

# Hollow Organisations as Dominant Modes of Organizing in Vuca World - Governing Philosophy, Operating Logic, Applications and Risk of Such Organizations



**Anubha Shekhar Sinha**  
(Indian Institute of Management)  
(anubhashekhar@iimk.ac.in)

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*Hollow organizations are organizations that outsource their daily business operations and have only a few resources on hand. A few key personnel or brokers manage the most critical areas of the businesses with resources tending to zero. This allows such organizations to respond to market changes of VUCA world faster, have an open network to govern production of goods and services and be united by a shared purpose in the network. Semi permanence of unified or distributed broker roles, which could be machines and/or men, is a limiting condition for hollow organizations. We propose the governing philosophy, operating logic, application and risks in such organizations in this paper.*

**Keywords:** Hollow Organizations, Virtual Organizations, Market, Network, Artificial Intelligence, VUCA World.

## 1. Introduction

Today's VUCA world (volatile, uncertain, complex and ambiguous world as it is often called), which is opening its eyes in Industry 4.0, has put forth the need for some fundamental change in human organising; hence, it becomes imperative to explore the possibilities of existence of alternate forms of organizations under such conditions (Hilyar, 2020; Khan, Khan, Khan, Ilyas, 2022; O'Neill, Maynard, Gilson, Hughes & Easton, 2023; Handke, Aldana, Costa, & O'Neill 2024). Therefore, conceptualising the limitations of human organising might be an important avenue to explore, today (Handke, Costa & Feitosa, 2024; Cram & Newell, 2016; Purnanova & Kenda, 2022). In line, in this paper we ask the research question - how would humans organize their activities in the fourth industrial revolution? Would organizing shift fundamentally in some way that epistemology on organizational forms can predict? Would it take human organizing to a significant departure from markets and/or hierarchies as dominant methods of human organizing?

One such organizational form that is the coming of age is a hollow organisation. The term "hollow organization" is derived from not so well-defined literature and was coined and explained by Jonas Norman in Business Week in 1986 (Handke,

Costa & Feitosa, 2024). It was a lament piece on American manufacturing that opined that US manufacturers were increasingly shifting output to foreign countries and outsourcing or “hollowing out”. These companies were becoming service-oriented corporations with no production base (Alsaqaf, Daneva & Wieringa, 2019). Norman stated that in the long term, this trend would hurt the American economy as the industrial sector traditionally had led the growth of USA in the Industry 1.0 and thereafter put USA on the pinnacle of prosperity in the industry 2.0. In progression, Industry 3.0 was an information age that rode on the advent of internet revolution. With the technological advancement on the front of telecommunication and information technology, it was made possible for corporations to produce in any part of the world, where production was cheaper, and then utilize telecommunication and information technology to integrate global supply chains of production (Holcomb & Hitt, 2007; Ali, Khalid, Shahzad & Larimo, 2021, Tschang, 2007). Industry 3.0 started the hollowing out of big corporations, wherein, the corporations outsourced not only production and related activities but also research and development activities to lesser costly places with lesser regulations. Advent of artificial intelligence, internet of things coupled with advanced genetic engineering, which are the hallmark of Industry 4.0, would make it possible that productions of goods and services are modularized and further spaced out – would these changes on horizons turn some of the most hierarchical organizations of today’s world into hollow organizations? Although outsourcing made firms more flexible in the short term in Industry 3.0, would it hasten the hollowing out process in Industry 4.0?

Lasting prosperity requires investments in resources, innovation, and productivity. Organization theorists are concerned that hollow corporations will be devoid of such investments. Hence, hollow organization is not seen in a good light from a strategic point of view for traditional organizations. However, there has not been so much work on hollow organisation as an organizational form in the extant literature. Though its conceptualisation has been there in literature under various identities as a type of network organisation or as an offshoot of virtual organisation - hollow organizations have not been seen as a separate organizational form in the extant literature (Grabowski, Lehmann-Willenbrock, Rings, Blanchard, & Steinecke, 2024). We can see its premature form in virtual organisations, web organisations, virtual B-Schools (Byrne, 1997) and open-source projects (Markus M Lynne, Brook Manville, Carole E Agres, 2000) at the start of the decade after the millennium. For example, online courses, both from industry as well as from academia, are prevalent in the market today. It is visible in practice, but literature is falling behind in capturing the phenomenon of growth of hollow organizations. Can hollow organizations develop as a more dominant organizational form in the industry 4.0? We define a hollow organisation on Byrne’s (1993) definition of virtual organisation in this paper. “A hollow organisation is a form of virtual organisation devoid of any resources”. Can such an organisation exist? What are the conditions facilitating growth of such an organisation? Can they become one of the most prevalent forms blurring the boundaries of market and hierarchies altogether, in the coming years? Where shall such organisation exist and what are the risks entailed in them? And so on. These are some of the questions that we try to ask in this paper.

Commerce and businesses of today are coming to realize that keeping a bigger part of the value chain of the business, and hence the assets and resources, thereof, within

the boundaries of the firm is going to be less efficient way to do business as well as less effective for business goals. Barnard (1958) proposed two reasons for survival of any organizational form viz. effectiveness and efficiency. So, are the large vertically integrated firms slated to lose out to nimbler virtual and then to hollow organizations in the future? Will future businesses be more asset light and people light? This is the theoretical angle that this paper is trying to explore. Like Jonas Norman questioned the hollowing out process of American manufacturing firms, in the face of outsourcing from countries of cheap labor, there is this question which has spread far and wide and is engulfing the whole of business world. Businesses will never be the same again, once, hollowing out spreads to such a degree that centralized mass production, and its centralized bureaucratic administration will become a thing of the past. We posit that we will be seeing an age of hollow organizations.

This paper is an attempt to use the existing theories of firm and assess the theoretical viability and continuance of hollow organisations, whose premature forms is already existing and thriving in real world in the form of web-based social network organisation, open-source projects, virtual B-schools and big corporations existing with very little resources. As defined here, hollow organisations are virtual organisations with resources tending to zero. Although, such literature on virtual organisations exists, it is very thin. The approach we undertake in this paper is that all propositions in this article first talks about virtual organisation, due to existence of a body of literature about them. Then, they are taken further to hollow organisation, where resources tend to zero. In its treatment of hollow organisation, this paper assumes hollow organisation is an outgrowth of virtual organization.

## **2. Literature Review: Hollow Organization in the Business Management Literature**

In business management literature, practice precedes literature. Much after giant organisations came into existence, did theory move from a perfect market and pure monopoly literature of neoclassical economics to game theoretic understanding of oligopoly and hierarchical organizations; this movement was necessary to explain why organisations would have helped replace market transactions. Likewise in the last couple of decades, a spate of new forms is emanating from markets and traditional organisations. Literature has been slow till date in tracking these forms and being futuristic in approach. Though some fringe and marginal literature on these forms are seen and research on these has been encouraged (Davidow/Malone 1992; Daft, Lewin, 1993; Byrne 1993; Mowshowitz 1994; D'Aveni, Ilinitch, Lewin, 1996; Handy, 1995; Dijksterhuis, Van den Bosch, Volberda, 1999; Miles and Snow, 1984). Literature has continuously talked about demanding customer, dynamic environment, need for strategic flexibility, global workplace and so on, and warned that central and hierarchical organisational forms may not be capable of meeting these competitive requirements (Cravens et al, 1996; Fitzpatrik and Burke, 2000; Achrol, 1991; John W. Crawford Jr., Steven L. Krahn, 1998; Daft, 1991, 1993, 1994; Christie & Levary, 1998; Miles and Snow, 1986; Peter F Drucker, 1988). Neoclassical economists and organization theorists prefer to view world of business transactions under a dichotomy lens of markets and hierarchy, where market economy has intermittent nodes of organisational economy. However, according to

Herbert Simon's seminal paper (1991), ours is an organisational economy rather than a market economy, with a web of organisations joined by market transaction at some points.

Further, both markets and hierarchies as methods of human organizing don't have a distant past. Market is a socio-cultural construction. Very crude definitions of market could be seen around 12<sup>th</sup> century (Finley, 1973). Hierarchy is a mode of governance of business in response to mass production initiated with industrial revolution and the need for a centralised production and administration system, thereof. For any form of organisation to survive under capitalism, Weber conceptualised bureaucracy as an efficient administrative tool comprising of division of labour in administration akin to the division of labour in production for efficient production for Adam Smith. Bureaucratization seemed to Weber an almost inescapable fate.

Walter W Powell (1990) contradicts a dichotomy of markets and hierarchy. He puts forward the case of network form as an alternative to market or hierarchy. He posits that networks as a tool of human organizing have existed from historic times in relational commerce and is a distinctly different form. Network form of human organizing is not a hybrid on the continuum of markets and hierarchy according to organization theorists led by Powell (1990). As Thorelli (1986), puts it, network provides an alternative between transactions in the open market and the internalisation of activity within an organisation. To serve as an engine of growth the network also requires strategic planning both at the overall level of the network as well as at the level of the member sub-organization (Grabowski, Lehmann-Willenbrock, Rings, Blanchard, & Steinecke, 2024). This requires hence serious research in various alternative forms to enable these forms. Though there is literature available on network organisations and its types like internal and dynamic networks of Miles and Snow (1992) akin to virtual organisations and hollow organisation and so on, respectively, but theory is still not well developed to delve into the phenomenon to give valuable insights about many of these new organisational forms, let alone predict their future (Grabowski, Lehmann-Willenbrock, Rings, Blanchard, & Steinecke, 2024). Is network and its various organizational forms an answer to the "Iron Cage" for modern man which Weber so hopelessly prophesised and deplored?

The hollow organization had its beginnings around 30 years ago as people began to see the possibility of using technology for work at home [Lucas, H. C., Jr., and Baroudi, J. 1994]. What began as a vision of futurists has become a possibility for business theorists and an economic necessity for corporate executives [Caldwell, B., and Gambon, J.]. All of this occurred in little more than a decade, underscoring an inevitability of this new business model as well as hinting at the sped-up sense of time that characterizes it. The hollow organization carries the concept of flexible specialization, a step further than the dynamic network organization, because it is not limited by physical locations or by complex contractual arrangements [Barnatt, C. 1995]. In addition to this definition Byrne characterized five key elements of hollow corporations. First key element is the intensive use of internet and communication technology (ICT), which links the partners and replaces contracts by mechanisms of social control and loose arrangements. The second element is that opportunism is replaced by trust in taking opportunities. The temporary character of cooperation and the absence of contracts enforces this trust (Kanawattanachai & Yoo, 2002). Third

hollow corporations feature excellence, which can be realized by the combination of the partner's core competencies. This "best-of-everything" organization creates economies of scale and economies of scope (Hofmann 2001). The cooperation bases upon trust, which is the fourth key element. Finally, the hollow corporation is a boundless organization due to the integration of manifold partners such as customers, suppliers and competitors. However, in reality, there is not only one ideal type of a hollow corporation. Four ideal types of hollow corporations can be identified (Bickhoff et al. 2003). The first type describes a cooperation of partners, which is governed by a central corporation. This can be described as a centralized network structure. In fact, there exists a hierarchical structure and in reality, it exists quite often (Child/Faulkner 1998). The second type describes a virtual corporation, which is coordinated by one single partner. This partner acts as a *primus inter pares*, with same rights. In the third type of hollow corporation, an independent coordinator, which is not directly integrated into the value creation process, the so-called "broker", offers central services. In this concept the "broker" is not involved in the production process. The fourth type is determined by a common coordination of all partners. This case characterizes the idealistic type of a hollow corporation, where is no central control.

We posit that hollow organization is an extension of virtual organizations with resources tending to zero. Virtual organisations have been there and have a share in economic output and literature, though not empirically or theoretically very rich texts exist about them (Costa, Handke, König & Thieme 2024). However, virtual organisation has a vaguely loose definition. Byrne, John A. (1993), discusses how a whole bunch of management thinkers lay claim to the term virtual corporation, and how to each of them it means something slightly different (Costa, Handke, König & Thieme 2024). Whatever the precise definition, all these business futurists agree that the virtual corporation is the management model of tomorrow (Costa, Handke, König & Thieme 2024). *For example, Davidow and Malone (1992), who are credited for initiating the discussion on virtual organisation, use the term "virtual corporation" to refer to a very broad concept encompassing any new organizational form, inter-organizational forms, and so on.* In contrast, Byrne (1993) ascribes the same term to a transient collection of electronic communication linkages between ephemeral entities that donate their core competencies to a temporary collaboration. According to John A. Byrne (1993), *"Today's joint ventures and strategic alliances may be an early glimpse of the business organization of the future: The Virtual Corporation. It's a temporary network of companies, even erstwhile rivals, that come together quickly to exploit fast-changing opportunities - linked by information technology to share skills, costs and access to one another's markets. It will have neither central office nor organization chart. It will have no hierarchy, no vertical integration."* In line with these definitions, even hollow organizations have been described. The *Association of Chartered Certified Accountants* has described the hollow organization as - *A hollow organization is one which relies heavily on outsourcing, enabling it to maintain low staffing levels while capitalizing on the competences of partner organizations* (ACCA, 2025). In a virtual organization, companies can share costs, skills, and access to global markets, with each partner contributing what it's best at. Key attributes of such an organization are excellence, technology, opportunism, trust, and adaptability, less hierarchy and vertical integration. The

literature also disagrees regarding newness to virtual organizations. A number of scholars treat virtual organizations as a newer organizational form that started in the late 20<sup>th</sup> Century (e.g., Byrne, 1993; Martin, 1996), common denominators including a more flexible structure and a peer-democracy inclined culture. In contrast, Venkatraman and Henderson (1997) contend that the virtual organization is not a distinct type, but that virtualness is a characteristic of every organization, meaning "the ability to consistently obtain and coordinate critical competencies".

Both strategic management literature and economics literature tried to explain the reason for existence of a firm. Organisation literature owes explanation of origin, nature and boundaries of firm, to both literatures. However, they vary immensely in their basic assumptions and hence their treatment of the subject. While economics always considered firm to be a cooperative entity for economic exchange, strategic management brought in sociological, resource, knowledge, capability, competence, positioning views into explanation of existence of a firm. Also, they differ on their conceptualisation of markets.

This paper is an exploration into future business forms, regardless of where the extant literature places these business forms, for example somewhere on a continuum of market-hierarchy dichotomy viz. some kind of hybrid, or a third dimension in the business literature. This paper is in a way a proposition of escape route of man from the "Iron Cage" of bureaucracy; centralised mass production and labour being treated as an impersonal factor input; ensuing incapacitation of women folk in business world due to demand of work at a place away from home and within strict working hours and rules. Weber and Marx, both agree that hierarchical methods of organisation have tremendously increased effectiveness and efficiency of production and organisation, in turn turning them into monsters of the world threatening to dehumanise its creators. But they differed in the fact that Weber did not believe in the future leap from the realm of necessity into the world of freedom. Can the advent of Industry 4.0 of the 21<sup>st</sup> century just like the advent of first industrial revolution of the 19<sup>th</sup> century, change the way people did businesses, altogether? Is the future leap which Weber so vehemently disbelieved on the threshold?

We are seeing a spurt of businesses turning towards more of virtualisation. Markets are also not perfect anymore but have been contaminated by groups or networks, which are fluid composition of knowledge workers, the new factor input in the world of business, wherein old labour laws are gross misfit in designing incentives, motivations, ambitions and of course monitoring ways (Grabowski, Lehmann-Willenbrock, Rings, Blanchard, & Steinecke, 2024). Is hollow organisation an alternative to bureaucracy in handling knowledge workers and entrepreneurs, instead of the capitalist and labour inputs of yesteryears? If answers to these questions are seemingly yes, based on prediction or extrapolation and existing theories, then the next question is what will be the governing philosophy, operating logic, application and risks and reasons of failure of such organisations. This paper addresses these questions.

### **3. Hollow Organisations: Applying Transaction Cost Economics, Resource Based View and Knowledge Based view Lenses**

Neoclassical economics treated firm as a black box or as a production function

(Nelson, 1991) till Williamson (1975) proposed the theory of transaction costs. Building on Coase (1937) and Knight (1925), he extended the concept of Transaction Cost Economics (TCE) to explain hierarchy, governance and existence of traditional firms and its boundaries. Knight expounded on the concept of uncertainty and distinguished it clearly from risk, saying that if probabilities are assignable to future scenarios, then it is risk that is playing a role and not uncertainty i.e. uncertainty is only present when future is completely unknown. In case risk is present, these probabilities can then be taken care by writing proper contracts. According to Knight, an entrepreneur is forced to undertake decision-making based on uncertain future. Since not all people would wish to undertake such a responsibility, there will be only a few entrepreneurs, who will have residual rights on the firm, while the others would prefer to be employees having wage rights in return for their factor input of labour. Coase in his seminal paper discussed how transaction costs occurring in market would be higher because of expensive contracts to be written for each single transaction, with not all foreseeable results. Hence, firms will expand till the point when marginal cost of transaction within the firm will equal that prevailing in the market. Weitzman (1982) brought in the concept of increasing returns to scale as the reason for existence of the firm. However, the greatest contribution came from Williamson, who explained the need of production within the firm boundaries. Williamson attributed the existence of hierarchy to the supervision need of an administrative fiat or hierarchy to human and transaction needs - two characteristics of human beings viz. bounded rationality (Simon coined the term of humans being bounded rational beings, who are rational but only in a bounded space, in which they can afford to know enough as human beings to be rational in their decision making) and opportunism (that human beings are capable of being opportunist individuals, if not properly supervised) as well as to two characteristics of transactions viz. uncertainty (because future is to happen under conditions of uncertainty) and asset specificity (transaction-specific assets are not capable of being redeployed as these physical and human investments are specialized and unique to a given task). Also, under transaction cost economics (TCE) literature, firm was viewed as a nexus of contracts (Jensen and Meckling, 1976) and these contracts formed continuity because of the nature of the problem of a firm, that is to say that the characteristics of non-equal transaction each time forces to go on for the next transaction to equal scores. Then, since conditionality can't be fully specified the concept of incomplete contracts (Oliver Hart) was operational within traditional boundaries of the firm. Property rights literature (Alchian and Demsetz, 1972) and principal-agent (Jensen and Meckling, 1976) theories were also circumscribed by TCE to explain the existence of the traditional firm.

Organizations are not mere substitutes for structuring efficient transactions when markets fail. Organizations can be possible, even in the case of missing markets or price mechanism. They allow pursuit of dynamic efficiency (Schumpeter, 1942) by investing in innovation related activity to build capabilities and competencies. They possess unique advantages for governing certain kinds of economic activities through a completely different logic than markets. The repeat transaction and asset specificity build up a need for quality and reputation in organisations and there is a strategic lock in of the customer with the product especially in case of experiential buying and in cases where switching costs are high (Anand and Daft, 2007). Further,

as Alchian and Demsetz (1972) proposed the monitoring of the team, which is left with the residual owner, and the incentive design thereof, motivates team members to contribute to team more than they would have made working individually (Handke, Aldana, Costa, & O'Neill 2024; Driskell, Funke, Tolston, Capiola & Driskell 2023). Economies of scale and scope also drive efficiency in being large organisations. Forward and backward integration or keeping the larger part of value chain within the organisation, gave competitive advantage to firms. For large organisations it is easier to advertise, brand, market access globally and so on. However, Business scenario has changed drastically over past decades. These unique advantages, over and above those justified by TCE as given reasons for firms to occur and survive do not stand firmly on their ground, in the face of current business reality and it can be easily predicted that these reasons are bound to decline over time.

The Strategic management literature also has reasons for existence of firm in resource based view (RBV), knowledge based view (KBV), dynamic capabilities view and so on (Hendi, Basri & Arafah 2022). Fundamentally, all of these theories only in terms of characteristics of the attributes they refer to that creates competitive advantage especially tracking dynamic competitive advantage of the firm. Teece et al. (1997, p. 512) define resources “as firm-specific assets that are difficult if not impossible to imitate”. Nonaka and Takeuchi (1995) researched the importance of knowledge and established the knowledge-based view (KBV). Barney (1986) provided conditions under which resources controlled by the firm can lead to generation of economic rents, even while strategic factor markets are quite competitive.

A firm might find alternative use of resources, or might control resources, which have some idle capacity with zero opportunity costs to arbitrage and get more value from the resource not initially anticipated in the original factor markets in Industry 4.0 (Barney and Arikan, 2001). This might go against the factor of asset specificity, which is one of the pillars of Williamson's reasons for existence of hierarchical organizations. Further, as knowledge workers enter the scene, the traits of these populations get influenced with the individual traits. A knowledge worker's behavior is learning, and her belief system reinforces learning. Her self-esteem transforms into sharing at team level with a belief that knowledge grows with sharing (Handke, Aldana, Costa, & O'Neill 2024). The team members respect each other for their domain knowledge, which in an organization converts into trust for each other (Sole & Edmondson. 2002). This whole process is exemplified well by Burn and Ash (2000). Besides, Burn and Ash also classified organizations and mapped them on the “virtualness” dimension. Their scheme of virtual brokers very nearly equals our concept of Hollow Organization (Costa, Handke, König & Thieme 2024). A virtual or hollow organization has a wider knowledge base and core specialists and hence can deliver huge benefits but there are more management risks and risk of keeping knowledge proprietary for strategic competitive advantage (Burn and Ash, 2000). Due to non-permanence in networks, new partners have to make investments again.

Another reason attributed under knowledge based view (KBV) of organizations is that hierarchical organizations have the capacity of integrating proprietary organization knowledge inside the firm. According to Nonaka and Takeuchi (1990), organizational learning contains the management of explicit and implicit knowledge

and the process of knowledge creation. The process of knowledge creation contains the combination of knowledge, socialisation, and the transfer of implicit to explicit knowledge and vice versa. At first organizational learning takes place at the individual level of the employee then it expands to the team level and finally to the level of corporation (Driskell, Funke, Tolston, Capiola & Driskell 2023). Because of the lack of a central organizational anchor and an integrated knowledge management in the most cases of virtual organization (Hofmann 2003), explicit and implicit knowledge remains decentralized in the partner corporations. Thus, unlike traditional corporations, virtual corporations cannot save this knowledge in higher hierarchical levels (Alavi & Tiwana, 2002). In practice, virtual corporation are sometimes coordinated by a focal corporation or by a special broker, both can help to minimize the gap. A broker can support a virtual corporation and can offer a knowledge management (Hoch & Kozlowski, 2014). According to Mahnke and Pedersen (2004) knowledge governance bases can be created on an appropriate mix of incentives and sanction mechanisms to “motivate” employees to share their knowledge and to build up a special knowledge culture. Some degree of permanence, which is between the networks develops while working together on numerous and repeated projects (Powell, 1990). This ensures that some proprietary knowledge base remains within one particular network for some time, till it gets diffused. Further, in the fast-moving world, where product life cycles are crashing, it makes little sense to capture codifiable knowledge and keep it proprietary, rather it is the seamless process in which these knowledge bases get integrated to deliver inimitable product or services is what is more important. While competitive strategy is about protecting ideas and knowledge for benefits, cooperative strategy is about finding and creating new value in efficient way by sharing well between the network partners (Grabowski, Lehmann-Willenbrock, Rings, Blanchard, & Steinecke, 2024). Thus, though static view of KBV or RBV would not endorse hollow organisations, a realistic and dynamic view would (Hendi, Basri & Arafah 2022).

#### **4. Drivers of Change**

The drivers for change are people’s aspirations. The consumer is changing from being a consumer of mass-produced goods to that of customised goods to now being consumer of completely individualised goods. Their basket of goods purchased is changing from basic necessities to white goods and electronic goods to services and software products. The workers are changing from being semi-skilled manual labour to skilled labour to knowledge workers and so are their needs. The entrepreneur is changing from being an identifier of gaps existing in business to being creator of products and services unheard of and thought provoking. Thus, as mankind created an “Iron-Cage” with Industrial Revolution (Weber), perhaps it is bent upon changing the rules of the game and breaking the same cage, in its advanced stages. We are seeing value-chains being broken down, part of value-chain being shared across networks, outsourced and finally production of goods and services again heading towards home! So many businesses are springing up where all that is needed is a web connection and a computer or handheld devices. A revolution can be envisaged, therefore, where large organizations with their competitive advantage of economies of scale and scope, advertising, high switching costs may not hold. Too much importance is given to opportunism and bounded rationality in Williamson’s version

of TCE, as characteristics inherent in human nature, oblivious of context (Ghoshal and Moran, 1996). Acc. to Ghoshal et al, opportunism is influenced by prior conditioning viz. “feeling for the entity” and opportunist behavior. A fiat or hierarchy may heighten opportunism by reducing the feeling for the entity while putting up rational controls for opportunist behavior reduces some kind of observable opportunistic behavior. Whether rational controls are useful or not depends on the net effect of these two influences on opportunism of the person. Traditional organizations rely more on rational controls than on social controls. Furthermore, the TCE of Williamson is also built upon premises of asset specificity and it may be having less takers in the world of information, where one can access a number of suppliers for one’s needs all over the globe. The world of easy information access is also going to bring down the problem of bounded rationality of humans. World is seeing a spurt in law enforcing agencies with the coming of WTO and other regional ties and so on, and rules of disclosure are being made stricter. Specially, many services etc. are now getting world class certification and businesses like B2C marketing and so on, which once appeared to face worst onslaught of opportunism has stabilised and is growing. Opportunism is hence becoming costlier in this information and global oneness era. Uncertainty is there, but the part constituting Knight’s risk can be better managed in the more informed world of hedging away risks. What is hence emphasised here is that businesses of 19<sup>th</sup> and 20<sup>th</sup> century did face high transaction costs and hence preferred to produce under hierarchy, the same transaction costs are reduced and continually reducing in the of 21<sup>st</sup> century. Hence, though the theory is falling behind practice, we are seeing organisations, which are virtual and hollow as defined earlier in the paper, various forms, essentially offshoots of network organizations actually being there in the business world. Though, their number is low, at present, the whole business world seems to be hollowing or virtualising.

## **5. Propositions: Existence and Propagation of Hollow Organizations**

Based on the literature review and the discussions on driver of change in the previous sections, we develop some propositions for the hollow organizations below

### **Proposition 1: Hollow Organisations can continue to exist and grow as long as they can build capabilities to coordinate and control**

Traditional organisations rely on various means of performance monitoring and enforcement of rules and procedures and so on for coordination and control. Coordination and control are essential for both efficiency and effectiveness of organisations; bureaucracy serves this purpose well (Weber). It is essential to seamlessly integrate across domains of businesses, more so in hollow organizations, to get a consistent and effective output. It becomes difficult when members are expected to perform functions that are not fully predictable and not easily measurable. In the open architecture of hollow organisations and a hollow (resources tending to zero) atmosphere inside it, it is difficult to pursue governance, controls and incentives (Kanse, Stephenson, Klonek, & Wee 2023). When neither behaviour nor outcomes can be measured precisely, then rational controls lose their efficiency

and social controls become preferable (Ouchi, 1979; Eisenhardt, 1985). Relations are embedded in these hollow institutions. These organisations, hence, can be subject to more of social controls (Ouchi, 1983) than rational controls of Williamson, which may be counterproductive for the morale of the people of hollow organizations. As per Peter Drucker (1988), organisations would convert themselves to survive into organisations of knowledgeable specialists. This is while managers would have to direct people as if they were unpaid volunteers, tied to the organisation by commitment to its purposes and often expecting to participate in its governance. This mode of participation of knowledgeable agents by commitment to purpose of a firm can be extendable to networks as well. Such self-governance of knowledgeable agents would include shared culture, norms and behaviour, membership management in network, ability to monitor and sanction members' behaviours and an agreed upon rules and institutions (Markus M Lynne, Brook Manville, Carole E Agres, 2000). The communication patterns develop in ways to co-evolve with technology and the accepted norms and behaviour, that might be able to dissuade hollow network partners from behaving abruptly (Volberda et al, 2003). Expectations across interfaces can also be built up through proper communication mechanisms. To the extent that such coordination and control mechanisms of knowledgeable agent members of networks can be made, virtual organizations can continue to exist and grow.

**Proposition 1a: Social controls as well as self-governance of participants with accepted rules, norms, and institutions would be the mode of governance in hollow organisations.**

Though a lot has been written about face-to-face communication and its effectiveness over virtual communication especially due to the proposition of Daft and Lengel (1986) that channel capacity decreases from face to face to telephone to more evolving modes of communication has been a dominant theme in communications literature. Social media communications that have become the default mode of communication between the generation Z of human beings that open their eyes as adults in the industry 4.0, who would be the economical and knowledgeable agents in years to come (McFarland & Ploy Hart, 2015). This has warranted a renewed look into this established expectation in communications literature. Prior to this age, face to face communication was proposed for equivocal tasks. Till the industry 3.0 ruled, it was believed that advent of ICT didn't fundamentally alter human behaviours. Studies from industry 3.0 showed that individuals took longer to form impressions in virtual communication as it took longer to absorb social cues (Sproul and Keisler, 1986 Walther, 1993). Hence, it was expected that for ambiguous tasks, communication might be required to be more informal, which could be seen as promoting equality and mutuality, especially since perceived hierarchies, inhibitions and so on may be broken down more effectively in face-to-face communications (Sproul and Keisler, 1991; Huff et al, 1989). However, the fundamentally altered human behaviour in generation Z individuals have raised suspicion for such beliefs. Generation Z has been displaying that if sufficient contextual information is given, mutual understanding can be very high in electronic communications. During the pandemic, most of the world learnt in some manner to

communicate effectively, virtually. Pandemic highlighted the potential of online communication and building office culture around it. Both online and offline communication can be effectively utilized, given the circumstances (Pettersson, 2020). Effectiveness in communication is a function of mutuality and equality in communication (Marshall and Novick, 1995). Hence, the belief that face-to-face communication is more powerful (Boase et al, 2002) is not supported in the age of industry 4.0.

In a study of effectiveness of communication in decision making situations by Schmidt et al (2001), where two decision-making experiments were conducted, one using escalation of commitment theory and the other comparing effectiveness of individuals in decision-making in face-to-face teams and virtual teams, findings suggested that teams make more effective decisions than individuals, and virtual teams make the most effective decisions (Handke, Aldana, Costa, & O'Neill 2024; Driskell, Funke, Tolston, Capiola & Driskell 2023). A consistent finding in literature regarding task and media is that groups are more effective in divergent thinking tasks when communicating electronically than when communicating face to face (Desanctis and Monge, 1999). However, literature has reiterated that face to face communication at start of human organizing or during the course of organizing is a good moderator for effectiveness of communication (Hossain and Wigand, 2004). Also, another consistent finding is that electronic communication has demonstrated the capability to support lateral communication and broad participation across social groups. Virtual organizing presumes that more responsiveness to customer information flow occurs in electronic communication. An organization's capability of communicating with other organizations as clearly and quickly as possible is assisted greatly with virtual communication (Pihkala et al, 2010). Desanctis et al (1999) throw a light that removal of visual cues may be good for better understanding of a message as distraction of irrelevant stimuli is removed in interactions. However, literature is still unclear on the subject of message understanding in face-to-face vs electronic communication. Literature also supports that relationship-oriented communication can be high in electronic media setting and are highly influenced by social norms (Walther, 1992, 1995; Ferrara et al, 1990). Hollow organizations are futuristic organizations and will be better enabled as technologies and social groups will coevolve and it is highly likely that all the benefits of face-to-face communication can be captured by virtual communication in future, and it might yet be able to retain some of its superior features over face-to-face communication resulting in a perhaps better overall communication and hence better coordination and control.

**Proposition 1b: Virtual Communication mechanism through the coevolution of technology and social groups over time, have become as effective as face-to-face mechanism of communication, which shall form the backbone of hollow organizations.**

When a person's self-concept contains the same attributes as those in the perceived organizational identity, we define this cognitive connection as organizational identification. Organizational identification is the degree to which a member defines himself or herself by the same attributes that he or she believes define the organization (Dutton et al, 1994). Organisational identification and organisation

culture or shared beliefs about organisation's central and distinctive characteristics are built in these organisations through organisational artefacts, routines, language and so on. Organisation research suggests that identification with the organisation creates social and psychological ties, binding employees and organisation, even when they are dispersed. Strength of this identification suggest employee's feeling for trust, internalisation of norms and practices, retention desire and desire to cooperate (Dutton et al, 1994). However, organizational identification can have both positive and negative effects on a member's sense of self. Organizational identification does not necessarily connote a pride in affiliation with the organization (Kelman, 1958). His view of identification is a means for psychological attachment. It can be detrimental if there is less congruence between employee's view of self and that of the organization. Born entrepreneurs find it difficult to work as employees, even if the organization is of repute because of this incongruence. Similarly, knowledge workers of today are very different from the labor workforce of yesteryears, and have very individualistic needs, aspirations and views of self which is difficult to be provided by an umbrella of attributes, the organization stands for. The attrition rate of 21st century is much higher, and entrepreneurship has found renewed interest among working class. These could be cited as cases of incongruence between today's knowledge workers' view of self and what they perceive the organization stands for. Future large organizations will have big problems to bind people by organization identification and culture. Hollow organization can bridge in this gap if they can fill this void and use organization identification as a pride of affiliation for its members. However, as Wiesenfeld et al (1999) point out hollow organizations might find themselves in a catch-22 situation, since they can't use the traditional used models for inculcating organizational identification and hence have to find out new determinant for the same. Communication has been found as one important determinant and can be used judiciously to knowledge workers' individualized needs and aspiration and their sense of self. Shared purpose of the hollow organization with those of its members can also serve as another important determinant. The level of trust that is there in the network is also an important determinant. A central broker can be made responsible for inculcating individualized organizational identification for its members (Hoch & Kozlowski 2014).

**Proposition 2: Organizational identification of the members of hollow organizations can serve as an important unifying element motivating them to contribute effectively towards the hollow organization needs.**

Shared purpose is the unifying element of a formal organisation (Barnard, 1938), which infuses the organisation with value (Selznick, 1957). Shared purpose converts Williamson's organisation based on static efficiency, which can be at best an expendable tool, in due time, into a responsive and adaptive institution of Selznick. As per Williamson (1991), markets may compete with organisations by developing a level of shared purpose in concepts like relational contracts or strategic networks (Jarillo, 1988). In virtual organisation, hence, shared purpose can be the glue, which holds the organisation together. Due to the edgelessness, there is a threat of losing a sense of belongingness in the members of the virtual organisations (Davidow &

Malone, 1992), but the concept of co-destiny relationship (Davidow, Malone, 1992) in all virtual members, there is a commitment from these members towards the shared purpose probably more so than traditional organisations. Hollow organizations are guided by shared purpose and more voluntary in character than traditional organisations. Vision and values are more important networks. They are not, however, enough in themselves. They need to be backed up by exhortation and personal example, but organizations based on trust need that sort of personal statement from their leaders. For the whole to work, the goals of the smaller units have to gel with the goals of the whole. Visionary leaders, no matter how articulate, are not enough. A shared commitment still requires personal contact to make it real. The blossoming of vision and mission statements is one attempt to deal with integration (Handy, 1995).

**Hypothesis 2a: Shared Purpose of the members, their co-destiny relationship and articulate leadership of the central broker of hollow organization can serve as an important unifying element motivating them to contribute effectively towards the organizational goal.**

To keep virtual organization alive, ‘glue’ is needed to distinguish it as a system. To keep virtual organization alive, ‘glue’ is needed to distinguish it as a system. As examples, product innovation and accumulation of knowledge (Lipparini and Lorenzoni 1993), the lowering of costs in business (Barnatt 1995) or the entrepreneurial pursuit (Jarillo 1989) have all been offered as the reasons for continued networking. Most often, however, the concept of ‘trust’ has been presented as the glue (Thorelli 1986, Larson 1991, Blomquist 1994, Sanner 1997). Handy (1995) described trust as the central element of virtual organizations and addresses a basic question in his works, “how do you manage people whom you do not see?” Trust is the heart of the matter; he says and adds that since organisations failed to trust people, they create paraphernalia of systems, checkers and checkers checking checkers. Weisenfeld et al (1999) proposed that in network contexts, external controls like monitoring, reprimand, incentives and so on should be replaced by internal control mechanism based on trust, employee motivation and convergence of individual and organisational goals. Handy says that if we are to enjoy the efficiencies and other benefits of the virtual organization, we will have to rediscover how to run organizations based more on trust than on control. Virtuality requires trust to make it work: there are seven cardinal principles of trust we should keep in mind. Trust is not blind. It is unwise to trust people, whom one does not know well. Trust needs boundaries. Unlimited trust is, in practice, unrealistic. Trust demands learning and adapting. Trust is tough and needs to do away with people who fail to keep up the expectations. Trust needs bonding. Trust requires leaders to look up to. Trust inevitably requires some sense of mutuality. Handy (1995) very explicitly puts up the need for trust as glue in virtual organizations. Further, trust is the only mechanism, which can prevent physical distance from becoming psychological distance and allows one to take risk (Jarvenpaa, Leidner, 1999). Communication is emphasised as a tool for Handy’s bonding and mutuality. Media richness theory of daft questions whether communication cues in network type of organisation will be good enough to inculcate trust. However, Walther (1995) found that social

discussion, depth and intimacy were greater in computer-mediated communication groups. In any communication there are two types of faculties: *cognitive and emotional*. Cognitive-oriented activities may convey competence and reliability, and thereby increase confidence that a task will be successfully completed. Emotion-oriented activities may create an emotional bond, and help decrease fears of exploitation and increase feelings of mutual support for building trust (Hossain & Wigand, 2002). Sense of belongingness overcomes the pursuit of self-interest (Nottingham, 2007). Price played a coordinating mechanism in markets, authority/ administrative fiat/ bureaucracy played it in hierarchy and trust plays it in networks or communities (Adler, 2001). Though economists doubt trust as a stable and dominant mechanism saying that price may create such a free rider problem that trust may fail, Adler differs saying that if we can see altruism and egotism existing together, and people have both the propensities at the same time, then trust can co-exist with other mechanisms. One great thing about trust is that since, opportunism is the central tenet of TCE, trust automatically can play the opposite and hence bring in efficiency to the network (Jarillo, 1988).

**Hypothesis 2b: Trust among the participants is the glue that binds the hollow organisation together.**

Economic benefits are drawn in by successful commercialisation of the venture. Financial compensation in the open-source world usually takes the form of a share in collectively produced wealth rather than wages or contract fee (Markus M Lynne, Brook Manville, Carole E Agres, 2000). Money is only one, not always the most important source of motivation and incentive for the participants of the virtual organisation. A powerful set of mutually reinforced motivations, including a share in collective success, guides knowledge workers and specialists. Specialisation and pursuit of specialisation and reputation of being a specialist of the requisite field, altruism of gift-giving and social benefits of participation and sheer joy and challenge of being able to participate are the motivational factors behind virtual organisation.

**Hypothesis 3: For efficient operation, a proper compensation system, profit and risk sharing needs to be developed, in the collectively produced wealth.**

Risk in systems can exist because one or more components in the system are risky, or it can result from components that are themselves relatively safe, but interact in ways that increase risk (Grabowski and Roberts 1999). Risk propensity in hollow organizations is unique in interesting ways. Because hollow organizations are distributed, networked organizations with fluid and shared business processes, risk in the hollow organizations can migrate between organizational members, making risk identification and mitigation difficult (Grabowski and Roberts 1997). Because hollow organizations are comprised of members with their own individual goals, policies, and cultures, and because the members are bound in temporary alliances that reflect changing marketplace opportunities, developing a shared culture of reliability and shared commitments to reliability goals is difficult, as the presence of simultaneous interdependence and autonomy creates an inherent tension in the

hollow organizations (Grabowski and Roberts 1997). Finally, because hollow organizations are large scale organizations with complex interactions between their members, precipitating incidents and accidents may have long incubation periods, making identification of a leading error chain difficult (Grabowski and Roberts 1997). These risk propensities can provide important clues about effective risk mitigation in hollow organizations. The cultures, communication, trust triad can be used for risk mitigation in virtual organization. Organisation culture should be such that high reliability culture is reinforced. Safety and reliability should serve as goals and standards should be established. Organisation structure should encourage a bit of redundancy. Structure should allow capability to restructure with the needs of the organisation. Communication about member responsibilities and relationships in a hollow organization can help make clear the links and roles different members assume, making explicit and more understandable the differing levels of autonomy and interdependence present in distributed organizations (Grabowski and Roberts 1997). Trust plays an important synthesis role because with trust, hollow organizations with fluid organizational structures can leverage the ability and willingness to learn (Senge 1990, Coyle and Schnarr 1995), thereby enhancing performance and attention to reliability over time (Hoffmann, Schell horn, Ritter, Sachse & Maran 2023). VOs with high levels of trust among their members can effectively utilize interactions and communication processes at their interfaces so members can learn together and can develop shared mental models of reliability and a shared culture of safety.

**Hypothesis 4: Risk exists in hollow organizations due to elemental risk of the members and interface or integration risks at the interfaces.**

A triad of culture (organisation identification, shared purpose, social controls), communication (information and communication technology reinforced by face to face as much as possible) and trust will be the enablers of a hollow organisation, which will be a virtual organisation with no resources or a dynamic network as Miles and Snow (1986) conceptualised the idea for the first time in literature. Further, we conceptualised the concept of brokers, who are essentially the assemblers in the group. There may be a central broker or many brokers acting as equal or unequal partners (Hoch & Kozlowski 2014). Brokers are responsible for finding out new partners and getting rid of old ones if they are not performing, as a network is always under check by fellow network members. This element of the network is the most crucial resource and deserves the maximum attention for putting up the triad together and working. The knowledge management strategy also needs certain guidelines and an anchor for perpetrating a knowledge culture within the organisation. This resource is hence the most unique important and has the maximum vision about the organisation. A position of semi-permanence for this central anchor or part of the virtual organisation in a very fluid and changing organisation is envisaged. Hence, our main proposition for this paper is that though a virtual organisation can continue to hollow out and have no resource within the boundaries rather have all resource connected through a voluntary, flexible and non-permanent contractual agreements, the broker unit has to play a central role with more permanence in the virtual organisation, for an efficient hollow organisation (Hoch & Kozlowski 2014). Thus,

to the researcher's conviction in a process of creating a hollow organisation, the limiting factor is a semi-permanent role of the brokers of the network.

**Proposition 4a: A Triad of Culture, Communication and Trust can serve as the enablers and mobilisers of Hollow Organisation.**

**Proposition 4b: In the process of creating and running the hollow organisation, the requirement of semi permanence in the role of the brokers of the network, shall be a limiting factor.**

## 6. Discussions and Conclusions

TCE especially Williamson's and Coase's version of TCE, undermines the inherent indeterminable nature of uncertainty (Gary Slater and David A Spencer, 2000) as given by Knight (1925). Uncertainty exists because of unknowable future and should not be confused with risk, which may be attributable to a lot of factors. Rapid technological change as well as shifting patterns of competition and international trade put intense strain on organisations and their resources. The way hierarchical organizations of industry 2.0 and industry 3.0 dealt with such uncertainty was to use predictive tools in the best manner and adapt to predictions in a suitable manner that benefitted the organizations. Complex volumes of knowledge were made available through new technologies, which could be utilized for these predictions to become more precise. However, tackling such complex problems with complex volumes of knowledge requires specialisation. Increased specialisation makes organisation better prepared to face uncertainty, but this also causes fragmentation. There is hence a tendency to incorporate more specialists, which thence require large, dedicated investments with increased complexity and coordination requirement. Achrol (1997) says it is this huge investment requirements and complexity and coordination requirements, which has the potential for increased bureaucratic inefficiency. Hierarchical organizations are now dealing with VUCA world, wherein, they find themselves at loss to continue to use prediction as the tool to deal with uncertainty of industry 4.0, which they excelled at during the prior era of industrial revolution.

Further, there are adaptive benefits of specialization. Hollow organizations will stay focused on their area of specialization and will be responsive to weak signals of environmental shifts. Norms of mutuality, solidarity and flexibility, if they exist within the hollow network, will encourage members to share their information and expertise throughout the network. There is value of outsiders, which can be tapped in a virtual or hollow organization (Orville C Walker jr., 1997). Virtual organizations allow relatively easy access to people in the know by making it easy to obtain information from the experts. The communication patterns evolve such that efficient use of expertise can be made. Task-related knowledge is less distributed and movement of communication over the virtual network gets stabilized and stratified (Manju K Ahuja, Kathleen M Carley, 1999). Information silos, conflicts over divisions/ domains, resources, bureaucratic inertia of hierarchy can be replaced in efficient virtual network with exposure to diverse set of partners, broader range of problems and experiences (Achrol, 1992). Its revolutionary character stems from the principle of switching, which calls upon management to maintain a logical separation between abstract requirements and the concrete means for their

satisfaction. Advanced information technology makes it possible to realize virtual organization in practice, and the paradigm is clearly manifested in the operations of some virtual organization (Mowshowitz, 1994). The economic and social significance of virtual organization in the future is likely to be comparable to that of the factory in an earlier period. Properly implemented, virtual organization may deliver increases in efficiency and effectiveness on an unprecedented scale. At the same time, it may stimulate social changes at least as far-reaching as those associated with the industrial revolution (Mowshowitz, 1994).

Organisations with all types of typologies viz. prospector, analyser, defender are looking forward to new organisational network forms (Miles and Snow, 1986; David W Cravens, Nigel F Piercy, Shannon H. Shipp, 1996). Hollow organisations arise to unify a lot of management innovations and counter beaureaucratic inefficiency to result in multiple levels of improvement in delivering customer delight (Davidow, Malone, 1992). Hollow organisation is a demand of environmental uncertainty, which traditional organisations are failing to handle in the VUCA world.

The large, vertically integrated companies that dominated the U.S. economy during the first three quarters of the last century arose to serve a growing domestic market for efficiently produced goods. These companies then used their advantages of scale and experience to expand into overseas markets served by less efficient or war-damaged competitors. However, last 2-3 decades have envisaged big drivers of change spurting up the main driver of change as described in the paper, viz. the aspiration of people. Both the competitive realities facing today's firms and the organizational imperatives these realities produce is forcing business world to explore new organizational forms or an alternate to market and hierarchy, in say network organizations. These forces are:

**Globalisation and Technological Change-** Whether the objective is to extend distribution reach, increase manufacturing efficiency and adaptability, add design capability, or whatever, the global economy is full of networking opportunities.

**Work Force Demographics-** First, as older workers and some women with small children seek shorter working hours, firms already skilled in outsourcing will invent new means of accommodating these employees' requests for part-time and telecommuting work. Second, firms retain as small a permanent work force as possible, turning more frequently to consulting firms and other resources for temporary employees. Third, more and more firms will allow their employees to make their services available to other firms on a contractual basis. Besides, the younger lot of today distaste generally being a small part of a big hierarchical organisation and like the idea of virtuality

**Industry 4.0 factors of Artificial Intelligence, Internet of things and Genetic Engineering:** These are the enablers of hollowing out of organisations. In the long run, these factors are changing the traditional concept of product design and production. Today's computer-aided product engineer can quickly produce a multitude of designs or modifications, each complete with parts and components specification. The virtual and hollow form allows for a smaller permanent work force, it requires that work force to be highly trained. In fact, it is the ability of the various network components to apply their expertise to a wide range of related activities that provides the overall network with agility and cost efficiency. Most

employees in these companies will need to know how to perform numerous operations and demonstrate an in-depth understanding of the firm's technologies.

### **The Broker's Role in the Hollow Organisation**

In hierarchically organized firms, the fundamental role of management is to plan, organized, and control resources that are held in-house. In hollow network firms, however, certain key managers (even future Artificial Intelligence with its generative capabilities) can operate across rather than within hierarchies, creating and assembling resources controlled by outside parties. These managers are the brokers (Hoch & Kozlowski 2014). Three broker roles are especially important to the success of Hollow Organizations: architect, lead operator, and caretaker. If hollow organizations continue to spread, it is important to consider how such machines cum managers with broker skills will be selected and developed.

## **7. References**

1. Alavi, M., & Tiwana, A. (2002). Knowledge integration in virtual teams: The potential role of KMS. *Journal of the American Society for Information Science and Technology*, 53(12), 1029–1037.
2. Alsaqaf, W., Daneva, M., & Wieringa, R. (2019). Quality requirements challenges in the context of large-scale distributed agile: An empirical study. *Information and Software Technology*, 110, 39–55.
3. Ali, T., Khalid, S., Shahzad, K., & Larimo, J. (2021). Managing international joint ventures to improve performance: The role of structural and social mechanisms. *International Business Review*, 30(3), 101791.
4. Barnatt, C. (1995). Office space, cyberspace, and virtual organization. *Journal of General Management*, 4, 78–91.
5. Barnatt, C. (1996). Virtual organization in the small business sector: The case of Cavendish Management Resources. *International Small Business Journal*, 4, 36–47.
6. Bailey, D. E., Leonardi, P. M., & Barley, S. R. (2012). The lure of the virtual. *Organization Science*, 23(5), 1485–1504.
7. Boh, W. F., Ren, Y., Kiesler, S., & Bussjaeger, R. (2007). Expertise and collaboration in the geographically dispersed organization. *Organization Science*.
8. Boland, R. J., Jr., Lyytinen, K., & Yoo, Y. (2007). Wakes of innovation in project networks: The case of digital 3-D representations in architecture, engineering, and construction. *Organization Science*, 18(4), 631–647.
9. Brown, M. I., Prewett, M. S., & Grossenbacher, M. A. (2020). Distancing ourselves from geographic dispersion: An examination of perceived virtuality in teams. *Group Dynamics: Theory, Research, and Practice*, 24(3), 168–185.
10. Cram, W. A., & Newell, S. (2016). Mindful revolution or mindless trend? Examining agile development as a management fashion. *European Journal of Information Systems*, 25(2), 154–169.
11. Costa, P., Handke, L., König, M., & Thieme, O. (2024). Team perceived virtuality: Empirical exploration of its two dimensions. *Group Dynamics: Theory, Research, and Practice*, 28(2), 101–119.

12. Coyle, J., & Schnarr, N. (1995). The soft-side challenge of the "virtual corporation." *Human Resource Planning*, 18, 41–42.
13. Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness, and structural determinants. *Management Science*, 32, 554–571.
14. Daft, R. L., Lengel, R. H., & Trevino, L. K. (1987). Message equivocality, media selection, and manager performance: Implications for information systems. *MIS Quarterly*, 11(3), 355–366.
15. Driskell, T., Funke, G., Tolston, M., Capiola, A., & Driskell, J. E. (2023). Fluid and virtual teams. *Small Group Research*, 55(5), 680–705.
16. Dutton, J. E., & Dukerich, J. M. (1991). Keeping an eye on the mirror: The role of image and identity in organizational adaptation. *Academy of Management Journal*, 34, 517–554.
17. Eveland, J. D., & Bikson, T. K. (1988). Work group structures and computer support: A field experiment. *ACM Transactions on Office Information Systems*, 6(4), 354–379.
18. Ferrara, K., Brunner, H., & Whittemore, G. (1990). Interactive written discourse as an emergent register. *Written Communication*, 7(1), 8–34.
19. Finley, M. (1973). *The ancient economy*. Berkeley, CA: University of California Press.
20. Gibson, C. B., & Gibbs, J. L. (2006). Unpacking the concept of virtuality: The effects of geographic dispersion, electronic dependence, dynamic structure, and national diversity on team innovation. *Administrative Science Quarterly*, 51(3), 451–495.
21. Griffith, T. L., Sawyer, J. E., & Neale, M. A. (2003). Virtualness and knowledge in teams: Managing the love triangle of organizations, individuals, and information technology. *MIS Quarterly*, 27(2), 265–287.
22. Gibson, C. B., & Gibbs, J. L. (2006). Unpacking the concept of virtuality: The effects of geographic dispersion, electronic dependence, dynamic structure, and national diversity on team innovation. *Administrative Science Quarterly*, 51(3), 451–495.
23. Gilson, L. L., Costa, P., O’Neill, T. A., & Maynard, M. T. (2021). Putting the “TEAM” back into virtual teams. *Organizational Dynamics*, 50(1), 100847.
24. Grabowski, M., Lehmann-Willenbrock, N., Rings, S., Blanchard, A., & Steinecke, F. (2024). Group dynamics in the Metaverse: A conceptual framework and first empirical insights. *Small Group Research*, 55(5), 763–804.
25. Grundin, J. (1994). Groupware and social dynamics: Eight challenges for developers. *Communications of the ACM*, 37, 92–105.
26. Handke, L., Aldana, A., Costa, P., & O’Neill, T. A. (2024). Hybrid teamwork: What do we know and where do we go from here? *Small Group Research*, 55(5), 805–834.
27. Handke, L., Costa, P., & Feitosa, J. (2024). How virtual are we? Introducing the team perceived virtuality scale. *Journal of Business and Psychology*.
28. Hendi, B., Y. Z., & Arafah, W. (2022). Analysis of the relationship between resource-based view and knowledge management with firm performance. *Journal of Research in Business and Management*, 10(2), 08–13.
29. Holcomb, T. R., & Hitt, M. A. (2007). Toward a model of strategic outsourcing. *Journal of Operations Management*, 25(2), 464–481.

30. Hillyer, M. (2020). How has technology changed—and changed us—in the past 20 years? *World Economic Forum*.
31. Hoch, J. E., & Kozlowski, S. W. J. (2014). Leading virtual teams: Hierarchical leadership, structural supports, and shared team leadership. *Journal of Applied Psychology, 99*(3), 390–403.
32. Hoffmann, A., Schellhorn, A.-M., Ritter, M., Sachse, P., & Maran, T. (2023). Blink synchronization increases over time and predicts problem-solving performance in virtual teams. *Small Group Research, 55*(5)
33. Huff, C., Sproull, L., & Kiesler, S. (1989). Computer communication and organizational commitment: Tracing the relationship in a city government. *Journal of Applied Social Psychology, 19*, 1371–1391.
34. Jarillo, J. C. (1989). Entrepreneurship and growth: The strategic use of external resources. *Journal of Business Venturing, 4*, 133–147.
35. Jarillo, J. C. (1993). *Strategic networks: Creating the borderless organization*. Oxford, UK: Butterworth-Heinemann.
36. Kanse, L., Stephenson, E. K., Klonek, F. E., & Wee, S. (2023). Interdependence in virtual teams—a double-edged sword? *Small Group Research, 55*(5)
37. Khan, G. M., Khan, S. U., Khan, H. U., & Ilyas, M. (2022). Challenges and practices identification in complex outsourcing relationships: A systematic literature review. *PLoS One, 17*(1), e0262710.
38. Kanawattanachai, P., & Yoo, Y. (2002). Dynamic nature of trust in virtual teams. *Journal of Strategic Information Systems, 11*(3–4), 187–213.
39. Lipparini, A., & Lorenzoni, G. (1993). Organizational architecture, inter-firm relationships, and entrepreneurial profile: Findings from a set of SMEs. In N. Churchill, S. Birley, W. Bygrave, J. Doutriaux, E. Gatewood, F. Hoy, & W. Wetzel (Eds.), *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College.
40. Mahnke, V., & Pedersen, T. (2004). *Knowledge flows, governance and the multinational enterprise: Frontiers in international management research*. Basingstoke, UK: Palgrave Macmillan.
41. Marshall, C., & Novick, D. (1995). Conversational effectiveness and multimedia communications. *Information Technology and People, 8*(1), 54–79.
42. McFarland, L. A., & Ployhart, R. E. (2015). Social media: A contextual framework to guide research and practice. *Journal of Applied Psychology, 100*(6), 1653–1677.
43. Maznevski, M. L., & Chudoba, K. M. (2000). Bridging space over time: Global virtual team dynamics and effectiveness. *Organization Science, 11*(5), 473–492.
44. Monge, P. R., & Fulk, J. (1999). Communication technology for global network organizations. In G. DeSanctis & J. Fulk (Eds.), *Shaping organizational form: Communication, connection, and community*. Newbury Park, CA: Sage.
45. Mowshowitz, A. (1994). Virtual organization: A vision of management in the information age. *The Information Society, 10*(4), 267–288.
46. Mowshowitz, A. (1994). *The information society*. New York, NY: Routledge.
47. O'Neill, T. A., Maynard, M. T., Gilson, L. L., Hughes, J. M., & Easton, N. (2023). Virtual work: Where do we go from here: Setting a research agenda. In L. Gilson, T. Maynard, & T. A. O'Neill (Eds.), *Handbook of virtual work*. Edward Elgar Publishing, UK.

48. Purvanova, R. K., & Kenda, R. (2022). The impact of virtuality on team effectiveness in organizational and non-organizational teams: A meta-analysis. *Applied Psychology, 71*(3), 1082–1131.
49. Schmidt, J. B., Montoya-Weiss, M. M., & Massey, A. P. (2001). New product development decision-making effectiveness: Comparing individuals, face-to-face teams, and virtual teams. *Academy of Management Journal, 44*(1), 23–37.
50. Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York, NY: Doubleday.
51. Shapiro, C., & Varian, H. R. (1999). *Information rules: A strategic guide to the network economy*. Boston, MA: Harvard Business School Press.
52. Sproull, L., & Kiesler, S. (1986). Reducing social context cues: Electronic mail in organizational communication. *Management Science, 32*(11), 1492–1512.
53. Sproull, L., & Kiesler, S. (1991). *Connections: New ways of working in the networked organization*. Cambridge, MA: MIT Press.
54. Suhermin, S., & Harjanti, W. (2019). The impact of social exchange theory implementation over organizational attitude and behavior. *International Journal of Scientific and Research Publications (IJSRP), 9*, 9159.
55. Sole, D., & Edmondson, A. (2002). Situated knowledge and learning in dispersed teams. *British Journal of Management, 13*(S2), S17–S34.
56. Tschang, F. T. (2007). Balancing the tensions between rationalization and creativity in the video games industry. *Organization Science, 18*(6), 989–1005.
57. Thorelli, H. B. (1986). Networks: Between markets and hierarchies. *Strategic Management Journal, 7*, 37–51.
58. Walther, J. B. (1992). Interpersonal effects in computer-mediated interaction: A relational perspective. *Communication Research, 19*(1), 52–90.
59. Walther, J. B. (1993). Impression development in computer-mediated interaction. *Western Journal of Communication, 57*, 381–398.

### About Our Author

Prof. Anubha Shekhar Sinha is an Associate Professor at Indian Institute of Management Kozhikode in the Strategic Management Area. She has also been a Shastri scholar at Schulich School of Business, York University, Canada. She had spent a significant number of years at a public sector after graduating as the first rank holder in mechanical engineering and that inspired her to look at these institutions as mechanisms for the greater good of the nations they belonged. Currently, her life and her research involve around areas of entrepreneurship that involves changing institutions for the better of marginalized communities like those of social entrepreneurship, women entrepreneurship, rural entrepreneurship, wherein, her works with her doctoral students in these areas have been published in some of the leading journals.