knowledge capture and/or creation, knowledge sharing and dissemination, knowledge acquisition and application |

**Table 1.**
KM process given by different authors

three major elements, namely, objects, level of sharing and way of sharing (Goswami and Agrawal, 2019a). It is strengthened by various means such as face-to-face interactions, social networks, conferences, training etc. (Goswami and Agrawal, 2019b). It is multidirectional, either unfocussed or focused and takes place between individuals (Paulin and Suneson, 2015). Knowledge creation is defined as "a continuous, self-transcending process through which one transcends the boundary of the old self into a new self by acquiring a new context, a new view of the world, and new knowledge" (Nonaka *et al.*, 2000, p. 8). It is a "dialectical process where various contradictions are synthesized through dynamic interactions among individuals, the organization, and the environment" (Nonaka and Toyama, 2003, p. 2). In the process of knowledge generation, the interaction between tacit and explicit knowledge, interaction among individuals and interaction between individuals and their environment take place (Nonaka, 1994). According to Nahapiet and Ghoshal (1998), knowledge is generated either by adding incremental changes into existing knowledge or by innovation i.e. by making radical changes. There are three major philosophical viewpoints of knowledge creation, namely, exogenic (world centred), endogenic (mind centred) and social construction (combination of early two) (Oluikpe, 2015; Goswami and Agrawal, 2019a). According to SECI (socialization, externalization, combination and internalization) model of knowledge creation, there are four phases of knowledge conversion: (1) socialization for tacit to tacit conversion, (2) externalization where conversion from tacit knowledge to explicit knowledge takes place through dialogue, (3) combination for conversion of explicit to explicit conversion and (4) internalization where conversion from explicit knowledge to tacit knowledge takes place through experiment and reflect on it through actions (Nonaka *et al.*, 2000). Knowledge is created through dynamic interaction among these four modes of knowledge conversion, and this dynamic process begins at individual level and then grows in scale and speed as an upward spiral process (Nonaka, 1994). The context for knowledge creation is known as "Ba" which is a Japanese word denoting time–space nexus (Nonaka *et al.*, 2000). "Ba" is "a shared space for emerging relationships" and is of four types with respect to each conversion mode of the SECI model (Nonaka and Konno, 1998, p. 40). These four types are: (1) originating Ba for socialization; (2) dialoguing Ba for externalization, (3) systemizing Ba for combination and (4) exercising Ba for internalization (Nonaka *et al.*, 2000). Akhavan *et al.* (2015a) identified six success factors for knowledge creation: "organization (organization communications, organizational structure), optimizing interactions (assessment standards, leadership support, members interaction and creating institutional memory), infrastructure (organizational culture, humanities and social infrastructure, empowerment), supporting tools (members independence, information technology, Innovation and creativity, nonfinancial prize, recognition appreciation and maintain intellectual property, member safety, cash prizes), strategy and goals (specific objectives and strategies) and organizational support (organizational support, size organization)" (p. 206).

Knowledge is categorized into tacit knowledge and explicit knowledge (Nonaka and Takeuchi, 1995). Tacit knowledge, which is held by single individuals (Itami, 1987) and found implicit in institutional culture of the organization (Gibbons *et al.*, 1994), has "intangible factors embedded in personal belief, experiences and values" (Pan and Scarbrough, 1998, p. 56). Explicit knowledge is shared by the organization as a whole (Itami, 1987). Fernandes (2018) emphasized on developing the skills to transform tacit knowledge into explicit knowledge and vice-versa. Senior management can establish knowledge-based culture for tacit to explicit knowledge conversion and vice-versa by embedding in business processes and building expectation explicitly in policy statements, promotion processes, appraisal processes and job descriptions (Rowley, 2001). Tacit knowledge is shared among people through socialization process (Fernandes, 2018). Tacit knowledge is converted and codified into explicit knowledge in form of images, concepts, metaphors, theories and written documents (Jeong *et al.*, 2018; Nonaka and Toyama, 2005). Tacit knowledge is transformed

into explicit knowledge by making use of inductive and deductive reasoning methods (Nonaka and Takeuchi, 1995). Managers in the organization through mentoring, personal interactions and effective organizational communications (Suppiah and Singh Sandhu, 2011), can encourage followers for conversion of tacit knowledge into explicit knowledge. People are encouraged to convert their tacit knowledge into explicit knowledge by creating knowledge repositories for storing explicit knowledge and then sharing these knowledge banks with others (Rowley, 2001). While contacts and skills directories render access to tacit knowledge, knowledge repositories provide explicit knowledge in form of various reports, documents, business databases, competitor intelligence, project information etc. (Rowley, 2001). Managers can motivate people through rewards, fairness and other means to convert their tacit knowledge into explicit knowledge through codification to be stored in organizational databases. Explicit knowledge is converted back into tacit knowledge when different experts in the organization collaborate (Jeong *et al.*, 2018). People in an organization apply existing explicit knowledge in day-to-day actions in form of experimentation, learning by doing and trial and error approach that results into creation of tacit knowledge (Jeong *et al.*, 2018; Nonaka and Toyama, 2003). Managers can motivate followers to involve in idea generation, problem- solving and learning where the existing explicit knowledge can be exploited for the generation of new knowledge mainly in the form of tacit knowledge or conversion from explicit knowledge to tacit knowledge. There are number of tools, methods and approaches such as intranets, internets, intelligent search and retrieval engines etc. in order to provide access to stored explicit knowledge (Rowley, 2001) that can be utilized, reflected and exploited in problem solving and idea generation which results into conversion of explicit knowledge into tacit knowledge and creation of new knowledge. People can be motivated to involve in problem solving, idea generation, new product development and other such activities using existing codified knowledge that can result into generation of new knowledge mainly in tacit form. Patents belong to explicit knowledge asset of the organization that also results in revenue generation. A number of strategies are used in order to strengthen this form of explicit knowledge in the organization. Guellec and Potterie (2002) suggested the organization need to involve in more research co-operation with other inventors, both domestically and internationally, and focus on inventions made under a cross border ownership structure in order to have more patents under its umbrella (Guellec and Potterie, 2002). Further, an organization also needs to focus on technology area and products and their capabilities to add values to the business for effective patent management (www.jakemp.com: 2012).

Knowledge networks are very significant for boosting innovation and improving organizational efficiency (Buchel and Raub, 2002), and innovation is the lifeblood of the organization (Lobo and Samaranayake, 2020). They can determine the future of an organization (Pena, 2002). Networking is a social communication process for knowledge sharing among people (Swan *et al.*, 1999) as well as a process of interrelating and sense-making (Weick, 1990). A knowledge network is defined as "an inter-organizational agreement to share knowledge among network members for the exploration (i.e. creation and development) or exploitation (i.e. product transformation and commercialization) of new technologies" (Pena, 2002, p. 472). While traditional structuralist approach considers knowledge networks as structures that transfer knowledge from suppliers to users, process perspective considers knowledge networks as negotiation among various social communities having distinctive norms (Swan *et al.*, 1999). There are two alternative network models in the context of KM, namely, cognitive network model and community network model (Swan *et al.*, 1999). While community network model focuses on sense-making and dialogue using active networking, cognitive network model focuses on linear information flows using static information technology– based networks (Swan *et al.*, 1999). Information technology– based network as well as face-to-face interaction–based network are very critical for managing knowledge of the organization (Swan *et al.*, 1999).

While information technology–based networks lead for the exploitation of existing knowledge and focus on explicit knowledge (Swan *et al.*, 1999), social networks help in exploration where new knowledge creation takes place and it focuses on tacit knowledge (Levinthal and March, 1993). Social networks help in building collaborative communities of knowledge (Gupta *et al.*, 2018). People are actively interacting socially by means of various online social network platforms like LinkedIn, Twitter, Facebook etc. that is leading to disseminate and create new knowledge (Gupta *et al.*, 2018). People involve in professional association because such external networks make them aware about new technologies (Swan *et al.*, 1999). Communities of practice form networks to share expertises by members. They are "groups of people informally bound together by shared expertise and passion for a joint enterprise" (Wenger and Snyder, 2000, p. 139). They mainly involve informal gathering of people based on their shared interests (Buchel and Raub, 2002). According to Pena (2002), a horizontal knowledge network contributes in intensifying a new technology in the organization, and a vertical knowledge network provides technology complementarity in terms of acquiring lacking knowledge resource. Based on two dimensions, namely, individual benefits vs organizational benefits and self-managed vs managers supported, Buchel and Raub (2002) identified four types of knowledge networks: hobby networks, professional learning networks, best-practices networks and business opportunity networks. Hobby networks focus on individual interests and generally do not get support from management (Buchel and Raub, 2002). Professional learning networks build individual skill base and get support from management based on their importance (Buchel and Raub, 2002). Best practices networks are characterised by multi-directionality and considered institutionalized forms of knowledge sharing in organizations (Buchel and Raub, 2002). They perform for the benefits of the organisation, but they are not supported by management (Buchel and Raub, 2002). Business opportunity networks are supported by management for being business-driven, entrepreneurial networks having potential to provide innovation and growth (Buchel and Raub, 2002).

In marketing, KM is used to manage and disseminate marketing knowledge i.e. knowledge about dynamic market (Iamamporn and Songsangyos, 2014). There are three sources of knowledge in marketing decision support system; these are: market knowledge from third party, customer knowledge from market research and customer knowledge from retailers (Iamamporn and Songsangyos, 2014). KM helps in improving marketing strategies and exploiting marketing research. It yields in building favourable conditions foe effective interpreting, processing and using of knowledge related to market trends and helps in processing high volume of transaction (transaction marketing), capturing customer information (database marketing), building effective communication among people (interaction marketing) and establishingsnetwork for group interactions (network marketing) (Iamamporn and Songsangyos, 2014). KM is effectively applied in various aspects of marketing area such as customer profiling, managing sale–purchase transactions, identification of typical customer groups, evaluating marketing programs, deviation analysis, trend analysis, forecasting future sales etc. (Shaw *et al.*, 2001). In financial sector, KM is very critical for providing effective and timely information needed in decision-making (Mohsen *et al.*, 2011). A number of KM systems and associated approaches such as decision support system, data mining etc. are being used extensively to ensure effective risk management, decision-making, customer satisfaction and enhancing revenue generation (Mohsen *et al.*, 2011). KM is effectively exploited in forecasting future financial analysis, time-series analysis, financial investment management and various predictive modelling needs of the financial sector, and the outcome can be shared with investors (Hantrakul *et al.*, 2012). KM has significant influence on human resource management (Kumar, 2016). It is used for enhancing performance of people in the organization (Kumar, 2016). There are two key strategies, namely, codification and personalization, to link knowledge flows and people flows (Kumar, 2016). While codification strategy has focus on process efficiency,

personalization strategy has focus on product innovation (Greiner *et al.*, 2007). In codification strategy, knowledge is collected, codified and then stored in databases making it explicit, and this existing knowledge can be reused to save time and money (Greiner *et al.*, 2007). In personalization strategy, the focus is on transferring, communicating and sharing of tacit knowledge via various knowledge networks in order to generate new solutions and product innovations (Greiner *et al.*, 2007). In production, KM is extensively used in product innovation and cost reduction. It contributes in attaining high performance and manufacturing effectiveness. It plays a significant role in increasing manufacturing productivity and effectiveness, managing supply chain (Gunasekaran and Ngai, 2007), supporting continuous improvement initiatives (Barber *et al.*, 2006) and enhancing product innovation (Corso *et al.*, 2001). KM provides support in doing various core functions of manufacturing effectively and efficiently, namely, designing, engineering, production and distribution (Gunasekaran and Ngai, 2007). In manufacturing, KM helps in effective shop floor management where tacit to tacit knowledge conversion is exploited for problem-solving and tacit to explicit knowledge conversion is exploited related to standard operating procedure (Muniz *et al.*, 2010). KM is effectively exploited in manufacturing organizations by means of e-commerce and enterprise resource planning, e-commerce (Gunasekaran and Ngai, 2007). Big data and predictive analytics are emerging as significant research fronts in relation to operations and manufacturing management (Dubey *et al.*, 2019).

*National culture*

Culture is an important concept in organizational studies because it affects various organizational outcomes (Denison and Mishra, 1995). In literature, there is diversity in approaches for defining culture (Qin *et al.*, 2011). Hofstede (1997) defined culture as "the collective programming of the mind which distinguishes the members of one group or category of people from another" (p. 5). According to Schein (1984), culture is a "pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (p. 3). Culture has (1) artifacts (also called practices, expressive symbols or forms), (2) beliefs and values and (3) underlying assumptions (Schein, 1984). Triandis (1994) distinguished culture into subjective (e.g. values, laws, norms, experience, attitudes, beliefs etc.) and objective (e.g. tools, roads etc.) aspects. Culture is a holistic construct, which develops over a period with strong influences from the socio-cultural environment in which the business organisation operates. According to Gupta *et al.* (2019), "although most cultures have rituals and practices that involve sharing, these practices manifest themselves in different ways and carry different assumptions about the meaning of these shared practices" (p. 20). It operates at various levels as depicted by Sackmann and Friesl (2007) in their multilayer model of cultural complexity in multicultural environment as shown in Figure 1.

Culture at organizational level is manifested in terms of organizational culture. Dubey *et al.* (2019) defined organizational culture as "a collection of shared assumptions, values and beliefs that is reflected in organizational practices and goals to help its members to understand organizational functioning" (p. 347). National culture is another important constituent of culture that operates at the level of a nation. It refers to "the pattern of enduring personality characteristics found among the populations of nations" (Clark, 1990, p. 66). It is very significant in various operations management and supply chain management decisions (Gupta and Gupta, 2019). There are differences between national culture and organizational culture (Kattman, 2014) but organizational culture is nested in national culture (Pothukuchi *et al.*, 2002). National culture is more deep rooted and dominant than organizational culture

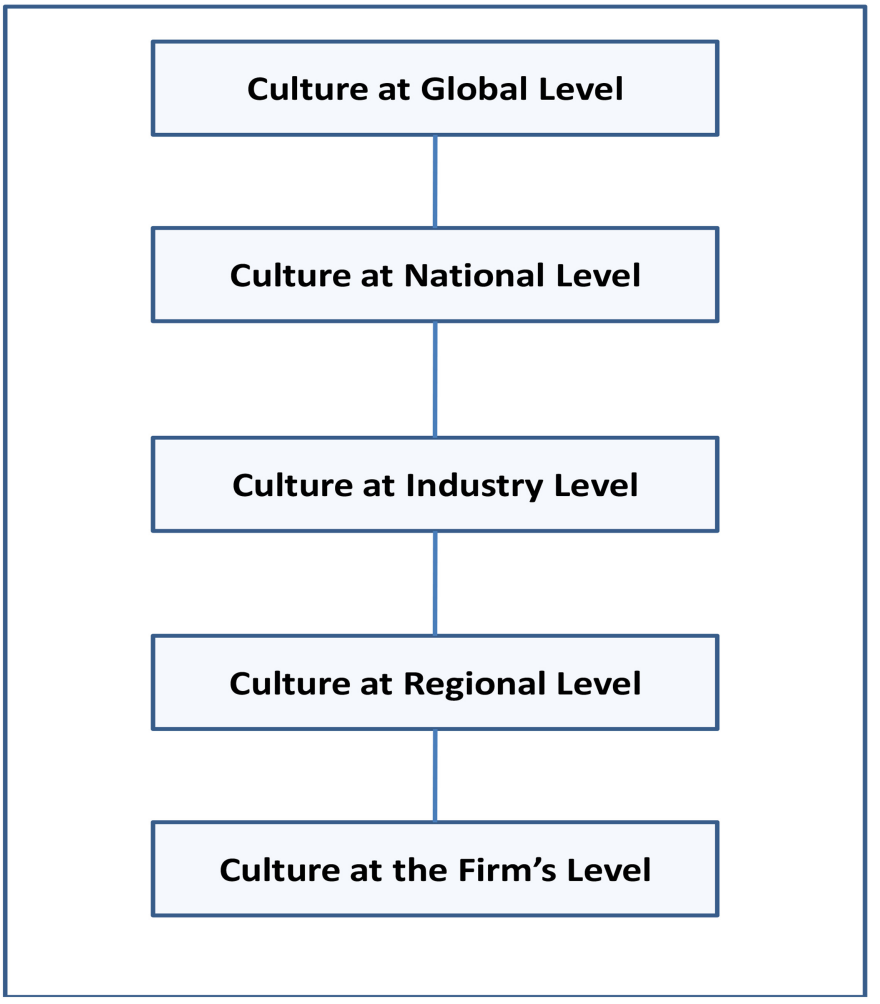


**Figure 1.**
Cultural layers (extract from Sackmann and Friesl, 2007)

(Kattman, 2014). While national culture is oriented to societal values, organizational culture is characterized by values and norms at organizational level (Knein *et al.*, 2020). National culture is operationalized in terms of values, and organizational culture is operationalized in terms of core organizational practices (Pothukuchi *et al.*, 2002). According to the framework of national culture given by Hofstede (1993), there are five dimensions of national culture, namely, individualism/collectivism, power distance, uncertainty avoidance, masculinity/femininity and long-term/short-term orientation (see Figure 2). Individualism/collectivism dimension is the degree to which people show importance to their own well-being vs the well-being of others (Lucas, 2006). Personal interests are given high precedence in individualism whereas group interests are preferred in collectivism (Wang *et al.*, 2011). According to King (2007), individualism is the extent to which individuals' self-interests are of high priority over the group, and it emphasises the importance to individual initiative, freedom, and challenge.

In collectivist society, individuals give importance to goals of groups, sense of sharing and helping group members, and they are concerned with their actions that affect others (King, 2007). Power distance is the people's perception about inequality (Lucas, 2006). In a culture of high power distance, decisions of the superiors are agreed by juniors because of superior's position even if they are not confident of their merit and ethical standing, whereas in low-power distance culture, inequity is supposed to be minimized (King, 2007). Uncertainty avoidance refers to the extent to which individuals consider themselves to be threatened by uncertain situations by creating formal rules and rejecting deviant behaviours and ideas (King, 2007). Countries having high uncertainty avoidance avoid risk-taking and believe in perfection, whereas countries having low uncertainty avoidance take risk and accept the uncertainty and ambiguity of world. Masculinity dimension emphasizes the "achievement, earnings and assertiveness", whereas femininity dimension emphasizes "personal goals, the quality of life, group decision-making, a friendly environment, and nurturance" (King, 2007, p. 228). The people of countries having long-term orientation focus on future, whereas people of countries having short-term orientation focus on present and past.

There are many frameworks of national culture other than Hofstede's framework such as GLOBE framework, Trompenaars's profiling, Schwartz and Sagiv framework of universal human values etc. According to GLOBE (Global Leadership and Organizational Behaviour Effectiveness) research program, national culture consists of nine dimensions, namely, institutional collectivism, in-group collectivism, power distance, gender egalitarianism, uncertainty avoidance, humane orientation, future orientation, performance orientation and assertiveness (House *et al.*, 2002). Trompenaars's profiling provided six dimensions of the national culture: rule orientation vs relationship, individual freedom vs group, neutral vs affective, specific vs diffuse, achievement vs ascriptive and master of fate vs fatalism (Panda and Gupta, 2004). According to Schwartz and Sagiv (1995), there are ten universal human values, namely, universalism, hedonism, achievement, power, benevolence, tradition, stimulation, self direction, conformity and security. However, Hofstede's framework of national culture is a best known, well established, most cited (Lee *et al.*, 2017), widely used, accepted (Goswami and Agrawal, 2020) and effective framework in management research (Cui *et al.*, 2019) and cross cultural management (Qin *et al.*, 2011). All the five dimensions of Hofstede's framework have clear meaning (Cui *et al.*, 2019) and resonance with managers (Lee *et al.*, 2017). The GLOBE study was influenced by Hofstede's study as it attempted to extend and replicate his framework (Lee *et al.*, 2017). It grouped collectivism domension into in-group

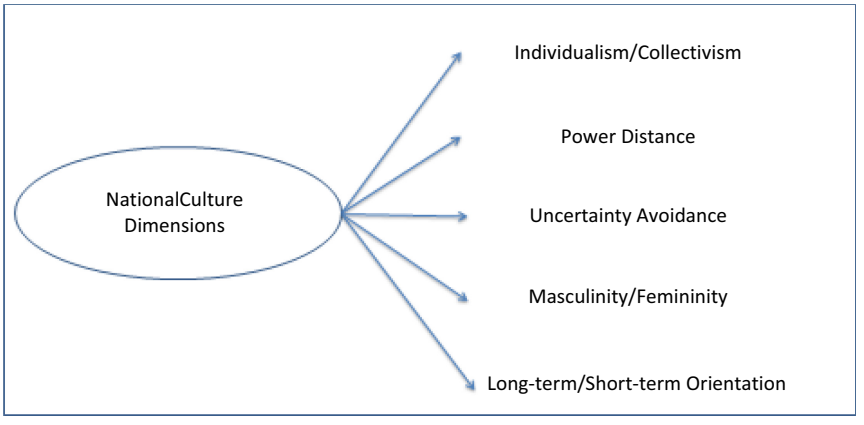


**Figure 2.**
Hofstede's national culture framework (Hofstede, 1993)

collectivism and institutional collectivism, splitted masculinity–femininity dimension into gender egalitarianism and assertiveness and replaced long-term orientation dimension with future orientations (Moonen, 2017). Performance orientation and human orientation dimensions of GLOBE framework were also inspired by masculinity–femininity dimension (Moonen, 2017). Various cultural frameworks and their associated cultural dimensions are summarised in Table 2.

## National culture and KM process

Anantatmula (2010) emphasized the need of establishing the relation between organization culture and KM process because there are differences in cultural values in terms of regions, beliefs, religions, local and national management practices and work ethics which influence KM process. However, there is no consensus among researchers regarding the influence of

| Model | Cultural dimensions |
|---|---|
| Hofstede's national culture model (Hofstede, 1993) | Five dimensions:<br>(1) Individualism/collectivism<br>(2) Power distance<br>(3) Uncertainty avoidance<br>(4) Masculinity/femininity<br>(5) Long-term/short-term orientation |
| GLOBE (global leadership and organizational behaviour effectiveness) culture model (House *et al.*, 2002) | Nine dimensions:<br>(1) Institutional collectivism<br>(2) In-group collectivism<br>(3) Power distance<br>(4) Gender egalitarianism<br>(5) Uncertainty avoidance<br>(6) Humane orientation<br>(7) Future orientation<br>(8) Performance orientation<br>(9) Assertiveness |
| Trompenaars's profiling (Panda and Gupta, 2004) | Six dimensions:<br>(1) Rule orientation vs relationship<br>(2) Individual freedom vs group<br>(3) Neutral vs affective<br>(4) Specific vs diffuse<br>(5) Achievement vs ascriptive<br>(6) Master of fate vs fatalism |
| Universal human values (Schwartz and Sagiv, 1995) | Ten dimensions:<br>(1) Universalism<br>(2) Hedonism<br>(3) Achievement<br>(4) Power<br>(5) Benevolence<br>(6) Tradition<br>(7) Stimulation<br>(8) Self-direction<br>(9) Conformity<br>(10) Security |

**Table 2.**
Various cultural frameworks and their dimensions

national culture over KM process (Ang and Massingham, 2007). Walczak (2008) identified the current state of international research in developing knowledge economies; such research is related to making "attempts to develop non-western theory to accommodate geopolitical and national culture differences" (p. 488) such as the concept of concept of "Ba" in Japan or the "Guanxi" in China. Japanese word "Ba" is a shared space related to emerging relationships (Nonaka *et al.*, 2000), whereas "Guanxi" in China refers to "one of three things: (1) the existence of a relationship between people who share a group status or are related to a common person, (2) actual connections with and frequent contact between people, and (3) a contact person with little direct interaction" (Tsui and Farh, 1997, p. 59). Chinese mianzi (face saving) culture negatively influences knowledge sharing (Liu *et al.*, 2019). Walczak (2008) emphasized the incorporation of national culture values into KM and organizational learning research. Culture being the "collective programming of mind" (Hofstede, 1993, p. 89) may have influence over thinking and cognition of people, which in turn may have impact on KM process. People from different cultural backgrounds exhibit difference in their learning and sharing of knowledge (Chiu *et al.*, 2018). Culture affects knowledge-related behaviours of people by determining the appropriateness and time for sharing of knowledge (King, 2007). The difference in values and shared norms among different cultures enhances knowledge ambiguity and knowledge stickiness (Simonin, 1999).

National culture influences KM process (Magnier-Watanabe and Senoo, 2010) and acts as an obstacle to effective KM (Jacks *et al.*, 2012). It affects overall success of KM by controlling the way people gather information, think, respond and manifest their feelings in a society (King, 2007). It has negative influence on information exchange and shared problem-solving (Cui *et al.*, 2019). Cultural values of an individual are influenced by national culture that in turn affect his/her knowledge-sharing behaviour (Wei *et al.*, 2008). A cultural complexity is formed in a team when members come from different cultural background having different national culture, ethnicities and gender, and the cultural complexity negatively influences knowledge sharing at individual level as well as group level (Sackmann and Friesl, 2007). Culture is a very important factor related to KM across border, and thus it is very difficult to have global protocols and standards for KM (Desouza and Evaristo, 2003). Zhu (2004) also raised questions about universal application of KM concepts and discussed similarity and dissimilarity of KM styles in cross-cultural context, namely, the Chinese, the European, the Japanese and the American, and then he concluded that these differences are due to histories, cultures and institutional forces. Ang and Massingham (2007) investigated the effect of national culture on KM and provided a conceptual framework to examine the influence of culture on standardization and adaptation of KM process in cross cultural environment. Andreeva and Ikhilchik (2011) analysed the SECI (socialization, externalization, combination and internalization) model in Russian context and developed a framework for operationalization of SECI model by fragmenting it into three levels, namely, societal and organizational conditions, basic cognitive processes and managerial tools and elaborated the limitation and opportunities for application of SECI model in cross-cultural context.

Individualism/collectivism dimension of national culture has notable effect on KM process (Bhagat *et al.*, 2002). Individualism dimension of national culture acts as a barrier to KM because in such culture, people work better as individuals but they do not prefer working in groups, which results into less interaction with each other, and this will affect socialization process of SECI model which will have negative influence over knowledge sharing (Ray, 2014). In contrast to individualistic culture, people in collectivist society have more inclination towards knowledge sharing as they consider collective interest being more significant than their own benefits (Qin *et al.*, 2011) and hence, it is comparatively easy to enhance knowledge sharing in collectivist culture (Witherspoon *et al.*, 2013). Chow *et al.* (2000) further elaborated that if there is no conflict between collective and self-interest; people of both collectivist culture and individualistic culture are equally willing to share knowledge, but in the case of

conflict between collective and self-interest, the people of collectivist culture will be more willing to share knowledge in contrast to people of individualistic culture. Yu (2014) further found that both individualism and collectivism are positively related to knowledge sharing intention of people, but the willingness of sharing knowledge is more in collectivism-orientated employees compared to individualism-orientated employees (Yu, 2014). Jiacheng *et al.* (2010) explored the cognitive mechanism of knowledge sharing and concluded that collectivist society has greater inclination towards conforming to team's opinions and hence consider knowledge sharing to have harmonious relationship in contrast to individualistic society. In another study, collectivist culture had positive effect on the knowledge-sharing attitude of people (Hwang and Kim, 2007), however, individualistic culture had no significant effect on knowledge-sharing attitude (Mohammed Fathi *et al.*, 2011). Sandhu and Ching (2014) reported that knowledge sharing behaviour is positively affected by horizontal and vertical collectivism and negatively affected by vertical individualism. Horizontal collectivism refers to individual oneness with people of the ingroup, vertical collectivism refers to individual preference to consider himself as different from other people of the ingroup and vertical individualism refers to people's thinking of themselves as relatively unique and inequality in status (Bhagat *et al.*, 2002). Michailova and Hutchings (2006) affirmed that "vertical collectivism and particularistic social relations in China and Russia lead to intensive social relations among organizational members, which facilitate knowledge sharing between in-group members in organizations in both countries" (p. 383). They also argued that "differences in the essence of collectivism as well as in the extent of collectivism in the two cultural contexts lead to different intensities of knowledge sharing in Chinese and Russian organizations" (p. 383). Collectivism has positive influence on knowledge creation capabilities as it enhances cooperation (Wang *et al.*, 2011). People, having high in-group collectivism, make themselves away from knowledge-hiding behaviours because of their dependency on others and being cautious about their behaviours (Issac and Baral, 2019). Cultural collectivism has positive effect on subjective norms and attitudes for knowledge sharing (Arpaci and Baloğlu, 2016). While people in USA share more knowledge with out-of-group members, people in China share more knowledge within group members (Arpaci and Baloğlu, 2016).

Power distance dimension of national culture is found to have significant impact over KM process (Jacks *et al.*, 2012) in contrast to finding of Ardichvili *et al.* (2006) where they found that perceived differences in hierarchy and power are not very critical to knowledge sharing in China, Brazil and Russia. In a study, Mabey *et al.* (2014) concluded that the differences in attitude towards hierarchy and authority (age or grading) influence knowledge sharing. Lin (2014) concluded that cultural differences influence KM system acceptance and showed that power distance dimensions of national culture is having significant differences between countries in this regard. Power distance is also found to have negative influence on knowledge creation capability (Wang *et al.*, 2011), and interactive effect i.e. moderating effect on reward-knowledge sharing relationship (Zhang *et al.*, 2014). In a culture of high power distance, there is tight control, more supervision, pyramidal organizational structure and fear of openly speaking, and this results into low knowledge sharing and low externalization and internalization in SECI model of knowledge creation (Ray, 2014). In high power distance culture also known as vertical culture, there is hierarchical arrangement that provides power to superiors regarding the nature and time of knowledge transfer (Qin *et al.*, 2011; Bhagat *et al.*, 2002). It is also found that countries having low power distance are advanced in KM practices (Merono-Cerdan *et al.*, 2007) examples. Uncertainty avoidance is also an important dimension of national culture that has a significant impact on KM process (Jacks *et al.*, 2012). Uncertainty avoidance has been found to have negative influence over knowledge creation capability (Wang *et al.*, 2011). High uncertainty avoidance is positively related to exploitative knowledge application, whereas low uncertainty avoidance is positively related to explorative knowledge application (Magnier-Watanabe and Senoo, 2010). According to

Ray (2014), there would be more opposition for seeking and sharing of knowledge in low uncertainty avoidance cultures because of greater dependence on common sense rather than on the expertise and also because of resistance for adapting to new technology. Zhang *et al.* (2014) found that uncertainty avoidance has an interactive effect i.e. moderating effect on reward-knowledge sharing relationship. In the study of Ribière *et al.* (2010) regarding understanding the influence of national culture on the usage of web 2.0 technologies that facilitate communication and knowledge sharing, uncertainty avoidance dimension had negative influence over usage of web 2 technologies, whereas other dimensions were insignificant.

Masculinity/femininity also has significant effect on KM process. Highly masculine cultures give more emphasis on competitiveness that triggers knowledge hoarding and creates hurdle for knowledge sharing (Ray, 2014). Knowledge sharing among people in an organization may decrease in high masculinity culture in presence of individually based competitiveness but may not be affected if organizationally based competitiveness is present (Ford and Chan, 2003). However, Chiu *et al.* (2018) found masculinity not to have significant relationship with knowledge sharing. Magnier-Watanabe and Senoo (2010) concluded that masculinity is positively related to prescribed knowledge diffusion, whereas femininity has positive impact on adaptive knowledge diffusion. Merono-Cerdan *et al.* (2007) collected samples from ten small and medium enterprises in Spain, and ten in Austria and found national culture as one of contingent factors for affecting KM implementation and KM strategy. Their study has shown that companies in countries higher in masculinity are advanced in KM practices. With respect to the influence of long-term/short-term orientation on KM process, very less number of studies has been found in literature. According to Ray (2014), short-term orientation could influence sharing and creation of knowledge due to "fear of shame or loss of face, high respect for traditions and emphasis on quick results" (p. 51) in such culture. Lee *et al.* (2017) concluded that countries having high intellectual capital have individualism, weak uncertainty avoidance and low power distance.

Cultural distances among countries affect cross-cultural knowledge transfer negatively (Qin *et al.*, 2011). National culture differences on three significant parameters namely "language, different thinking logic, and different levels of perceived credibility of voluntarily shared knowledge" (p. 38) have influence on knowledge sharing in cross-cultural context (Li, 2010). Malik (2013) concluded that (1) religious distance, social distance and education distance influence international technology transfer positively, (2) political distance has no effect and (3) industrial distance and national language influence international technology transfer negatively. Kohlbacher and Krähe (2007) studied knowledge transfer within organizations and observed that there are "differences in the preferred methodology of knowledge transfer by the parties involved in the project; ranging from differences in national cultures, to organizational cultures to the languages used" (p. 176). Bhagat *et al.* (2002) also highlighted that knowledge transfer is very difficult among organizations which belong to dissimilar culture as compared to those which are located in similar culture. Knowledge transfer among subsidiaries of multi-national companies will be influenced significantly by their location along each of the cultural dimensions of national culture; thus knowledge transfer efforts will be more conducive in the cases where both acquirer and provider are culturally aligned (Lucas, 2006) and less successful in the cases where provider and recipient are from different national culture i.e. not culturally aligned (Chen *et al.*, 2010a, b). However, a contradictory finding was also given by the study of Fong Boh *et al.* (2013). Their study explored the factors that affect knowledge transfer from parent organization (Norway) to its subsidiaries (Vietnam) and concluded that there is little impact of cultural alignment (individualism, power distance) in transferring knowledge among them.

Culture has significant influence on various KM processes in the organization (Bock *et al.*, 2005; Chang and Lin, 2015; Fernandes, 2018; Goswami and Agrawal, 2020). According to

De Long and Fahey (2000), there are four mechanisms through which culture shapes KM; these are: (1) defining the style to manage knowledge, (2) defining the relationship between employees and organizational knowledge, (3) creating a context for social interaction that governs knowledge use and (4) creating processes for knowledge creation (Nugroho, 2018). Organizational culture plays a critical role in shaping organizational strategies (Dubey *et al.*, 2017). It is very important factor in sharing of knowledge and information in Industry 4.0 which focuses on developing intelligent products, processes and procedures (Belinski *et al.*, 2020). Multi-faceted dimensions of organizational culture such as job-oriented, professional-oriented, results-oriented, closed system and tightly controlled have significant impact on KM process in the organization (Chang and Lin, 2015). While job-oriented culture strengthens knowledge transfer, knowledge creation, knowledge storage and knowledge application, tightly controlled culture negatively influences these KM processes (Chang and Lin, 2015). Entrepreneurial culture provides strength to knowledge activities (Lai and Lee, 2007). Cultural norms play a critical role in the face-to-face social behaviours of people across countries (Gupta *et al.*, 2018). Knowledge sharing is enhanced by collaborative cultures (Nugroho, 2018). Knowledge sharing and knowledge creation are enriched in cultures which are open to external environment, new ideas (Kao *et al.*, 2011) and diversity (Fong Boh *et al.*, 2013). Knowledge transfer is significantly affected by organizational culture (Dubey *et al.*, 2019). According to competing values framework (CVF), an organization has any one or combination of four different types of culture, namely, clan, adhocracy, market and hierarchy (Cameron and Quinn, 2006). While clan and adhocracy cultures encourage employees to share their knowledge, market and hierarchy cultures hinder knowledge sharing (Suppiah and Singh Sandhu, 2011). According to Tseng (2010), hierarchical culture has impact on KM practices, and it is beneficial for KM implementation. It is appropriate for combination and externalization but not suitable for socialization and internalization processes of SECI model of knowledge creation (Tseng, 2010). While hierarchical culture, focussing on uniformity and efficacy, is more positively related to explicit knowledge-sharing; group culture, focussing on belonging and trust is more positively related to tacit knowledge sharing (Shao *et al.*, 2015). A manager's ability of processing information is affected by organizational culture (Dubey *et al.*, 2017). Organizational culture is a key factor to influence information technology systems adoption (Dubey *et al.*, 2019). An organization can adopt information systems more easily when the values rooted in the system suit its organizational culture (Dubey *et al.*, 2017).

KM is closely related to innovative culture of the organization (Janiūnaitė and Petraitė, 2010). Henderson and Clark (1990) categorized technological innovation into four types, namely, incremental, architectural, modular and radical. Incremental innovation focuses on improvement in cost and performance of the product, architectural innovation focuses on change in architecture of the product, modular innovation focuses on change in concept of the product and radical innovation focuses on change in architecture as well as concept of the product (Kim *et al.*, 2019). These different types of innovation have an effect on KM in an organization. All four types of knowledge, coming out of four categories of technological innovations, i.e. incremental knowledge, architectural knowledge, modular knowledge and radical knowledge are significant for firm performance and sustainable competitive advantage. While architectural knowledge is more stable, radical knowledge makes some old knowledge obsolete (Henderson and Clark, 1990). In radical innovation, a number of new ways are developed as well as new technologies are learned and developed, and these things lead for new product development (Kim *et al.*, 2019), hence a lot of new knowledge is created in comparison with other types of technological innovation. In modular innovation, knowledge related to new core design concepts overturns the existing components-related knowledge (Magnusson *et al.*, 2003). Architectural innovation makes effective exploitation of accumulated knowledge of the organization (Han, 2017). Differentiation strategy leads to generate unique aspects of product, service or technology, whereas cost leadership strategy

leads to cost reduction (Porter, 1980). KM focussing on improving efficiency is linked with cost-leadership strategy (Greiner *et al.*, 2007). KM focussing on improving innovation is linked with differentiation strategy and encourages knowledge creation and knowledge exchange (Greiner *et al.*, 2007). Tacit knowledge is associated with differentiation strategy and explicit knowledge is associated with cost leadership strategy (Greiner *et al.*, 2007).

Knowledge sharing is shaped by organization structure (Ismail Al-Alawi *et al.*, 2007). While it flourishes with structures having fewer boundaries, it is obstructed by bureaucratic structures due to increased constraints on information flow due to many levels (Ismail Al-Alawi *et al.*, 2007). While flow of the knowledge is obstructed by centralization and formalization structure of the organization (Chen *et al.*, 2010a, b; Islam *et al.*, 2015), transfer of knowledge is supported by interpersonal communication facilitated by informal environment, decentralized decision-making, minimized hierarchies and minimized rules (Morand, 1995). The knowledge transfer is easier in a horizontal organization with flexible structure and less levels than a hierarchical organization with bureaucratic structure (Lie and Slocum, 1992). Vertical structure favours focussed knowledge acquisition, and horizontal structure favours opportunistic knowledge acquisition (Magnier-Wtanabe and Senoo, 2010). A combination of formal organizational structure and a non-hierarchical, self-organizing organizational structure results into enhancing of knowledge creation and knowledge sharing in the organization (Islam *et al.*, 2015; Nonaka and Takeuchi, 1995). Various studies conducted to examine linkage of KM process with various cultural attributes of national culture are synthesised in Table 3.

## Cultural interplay and future directions

National culture is significant in organizational context. The simultaneous existence of national culture(s) and organizational culture create a complex interaction among them, which can be termed as cultural interplay. An organization's internal environment is affected by cultural interplay among organizational culture, which has evolved and formed over a period, and by national culture(s) of its employees to which they belong. This results into creating a complex organizational cultural setting. Various studies have suggested that national culture of the place where the organization is situated has significant influence on organizational culture (Jung *et al.*, 2008). In multi-national companies, the national culture of host and home country may be different, and it is very difficult for the organization to follow the home country's national culture (Abdullah and Liang, 2013) because every employee of any nation has certain cultural identity (Masrek *et al.*, 2011). Broadly, based on employees, organizations may be grouped into two categories (1) organizations having all of its employees belonging to one national culture and (2) organization having employees belonging to more than one national cultures. Cultural interplay is more complex in the second case as compared to first one. Further, there are overlapping among organizational culture and national culture(s), which shows that these cultures cannot be segregated or compartmentalized completely, rather they are having similarities and interacting with each other.

The cultural interplay i.e. dynamic and complex interaction among employees belonging to different national cultures as well as between national culture(s) and organizational culture may have impact on KM process. Three examples of cultural interplay have been mentioned in Figures 3 and 4. Case "A" may be attributed to an organization having all of its employees belonging to, for examples, Japan, whereas Case "B" may be attributed to an organization having all of its employees belonging to, say, USA. As per Hofstede (1980) cultural dimensions framework, Japan was rated very high on collectivism, whereas USA was rated very high on individualism. Case "A" and Case "B" may have different impact on KM process because of different nature of their cultural interplay. Case "C" will have more complex cultural interplay, where an organization is having employees belonging to both Japan and US i.e. having both national cultures namely collectivism and individualism.

| Cultural attributes | Studies |
|---|---|
| Collectivism/ individualism | (1) Individualism/collectivism and KM process (Bhagat *et al.*, 2002) |
| | (2) Individualism/collectivism and knowledge sharing (Chow *et al.*, 2000) |
| | (3) Individualism/collectivism and knowledge sharing intention (Yu, 2014) |
| | (4) Individualism and KM (Ray, 2014) |
| | (5) Individualism and knowledge sharing attitude (Mohammed Fathi *et al.*, 2011) |
| | (6) Individualism and knowledge transfer (Fong Boh *et al.*, 2013) |
| | (7) Vertical individualism and knowledge sharing (Sandhu and Ching, 2014) |
| | (8) Collectivism and knowledge sharing (Qin *et al.*, 2011; Witherspoon *et al.*, 2013; Jiacheng *et al.*, 2010; Michailova and Hutchings, 2006) |
| | (9) Collectivism and knowledge sharing attitude (Arpaci and Baloğlu, 2016; Hwang and Kim, 2007) |
| | (10) Collectivism and knowledge creation capabilities (Wang *et al.*, 2011) |
| | (11) Horizontal/vertical collectivism and knowledge sharing (Sandhu and Ching, 2014) |
| | (12) Vertical collectivism and knowledge sharing (Michailova and Hutchings, 2006) |
| | (13) In-group collectivism and knowledge hiding (Issac and Baral, 2019) |
| Power distance | (1) Power distance and KM process (Jacks *et al.*, 2012) |
| | (2) Power distance and KM system acceptance (Lin, 2014) |
| | (3) Power distance and knowledge sharing (Ray, 2014) |
| | (4) Power distance and knowledge creation (Wang *et al.*, 2011; Ray, 2014) |
| | (5) Power distance and knowledge transfer (Qin *et al.*, 2011; Bhagat *et al.*, 2002; Fong Boh *et al.*, 2013) |
| | (6) Hierarchy and knowledge sharing (Ardichvili *et al.*, 2006; Mabey *et al.*, 2014) |
| | (7) Hierarchical and KM practices and KM implementation (Tseng, 2010) |
| Uncertainty avoidance | (1) Uncertainty avoidance and KM process (Jacks *et al.*, 2012) |
| | (2) Uncertainty avoidance and knowledge seeking and sharing (Ray, 2014) |
| | (3) Uncertainty avoidance and knowledge creation (Wang *et al.*, 2011) |
| | (4) Uncertainty avoidance and exploitative/explorative knowledge application (Magnier-Watanabe and Senoo, 2010) |
| Masculinity/ femininity | (1) Masculinity and knowledge sharing (Chiu *et al.*, 2018; Ford and Chan, 2003; Ray, 2014) |
| | (2) Masculinity and knowledge hoarding (Ray, 2014) |
| | (3) Masculinity and KM practices (Merono-Cerdan *et al.*, 2007) |
| | (4) Masculinity/Femininity and knowledge diffusion (Magnier-Watanabe and Senoo, 2010) |
| Long-term/short-term orientation | (1) Short term orientation and knowledge sharing and knowledge creation (Ray, 2014) |
| Miscellaneous | (1) Cultural values (regions, beliefs, religions, local and national management practices, work ethics) and KM process (Anantatmula, 2010) |
| | (2) Cultural values (values and shared norms) and knowledge ambiguity and knowledge stickiness (Simonin, 1999) |
| | (3) Cultural values (language, different thinking logic) and knowledge sharing (Li, 2010) |
| | (4) Cultural values (religious distance, social distance and education distance) and knowledge transfer (Malik, 2013) |
| | (5) Cultural complexity and knowledge sharing (Sackmann and Friesl, 2007) |
| | (6) Cultural distances and cross-cultural knowledge transfer (Qin *et al.*, 2011) |
| | (7) Chinese mianzi (face saving) culture and knowledge sharing (Liu *et al.*, 2019) |
| | (8) Cultural dimensions (job-oriented, professional-oriented, results-oriented, closed system and tightly controlled) and KM process (Chang and Lin, 2015) |
| | (9) Job-oriented culture and knowledge transfer, knowledge creation, knowledge storage and knowledge application (Chang and Lin, 2015) |
| | (10) Entrepreneurial culture and knowledge activities (Lai and Lee, 2007) |
| | (11) Collaborative cultures and Knowledge sharing (Nugroho, 2018) |
| | (12) Open culture and knowledge sharing and knowledge creation (Kao *et al.*, 2011) |

**Table 3.**
Summary of studies linking various cultural attributes and KM process

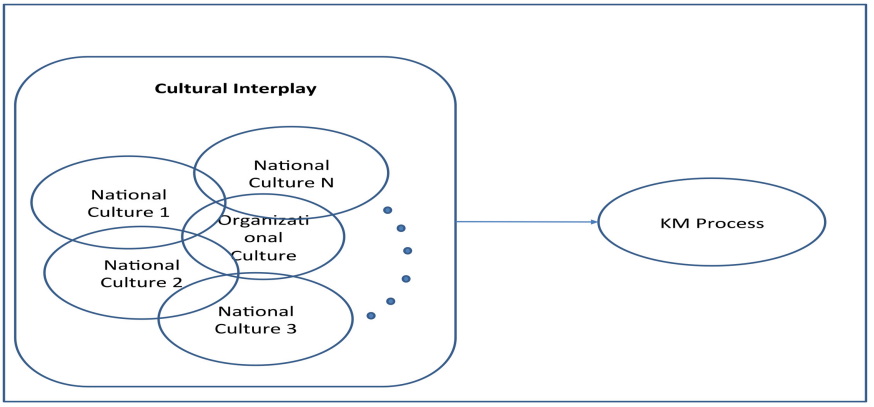


**Figure 3.**
Cultural interplay and KM process

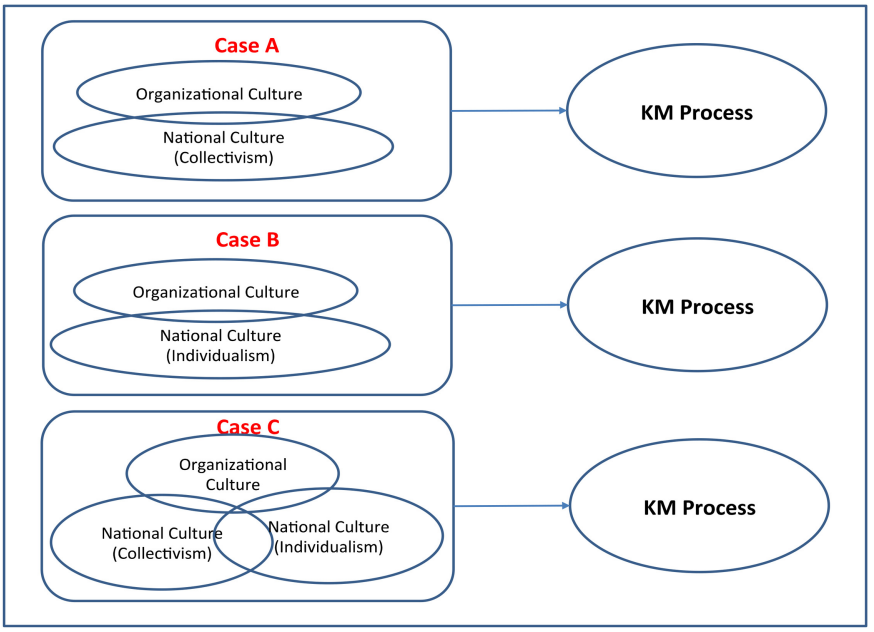


**Figure 4.**
Different cultural interplay; Case A: interplay of organizational culture and collectivism culture, Case B: interplay of organizational culture and individualism culture, Case C: interplay of organizational culture, individualism culture and collectivism culture

Cultural interplay will be even more complex for an organization having people belonging to many nations. If an organization has people belonging to Japan, USA and India, the situation will be even more complex in the sense that Japanese are high on collectivism but Americans are high on individualism. Indians are rated as collectivists (Hofstede, 1980) but found to be both individualist and collectivist, combined both types of intentions and behaviour according to a situation (Sinha *et al.*, 2001). India is high on power distance dimension (Chhokar, 2000) which implies the prevalence of relatively bureaucratic organizations, and relatively low uncertainty avoidance (Deshpande and Farley, 1999) whereas US is low on power distance dimension (Hofstede, 1980). Both Japanese and Indian selves are not

individualized but familial (Gupta, 1991). Indian self is familial communal or familial-jati self whereas Japanese self is familial group self (Roland, 1988). It means that a group is of more important in Japan as compare to India. Hence, Japanese and Indians working together or Americans and Indians working together will affect organization internal environment differently because of different national cultures and hence may affect KM process accordingly and in different manner. It means that cultural interplay may influence KM process significantly in an organization, and different cultural interplays may have a different impact on KM process. The exploration, understanding and investigating of this cultural interplay made by interaction of various national cultures, and then its impact on KM process, is an important research area for future researchers.

Different scholars have given different components of KM process such as knowledge sharing, knowledge creation, knowledge transfer, knowledge application, knowledge acquisition, knowledge dissemination, knowledge hoarding, knowledge governance, knowledge capturing etc. It is noted from literature survey that majority of studies have examined the impact of national culture on overall KM process, knowledge sharing and knowledge transfer, and very limited studies have been conducted with respect to knowledge creation. So, there is significant scope for future researchers to investigate and understand the effect of national culture on knowledge creation and various other understudied components of KM process.

It is also found that majority of the studies have used Hofstede's framework of national culture, and within this framework, long-term/short-term orientation dimension is less studied. Hence, there is need to give the attention to long-term/short-term dimension of national culture by future researchers. Further. future researchers should focus to use other frameworks of national culture (such as GLOBE framework, Trompenaars's framework, Schwartz's framework etc.) other than Hofstede's framework. The use of other cultural frameworks will help to provide further insights of the relationship between national culture and KM process and also will help to do triangulation of the already conducted studies.

It is noted that Hofstede's framework does grouping of nations based on their national culture, and each nation is at some level at the dimensions of national culture. This framework may be criticized for ignoring the fact that each nation may have various sub-cultures within it, and it may not be appropriate to label a nation with a single culture. A nation may differ in terms of cultures within itself as it may have different languages, traditions, religions etc., leading to the existence of various sub-cultures within it, which is in contrast to Hofstede's framework where a nation has been equated to a single culture. Exploring, understanding and investigating of these sub-cultures within a nation or a region and then analysing its impact on KM process is also an important area to be studied by future researchers.

These existing studies which investigated the effect of national culture on KM process have been conducted in various countries such as China (Chen *et al.*, 2010a, b; Zhu, 2004; Yu, 2014; Ardichvili *et al.*, 2006), USA (Zhu, 2004), Russia (Ardichvili *et al.*, 2006), Malaysia (Mohammed Fathi *et al.*, 2011; Sandhu and Ching, 2014), Norway (Fong Boh *et al.*, 2013), Brazil (Ardichvili *et al.*, 2006), Japan (Magnier-Watanabe and Senoo, 2010; Zhu, 2004) etc. Future studies may be conducted in other countries also for more broader understanding and generalization of the findings of these studies already undertaken. The future studies should also focus on (1) investigating the findings of these studies empirically in many other cultural and organizational contexts, (2) taking samples from different sectors and industries, (3) increasing the sample size and (4) using of more than one research method for the purpose of triangulation of the findings of these studies.

On methodological front, various methodologies have been adopted by researchers to examine the impact of national culture on KM process such as literature review, quantitative methodology, qualitative methodology, mixed methodology, meta-analysis, case studies and developing conceptual frameworks. However, literature suggests that

majority of the studies adopted the quantitative methodology (e.g. Sandhu and Ching, 2014; Jiacheng *et al.*, 2010; Malik, 2013; Magnier-Watanabe and Senoo, 2010; Wang *et al.*, 2011; Yu, 2014). This is followed by providing conceptual frameworks (e.g. Wei *et al.*, 2008; Lucas, 2006; Möller and Svahn, 2004; Qin *et al.*, 2011), mixed methodology (e.g. Chow *et al.*, 2000; Flores *et al.*, 2014; Zhang *et al.*, 2014) and qualitative methodology (e.g. Ardichvili *et al.*, 2006; Mabey *et al.*, 2014). A very limited number of studies have used case study approach (e.g. Mohammed Fathi *et al.*, 2011; Chen *et al.*, 2010a, b) and meta-analysis approach (e.g. Jacks *et al.*, 2012).

## Discussion

This paper focussed on examining the relationship of national culture with KM process based on literature review methodology. National culture significantly influences KM process (Magnier-Watanabe and Senoo, 2010; Ang and Massingham, 2007), KM implementation and KM strategy (Merono-Cerdan *et al.*, 2007). It acts as an obstacle to effective KM (Jacks *et al.*, 2012) and information exchange (Cui *et al.*, 2019). Individualism/collectivism is the most investigated dimension of national culture (e.g. Bhagat *et al.*, 2002; Chow *et al.*, 2000; Yu, 2014; Ray, 2014; Mohammed Fathi *et al.*, 2011; Fong Boh *et al.*, 2013; Sandhu and Ching, 2014; Qin *et al.*, 2011; Witherspoon *et al.*, 2013; Jiacheng *et al.*, 2010; Michailova and Hutchings, 2006; Arpaci and Baloğlu, 2016; Hwang and Kim, 2007) followed by power distance (e.g. Jacks *et al.*, 2012; Lin, 2014; Ray, 2014; Wang *et al.*, 2011; Ray, 2014; Qin *et al.*, 2011; Bhagat *et al.*, 2002; Fong Boh *et al.*, 2013) in the context of KM. While individualism was found to have no significant effect (Mohammed Fathi *et al.*, 2011) or negative effect on knowledge sharing (Sandhu and Ching, 2014) and barrier to KM (Ray, 2014), collectivism was found to have positive impact on knowledge-sharing behaviour (Sandhu and Ching, 2014; Michailova and Hutchings, 2006; Qin *et al.*, 2011; Witherspoon *et al.*, 2013; Jiacheng *et al.*, 2010), knowledge-sharing attitude (Arpaci and Baloğlu, 2016; Hwang and Kim, 2007) and knowledge creation capabilities (Wang *et al.*, 2011). Power distance has significant impact on KM process (Jacks *et al.*, 2012; Ardichvili *et al.*, 2006; Wang *et al.*, 2011; Mabey *et al.*, 2014), KM practices, KM implementation (Tseng, 2010) and KM system acceptance (Lin, 2014). It negatively influences knowledge sharing, knowledge creation (Ray, 2014) and knowledge transfer (Qin *et al.*, 2011; Bhagat *et al.*, 2002). However, Shao *et al.* (2015) concluded that a hierarchical culture characterised by uniformity and efficacy enhances sharing of explicit knowledge and group culture characterised by belonging and trust increases sharing of tacit knowledge.

Uncertainty avoidance dimension also significantly influences knowledge seeking, knowledge sharing (Ray, 2014), knowledge creation (Wang *et al.*, 2011) and exploitative as well as explorative knowledge application (Magnier-Watanabe and Senoo, 2010). Masculinity dimension of national culture triggers knowledge hoarding (Ray, 2014), decreases knowledge sharing (Ford and Chan, 2003) but strengthens positively prescribed knowledge diffusion (Magnier-Watanabe and Senoo, 2010). Long-term/short-term dimension is the less investigated dimension of national culture with respect to KM. KM is affected by various cultural values in terms of regions, beliefs, religions, local and national management practices, work ethics (Anantatmula, 2010), values, shared norms (Simonin, 1999), language, different thinking logic (Li, 2010), social distance, education distance, industrial distance and national language (Malik, 2013). While differences in values and shared norms result into knowledge ambiguity and knowledge stickiness (Simonin, 1999), cultural distances hinder cross-cultural knowledge transfer (Qin *et al.*, 2011) and cultural alignment strengthens cross-cultural knowledge transfer (Lucas, 2006). KM process is strengthened by entrepreneurial culture (Lai and Lee, 2007), collaborative culture (Nugroho, 2018), open culture (Kao *et al.*, 2011), innovative culture (Janiūnaitė and Petraitė, 2010) and job-oriented culture (Chang and Lin, 2015).

## Conclusion

This paper highlights the significance of national culture in influencing KM process, synthesises the findings of existing studies and then provides the future directions. This paper will contribute in many ways. The findings will help top management to understand and appreciate the impact of national culture on KM process in organization, where people from different nations are working together. This understanding will facilitate effective people management. The management may apply appropriate organizational interventions to manage people of different national cultures in an effective manner and effective utilization of knowledge of the organization through KM process. This paper will help researchers to get comprehensive understanding of the influence of national culture on KM process and assist them in identifying research gap in this area. This paper will be considered as a quick reference and resource for anyone interested in this area. This study is entirely based on literature survey methodology of published research papers available. This study can be supplemented with empirical studies in this area. National culture affects KM process significantly, and it has been validated by various empirical studies conducted in various countries. There is further need to strengthen these findings by conducting more empirical studies by incorporating many other nations, more components of KM process and other national culture frameworks in these studies.

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