



VIRTUAL WORK TEAMS AND ORGANIZATIONAL PRODUCTIVITY: A LITERATURE REVIEW

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Abstract: *Many organizations are now benefiting from harnessing virtual work to increase productivity, efficiency, quality, and reduction in reliance on “labor force” skills, to give more strength to “service” strategies and approaches in contemporary industrial workforce. Obviously, the application of modern technology has made it possible to redefine where work is done. The purpose of this paper is to examine the emerging construct virtual work teams and organizational productivity. It will examine how virtual work teams impact on communication, collaboration, interpersonal relationship, trust and improved teamwork performance. Findings from the review of extant literature reveal that Today, however, many workforces operate in a virtual environment. The proliferation of the virtual team has had a significant impact on managers, who must reconsider traditional management strategies on how to communicate and collaborate effectively.*

Keywords: *Virtual Teams, Collaboration, Communication, Organizational Productivity*

INTRODUCTION

Globally, teams are a core function of today's modern organizations. Teams are groups of individuals who work together to accomplish a task or series (Havey, 2014). Teamwork is therefore a combination of teams into specific chunks of duty (Aaker, 2014). In the phase of an emerging advance in technology, teams especially those that transcend into long geographical distances are adopting the use of virtual platforms as their means and modes of operations. Influenced by globalization, markets liberalizations and driven by the need for organizations internalization, Borgatti and Foster (2013) opine that virtual platforms as teams' working foundation are an in thing and remain a pivot point to organizations' success and performance.

Aver (2012) defines virtual teams as small temporary groups of geographically, organizationally and/or time dispersed knowledge workers who coordinate their work, mainly with electronic information and communication technologies to carry out one or more organization tasks. Carley (2015) describes virtual teams as the modern set of organizations workgroups that employ the digital communications, video

and audio links, electronic whiteboards, e-mail, instant messaging, websites, chat rooms, as substitutes for physical collocation of the team members.

In Bertalanffy (2012) view, virtual teams have progressed and continue to grow as modern organizations teams' platforms of operations due to two reasons; first, the emergence of virtual teams was a response to various challenges organizations of the 21st century faced and still face. Cummings and Cross (2013) cements that the rapid changes in the business environment, globalization of the marketplace, a glowing popularity of inter-organizational alliances combined with tendency to design more flexible and versatile organization structure, accelerated the need for organizations to coordinate work across geographical, functional, intra – and inter-organizational as well as temporal boundaries. In Cohen and Mankin (2015) second thoughts, the rapid development of communication technology during the last decades, made the distribution and the coordination of work much easier and much faster across time and across different geographical locations.

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Virtual teams are also an important research area for organizational scholars who approach their studies ethnographically and through survey research primarily. Conditions, structures and processes of collaboration in global virtual teams are basic building blocks of knowledge creation, knowledge sharing and innovation in global networked organizations (Bhagat, 2014). The technologies that enable or constrain global teams also impact team functioning (Aaker, 2014). Understanding the relationship between global team structures, processes, and technologies and team performance is paramount to managing them effectively in the context of global networked organizations (Havey, 2014). Correlating the performance of global virtual teams with their network structure is possible with today's information technology infrastructure as well as through ethnographic and survey research (Crosse, 2012).

In terms of benefits, virtual teams are known to be able to coordinate work related activities over longer geographical distance on a shared network platform (Crosse, 2012). Virtual teams are also flexible in terms of choice of where one works whether in the office or at home (Bellarby&Orange, 2013). Virtual platform creates efficiency, virtual planning, organization and management of company affairs in a networked system that improves the overall organization performance and success (Cummings & Cross, 2013).

The purpose of this paper is to examine the emerging construct virtual work teams and organizational productivity. It will examine how virtual work teams impact on communication, collaboration, interpersonal relationship, trust and improved teamwork performance.

LITERATURE REVIEW

Concept of Virtual Work

Globalization has forced organizations to change fundamentally in the way they do business. As Duarte and Snyder (2006) advocates, in order for companies to gain competitive advantage they must reshape continuously to adapt to the new changes in the global environment, and a virtual team work has become the most common way to do that (Duarte & Snyder 2006). There are many different definitions for virtual teams, but the two following definitions will be used for the purpose of this study. Fundamentally, virtual teams are groups of people who find themselves separated by distance and/or time, yet have common tasks to perform. The interactions of virtual team members will rely on electronic communications media such

as e-mail, audio and video conferencing and web-based tools. The team must deliver at least the results that would be expected of a traditional, co-located team, but from their separated locations (Edwards & Wilson, 2004).

A Virtual Team – also known as a Geographically Dispersed Team (GDT) – is a group of individuals who work across time, space, and organizational boundaries with links strengthened by webs of communication technology. They have complementary skills and are committed to a common purpose, have interdependent performance goals, and share an approach to work for which they hold themselves mutually accountable (McNamara, 2000).

Just like in the traditional team, all the members of the team must communicate and collaborate with each-other in order to get the job done but from geographically dispersed locations. The geographical distance between the team members can create havoc between team members if the team is not managed properly. It is the managers' duty to facilitate and manage the collaboration among team members with the help of the appropriate technology that enables efficient communication. Virtual environment is not suitable.

Importance of Virtual Work Teams

Globalization has created opportunities for companies to enter international markets, but at the same time the level of competition has increased. In order to compete in such an intense market race, organizations need to react quickly to the customers' demands to beat the competition. If there is one thing that today's global market demands from a company that is truly set to succeed it is flexibility. Virtual teams allow any organization to rise to this challenge in a number of different ways. Often, flexibility comes at a cost, but the converse can be true of virtual teams; if correctly implemented they have the potential to deliver significant cost savings to a company currently relying on traditional working practices (Edwards & Wilson, 2004). When establishing a virtual team, companies have the opportunity to select the employees from different parts of the world and hence collect the most flexible and talented people. Increasing globalization, heightened security awareness, and tightening travelling budgets are all factors that will foster further growth for virtual environments (Davison, Bélanger& Ahuja, 2006).

Team work and knowledge sharing between organization's members is one of the priorities of any enterprise nowadays. This notion is very much applicable to virtual teams as well,



but sharing information is done mainly via electronic communication media. Having the right technology in place enables efficient communication and collaboration between team members. Technological factor is important component in managing virtual communication but this study does not address this issues. Even though working in different locations and time zones appears to hamper collaboration between team members, in the other hand it creates an opportunity for the organizations to provide solution and react swiftly to market demands at any time of the day. Virtual solutions can deliver to employees the flexibility to design the way they work around other commitments and preferences they might have (Edwards & Wilson, 2004).

Virtual teams can work around the clock since members are located in different time zones and that gives the team a great advantage to respond to market demands at any time of the day. Perhaps one of the key advantages of the virtual team is the ability to hire best people for the job. Unrestricted geographical location enables a virtual team to hire most skilled and experienced people from different parts of the world. Pool of talented people can be put together to increase efficiency and productivity of the business. Knowing the fact that virtual members do not need to travel reduces travelling costs and also reduces costs of renting office space because virtual members do not need to be physically in office.

Communication and Virtual Work Teams

In Malhotra and Majchrzak (2015) view, computer-mediated communication systems are those that use computers to structure and process information and use telecommunications networks to facilitate its exchange. These systems include e-mail, voice messaging, computer conferencing, etc. The rapid development of technologies that support communication and facilitate the exchange of data and information, including the internet, telephony, broadcast media, and all kinds of audio and video transmission technologies, improves the team work undertaken within geographically distributed project teams. Information and communication technologies (ICT) are indispensable to globally distributed projects. ICT enables communication among geographically dispersed project teams and positively impacts project team efficiency. Furthermore, information and communications media help to create and maintain trust within geographically distributed units. As Kozlenkova, Samaha and Palmatier (2014) explains, these factors are particularly significant for creating

a bond between project team members and establishing a sense of team unity. Globally distributed information technology (IT) projects have become common practice within today's organizations mainly due to outsourcing, globalization, and the ever increasing internationalization of companies. Moreover, the rapid development of information and communication technologies (ICT) has impacted the increasing use of dispersed project teams (Zaccaro& Bader, 2014).

Havey (2014) explains that communication and trust are essential to every type of business setting but they undeniably play a dominant role in virtual organizations, and for this reason also in globally distributed IT projects. Regular face-to-face communication among team members of collocated projects supports the building of trust and the sense of "teamness" (Ludwig & Pemberton, 2013). Since face-to-face communication is not always applicable to globally distributed IT projects, information and communication technologies play a major role in communicating and creating trust within global project teams. Though companies extensively use ICT to enable and support communication in distributed project teams, communication is still often recognized as one of the biggest challenges encountered in globally distributed projects (Bellarby& Orange, 2013).

Furst, Teece, Pisano and Shuen (2012) found that when a team of employees are linked together, they are likely to frequently communicate and exchange information leading to improved performance. However, as Havey (2014) posit, communication breakdown can wreak havoc in organization as virtual teams members struggle to effectively communicate and work with one another. On the other hand, communication complexity is also the result of diverse competences of the virtual team members (Borgatti&Foster, 2013) While communication can be viewed as a traditional face-to-face team issue, effective communication problems and challenges within virtual teams can be magnified by distance, time, and increased cost of interaction due to the slower pace of non-native speakers' communication (Malhotra &Majchrzak 2012). Furthermore, cultural diversity have a negative impact on communication (Shachaf, 2008) and cultural differences seem to affect virtual teams' performance poorly in maintaining effective cross-functional communication (Majchrzak et al., 2012).



Carley (2015) argue that the dissemination of data improves teamwork performance in the organization. As Carley (2015) explains, both advances in information communication technology (ICT) and well-designed organizational arrangements will enable well-prepared virtual team members to communicate more effectively and more clearly across time and across different geographical locations than traditional face-to-face teams (McPherson, 2016).

In the 21st century, the most valuable organizational resource is how it communicates, knowledge sharing among workers and their productivity, replacing the most valued asset of capital and equipment in the 20th century (Cottrill, 2013). According to Havey (2014), for virtual teams to operate effectively, it must be supported by extensive dissemination of data and circulation of information. Similarly, Trivedi and Desai (2012) hold that the most valuable asset firms have is the communication of their employees. Aaker established special virtual teams, which are known as Virtual Cross-value-chain or collaborative creative teams for creatively and rapidly designing a new innovative low-cost engine (Aaker, 2014). Virtual teams face many challenges in creative work, non-routine problem-solving and unpredictable solutions without the merit of having face-to-face communications.

The Imperative of Collaboration in Virtual Work Teams

Townsend, De Marie and Hendrickson (2016), define collaboration as the partnership that brings together members of a team of different team to work together. Collaboration is an intensive form of work (Maznevski and Chudoba, 2014) and project teams constitute particularly intense collaborative work contexts. According to Davis (2012), organizations that invest and engage well through virtual platform performed better than organizations that did not appreciate technology. As Shapiro (2015) further argue, virtual platform unites a team and foster close relationships that enhance performance. Strong (2012) point out that it is increasingly clear that the effectiveness of teams cannot be understood apart from the organizational context in which they are embedded. Collaborative technologies tend to become the backbone for the support and enactment of collaboration activities in project teams, since they facilitate the access, creation, processing, storage, retrieval, distribution and analysis of information across roles and positions in a project, physical and temporal boundaries, and thus allow cooperation across geographical dispersed project members (Teece Pisano &Shuen, 2012).

In a study, there is need to expect project teams to exhibit elements of both cross functional and virtual teams. As Furstet *al.*, (2012) explains, when a team of employees are linked together, they are likely to frequently communicate and exchange information leading to improved performance. When communication and collaboration in a project are only effectuated on-line, usually through the support of a collaboration platform, then we refer to virtual project teams. In line with other authors (Bellarby& Orange, 2013) project teams are structures of independently managed individuals, often distributed, that possess complementary capabilities and who cooperate temporarily to meet predefined objectives within predetermined deadlines through a non-repetitious string of complex activities. According to Wernerfelt (2014), virtual platform improves projects performance since people in different localities can work as a team through networking. In a project, Furstet *al.*, (2012) explains that when a team of employees are linked together, they are likely to frequently communicate and exchange information leading to improved performance. Within the context of collaboration technology enabled project work, collaborative tasks are those which are characterized by high ambiguity and non-repetitiveness, and 18 those which require intensive collaboration activities among the members of the project team. The first are described with the task non-routiness theoretical construct (Majchrzak, Malhotra, Stamps &Lipnack, 2012), while the latter with task interdependence (Malhotra &Majchrzak, 2015).

Carley (2015) provided empirical evidence that when the task of a subunit is considered as non-routine, there is a need for substantial information-processing, which subsequently implies intensive collaboration activities among team members. In routine tasks the nature of the decision making required is known and disagreements over preferences are less prominent (Borgatti& Foster, 2013). Bell and Kozlowski (2012) argues that in situations where individuals perceive their task as non-routine, there is a higher potential for misunderstanding arising from confusion over conflicting and multiple interpretations of causation that may affect the whole context of collaboration in a project team. Individuals in project-teams may consider their tasks as non-routine for several reasons: they may have a new role to perform; they may be new to project team work; or the task the group deals with may be entirely new.



Cohen and Mankin (2015) claim that when individuals are engaged in non-routine tasks, even partial IT support may facilitate the whole context of collaboration. The creation of a functional collaboration context through a virtual workspace, populated by individuals with different expertise, is necessary when collaboration intensity is high, since such cases are prone to a high degree of misunderstandings. The intensity of collaboration in a project team work context is highly related to the nature of the work tasks carried out by team members and especially the degree of “routineness” of these tasks.

In the globalized world with crucial technological changes, leaders are facing unforeseen opportunities as well as challenges while striving to reach their objectives. Such changes have led to organizational restructurings and implied rethinking of leadership functions and practices. Changing organizational structures, from traditional hierarchical towards lower and more flexible ones, have made leaders organize work through collaboration. Teams account for one new way of organizing work and reaching organizational goals. Likewise, globalized markets have made leaders search for new solutions to meet the needs of customers (Davis, 2012; Cascio, 2014).

The Imperative of Trust in Virtual Work Teams

Literature on virtual teams shows that trust has been found as more critical in global virtual teams, whose members are separated by location, culture, and time, than the traditional teams because of the absence of face-to-face interactions (Havey, 2014). In a study on virtual teams’ performance it is found that trust is necessary for adding value to virtual teams’ performance as an important determinant of the team member’s decision for cooperation with or competition against other team members in the virtual workplace environment, where team members work independently (Cottrill, 2013). According to McPherson (2016), factors such as openness cannot be easily achieved through virtual workplace operations as it requires face to face interactions to achieve it.

In face-to-face environments, team members, attending the same meetings, working in the same physical environment, tend to share commonly held information, and experiencing similar organizational culture. They all contribute to a common understanding of team goals. However, in virtual team settings contextual knowledge may be held uniquely

and tends to be unevenly distributed among team members. For example, failure to share the contextual knowledge in virtual team environments may cause misunderstandings or misinterpretation of a remote team member’s behavior, and negatively affect the performance of the team as well as trust among them (Davis, 2012); Cascio, 2014; Furstet *et al.*, 2012). Malhotra, and Majchrzak (2012) point out that relational dimension is centered on the role of the direct ties between team members which build trust. This dimension factors focuses on shared responsibility for outcome, trust and collaboration among distributed project teams. In particular, collective trust can be a crucial element of virtual team well functioning. Collective trust is defined as a shared psychological state in a team that is characterized by an acceptance of vulnerability based on expectations of intentions and behaviors of others within the team (Malhotra &Majchrzak, 2015). Collaboration is defined as the degree to which team members actively help one another in their work (Furstet *et al.*, 2012). Trust plays an important role in successful collaboration.

Strong ties promote trust and collaboration. As trust develops over time, opportunities for knowledge transfer between members should increase (Furstet *et al.*, 2012). Configuration of a team should encourage collaboration as configuration influences the flexibility and ease of communication and knowledge exchange between team members. A decentralization of authority to members such as the development of lateral ties improves communication and collaboration (Davis, 2012). According to Havey (2014), strong ties encourage trust. Moreover, the concentration of decision making authority inevitably reduces creative solutions, whereas the dispersion of power facilitates spontaneity and experimentation, and the freedom of expression which are the lifeblood of knowledge creation. In addition, leadership should promote trust and collaboration (Choi *et al.*, 2003).

Virtual Work Teams and Organizational Productivity

In a changing economic climate, all organizations are looking for ways to improve productivity, streamline processes, save costs, and outperform competitors. One key to achieving that is keeping people and teams across the breadth of the organization (including partners, vendors, outside resources, and potential customers) at the same time to promote common goals and avoid duplication of effort. It is evident that virtual workforce team will have less face-to-face



communication than a traditional workgroup. Since there is greater reliance on indirect communication mechanisms, such as voice-mail, e-mail and fax, members of virtual workforce are well advised to learn to use these effectively. Potential managers and supervisors of virtual workforce should possess the necessary skills to navigate the virtual workforce successfully. As remote workers become the norm and companies expand their reach nationally and globally, tracking employee performance and costs is increasingly difficult-and critical to the bottom line (Ejiwale, 2008). Otherwise, its implementation may constitute waste rather than fulfilling its anticipated outcome of increasing productivity. Rebecca, Aaron, Kurt, Maureen, Rex & Kirsten, (2010) established that interpersonal dimensions, such as enhancing communication and increasing social presence are two areas that impact virtual team effectiveness. Therefore, it is imperative to improve the effectiveness of communication with the virtual workforce (Ejiwale, 2008).

Challenges of Virtual Work Teams

Dewey et al., (2010) argues that the challenges associated with virtual teams includes, increasing dependency upon technology, meaning if the technology fails the team is adversely affected secondly is the isolation of team members and lastly more difficult to use typical communication skills that occur in face to face meetings. A cosmopolitan leader is often challenged with managing the complexities of a workforce rooted in various cultures. This is made even more difficult by the requirement of working through time, space, and technology. Dube and Pare (2001) suggested that global virtual teams face more challenges than localized virtual teams. The possible disadvantages are that they tend to have more time consuming decision-making processes and when miscommunication and misunderstandings occur, stress and conflicts among team members are heightened and less easily dispelled.

Geographic dispersion and lack of face-to-face communication create new challenges for members of virtual teams. Research shows that geographic dispersion among people generates negative outcomes, such as a decline in communication, mutual knowledge problems, and work coordination difficulties (Weisband, 2008). Declines in opportunities for communication are even more problematic when such communication lacks face-to-face contact and non verbal cues. People rely primarily on non verbal signals to help them navigate social interactions. These non verbal cues

affect both the way in which people work and the quality of their work in a team. The absence of non-verbal cues in turn increases opportunities for ambiguity. This ambiguity implies greater uncertainty, especially when processing information and making sense of various tasks and members' perspectives. Thus, virtual teams need to overcome powerful barriers to effectiveness. Current research suggests that virtual team failure is directly related to the difficulties of building trust, positive relationships across the three boundaries of geographical distance, time zones, and cultural differences (Kimble, Li & Barlow, 2000).

Virtual Work Teams and Managerial Implications

Virtual workforce constitutes employees that operate remotely from each other and from managers. Therefore, managing this emerging workforce successfully depends largely on effective communication between managers and the employees that constitute the virtual workforce (Ejiwale, 2008).

When implementing telework, emphasis should be placed on recruiting the right people (Snell, 2009). Employees well-suited for telework have a strong balance between technical knowledge and social skills. They are adaptable, well organized, and flexible. Their psychological profile is characterized by low levels of neuroticism, resilience, extroversion, and self-confidence. Further, they are always open to new experiences and opportunities to socialize (Conlin, 2009) and are highly self-motivated (Cisco, 2007). Telecommuters require a very different style from managers. They require much more time than the traditional employee to produce a similar level of engagement (Cisco, 2007).

However, many of the competencies needed by managers in virtual and local settings are very similar. For example, Whitford (2009) found that transformational and visionary leadership produced the same levels of engagement from local and distance employees. Short, frequent communications with a purpose to help remote employees feel connected and included (Janove, 2004). A manager should make a special point to acknowledge the contribution of remote employees. Informal feedback also becomes critical in engagement (Linkow, 2008). They must know that their work is being noticed and is critical to the group effort (Derven, 2007). Managers must make time for personal interaction, especially if it is done virtually, to compensate for the impersonal means of communication. During these



points of contact it is important for managers to always to be available for contact from remote employees (Gerke, 2006). Without a strong connection to their manager, employees can feel isolated or develop closer connections with frequent customers, which can lead them to lose their focus on the company's main goals and strategic objectives.

In a virtual environment trust can be very hard to gain. Managers must keep their commitments to remote employees. Frequent rescheduling or lack of response to questions will very quickly create disengagement and distrust (Gerke, 2006). Performance management is most effective when management and employees agree on how performance will be assessed and measured (Linkow, 2008). Managing via technology can become demanding, but when a remotely-located employee is clear on their manager's expectations and confident on how they will be assessed, teleworkers will fully enjoy the benefits telecommuting can offer (Cisco, 2007). Managers can facilitate the process by maintaining consistency in their communications and actions towards remote employees. Unfortunately the virtual employment relationship produces less inherent trust than exists between a traditional manager and employee (Merriman et al., 2007).

Remote employees are most productive when allowed to self-manage. They thrive when trusted to perform their job well (Cisco, 2007). Trust goes hand-in-hand with greater decision-making responsibilities and greater autonomy can help foster creativity in remote employees (Derven, 2007). Though leaders sometimes find this the most difficult part of remote management, Software-enabled monitoring as detailed as real-time log-on/log-off systems exist and are available to managers who worry about security risks and the data that is being transferred outside of a company's intranet. However, enabling this type of control can lead to a temptation to "look over the shoulder" of remote employees. Research suggests that while some means of technical accountability may be good, this type of rigid structure is detrimental to employee motivation and productivity. Managers are challenged to find a balance between people and the task at hand - between the two extremes of micro managing and allowing too much distance (Derven, 2007).

According to Malhotra and Majchrzak (2015), the communication problems that global projects often face tend to be a result of missing informal communication, which is a constant struggle for internationally distributed teams. Past evidence indicates that communication in global software

development is less frequent (Cottrill, 2013) and less effective (Cummings & Cross, 2013) than in classical, collocated project teams. Thus, the ICT must strive to strengthen the effectiveness and efficiency of communication practices between geographically distributed team members. Furthermore, communication media should enable rapid information exchange and promote regular communication. Previous research results indicate that ICT reduce the negative effects of intercultural communication and support the positive aspects of decision making in global virtual teams (Needham, 2014).

CONCLUSION

Many organizations are now benefiting from harnessing virtual work to increase productivity, efficiency, quality, and reduction in reliance on "labor force" skills, to give more strength to "service" strategies and approaches in contemporary industrial workforce. Obviously, the application of modern technology has made it possible to redefine where work is done (Davenport & Pearlson, 1998). A company's workforce has always been its most valuable asset and normally its biggest expense. Attracting and retaining the right talent continues to be a foremost concern for managers. Today, however, many workforces operate in a virtual environment. The proliferation of the virtual team has had a significant impact on managers, who must reconsider traditional management strategies on how to communicate and collaborate effectively, for example in light of the characteristics of remote teams, whose members live in different time zones, rarely or never see one another in person, and communicate primarily via electronic mediums.

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