

Working separately but together: Appraising virtual project team challenges

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Working separately but together: Appraising virtual project team challenges

Abstract

Purpose

This paper aims to extend the extant knowledge on virtual teams by examining the challenges of virtual project teams in Nigeria.

Design/methodology/approach

Data was collected through semi-structured interviews. Twenty interviews were recorded, transcribed and analysed. Validity and reliability were achieved by first assessing the plausibility in terms of already existing knowledge on some of the virtual project team issues identified by participants.

Findings

Findings from this study confirmed the growing relevance of virtual project teams in a highly competitive global business climes. It emerged that some of the challenges identified in the study had some level of congruence with those previously identified from similar studies from other geographical locations. The findings also suggested that challenges in virtual project teams can be linked to the organisation, the project team and the virtual environment or even a combination of all.

Practical implications

The present study corroborates the position that managing virtual project teams require additional efforts to attain their objectives through effective communications and the adoption of appropriate technology.

Originality/value

The originality of this study lies in its exploration of virtual project team challenges in a sub-Saharan Africa country (Nigeria). By identifying the challenges associated with virtual project teams, stakeholders will be better able to successfully establish and manage virtual project teams better.

Keywords

Communication, Developing country, Nigeria, Project management, Team management, Virtual projects, Virtual project teams.

Introduction

The recognition and use of teams in the workplace has expanded significantly as a response to the competitive, complex, and dynamic nature of today's corporate world (Sandoff and Nilsson, 2016; Pina *et al.*, 2008). With advancements in information technologies and globalisation, the capabilities of organisations have equally extended their requirements to modify their team based structures from purely traditionally co-located arrangements to more virtual settings. According to Greenberg *et al.* (2007); Gilson *et al.* (2014), virtual teams have now evolved into dominant arrangements in most modern-day business environments. Also based on a previous study, it was estimated that about 1.3 billion people will be working virtually (John and Gratton 2013) while the Society of Human Resource Management (2012) reported that 46 per cent of human resource professionals from global organizations use some form of virtual teamwork. Stevenson and McGrath (2004) noted that major companies like HP and General Electric experienced substantial productivity increases with the use of virtual teams.

Virtual teams offer radical changes in organisational designs, deploy a more multicultural pool of personnel and are characterised by the use of information and communication technologies (Gilson *et al.* 2014). They also enable organisations utilise dispersed pools of skilful and talented personnel to meet the demands of competitive global business environments by, "working separately but together". In the midst of the benefits, Koster (2010) highlighted that the natural evolution of virtual teams in dynamic business environment can leave organisations grappling with a myriad of challenges like the role and deployment of relevant technology, communication and the creation of suitable organisational and reporting structures for operations.

Some previous studies (Saunders and Ahuja, 2006; Ebrahim *et al.* 2009) suggested that research on virtual teams is still nascent however, there is ample evidence to indicate otherwise. For instance, Pazos (2012) studied conflict management in virtual teams and concluded that commitment to team goals is a significant predictor of

successful conflict management. Bal and Gundry (1999) undertook an industry specific survey within the automobile industry. Part of their findings indicated that virtual teaming is now accepted in principle within automotive supply chain relationships. In a geographical skewed study, Holtbrugge *et al.* (2011) examined the use of virtual project teams in India. Various other areas such as the nature of virtual teams (Bergeil *et al.* 2008; Duarte and Snyder 1999); trust (Crisp and Jarvenpaa 2013); performance (Workman 2007) and effectiveness (Maynard *et al.* 2012) have also been explored all with respect to virtual teams.

Even as research activities on virtual teams are not limited to the abovementioned, to further bolster virtual team research, this paper has focused on virtual teams in Nigeria. The study forms part of a wider research that examined how virtual teams in selected developing countries might contribute to knowledge sharing in global organisations. Since the nature of virtual teams is such that they combine human and technology-related factors, there is a necessity to examine broadly how matters emanating from these factors can affect virtual teams. The paper specifically investigated virtual teams in Nigeria; its main purpose was to appraise the challenges of virtual project teams.

The next section presents a detailed review of literature that provides readers with an understanding of the nature of virtual teams. The review of literature also includes the benefits and challenges of virtual teams from a broader perspective and narrows the discourse to virtual project teams in Nigeria. This is followed by an explanation of the method employed to achieve the research aim. The subsequent section presents the findings and a discussion ensues. Conclusions drawn from the previous sections are presented in the final section.

Conceptualising virtual teams

Teams offer a method for combining diverse skillsets, talents and perspectives to accomplish business or other set goals. The significance and usage of teams in establishments has been well established to take on a variety of issues. With ever increasing globalisation and technological advancement, virtual teams have also become a fundamental business proposition. The term virtual has been employed to explicate a variety of phenomena. As evidenced from a plethora of literature, there are

several definitions of virtual teams for example, Gassmann and Zedtwitz (2003) described virtual teams as a group of people and sub-teams who interact through interdependent tasks guided by common purpose and work across links strengthened by information, communication, and transport technologies. In another vein, Ebraim *et al.* (2009) defined virtual teams as small temporary groups of geographically, organisationally and/or time dispersed knowledge workers who coordinate their work predominantly with electronic information and communication technologies in order to accomplish one or more organisational tasks. According to Martins *et al.* (2004) virtual teams are teams where members use technology to varying degrees in working across locational, temporal and relational boundaries to accomplish and interdependent task.

As most definitions above reflect, commonly it can be reasoned that virtual teams are characterised by a number of discontinuities. Watson-Manheim *et al.* (2002), categorised the discontinuities as temporal, spatial, work group, organisational, relationship and cultural. Similar to the conventional collocated teams, virtual teams are also synonymous because of their unique attributes or criteria for assessing their degrees of virtuality. Schweitzer and Duxbury (2010) summarised geographical dispersion, temporality, boundary spanning, cultural diversity, and enablement by communication technology as the most salient ones. In the midst of the various interpretations, within the context of this paper, virtual teams have been simply defined as groups of geographically and/or administratively dispersed co-workers who are linked by means of telecommunication and information technologies to accomplish set organizational objectives.

While there is a general agreement on the existence of various types of virtual teams, a few studies provide specific criteria for distinguishing them. Cascio and Shurygailo (2003) used the number of locations along with the number of managers involved in virtual teams to identify different types. Their study distinguished virtual teams as: teleworkers (with one manager in one location); remote team (with one manager of a distributed VT); matrixed teleworkers (multiple managers in one location); and matrixed remote teams (multiple managers across multiple locations). It may still be argued that conceptualisation of virtual teams has remained problematic because of the varying contexts or disciplinary adaptations in which virtual teams have been studied. However, dispersion, diversity and technological support appear to be the

underlying characteristics and convergent points when attempting to conceptualise virtual teams.

Benefits and challenges of virtual teams

As demonstrated in literature, (Bergiel *et al.* 2008; Townsend *et al.* 1998) organisations may benefit from employing virtual teamwork in many ways. Firstly, team members geographically dispersed can mutually work on the same project without physically being at the same location. The benefits of such collaboration can include enhanced productivity, increased competitive advantage and improved customer service. Another benefit worth mentioning is reduced cost; working in virtual teams may facilitate travel budget reduction in organisations. In addition, virtual teams have potentials of bringing together multiple perspectives thereby facilitating greater levels of innovation (Townsend *et al.* 1998). They also support highly flexible working patterns which make managing personal circumstances less cumbersome, since certain technologies can enable team workers to operate remotely. Finally, by using virtual teams, organisations can react quickly to more dynamic business and client requirements.

While acknowledging the benefits from virtual teams, it is important to highlight that they also bring unique challenges. Krumm *et al.* (2016) indicated that organisations face several challenges when implementing virtual teamwork. Some of these challenges include the lack of physical interaction with its associated verbal and nonverbal cues-and the synergies that often accompany face-to-face communication. Cascio (2000) further opined that the lack of physical interaction breeds issues related to trust. More recently, Bailey (2013) identified and debated that the lack of everyday non-verbal, face to face communication; lack of social interaction; loss of team spirit; lack of trust and cultural clashes were the main killers of working virtually. Furst *et al.* (2004) identified the relative lack of opportunities for virtual team members to engage in social or other non-work-related activities as another major challenge. Interestingly, irrespective of these challenges associated with virtual teams, Martins *et al.* (2004) observed that virtual teams have become common place in large organisations. This observation is supported by McGlade (2013) who observed that virtual teleworkers in the USA increased by 62 per cent from 2005 to 2012. The wider deployment of virtual

teams is further reinforced by a recent survey that found that 85 per cent of business respondents from 80 countries work on virtual teams (RW³ CultureWizard 2016).

Virtual teams in Nigeria

Nigeria is designated as a developing country in Africa with great potentials for business. According to Fajana (2008), it is also Africa's most populous nation and one of its most important strategically. To a greater extent establishments are leaning towards the development of virtual teams, which would provide organisations with an unprecedented level of flexibility (Powell et al. 2004) as well as some other benefits previously highlighted. With these increasing strategic partnerships and projects across wider geographic distances, more organisations in Nigeria may consider the need to effectively engage in various forms of virtual collaborations rather than merely pulling together qualified face-to-face teams to attend to a range of organisational priorities. On the other hand, certain organisations around the globe might equally consider Nigeria as a potential investment area which can enable their existing businesses produce additional deliverables from another geographical location with alternative skills. Under the abovementioned working environments, it becomes inevitable to have several inconsistencies ranging from the communication styles, approaches to problem solving and work ethics because of the interactions of more culturally diverse people. As demonstrated by Hofstede (1991), cultural diversity takes account of national and linguistic differences among members as well as differences based on other broader cultural dimensions. Given that current and prospective personnel of virtual teams in Nigeria bring their disparate cultural values to teams and organisation it is important to also consider if certain cultural dimensions may affect virtual teams.

Furthermore, previous studies (Gurung and Prater, 2006; Pornpitakpan, 2005; Prasad and Akhilesh 2002; Paul and McDaniel 2004) establish that based on national or organisational cultural orientations, several unique ways of managing and structuring tasks may emerge within working environment. As a result, personnel from different national cultures may react differently to organisational strategies. Based on the seminal study of Hofstede (1991), it can be inferred that no two cultures are exactly the same. Hence it may not be best to simply transfer findings from other context to

another. To the best of our knowledge, there have been no studies in Nigeria that have been solely dedicated to the issues pertaining to virtual teams. Finally, at a simplistic level, virtual teams are basically teams wherein the members operate from different geographical regions and function majorly with the aid of information and communications technology media. Odubiyi and Oke (2016) observed that Nigeria mainly uses the traditional team type (face-to-face team). Their study also argued that the use of virtual teams is still at infancy and most personnel just have middling knowledge of this type of team. With this notion, it can be concluded that virtual teams in Nigeria constitutes an emerging, continuously evolving phenomenon whose uses, benefits and challenges can change as information and communication technologies advance and as their usefulness and popularity increase. Therefore it becomes useful to gain additional insights into virtual teams by examining the challenges of virtual project teams in Nigeria.

Delivering projects with virtual teams

According to the Project Management Institute, projects are temporary endeavours undertaken to create unique products, services or results (PMI 2008). With the initiation of any project, project teams are formed for the purpose of completing the project. Normally the teams formed comprise of a collection of personnel assembled for definite time frames in order to meet the specific objectives of the project. As organisations increasingly implement projects beyond their immediate physical locations, the need for establishing various forms of virtual project teams has become almost inevitable. While establishing virtual teams may be considered a straightforward undertaking, a few difficulties can be readily identified. One difficulty is that project management process becomes a more complex task to undertake when compared to the project management process within collocated projects teams (Karolak 1999). Other difficulties might include coordinating tasks with more dispersed organisational units in a manner that individual units can still contribute meaningfully to the overall project aims, implementing formal and informal control process as well as communication (Carmel and Agarwal 2001). When faced with these conditions, it is clear that the management of virtual teams and projects need to give additional detail to activities. Therefore the project personnel especially the project manager

needs to take responsibility for not only the normal co-located project management activities. They also need to recognise and devise strategies to address and leverage the difficulties and issues which arise directly or indirectly from operating within virtual environments so that the planned objectives of the projects are not compromised. As previously stated, the primary goal of this research was to identify significant challenges of virtual project teams in Nigeria. The objective of doing this was to partly increase the level of knowledge of this area and help reduced the difficulty of successfully deliver future projects using virtual project teams. So far, most studies that have investigated issues affecting virtual project teams have taken place in more developed economies within the European and North American continent. Accordingly, this study adds to the existing body of literature by specifically investigating the challenges of working separately but together (virtually) within a sub-Saharan African developing economy. As established from the reviewed literature, very limited studies have been undertaken to explore issues affecting virtual projects or teams in Nigeria.

Method

A vital step towards achieving the aim of the research entailed obtaining the views of those familiar with virtual teams in the selected location of study. The entire research process was underpinned by a review of extant literature to extract relevant information and an empirical survey using a qualitative method. As perceived from Schiller and Mandviwalla (2007); Dennis et al. (2012); Jarvenpaa and Keating (2012); Baralou and McInnes (2013), most studies on virtual teams have been focussed on developed countries within Europe and the Americas. Therefore, a qualitative method was deemed to be the most suitable research strategy to adopt because of the limited number of empirical studies on virtual project teams in Nigeria. This also necessitated the selection of semi-structured interviews as a logical means of data collection. Bryman and Bell (2011) explained that semi-structured interviews provide an excellent means of gathering relevant information from experts. Within this study, semi-structured interviews also enabled a detailed investigation into the participants' opinions of the key issues affecting virtual project teams as compared to other data collection methods which may have only permitted restricted responses.

Since making generalisations was not the sole purpose of this research, a non-probability sample design with snowball sampling technique was adopted. This approach facilitated the selection of an information-rich participant sample. As highlighted in Table 1, participants who were drawn from the Engineering, Banking and IT sectors had held several roles such as project and programme managers.

Table 1: Summary of participant's profile

Insert Table 1

A total of twenty participants were interviewed; their selection was mainly based on their participating in virtual project teams in Nigeria at leadership cadres for over five years as well as their willingness to engage in the research. Averagely, interview sessions lasted for about thirty-five minutes. While concerns may be raised about the sample size, interview durations and the validity of the findings, it is well established that qualitative research does not require large samples (Creswell, 1998; Guest *et al.*, 2006) while data saturation can occur with moderately small samples.

The interview questions were carefully selected in an attempt to prevent any preconceived bias. Nachmias and Nachmias (2008) suggested that interviewees should have a sufficiently common vocabulary, so the constructed questions can have the similar interpretations. Typical questions were asked to elicit the participants' knowledge on virtual teams and to identify the challenges they encounter when working in virtual settings. These typical questions were followed by additional questions that enabled the researchers to probe for precision and greater detail. Prior to the main study, pre-testing of the interview questions was undertaken to improve the phraseology and to ensure that they conveyed the intended meanings. This was achieved by engaging three industry practitioners; based on their recommendations, a few questions were revised to achieve greater clarity. Before the commencement of each interview session, participants were assured of their confidentiality and the voluntary nature of their participation. To further maintain confidentiality, the participants' names and all identifying information were replaced with letters during the data processing stage. The recorded interviews were transcribed and analysed

manually by adopting the following steps: organising the data; categorising the data in terms of similarities and differences with regard to the responses of the participants. Then subsequently building and understanding of themes. Manual analysis was adopted because of the relatively small number of interviews conducted.

Rigour was accomplished by engaging experienced personnel and focusing on verification and validation, this included responsiveness of the researchers during discussions, methodological coherence, appropriate sampling frame and data analysis. Verification for this study was done by presenting the findings to the participants while validation was carried out by presenting the interview findings to a different set of practitioners with knowledge of managing virtual project teams. The main philosophical consideration of this research was linked to the essential requirement of identifying the challenges affecting virtual project teams and proffering solutions. The next section discusses the results from the research.

Findings

The findings have been discussed below under themes drawn from the analysis; where appropriate direct quotes from the interview transcripts have also been included.

Theme 1: Virtual project teams in Nigeria

Before commenting on the challenges of virtual project teams, all the participants relieved their experiences of working and leading virtual project teams. Participant D described how specialised personnel from their organisation as well as external participants were selected for a particular past project. The participant stated that:

“I came from headquarters here, but we also had five other people. Three were in our other branches while the rest were from our overseas partner. So what we did was to share the tasks day and night to engage the team till the final launch”.

Participant I recalled details from a current web development project:

“In the past 8 months, I headed the website launch for ***. I operate from Lagos (Nigeria), the website is designed in Manchester while the software is developed in; Mumbai (India); and Atlanta, USA. So far, most of the communication has

been via telephone calls and email with periodic discussions over Skype. I briefly met with the web designer in London and hope to meet one of the software developers just before the final launching”.

In another account Participant M explained that:

“our work arrangement is such that some field operatives function from agreed alternative sites which may either be their homes or in our branches. They simply provide telephone updates or send emails. When they have to come here, we operate a hot desk arrangement. Although people bid weekly for them, we still have one or two stations that are left for any staff who has emergency need”.

Participant P recounted:

“we have a very small team in Korea but a bigger team here so the balance is actually very right for our current level of operations”. The participant also added, “we strive to utilise and leverage on the local expertise first before engaging the Korean team who are very efficient and also cost effective for us”.

Generally, their accounts illustrated that virtual teams are to a certain extent integrated into the operations of organisations in Nigeria. As observed from their explanations, participants had been involved with various types of virtual project teams. Some of their accounts of participating in virtual project team activities echoed the classification by Duarte and Snyder (2001). According to Duarte and Snyder (2001) virtual teams exist as project or product development, network, parallel, work or production, service, management and action teams. Even as the participants demonstrated an awareness of virtual project teams, with different expressions, some (Participants G, K, N and C) still supposed that the concept of well delineated virtual project teams is relatively new within Nigeria. Specifically, Participant N posited that the use of virtual project teams *per se* has not been fully embraced by organisations in Nigeria because of various reasons.

Theme 2: Challenges of virtual project teams

As observed in this theme, when asked to comment on the challenges of virtual project teams, a number of interesting trends occurred. Participants (B, F, I, G, K) enumerated the perceived benefits of virtual teams before highlighting the challenges. Participant B disclosed:

“the benefits we experience are actually derived from some challenges”. This participant further explained that: “We are able to tackle problems faster but when the teams are poorly managed, the team dynamics becomes weak and creates tension”.

However the Participant also cautioned that the challenges of virtual project teams can be very subjective. Irrespective of the acclaimed subjective nature of challenges, a number of additional challenges were identified by other participants.

According to Participant J:

“the challenges that can befall any site project team are experienced in virtual project teams but even to a greater level. For instance we can have unresolved and unrecognisable issues among the personnel which led to full blown conflict. Sometimes, there is also the challenge of uneven participation and lack of accountability”.

In another contribution, Participant F noted that:

“when members of a project team are in one office, they may know each other and might even work closely but with virtual project teams, members do not see one another working on the project. Very limited opportunity to build a relationship from daily interactions”.

The illustration cited by this participant underscores the importance of relationship building and by extension, trust. Within virtual team environments, trust can be described as a group member’s willingness to be vulnerable to the actions of his or her teammates on the basis of the expectation that the other members will perform actions that are important to the trustor (Polzer *et al.* 2006). Trust involves not only expectations about other people’s motives and intentions, but also considerations about the situation and the risks associated with acting on such expectations (Lewicki and Bunker 1996).

Participants (C, L, P, J, I) also acknowledged that technical issues and technology often pose challenges to their project teams. Participant I recounted that:

“images freeze on the screen and I have experienced very poor sound during meetings. Most times we have to refresh so all these hamper communication and continuity”.

Nowadays, It is relatively common to find virtual project teams embracing basic technologies such as telephones or email as well as complicated options like 3D hologram, videoconferencing. However, the availability and adoption of these technologies may largely depend on factors like organisational resource capacities or team member location and technological awareness. For instance, those working as part of a virtual project team in more developed countries like the Canada or the United Kingdom may have quicker access to more advanced technologies than others in a developing countries like Nigeria or Ghana. The illustration above can impact on the performance of certain team members because of their unfamiliarity or inability to engage with more advanced technologies and systems.

In appraising the challenges of virtual project teams, Participant O extensively described several communication barriers encountered while collaborating with people of different cultures and organisational orientations. According to Participant O:

“sometimes you have people working 9-5 or other different start and finishing times. There are also various companies’ attitudes to breaks and overtime working”.

When describing other communication challenges Participant O stated that:

“occasionally joy or anger, sarcasm and frustration can be lost or misinterpreted”. So I embrace contextual information that attempt to transmit such meanings in alternative ways. My team members and I provide the emotional context of messages through emoticons and symbols. Other times, we just make font size changes to depict anger or highlight the importance of certain aspects of my messages”.

It is important to state that miscommunications can easily occur among virtual project team members (Ghaffari et al. 2014, Koster 2010). While the approach suggested by Participant O seems practical, it can still be argued that symbols and textual representation may only convey rudimentary feelings without capturing certain nuances. Therefore, Maruping and Agarwal (2004) suggested that simpler technologies, such as e-mails or the telephone may be more suitable for communicating routine and fact-based information. In addition to the challenges above, participants also identified insecure cyber space, limited performance

monitoring, lack of experience and ineffective personnel skills development as other issues that affect most virtual project teams in Nigeria.

Discussion

The results in this study show that the participants had been involved with various types of virtual project teams. Participants affirmed that in light of current globalisation and more advanced of work processes, collaborating with others across distances via virtual teams has become a highly predominant aspect of the activities in some organisations. As observed from their various accounts, the participants had been involved with various types of virtual project teams. Duarte and Snyder, (2001) noted that virtual teams can exist as project or product development, network, parallel, work or production, service, management and action teams. All these categories are identified by various peculiar attributes. From reviewed literature, various arguments on the suitability of virtual project teams for the delivery of certain projects have been made. For instance, Lau (2004) considered that virtual project teams can work better for the delivery of knowledge and services based projects that involve design, analysis or planning. Rather than debating on the suitability of adopting virtual projects teams for specific categories of projects, this study is in agreement with Cascio (2000) and proposes that organizations must have a clear understanding of the parameters for each job it considers for executing in a virtual environment. Regarding the perceived limited adoption of virtual projects in Nigeria highlighted by certain participants, while this trend might be a fall out from the peculiarities associated with developing countries (World Bank 2016; Ayogu 2006). It is important to add that the lack of clarity on the exactness of what virtual teams could be another major instrumental factor. It can be argued that the concept of virtual teams tends to be a loose term since it is widely used to represent a variety of activities that involve technology-supported working (Shen *et al.* 2015), distributed teams (Lee-Kelley 2006) and geographical dispersion and organisational boundaries (Magnusson *et el.* 2014). Irrespective of the perceived limited deployment of virtual teams highlighted, the findings still provide insights for organisations that may consider utilising various degrees of virtual project teams in the future.

Generally, with regards to the main issues affecting virtual project teams in Nigeria, what emerged was a clear knowledge of several contributing factors. Some participants clearly acknowledged that the challenges that can befall any collocated project team are also experienced in virtual project teams but to greater magnitudes. The challenges identified from the interviews included greater opportunities for misinterpretations leading to full blown conflict, the challenge of uneven participation and lack of accountability. Other challenges were limited performance monitoring, lack of experience and ineffective personnel skills development and ineffectual communication. It is important to state that the challenges identified from this study do not seem peculiar to only virtual project teams in Nigeria. Studies from other locations appeared to have several similarities. Cramton, (2002) found that virtual teams perceive it harder to communicate nonverbally than face-to-face teams while Powell *et al.* (2004) identified communication, coordination and task-technology-structure fit as the main challenges virtual team members face. Their study also noted that virtual settings can present severe communication challenges. Other studies including Bordia (1997) observed underperformance in virtual team member's abilities to comprehend and exchange information as a major issue of concern. Mark (2001) disclosed that the geographic dispersion of the virtual personnel results in delayed communication, misinterpretations and minimal participation by remote virtual team personnel. Rice *et al.* (2007) identified reduced member awareness, limited information richness and miscommunication, new trust dynamics, greater conflict, cultural differences. More recent studies by Jarvenpaa and Keating (2012) identified trust as a major challenge in virtual teams while the findings of Schaefer and Erskine (2012) noted that technology and media choices were significant challenges for virtual team meetings. So far, the results from this study and literature suggest that irrespective of geographical location (developing or developed countries), certain challenges of virtual project teams have some levels of congruence. As a final point, it is necessary to accept that even the more prominent and sophisticated organisations also encounter difficulties when deploying virtual teams. Ashkenas *et al.*, (2002) illustrated this from IBM inability to respond to the rate of technological change for their virtual teams.

The way forward for virtual project teams

From the findings, the overwhelming views of all participants indicate that most challenges in virtual project teams can be linked to organisations, project teams and the virtual environment or sometimes a combination of all. Therefore a way forward for virtual project teams is to articulate some aspirations that can facilitate the mitigation of some previously identified challenges.

Firstly, concerning organisations and some of the related challenges identified, it is important for organisations to recognise, support, reward and caution team members and leaders adequately. This can be achieved by an initial training at the onset of virtual projects as well as on a continuous basis. Additionally, organisations need to have more receptive cultures and management support that acknowledge the peculiar nature of virtual project teams. In terms of support, Rosen *et al.* (2007) advocated for the provision of teams with robust and responsive services that facilitate their activities. Their study also explained that key to working efficiently and effectively for virtual teams is the development of mechanisms that share collective knowledge, expertise, and experiences in a manner that is easily accessible to all personnel. While Shen *et al.* (2015) proposed that organisations should be experienced in collaboration technology before implementing virtual teams.

Another major set of challenges identified were those related to the virtual project team. At a fundamental level, all project teams including virtual project teams thrive on interdependence thus developing individual trust within teams is very crucial. According to Wilson *et al.* (2006) where team members do not trust each other, they are likely to consume further time and effort monitoring one another, backing up or replicating each other's work, and documenting problems. Furthermore, personnel perceived differences and irreconcilable desires over situations concerning their associated tasks might lead to conflicts which can in turn result in ineffective teamwork and unpleasant outcomes for virtual teams. However, it has been found (Jehn *et al.* 1999) that a strong shared identity among the virtual team members can reduce conflicts in virtual teams. With a shared identity, there tends to be a higher degree of commitment, trust, and cohesion among team members, which motivates personnel to be more enthusiastic about the team. Therefore, within virtual project teams, developing a shared identity among the members is essential for the promotion of a

sense of togetherness. According to Webster and Wong (2008) shared identity in a virtual team represents the members sense of oneness with the team and is made up of a cognitive component of joint effort towards the attainment of a common objective. Based on the nature of virtual teams, to develop trust there needs to be a level of cultural awareness and reasonable knowledge of the participating organisations culture. To achieve this, virtual team members need to exhibit a high level of self-discipline, individual accountability, outstanding team engagement skills and trust. Despite the fact that the technology may be considered as the foundation of creating virtual trust; the activities of the personnel in virtual teams are the enhancers that build and sustain any form of trust created. According to Robert *et al* (2009), trust can be recognised swiftly based on initial team member interactions and strengthened as a result of additional interpersonal relationship experiences. Therefore they must constantly devise ways to be transparent with each other to build and sustain trust. Overall, project managers and those with leadership responsibilities also need to demonstrate a fair balance of political savviness and sound professional ethical awareness.

Other challenges like inadequate communication and misinterpretation of information were closely linked to the nature of the virtual environment. Given that the virtual environment creates limitations in providing opportunities for physical team interaction when compared to traditional team settings, the need to establish an environment that successfully supports virtual teams is needed. Where possible, including face-to-face interactions or team building sessions during the lifecycle of the virtual team particularly at the inception where project goals and vision can be communicated and shared is important. This is consistent with Maznevski and Chudoba (2000) whose study proposed that virtual team meetings should adopt a 'temporal rhythm' by having 'regular, face-to-face meetings, followed by less intensive, shorter interaction incidents using other media. As indicated by several participants, the combination of face-to-face communication with virtual meetings is another strategy for building relationships and commitment that can enhance team performance in virtual environments.

Implications for theory and practice

Incorporating virtual elements into team dynamics is becoming more common for globally; thus, it is critical to identify the underpinnings of team success and performance in virtual settings. This study is one of the first that examines virtual project team challenges in a sub-Saharan Africa country (Nigeria). Although research within virtual teams in Nigeria is still budding, a few questions remain in regards to the implications on practice. As indicated by participants, most challenges in virtual project teams can be associated with the organisations, project teams and the virtual environment or sometimes a combination of all. Collectively, these challenges all have great implications during practice.

One practical implication is the need to prepare managers and team members about the diversities that can emerge when working in different types of teams whose members come from a variety of cultural orientations in terms of communications, work ethics, and approaches to problem solving. This makes a strong case for cultural sensitivity intervention when considering the adoption of virtual teams. As explained by Snow *et al.* (1996), the general purpose of cultural sensitivity intervention is to legitimise cultural differences and to encourage the team to capitalise on those differences, rather than subduing or ignoring them. Furthermore, this implies the need for a greater awareness of the differing characteristics of the specific represented on the team.

Another practical implication relates to technology. Some situations captured during the interviews indicated how connections were not always clear during skype or other technology mediated meetings. Thus, this suggests the need to have backup technology plans for sustaining communications when inevitable communication break- downs occur. It also indicates the need to maintain, and update the best available technology as it is the crucial connection and support for virtual team members. Furthermore, organisations need to ensure that technology utilised by those working separately but together are fully compatible among users. As a final point, with the application of effective technology, virtual teams may create competitive advantages, enhance creativity and support learning. It can be argued that creativity

and learning are very necessary to develop problem solving abilities and thus continuous improvement and overall performance for organisations.

Conclusion

As illustrated in this study, virtual working has become progressively more common in the workplace because of its ability to connect people, gathering them together across space, time and organisational boundaries to collaborate. This current study advanced current knowledge on virtual project teams by appraising the challenges of virtual project teams in Nigeria. Unquestionably, virtual project teams offer cost savings, flexibility and many other benefits, however evidence from this paper indicate that they also create various challenges. The paper specifically identified ineffective communication, lack of trust and technology adaptation as key challenges affecting virtual project teams in Nigeria. Generally, these challenges can be attributed to the lack of coordination across geographical boundaries and time zones, the inability to establish trust and effective working relationships between project team members as well as the inadequacies emanating from technological systems. The findings of the present study are generally in accordance with the academic literature on the challenges of virtual project teams from other climes.

As highlighted from certain participants, the challenges that can befall any collocated project team are also experienced in virtual project teams albeit to greater dimensions. For this reason, project managers managing virtual project teams in Nigeria would require additional efforts to manage their project objectives, effectively manage communications, keep their personnel motivated and adopt appropriate communication technologies. While the introduction of new technology for virtual working should be embraced, there also needs to be back up plans for any breakdowns. Project managers also need to understand basic management principles and implement them more closely than ever. Finally, all project stakeholders need to manage their expectations better because it might be unrealistic to have the same levels of interactions with a virtual project team as compared to the traditionally collocated teams.

Various caveats should be considered when interpreting the results of this study. One being that the participants did not represent all categories of virtual teams. However,

given that this was an exploratory study of selected virtual project teams from organisations in Nigeria, the results can stimulate subsequent research that might provide more detailed insights. Secondly, the results presented are based on subjective opinions of the participants. Finally, some of the identified issues affecting virtual teams in Nigeria may be contingent on other factors not captured in this current study. Therefore future research may consider how team cohesion, organisational culture, project and team phases can impact on virtual project teams.

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