Concept and Analysis of Value Chain Dimensionality (VCD)

Noman Mahmood[1], Sarina Zainab Shirazi[2], and Sumra Fatima[3]

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Abstract

The COVID-19 pandemic has exposed vulnerabilities in hybrid business models, particularly within value chains, disrupting organizations' ability to create and deliver value effectively. Traditional and contemporary approaches to value chains have often overlooked their deeper, complex aspects. This study advocates for a deeper exploration of value chains, focusing on their underlying parameters and operational dimensions. The goal is to develop a conceptual framework that supports adaptable and resilient value chains. Using a conceptual review methodology, this research examines the literature to identify and analyze the underlying parameters of value chains. These parameters are dimensionally aligned with components of intellectual capital theory to map value chain characteristics. The resulting theoretical framework and dimensional matrix enhance understanding of value chain efficiency, proficiency, and quality. This insight will help academicians, researchers, and practitioners improve backend processes that boost the quality of front-end offerings, fostering innovativeness and higher standards in value chain management.

Keywords: Value Chain Dimensionality, Value Chain Offering Quality, COVID-19 and Organizational Performance, Perceptual Mapping.

Introduction

Value chain is one of the concepts that encompasses various ideas and domains such as marketing, management, entrepreneurship, and innovation (Walters & Rainbird, 2004; Tanner & Raymond, 2010; De Silva, 2011; Joglekar, 2013). Due to this, challenges pertaining to the value chain may hamper many ideas and concepts it encompasses. Value chain as a concept was proposed by Porter to provide an understanding of how product value (good or service) is delivered from its conception to final disposal after customer use (Porter, 1985; Zamora, 2016). It is because of such a wide range of involvement at various levels that the value chain possesses the quality to touch upon various domains and ideas. From a layman's point of view, a value chain is a set of activities that are based on a basic understanding of inputs, processes, and outputs that an organization undertakes to deliver a valuable product – good or service (Porter, 1985). Through value chain analysis, companies can understand the competitiveness of the value chain and improve upon it to have a strategic balance between cost, expense, and profits (Barnes, 2002). However, due to COVID-19, work-life balance, especially professionally, has been drastically affected in a fast-

[1] *Deputy Director, QEC, Coordinator/Lecturer, Business Management at Millennium Institute of Technology and Entrepreneurship (MiTE); Email: nomanxmahmood@gmail.com*
[2] *Head of Department (HoD), Business Management and Social Sciences at The Millennium Universal College (TMUC), Pakistan*
[3] *Senior Property Associate at Aeon & Trisl Real Estate Pvt. Limited.*

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forward direction with the advancement and necessitation of a coordinated, dynamic, and digital operating environment (Koskinen, 2020; Shahabi et al., 2020; Beaunoyer & Guitton, 2020).

One of the concepts that show vulnerability and susceptibility is the concept of the value chain (Linkov et al., 2020; Morton, 2020). It is now moving beyond "Porter's" basic operational understanding of a set of activities based on inputs, processes, and outputs and may not be addressed by both the current and traditional value chain analysis (Tang et al., 2003; Dahl & Haug, 2020). To develop resilience in the value chain, the emerging nature of the value chain must shift its focus primarily over the dimensional nature and underlying design (Partners, 2013). It must be noted that value chains lacking resilience may collapse, whereas value chains having resilience may overcome shocks and stresses (Linkov et al., 2020). They suggest that there is a need to understand the underlying parameters that act as the determinants of inherent value chain mechanisms so that an understanding of compartmentalized dimensions catering to the respective underlying parameters can be addressed to help organizations develop a resilient value chain. Despite having a basic understanding of the problem, the core cause of the problems existing within the supply chain is the complex connectivity of the value components and how the value components work to create and deliver value (Piboonrungroj et al., 2017). Despite this, most researchers have lacked an understanding of the essence of the issue and have focused on conducting research on the workings of the value chain rather than the underlying dimensions that affect the working of the entire value chain. Therefore, several aspects and related questions remain unanswered. What are the underlying parameters or the theoretical underpinnings of the nature of the value chain? Under what dimensions of the value chain do they operate? What is the conceptual understanding or framework of the value chain based on these parameters and dimensions? These questions are related to the present research so that an understanding of the underlying nature of the value chain can be developed.

Methodology to Extract the Nature of Value Chain

The chapter will address the concept review of value chain dimensionality in the following manner: To master something, its nature must be known (Mandeville, 1960). Therefore, to cope with the challenges pertaining to the value chain, its nature must be extracted. To understand the nature of something, its propositions must be understood (Moravcsik, 1975). Since propositions can also be taken as definitions, therefore the nature of the value chain can be traced through its definitions (Fawcett, 2011). Once the nature of the value chain is extracted through its definitions, a structure can be built over it (McLerran, 2006). In order to fulfil the objective of this chapter, a certain type of concept review is attempted, as applied in a particular way by Wang et al. (2004); Murschetz, (2005); Dostilio, et al., (2012); Cavaco and Machado, (2014); Shek et al. (2015); Shi et al. (2018) and other researchers that followed a similar pattern but by different terms such as, phenomenon conceptualization by Morris and Sexton (1996), conceptual analysis by Meyer et al. (2004), distributive perspective through conceptual framework by Spillane, (2004), conceptual review by Fernández and Bonillo (2006), concept-based review by Carter and Goldstein, (2014) and Shrivastava et al. (2015) and theoretical framework and conceptual analysis by Tamayo et al. (2015) and Houwer (2020) respectively, to explore the conceptual understanding of value chain by addressing the underlying nature of the inherent mechanism of value chain through; (a) extraction of the underlying parameters through the differences between traditional and current definitional view of value chain (b) compartmentalizing characteristics of the value chain with respect to intellectual capital components (c) mapping the underlying parameters on the

compartmentalized characteristics of the value chain to establish dimensions of value chain (d) building higher order conceptual structure based on the dimensions of value chain.

Traditional View of Value Chain

Porter (1985) used the concept of value chain as an examination tool to analyze certain business activities, which later turned into a deep concept. This examination tool was termed a value chain analysis (Purnomo et al., 2009) to capture value chain theory (Kirli & Gümüş, 2011; Mohammed et al., 2009; Hainzer et al., 2019). It turned into one of the most competitively required concepts within both marketing and managerial fields to understand the industrial complex. Traditionally, the value chain concept was developed as a simple set of input and output activities performed for product delivery. This traditional understanding was typically defined as the systematic approach to achieving competitive advantage (Purbasari et al., 2017) through a range of activities that fulfill the delivery of the product from its conception to its existence in the end market (Beermann et al., 2015). To further the definition and comprehensively define the traditional understanding of the value chain, it could be understood as the complex range of activities performed to bring a product from conception to production, through various phases with different actors in the entire chain of value involved in the generation of maximization of value (Ross & Bryceson, 2019). This provided a sequential conceptualization of the value chain that suggested that it is a set of activities performed by certain actors sequentially to achieve competitive advantage in the market despite the primary orientation of the value chain as strategic and emergent (Mathews, 2006; Van Gorp, 2018) but the managerial aspect to decision making and working never supported the strategic orientation of value chain (Dietz & Mulder, 1996)

Current View of Value Chain

However, later, when the mass understanding of business grew, and the dynamic shift started occurring due to advancements in information technology and diversity in knowledge management, the understanding of the value chain was also impacted. The value chain no longer remained a static set of activities but rather a complex set of interactive components. It was suggested that the compartmentalization of business activities could not be contained. This can be seen in the developing definition of the value chain, which defines it as the creation and delivery of value through a strategic breakdown of business activities (Straková et al., 2020) (Asadollahi-Yazdi et al., 2020). This view of the value chain was also highlighted previously in the literature that comprehensively defined it as a set of activities broadly taken as strategic disaggregated and institutionally arranged different sets of business activities based on inter-related relevance that is separated by time and space but gradually added value (Berndt, 2003; Bekele et al., 2008). This provided an understanding that the value chain is not a composition of activities that are independent or disconnected but rather a set of interdependent activities with strategic linkages (Rahmiati et al., 2020), which also pertains to the view that the value chain is a certain kind of modality, in which a collaborative relationship between strategically divided business units and customers must exist for value satisfaction (Pessima & Dietz, 2019; Mizobe, 2019). This integrated modernity portrays that the value chain is not just a set of activities but rather a complex set of strategically aligned processes, with each involved in providing value-additions to the customers (da Silva, 2016; Timbang, 2019; Shin & Park, 2019; Yobo et al., 2020).

Difference Between the Traditional and Modern View of the Value Chain

The basic difference in the understanding of the shift in the conceptualizations of the value chain has been between a set of activities sequentially aligned, as understood traditionally, and the breakdown of activities strategically aligned, as understood currently, which suggests that there is an underlying mechanism of certain factors that facilitates the transition of value chain, which apparently the concept of value chain does not entertain. Therefore, this underlying transitional state needs to be taken into consideration (Walters & Lancaster, 2000; Van, 2017; Rong, 2009). Previously, the concept of a value chain lacked cohesiveness since the activities existed to provide value to the customers. Currently, the concept of a value chain can be seen as having cohesion, as the activities are conceptualized as a mixture of different parts that combine to perform a larger set of activities to provide value (Boddepalli & Modi, 2020; Hariharan, 2020). Another difference between the traditional and current views of the value chain is the integration or involvement of information technology, such as online mediums, which decreases the spatiality (physicality) of the value chain and increases the non-spatiality (virtuality) of the value chain. This particular understanding of the development of the value chain is also similar to one of the entrepreneurial conceptualizations of the development of business value, which suggests that value is a processual creation by bringing together a unique set of resources to capture an opportunity (Morris & Sexton, 1996). This aspect of value provision also caters to the idea that there is an underlying mechanism for the value that develops through combinatorial and strategic working of different activities that go through a transitional state. The existence of this transitional mechanism provides a clear understanding that the value chain has causal linkages inherent in the process of value creation (Kenon & Palsole, 2019). These inherent can also be understood as natural dispositions with causal factors upon which the value chain operates its activities.

Extracted Underlying Parameters

This suggests that the value chain has some natural disposition with inherent causal working. This inherent mechanism can be defined as the dynamic underlying nature of the value chain, primarily based on the given understanding that there is a set of broken-down yet packaged together activities, with each package of activities having a strategic objective in its fulfillment. This highlights that certain aspects of the value chain are independent of each other. Certain aspects of the value chain are inter-dependent on each other, with certain aspects fixated, with a lower tendency to change or adjust, and certain aspects decoupled with a higher tendency to change or adjust, and with each aspect, whether independent, interdependent, fixated and decoupled, having relevant actors to facilitate the entire value chain. The aspects provide the idea that this underlying nature with the inherent causal mechanism of the value chain is a mixture of parameters such as independent and interdependent, dynamic and standard, fixated and flexible, linear and non-linear, and omnidirectional characteristics (Hamilton, 2004; Pakulska, 2016). However, there needs to be more clarity on the operational dimensions of the underlying mechanism of parameters such as independent and interdependent, dynamic and standard, fixated and flexible, linear and non-, linear and omnidirectional, upon which the concept of the value chain can be clearly factorized. Suggesting that there needs to be more clarity ty as to what aspects are dependent, what aspects are independent, what aspects are fixated, what pets are decoupled or flexible, what aspects are dynamic, and how these aspects capture different value sets.

Even though the quality aspects of the underlying nature were extracted by finding the difference between the conceptualization of traditional and current views of the value chain, it needs to be made clear in which dimensional compartments these quality parameters operate. Even though the

quality parameters do highlight the dynamic nature of the value chain, they do not clearly establish the operational sides through which these parameters impact certain factors of the value chain. Therefore, it is assumed that these strategically aligned packaged activities with relevant actors can be mapped with the understanding of intellectual capital, also known as the cycle of intellectual value that provides additional value with competitive advantages (Vlasenko & Vasylenko, 2015). *Intellectual capital* is primarily defined as the most important knowledge-based and experience-based assets, resources, understanding, and mainly a perceptual view, in the form of customers, employees, and processes, which the organization can use in its value creation processes to achieve competitive advantage (Almutirat, 2020; Hall et al., 2020; Wiratama & Prasetyo, 2020). In explanatory words, *intellectual capital* can also be defined as knowledge possession with applied experience and professional skills to develop customer relationships through the usage of organizational technology (Cancino & Cancino, 2020).

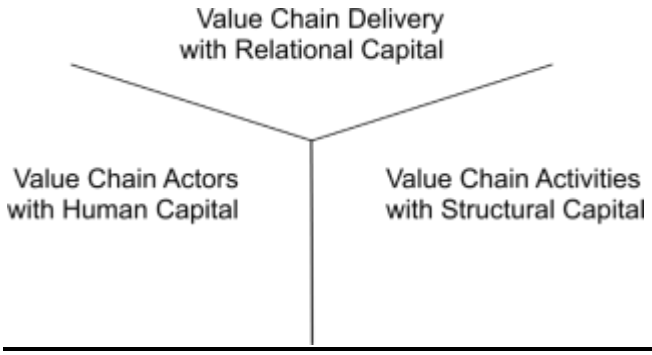
Since intellectual capital also serves in forming value for the end user through the application of knowledge and experience (Ranani & Bijani, 2014), therefore intellectual capital can facilitate understanding the dimensional aspects of the underlying nature to better develop a value chain to cope with challenges. One of the most challenging tasks of understanding the nature of the value chain is to compartmentalize its dimensions and build upon it. The extracted aspects of the value chain that are dynamic, systematic, non-linear, flexible, and omnidirectional need to be allocated to develop the value chain better. Therefore, in this regard, intellectual capital can provide support in building the dimensional nature of the value chain. One of the other reasons for intellectual capital to provide directional support to the underlying nature of the value chain is because of the modern understanding of intellectual capital that is based on intricate configuration and consistent interaction of people, knowledge, competencies, and understanding of complex and dynamic online settings in creating value (Vătămănescu et al., 2018). Therefore, one of the reasons for taking intellectual capital to support the underlying nature of the value chain is because of the emphasized qualities of intellectual capital, which can serve as the patch-up to the challenges pertaining to the value chain, such as intellectual capital is collectively emphasized in the knowledge-based economy, information technology, changing patterns of interpersonal activities and social networking and the rise of innovation as the key player in competitiveness (Namasivayam & Denizci, 2006). With these qualities, intellectual capital lies parallel to the value chain but with well-defined dimensions; therefore, it can greatly complement the concept of the value chain. However, before discussing how value chain and intellectual capital can complement each other, the compartmentalization of how intellectual capital forms value through the three main components, that is, human (or professional) capital, structural (or organizational) capital, and relational (or customer) capital needs to be discussed (Petty & Guthrie, 2000), and then build a structure for the underlying parameters of value chain through aligning them with the dimensions of the intellectual capital.

Concept of Value Chain Dimensionality (VCD)

The discussed components of the value chain share proximity with the components of intellectual capital. Therefore, certain aspects of the value chain will first be aligned with the three main components of intellectual capital. The extracted underlying nature parameters will then be mapped on those dimensions with respect to each dimension. The aspect of actors that facilitate the activities of the value chain can be aligned with the human capital dimension of intellectual capital. The aspect of a connected set of activities can be aligned with the structural capital dimension of intellectual capital, and the aspect of providing value to customers can be aligned

with the relational capital dimension of intellectual capital that also seeks to perform a similar task for the customers. Therefore, in order to build a comprehensive structure based on the inherent causal mechanism of the underlying parameters of the value chain with alignment to the three main components of the intellectual capital, it is important to briefly understand and then contextualize apparent characteristics of the value chain with the three fundamental components of intellectual capital.

Figure 1: Alignment of value chain characteristics with intellectual capital components



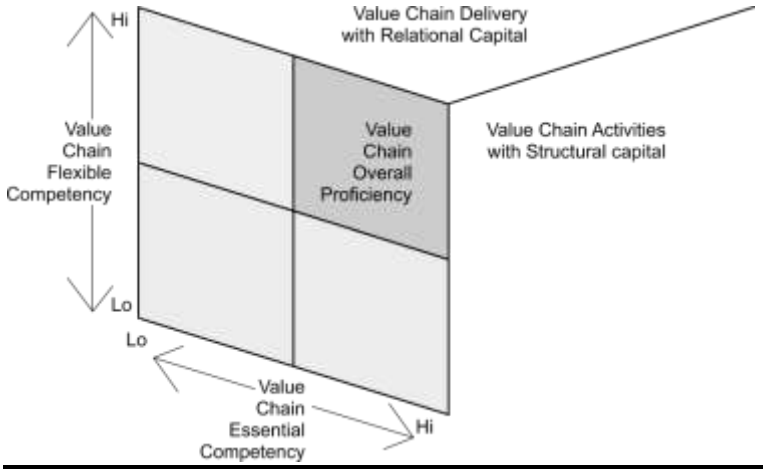
Theoretical Mapping

The most catalytic component of intellectual capital is the first component, that is, human capital, internal to the organization (Dakhli & De Clercq, 2004; Oshodi, 2009; Ejere, 2011; Oxyzoglou, 2020). It refers to the individual competencies in the respective organization (Hsu, 2008; Jardon & Gonzalez-Loureiro, 2013). Human capital not only means that it is an indication of the existing competencies of the employees in the organization but also that it can help develop the competencies of the employees in the organization. It includes know-how, experience, education, professional qualification, profession-related competencies, and other psychometric or cognitive capabilities (Namasivayam & Denizci, 2006). In other words, human capital is a collection of knowledge, talent, skills, and creativity that an individual as an employee, intrapreneur, or entrepreneur uses to create value (Kucharčíková, 2013). This is similar to employees or actors found in the work environment of the value chain, also called associates (Gurstein, 2011). These associates or actors are professionals who work to help perform a particular set of activities in the value chain. Their primary task is to continuously keep up with the functions and the operations of the organization with their communication, skills, and knowledge to deliver value (McAdam, 2001).

Since these associates or actors in the value chain use their skills and knowledge to produce value for the end users, they are taken as human capital, viewed as instrumental assets for the well-being of the organization in its value creation process (Stead, 2010). That is why entrepreneurs and employees engaged in the value chain should possess competencies such as management and planning, organizing and directing, and controlling and creating (Okafor et al., 2020). This particular understanding of value chain actors and human capital can be called value chain overall efficiency (VCOE). Since it is clear where the value chain actors fall theoretically, the underlying extracted parameters with respect to value chain actors can be identified. Human capital further expands itself into various factors. However, the two share proximity with the underlying extracted parameters of the value chain, which are flexibility and fixation. Both of the underlying quality parameters share a resemblance with one of the two concepts of human capital, that is, the flexible

component and cognitive component. This suggests that the underlying core actors are those employees who are high in their cognitive aspects and are essential to the value chain of the organization for their respective knowledge, skills, and talent. This particular understanding can be termed as value chain essential competency (VCEC). At the same time, the decoupled employees are those that constitute the flexible mechanism of the value chain. These are those employees who are either hired on a contractual basis or work as consultants to the value chain of the organization. These are mostly supportive actors who bring extra knowledge, skills, and direct expertise from the market that the essential competency team needs to improve. This particular understanding can be termed as value chain flexible competency (VCFC).

Figure 2: Theoretical mapping of underlying parameters on value chain actors with human capital based on coherent characteristics



Theoretical Mapping with Structural Capital

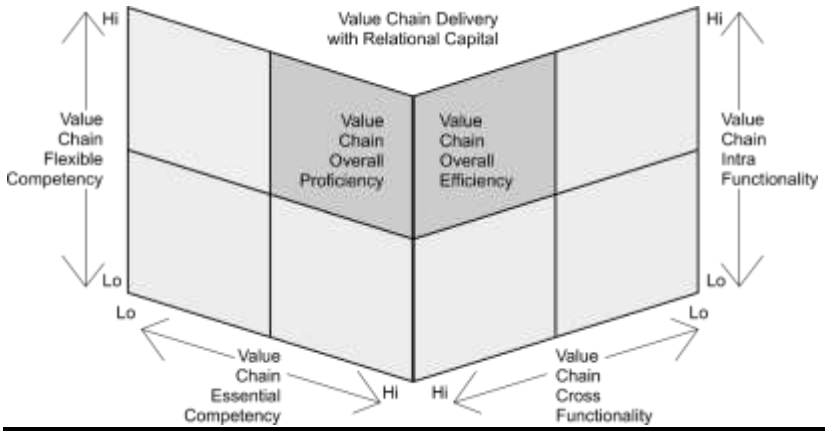
The second component, structural capital, refers to the embedded formal or informal instruments and routines of the organization that facilitate human capital in continuity (Martínez-Torres, 2006; Garnett et al., 2008). It suggests that structural capital acts as the medium for the employees or the associated workers in the setup to implement their experience, creativity, knowledge, skills, and talent. In simpler words, structural capital can also be referred to as procedural capital, covering functional and operational elements that remain even after the employees or the individuals working for an organization leave (Nourani et al., 2018; LaFayette et al., 2019). However, structural capital is apparently not highly obvious, but it is more specialized than the other two components of intellectual capital (Hejazi et al., 2016). Structural capital plays a key role in the mechanism of any organization because of its importance in internal and external communication with different stakeholders (Gogan et al., 2015). This is similar to the set of activities as understood in the value chain. These sets of activities are those sets of processes that make up the value chain. These are those activities that involve most of the aspects of the business, such as procurement, manufacturing, design, packaging, logistics, assembly, and delivery (Handfield et al., 1997). Similar to structural capital, these activities are combined and classified into a certain form of architecture or setting for it to operate and perform in a certain manner (Cruz & da Cruz, 2019). This structural capital for the set of activities placed in a value chain has also been termed value architecture, in which the perspective of the value chain is taken as an organization's value network

(Asikin et al., 2020). This suggests that the set of activities in a value chain has to be arranged in a specified way to produce outcomes desired by the organization.

Until these activities are not specified and arranged in a particular way, then the human capital and relational capital may fail to deliver their purpose as well. This theoretical adjustment can be termed Value Chain Overall Proficiency (VCOP). Since now it is clear where the value chain activities fall theoretically in terms of intellectual capital, the underlying extracted parameters with respect to value chain activities can be identified. The underlying parameters, such as inter-dependent and independent characteristics of the value chain, reflect the intra-functional and cross-functional characteristics of the structural capital. Intra-functional aspects of the value chain are those aspects in which the department of the business unit works intensively within their department to produce the required outcomes. This increases the competitiveness of the employees of the department within each other who work intensively to remain on top. This particular conceptual understanding can be termed Value Chain Intra-Functionality (VCIF).

Similarly, cross-functional aspects of the value chain are those aspects in which departments seek help or provide help to other departments to advance the objectives of the value chain. This is necessary because not all departments can do everything on their own and, therefore, understand the interdependent positioning of themselves for better overall performance of the value chain. This particular understanding can be termed as Value Chain Cross-Functionality (VCCF).

Figure 3: Theoretical mapping of underlying parameters on value chain actors and activities with human and structural capital based on coherent characteristics

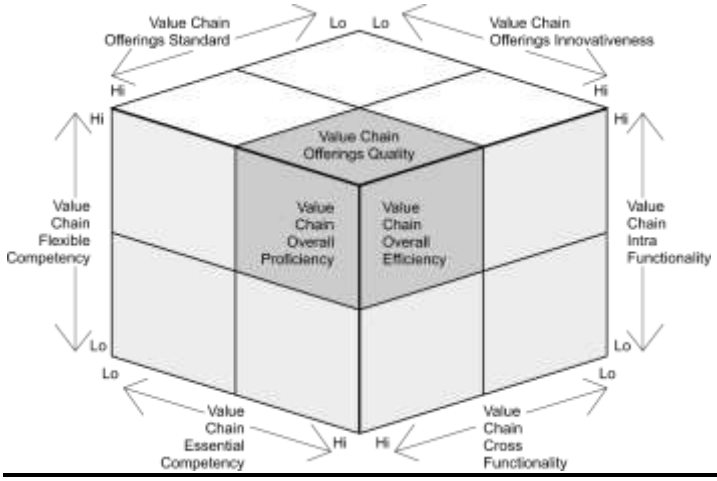


Theoretical Mapping with Relational Capital

The third component, relational capital, refers to organizational relationships with its environment, such as quality maintenance, market reputation, and customer satisfaction, all of which contribute to the competitive advantage in terms of how much the value has been captured (Cegarra-Navarro & Dewhurst, 2006). In simpler words, relational capital refers to the external relationships of the organization that it keeps outside of the organization, such as its suppliers, partners, and primarily its customers (Martini et al., 2016). Relational capital is a crucial component not only because it acts as the identifier of opportunities in the market but also as the result of all the hard work, efforts, and mechanisms that have taken place internally in the organization in the form of human capital and structural capital (Cabrita et al., 2017). Since relational capital is a form of external capital, it

is the measure of the performance of human and structural capital. Once the relational capital provides a positive outlook through its suppliers, partners, and, most importantly, its customers, then it could be assumed that the intellectual capital of the organization is at a quality standard. This is similar to the value fulfillment aspect of the value chain, for which all the actors and activities are performed in the backend to provide high-quality offerings as a front-end result to customers. Similar to relational capital, it is about external communication, which focuses on customer satisfaction, similar to the focus of the value chain, which is to value satisfaction through quality offerings. If the customers do not realize the quality of the offerings, then it means that value satisfaction has not occurred. The entire objective of value chain management is to coordinate the entire backend management process or the activities in which all the actors are involved in customer value satisfaction so that the customer satisfaction, which is relational capital, is maximized by providing quality products – goods or services (Walters & Lancaster, 2000; Aimin & Shunxi, 2011). This particular understanding can be termed as Value Chain Offerings Quality (VCOQ). However, there is a need to recognize certain types of parameters underlying the value chain to maximize customer satisfaction (Yaacob et al., 2019). Since it is now clear where the value chain delivery falls theoretically, the underlying extracted parameters with respect to value chain actors can be identified. The underlying parameters, such as activities that belong to the dynamism and keep up with standard characteristics of the value chain, reflect the innovativeness and delivery of standard characteristics of the relational capital (Tian et al., 2019; Onyango et al., 2019; Li et al., 2020; Hermawan et al., 2020; Mahmoud et al., 2020). The innovativeness of the offerings is one of the most demanded requirements of the customer as part of the value specifications. The innovativeness is normally reflected as novelty or differentiation in terms of the competitors or its previous versions. Customers may not compulsorily want innovativeness every time but may admire if the product – goods or services they acquire are innovative in comparison. This particular understanding can be termed Value Chain Offerings Innovativeness (VCOI). Similarly, customers demand high standards of the products – goods or services they acquire as a basic requirement or highly admired parameter. Customers consider the organization highly professional and responsible if its value chain is able to provide products with precision, finishing, and fit. This particular understanding can be termed as Value Chain Offerings Standard (VCOS).

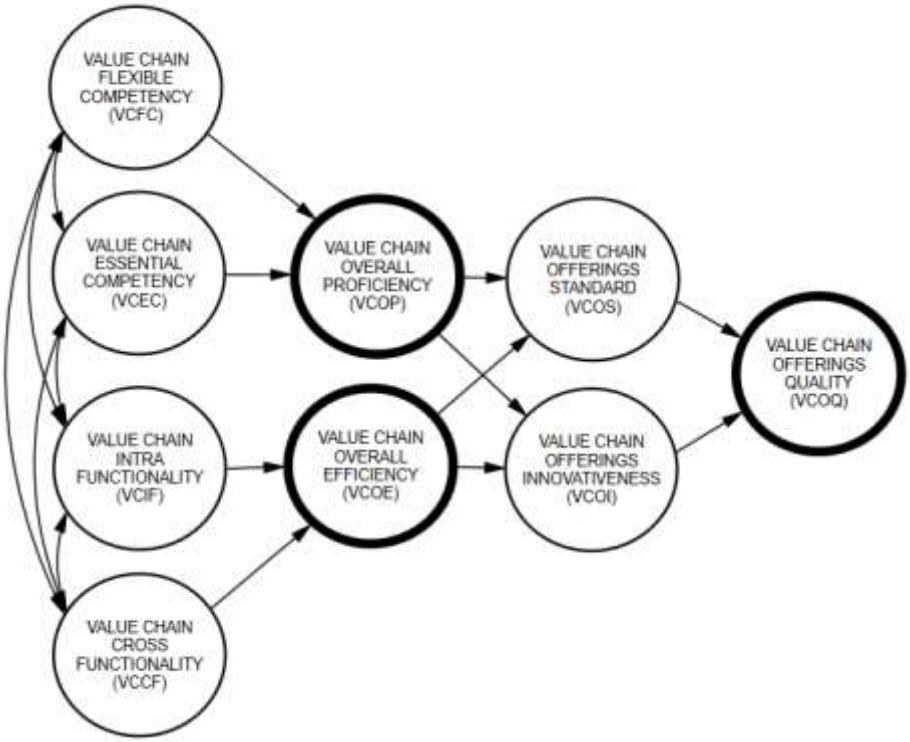
Figure 4: Value chain dimensionality: Complete theoretical mapping of underlying parameters on value chain actors, activities and delivery with human, structural and relational capital based on coherent characteristics



Conceptual Framework of Value Chain Dimensionality

In an attempt to conceptualize value chain dimensionality theoretical underpinnings, a conceptual framework must be extracted and discussed to provide an understanding on the causal relationships and overall mechanism of the underlying nature of value chain (Partners, 2013; Piboonrungroj et al., 2017). We propose that that the value chain dimensionality is based on a four-order hierarchical component model in which the first order suggests that the relationship of the value chain functional and value chain operational both contribute to the second order construct, value chain efficiency. Similarly, another set of first order constructs suggest that value chain essential and value chain flexible contribute to the second order construct, value chain proficiency. These second order constructs, then simultaneously contribute to third order constructs, that are value offering innovativeness and value offering standard. These third order constructs both then contribute to the fourth and last order construct, value captured.

Figure 5: Proposed conceptual framework based on conceptual understanding of value chain dimensionality



Value Chain Essential Competency and Flexible Competency

Value Chain Essential Competency (VCEC) corresponds to the fixed or internal cognitive elements of the organization in a value chain, in which individuals with the highest or relatively higher business or professional acumen are kept internal to the organization. They are also a dedicated part of the value chain, which the organization considers as their assets (Vătămănescu et al., 2018). On the other hand, value chain flexible competency (VCFC) corresponds to those non-internal or non-fixated elements of the organization in the value chain in which the professionals are outsourced or loosely contracted to provide services. These professionals are either relatively expensive for the organization or provide consultancy as they work for other organizations. They may also have lower business acumen or professional acumen so that the organization can keep part of the VCEC (Jardon & Gonzalez, 2013). However, both the types of professionals as part of the VCEC and VCFC are required to work together on professional assignments or projects to carry out professional tasks and contribute to Value Chain Overall Proficiency (VCOP). VCEC and VCFC can also work together as part of the joint strategy in which the members of the essential team can be provided flexibility to learn new skills and knowledge by sending them on foreign assignments or consultancy projects in terms of joint ventures or joint partnerships. Similarly, members of flexible teams can also be made part of the essential team in certain departments, whereas kept flexible in other departments (Okafor et al., 2020). Therefore, value chain essential competency and value chain flexible competency both contribute to the value chain's overall proficiency.

Value Chain Intra Functionality (VCIF) and Value Chain Cross Functionality (VCCF) Contribution

As discussed, value chain intra-functionality (VCIF) corresponds to the internal working or intra-dependent working of the departments or business units inside individual departments. Value chain cross-functionality (VCCF) corresponds to the interdependent or collaborative working of the departments of business units in the value chain with each other (McAdam, 2001; Nourani et al., 2018). Suppose the value chain is intra-functional and the value chain is cross-functional, both operating together simultaneously. In that case, that is the departments or business units work with each other, that is, interdepartmental or cross-functional units, and at the same time, the departments or business units work productively within their departments (LaFayette et al., 2019) then they would contribute to the value chain overall efficiency (VCOE). Departments working in silos or departments working in collaboration but with slow individual outputs can lag the progress of the value chain (Nourani et al., 2018). Therefore, for the efficient performance of the value chain, both the interdepartmental operational aspect and the intradepartmental functional aspect must work simultaneously to contribute to its efficiency. Therefore, both the intra-functional and cross-functional value chains contribute to the overall efficiency of the value chains.

Value Chain Overall Efficiency (VCOE) and Value Chain Overall Proficiency (VCOP) Contribution

Similarly, the overall efficiency and proficiency of the value chain both act towards the materialization of improving or keeping up with the standard of the offerings of the organization.

To improve the standard of the offerings of the organization, it is necessary to enhance the finishing and fit incrementally. This can be done if there is an efficient system and a proficient workforce to understand how important team collaboration and mental work are (Wiratama & Prasetyo, 2020). To improve upon the finishing and fit of the offerings, the departments or business units must work collectively and individually to refine the goods or services in the given time and resources. Similarly, the employees must apply their skills and knowledge to figure out current or alternative methods to enhance materials or replace materials and smartly apply solutions to improve the standard of the offerings (Koskinen, 2020; Dahl & Haug, 2020). The standard of the offerings is determined by how much accuracy, proficiency, and durability through efficiency is incorporated through the value chain into the offerings of the organization (Almutirat, 2020).

Value Chain Overall Efficiency (VCOE) and Value Chain Overall Proficiency (VCOP)

Value chain overall efficiency (VCHE) and value chain overall proficiency (VCHP) both act towards increasing the innovativeness of the offerings of the organization. VCHE is about how the business units or departments are able to produce the required offerings with minimum or existing resources (Joglekar, 2013; Hall et al., 2020). Whereas VCHP is about how the workers or employees working in the value chain are able to fulfill the requirements. Both VCHP and VCHE contribute to the innovativeness of the value chain offerings, with the right understanding of resources through VCHP and with the right utilization of resources through VCHE. For the offering to be novel or unique, the coherent working of VCHP and VCHE is required in terms of creativity out of the existing resources (Piboonrungroj et al., 2017; Linkov et al., 2020). For the offering to be innovative, it has to be something that is out of the box, therefore the proficiency of the employees through research and development, acquiring new knowledge about the new gaps and then simultaneously implementing those solutions with the current resources, or even strategizing to acquire further resources and improving teamwork for better synergy is required to

increase innovativeness of the offering, or implement innovative solutions. Therefore, overall efficiency and proficiency in the value chain contribute to the value chain offering innovativeness to the organization (Beaunoyer & Guitton, 2020).

Value Chain Offerings Innovativeness (VCOI) and Value Chain Offerings Standard (VCOS)
Value chain offering innovativeness (VCOI) and value chain offering standard (VCOS) are both major contributors to the overall quality of the value chain offering. The quality of the offering by the respective value chain of the organization is determined by how innovative the product is and at what standard the product is built. The innovativeness of the product is reflected by how novel, unique, or differentiated the product is in comparison to the competitors. Similarly, the standard of the product or offerings is reflected by the finish, fit, or durability of the product (Beaunoyer & Guitton, 2020). Both innovativeness and standard of the offerings, contributors to the quality of the offerings, portray how much the organization takes its customers and its fulfillment under consideration. The quality of the value is a result of the entire performance of the value chain at the back end. Since quality is the composition of innovativeness and standard, or in simpler words, quality of the offering is the mixture of the level of uniqueness and the finishing of the product, whether good or service, which means that the build of the product must also reflect the proficiency and the efficiency of the organization (Morris & Sexton, 1996; Kenon & Palsole, 2019). Therefore, the innovativeness and standard of value chain offerings contribute to their quality.

Conclusion

As the value chain has been mostly practiced at the surface level, as Porter has shown, an in-depth understanding of the value chain is needed, as well as a dimensional understanding of the surface-level characteristics of the value chain. This lack was found in both the traditional and current view of the value chain, despite the fact that they did address the sequential and strategic aspects but still need to address the inherent causal mechanism that can help organizations in developing resilient value chains. However, through examination of the literature of both traditional and current views of value chains, it was found that certain underlying parameters exist within the value chain. However, they needed more identification and operational dimensions for organizations to work on mainly because the surface-level characteristics of the value chain itself lacked compartmentalization (Piboonrungroj et al., 2017). Therefore, the characteristics of the value chain were compartmentalized into dimensions through the components of intellectual capital theory. Then, the underlying parameters of the value chain were mapped. Doing so provided a clear theoretical understanding and a conceptual framework of the value chain dimensionality covering resultant concepts like value chain overall efficiency, value chain overall proficiency, and value chain offering quality for organizations to build resilient value chain structures addressing current challenges (Joglekar, 2013; Mahmoud et al., 2020). Through this conceptualization, academicians, researchers, and practitioners will now have the understanding of efficient and proficient back-end value chain processes through competent essential and flexible workforce and intra and cross-functional business units and departments that can contribute to their front-end quality value offerings with innovativeness and high standards (Vlasenko & Vasylenko, 2015; Yaacob et al., 2019).

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