

# THE HEXAGON OF DRIVING FORCES FOR IMPROVING PERFORMANCE OF VIRTUAL PROJECT TEAMS IN EMERGING ECONOMIES

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**Abstract:** A virtual project team (VPT) or a geographically dispersed project team is a group of geographically and/or temporally dispersed individuals brought together via information and telecommunication technologies to work towards a common goal. The global village expands daily, and the search for additional revenue continues beyond borders. There is, therefore, a dire need for an integrated approach to managing projects effectively and proactively across regional barriers and beyond national borders. At present, knowledge of VPTs is not only limited but also fragmented. Grounded Theory study investigated the main VPT driving forces that have an impact on improving the performance of VPTs. In total, 27 participants took part in face-to-face interviews. A total of about 125 journals and books were reviewed as part of Literature research. Literature research was conducted before and after the field study in an effort to uncover the driving forces for improving the performance of VPTs. The findings

indicate: Strategic Support system, Strategic Leadership, sound VPT PM, Advocating ICT critical, Government support, and Building a Virtual Community as key drivers for improving the performance of VPTs in Africa. The research provides insights by expanding the domain and gaining more knowledge of VPTs and other technologies in the project management field, thereby creating a synergistic whole in a previously unexplored Sub-Saharan context. The findings are useful to project managers and key players on important lessons and an understanding of drivers for improving the performance of their engagement that would lead to improved future project delivery through hexagon of driving forces associated with VPTs in South Africa.

**Keywords:** Driving forces, Emerging economies, Project management, Virtual project team

## 1. INTRODUCTION

Virtual project teams (VPTs) are a new phenomenon in the field of project management that brings a competitive advantage as companies are expanding their business globally or internationally. To manage the resultant competition successfully, organisations are obliged to develop products and services faster, cheaper, and better in order to sustain or increase their competitive advantage in the global market (Anantamula, 2010). VPTs are groups of geographically dispersed co-workers that are assembled using a combination of telecommunications and information technologies to achieve an organisational task (Hunsaker & Hunsaker, 2008). VPTs are the engines for global expansion without incurring excessive operating costs. It has numerous benefits such as a gain in productivity, also assists in lowering carbon footprints, as the movement of resources is controlled (Apostolou, 2010). Organisations that refuse to embrace virtual teams or even worse, if they do not know how to efficiently and effectively lead their virtual teams, will face increased risks of failure and eventual obsolescence. Geographically dispersed VPTs tend to perform poorly because of a lack of shared vision and clarity on projects or organisational objectives. These initiatives are complex as they must adapt to local cultures to succeed (Quisenberry & Burrell, 2012). Although there is a dire need for an integrated approach to managing projects effectively and proactively across borders, the knowledge of VPTs performance is limited and fragmented. By understanding and properly improving the performance of these teams, organisations also can create a strategic competitive.

To manage the resultant competition successfully, organisations are obliged to develop products and services faster, cheaper, and better in order to sustain or increase their competitive advantage in the global market (Anantamula, 2010). Winters (2010) comments on this statement by adding that globalisation, high-speed internet connections, development of information and mobile technology and Web 2.0 collaboration tools continuously change the way in which projects are managed. Quisenberry & Burrell (2012) expound that technology can be leveraged for time zone optimisation to allow for continuous workflow and increased efficiency. This is achieved by coordinating

shifts from one time zone to another. They also claim that technology drives organisational feedback at all levels, creating a bottom-up and side-to-side strategic approach. This overtly points to efficient, reliable and integrated technology as a key factor for improving the performance of VPTs. It is however important to know that, if not well planned and managed, lack of background information on virtual communication may lead to inadequate critical thinking due to time pressure, human error in information processing, uncertainty and perceived isolation. In addition, it could entail reduced work satisfaction, task and organisational commitment, as well as breaking trust and team cohesion (Nyström & Asproth, 2013). A well-structured communication system is therefore crucial for improving the performance of VPTs.

It is important to note that companies in the developed world, such as those in the United States, are generally highly sophisticated and innovative. Their communication networks are usually supported by excellent academe that collaborates admirably with the business sector in research and development. The current literature reviewed so far is fragmented. Furthermore, not enough research has been done to explore the drivers with a view to improving the performance of virtual project teams in a developing country context (Nyström & Asproth, 2013; Drouin, Bourgaul & Gervais, 2009; Gaan, 2012). This is evident in skills deficiencies, where knowledge and experience are lacking, as well as technology that is lagging behind that of developed countries (Punjani, 2013). It is important to note that, although VPTs have increased in popularity, managerial, strategic and leadership skills still lag behind. As a result, there is often a lack of ability to create an atmosphere of trust, relationship building, communication, and effective collaboration. New theories and strategies, therefore, need to be developed to improve leadership, technological decision-making, trust, and relationships in VPTs. Potentially, managers and organisations can improve the high failure rates that are typically associated with VPTs (Quisenberry & Burrell, 2012).

This paper discusses the findings of an empirical Grounded Theory study that investigated the main VPT driving forces for improving the performance of VPTs. The next section discusses a review of literature on VPTs, while the third section discusses the methodological approach used for the study. The fourth and fifth sections discuss the study findings followed by conclusions and recommendations, respectively.

**2.0 Theory and Practice of Virtual Project Teams**

Few studies have been carried out on organisational support with a view to improving the performance of VPTs. Drouin (2009) and Gaan (2012) implore that not enough research has been done on the wider aspect of organisational policies, such as the impact of reward and recognition systems on virtual project team performance or efficacy. Future research also needs to address appropriate leadership styles (Mihhailova, 2008; Drouin, Bourgault & Gervais, 2009). Punjani (2013) propounds that “soft leadership skills” such as motivation, communication and emotional intelligence are difficult to incorporate into VPTs. Regarding competitiveness, sub-Saharan Africa (SSA) as a whole, lags behind the rest of the world, requiring efforts across many areas to place the region on a firmly sustainable growth and development path. While, technological acceptance continues to remain weak in Africa, most Project-Based Organisations (PBOs) need to manage complex projects beyond their borders. Many organisations learn the hard way when they fail to improve the performance of VPTs, as a substantial share of expected revenue and profit will then not be realised. The lack of immediate physical interaction between project partners is becoming the norm as collaboration now mainly takes place at the virtual level. It should be noted that managing the organisation’s complex and high-value virtual projects satisfactorily requires adequate knowledge of VPT performance. It is important to understand what drives the performance of VPTs in a developing country context. There is a need to study the driving forces for improving the performance of VPTs in SSA context.

**2.1 Research gap**

- Hinds, Liu & Lyon (2011) conclude that the majority of

- studies focused on team factors, as opposed to individual, subgroup, or organisational factors when assessing VPT performance. They claim that collaboration across national boundaries has become increasingly prevalent over the last decade. This fact notwithstanding, the management literature remains remarkably unhelpful in answering questions about what happens when people across nations and cultures work closely together. They claim that Africa has been left out in most of the studies. This strengthens the need for future research on VPTs in Africa, in which South Africa plays a significant role (Muganda & Pillay, 2013).
- Drouin, Bourgault & Gervais (2009) and Gaan (2012) implore that insufficient research has been conducted on the wider aspect of organisational policies such as the impact of reward and recognition systems on VPT effectiveness and that these should now be explored. The lack of appropriate leadership styles must be addressed in future research (Mihhailova, 2008; Bourgault, Drouin & Daoudi, 2008).
- Commenting on VPTs, Hosseini & Chileshe (2013) contend that reliance on the results of studies conducted in other industries or other parts of the world, such as the USA, does not provide a scientific approach to addressing the matter from the perspective of other countries.
- Hosseini et al. (2013) postulate that the body of knowledge on the variables contributing to an improvement in the performance of VPTs and the factors determining their effectiveness, suffers from scarcity of research. They further argue that a comprehensive list of factors influencing the effectiveness of VPTs is not available. It is also problematic, as the factors introduced in the literature are numerous, incompatible and highly diverse in nature.
- Hosseini et al. (2013) point out that the absence of an agreed-upon leadership policy to be implemented in VPT working environments creates a major obstacle to the effectiveness of VPT leadership. It is therefore vital that more research on VPTs be conducted in order to answer the pertinent questions mentioned above.

- The conceptual map depicted in **Figure 1** shows the main constructs for improving the performance of VPTs based on initial literature. Organisational support is assumed to include a reward system, technological support, an enterprise mindset and top management support.

**3.0 RESEARCH METHODOLOGY**

Grounded Theory (GT) Approach was used to explore a wide range of drivers for improving the performance of VPTs (Saunders, Lewis & Thornhill, 2009). It relies on insights generated from data that include a large number of people’s behaviours. GT consists of systematic, yet flexible guidelines for collecting and analysing qualitative data to construct theories from the data themselves. The strategy provides a useful way to explore a phenomenon in natural settings that are complex and dynamic, such as drivers for improving the performance of VPTs (Khazanchi & Zigurs, 2012). Another reason for adopting the Constructive Grounded Theory is that it uses a structured coding process of open, focused, and theoretical coding, which is easy to follow and understand. For the constructivist approach, theoretical coding is the merging of concepts into groups throughout the process. For Classical Grounded Theory, however, theoretical coding is part of the selective process used to integrate the Grounded Theory (Evans, 2013).

Constructive Grounded Theory was used to explore drivers for improving the performance of VPTs. The drivers were “grounded” in the data gathered and subsequently evolved during the research process itself and was a product of

continuous interplay between data collection and analysis (Goulding, 2002). Charmaz (2014) states that the inclusion of most of the points outlined below provides valuable evidence of a study of Grounded Theory:

- i) Data collection and analysis is conducted simultaneously in an interactive process;
- ii) The theory analyses actions and processes, not themes and structure;
- iii) The strategy uses comparative methods;
- iv) It draws on data, such as narratives and descriptions, in developing new conceptual categories;
- v) Inductive abstract analytic categories are developed through systematic data analysis;
- vi) Theory construction is emphasised more in this way than the description or application of current theories;
- vii) It engages in theoretical sampling;
- viii) It searches for variations in the studied categories or processes, and
- ix) It pursues category development rather than covering a specific empirical topic.

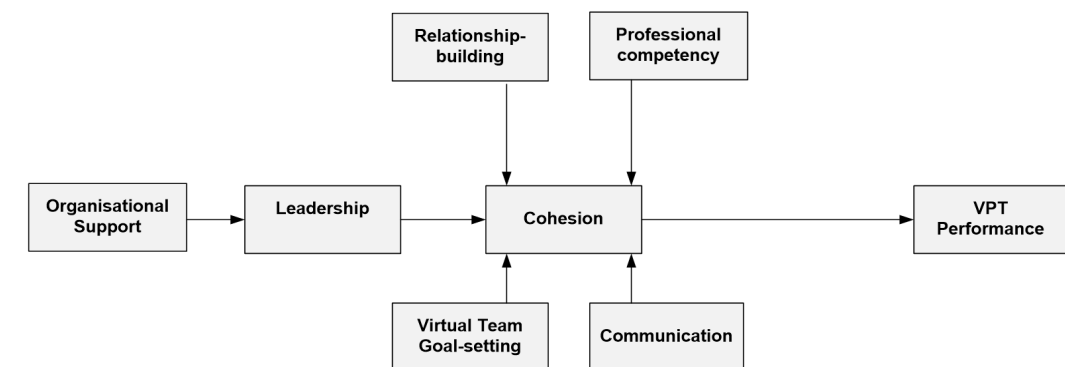
**3.1 Target population and unit of analysis**

The target population of this study was all VPTs in project-based organisations in South Africa. The unit of analysis in this study was the virtual project team. This is the major entity that was studied (Jill & Roger, 2003).

**3.2 Data collection, recording and analysis**

Grounded Theory is a form of naturalistic inquiry. Because the problems that generate research are located in the natural world, Grounded Theorists investigate their questions

FIGURE 1: A CONCEPTUAL MAP FOR IMPROVING THE PERFORMANCE OF VPTS AS DEVELOPED AND MODIFIED BY (OKTAY, 2012).



in, and draw their interpretations from, the natural world of their participants. The data collection process commenced by seeking out the areas which drive the performance, where the difficulties are experienced, and reviewing documents, observing and talking to the people involved. Data collection also entailed reviewing the visual media and in effect, it means entering the research participants' worlds.

The first step in analysing qualitative data was to plan for recording the information gathered. For qualitative research data collection, in particular when the Grounded Theory Approach is used. Semi-structured in-depth interviews were used to collect data. The aim was to identify and explore the antecedents with improving the performance of VPTs according to VPT members' perceptions (Khan, 2014). An interview schedule was used to gain an understanding of the experiences and ideas of VPTs. General open question was about the driving forces and how do they influence the performance of VPTs. Respondents were asked for permission to use a tape recorder to ensure accuracy in recording information. Notes were also taken during interview sessions. The respondents consisted of Chief Executive Officers, Team leaders, project managers, project engineers and consultants, project administrators, subcontractors and heads of departments. The reasons for selecting these participants were:

- Project managers manage and execute projects;
- Team leaders manage and oversee the projects
- Project administrators support project managers in managing projects;
- Project engineers and consultants are responsible for engineering designs and for commissioning systems;
- Subcontractors are affected by VPT engagements with all parties, and
- Management executives and individuals in top management are responsible for leading organisations, and allocating and managing all resources.

### 3.3 Research Instruments

The fact-finding strategies that were used in this study were mainly face-to-face interviews. A few interviews were conducted by telephone with a view to reaching participants

in remote areas. A structured questionnaire was used initially to identify team members working in a VPT environment before snow-ball sampling was applied.

### 3.4 Qualitative interviewing

During data collection method, the consistency between the research questions and objectives was used in order to maintain their fitness for the purpose throughout the study (Saunders, Lewis & Thornhill, 2009). Semi-structured interviews of an interview guidelines/protocol based on key themes or concepts identified through the initial theoretical framework, was used to guide the interviews as indicated in **Figure 1**. It illustrates the main concepts identified in the theoretical framework. It is important to note that Figure 1 was a summary of the main concepts selected from the initial literature review which formed the main basis of the interview guide.

In Grounded Theory authors view researcher's bias as a potential source of data that needs to be managed productively (Glaser, 2012). Their argument implies that bias should be viewed differently when using the Qualitative Grounded Theory Method compared to other methods of qualitative study. Comparative analysis was used in this study for improving the performance of VPTs. This tool therefore assisted in reducing to the minimum the challenges of bias from participants, researchers, as well as the methods used in this study.

Each interview commenced with an open question, so that issues were allowed to emerge more freely (Piko, 2014). Questions were asked in such a way that numerous aspects of improving the performance of VPTs emerged during the integrated data collection and data analysis phase. It allowed for flexibility and the process nature of research (Gumani, 2014). The initial interview question thus met the recommended criterion for a Grounded Theory study in that the question was broad, open, unassuming and provided direction for the study. This helped to avoid asking questions that would provide irrelevant data and lead to forming other theories apart from improving the performance of VPTs (Gumani, 2014). In total 27 participants took part in face-to-face interviews.

Initial interview questions were phrased so as to gather data

on the participants' situational experiences of working in a VPT environment. Typically, the first question was: "Tell me about a typical day in your life as a member of a geographically dispersed or virtual project team?" Researcher techniques were used to encourage individuals to continue talking, such as repeating a question or reply. Phrases such as "Go on". Tell me more about..." or, "Why did you do that?" were often applied (Pico, 2014). Furthermore, Pico advises that, in Grounded Theory, it is important to remember to be open and flexible. The specific wording of questions and the order in which they were asked were therefore influenced by the participants' replies. The face-to-face interviews allowed closer observation of the participants for any non-verbal communication. In addition, it enabled both the interviewer and the interviewee to clarify any ambiguities and necessary points. The interview time and duration depended upon the participants' responses, which sometimes extended and prolonged the interview sessions. The duration of most of the interviews was between forty-five minutes and an hour.

With permission from the participants, the interviews were audio-taped to ascertain an accurate account of the interview. It enabled the researcher to replay the interviews for transcription and analysis. Anonymity was assured during the course of the recording. Participants were reminded of their right to withdraw from the study or terminate the interview at any time before commencing the session should they wish to do so (Khan, 2014). Interviews conducted after the initial interviews were structured to answer more specific questions aimed at better understanding those concepts that had not yet been elaborated upon in the data. They were also used to seek agreement from participants that the theory accounts for their experience. Constant comparative analysis of data was initiated after the first interview was completed (Salkind, 2010). Individuals were selected by using a purposeful snowball-sampling technique, through the researcher's personal contacts and social networks (Khan, 2014). Snowball-sampling was useful as it was difficult to identify members of the desired population, for example, people who are working in VPTs.

It is often recommended taking as large a sample as possible if resources allow. Sample size affects the sampling error of a parameter estimate in such a way that the larger

the sample, the smaller the sampling error, and the more precise the inferences made from the sample, will be (Salganik, 2006). In this study, initially a purposive sample of about 10 people from the target population was chosen. They were selected because they are either working in or leading VPTs at present, or had done so in the past. This was followed by the use of snow-ball and theoretical sampling methods to reach other participants who have VPT experience. Anonymity was ensured for all participants; therefore, any company or individual identification was removed from the report (Khazanchi & Zigurs, 2012). The data were primarily collected from participants who were working or have worked on projects with either their head office in South Africa, or with a branch in South Africa. The respondents were from leading organisations representing the banking, mining, energy, ICT, and EPC industries in South Africa. Arising from the fact that the respondents had several years' experience and held high positions in their organisations, it is believed that the data collected was representative of VPT practices associated with above industry average performance (Gaan, 2012).

Once data collection started, moving between data and analysis 'took over'. Early leads and ideas from emerging analyses directed the researchers to where they must go, whom to ask next, and the kind of data they had to collect next. Theoretical sampling led to the revision or addition of new questions. Initial data was analysed first and then data collection was directed by the emerging theory (Flick, 2014). Theoretical sampling was achieved by collecting, coding, and analyzing the data simultaneously, rather than sequentially. The researcher sought additional data to broaden upon the insights that had been gained from the participants who had been interviewed thus far. Those portions of the theory that still needed further development were filled out. Because of theoretical sampling, the sample size could not be determined before the study commenced. Inductive reasoning was used to analyse data in this research study. Constant comparison, simultaneous and iterative collection, analysis, and interpretation of data were applied throughout the data collection and analysis phases. Emerging codes and concepts were persistently matched with one another, with new data, with data that was previously analysed, and with analytical memos (Salkind,

2010). The data analysis in this study consisted of a number of steps which involves recording of data, preliminary analysis, reading and writing memos and generating themes and patterns. The final focus was on identifying common themes that were considered in addressing the various related issues. In summary, the various stages of data analysis are as follows:

- Codes: Identifying anchors that allow the vital points of the data to be gathered;
- Concepts: Collections of codes of similar content that allow the data to be grouped into a concept, and
- Categories: Broad groups of similar concepts that are used to generate a proposition or theory.

From the data collected, the key points were marked with a series of codes, which were extracted from the transcripts. These codes were grouped into similar concepts in order to make the data easier to work with. From these concepts, categories were formed, which formed the basis for the creation of a proposition or explanation-building.

Concepts are the elementary categories or dimensions of the key categories that emerged from this Grounded Theory. The dimensions are the support elements of the key drivers that emerged (Charmaz, 2006). The key categories emerged as a result of focused coding and theoretical sampling as explained in the methodology. This resulted in similar concepts being grouped together, at a higher level, to form each key category or driving force. Memos were further written about these key categories.

Categories were collapsed into a higher level of theoretical category or construct, as patterns, dimensions, and relationships among them were noted. Diagrams showing these relationships and connections among the categories and to memos describing those connections were constructed. Theoretical codes or constructs, derived by questioning the data, were used to conceptualise relationships among the codes and categories. Each new level of coding required a re-examination of the raw data to ensure that they are congruent with the emerging theory. Unanswered questions which identified gaps in the data were used to guide subsequent interviews until no new information pertaining to that construct or code was emerging. Thus, the code was "saturated". In further data

collection this category was omitted, and research concentrated on other important factors. Throughout, as linkages were discovered and recorded in memos, hypotheses were posited about how the concepts fit together for improving VPTs.

Reliability was achieved through theoretical sensitivity, iterative coding and theoretical sampling. Literature, professional and personal experience were the sources of Theoretical Sensitivity. Validity determines whether the measuring instrument truly measures what it was intended to measure or how truthful the research results are. To increase validity and to develop a more robust shared mental model in this study, participants consisted of experienced project teams, project team members, project managers, CEOs and project directors. In order to augment the validity of the argument, expert advice was sought to validate the data collection tools from supervisors and experts in the field. Initially, expert advice was sought from research supervisors and also research committees to comment on the representativeness and suitability of the research questions. This further assisted in establishing content validity, and enabled the researcher to make necessary amendments prior to pilot testing (Saunders, Lewis & Thornhill, 2009). The pilot study was carried out in an effort to make sure that the interview reflects accurate information on the subject of the research and that it would be practical and empirical using available time and resources.

### 3.5 Ethical Considerations

Ethics begins and ends with the researcher and it is an important element of both quantitative and qualitative research. Ethical considerations, however, are more important in qualitative research as qualitative research approaches often intrude in participants' lives. It is the moral and professional responsibility of the researcher to be ethical even when research participants are ignorant of or unworried about ethics (Neuman, 2011). To get the full essence of the study, the researcher obtained the participants' confidence, consent and approval before conducting an interview with them. Before approaching participants for data collection through interviews, prior informed consent was obtained from them and they were informed that they could withdraw

at any time during the interview. To avoid any kind of identification of individuals, supervisors or organisations, the research was based on employees' past experiences and perceptions of the phenomenon. The participants were encouraged to share their experiences of the VPT phenomenon and not specific individuals or organisations. If advertently or inadvertently the participants identified any individual or organisation, the researchers immediately reminded them not to disclose information of this kind. At the end of an interview, interviewees were assured of the confidentiality of interview data.

## 4.0 Presentation of findings

### Brief overview of participants

Participants were sampled in accordance with the research methodology. Snowball-sampling was used to include other participants working in a VPT environment. All the participants are senior members of VPTs with a minimum of five years' experience working in VPTs within and outside of South Africa. Their level of experience and the data gathered enabled the researcher to gain credible, reliable and practical insight into VPTs from a South African perspective.

**Table 1** gives an overview of the participants.

### VPT Driving Forces

Six key VPT driving forces emerged from the interview data, namely, Strategic Support system, Strategic Leadership, sound VPT PM, Advocating ICT critical, Government support, and Building a Virtual Community. Of the six categories, Strategic support system emerged the most. Strategic support, as a key category, emerged 275 times from 27 participants. On the other hand, Strategic leadership emerged 246 times from 27 participants. Strategic leadership was central for the integration of other categories into the VPT after constant comparison of all codes and categories (Hallberg, 2006). Strategic leadership, therefore, emerged as the core category for VPT success. The category with the largest number of influences on other categories becomes the core category (Allan, 2007; Glaser, 2012). Participants contended that Sound VPT PM, that is, the project manager, is the third critical driving force for improving the

performance of VPTs. Sound VPT PM emerged 182 times from 23 participants. The other key drivers that emerged from the participants are Advocating ICT critical, 70 times from 22 participants, Building a Virtual Community, 62 times from 14 participants and Government support, 42 times from 12 participants. **Figure 2** illustrates all the six key categories that emerged as key VPT Driving Forces from the data obtained from participants. Details of each driver are discussed below.

VPT Strategic leadership and its dimensions will be discussed next.

### 4.1 Strategic leadership

As captured in Figure 2, VPT strategic leadership emerged as the core driving force for improving the performance of VPTs. It emerged 246 times from 26 participants. Strategic management involves helping VPTs acquire what is necessary to improve their performance. Researchers contend that it deals with how organisations respond to changes in the external environment including matters top management regularly has to deal with (Cullen and Leavy, 2017). It results in huge cost savings. The first step for organisational success is to select and position leaders for success. Commenting on VPT leaders, Dube & Marnewick (2016) advocate that strong VPT leaders should be able to develop strategies for achieving corporate objectives and define techniques of achieving them. According to them, leaders should carry the responsibility of selecting and motivating the right team, establishing team goals and objectives, building trust among members and preparing the team members to participate actively in a VPT. VT001, VT006 and VT022 claim that strategic leadership entails building VPTs from the onset of the project, and then supporting them thereafter. This implies that strategic leadership should take measures with a view to ensuring that VPTs are supported throughout their life cycle. Management executive support that ensures alignment to organisational goals is critical for a VPT enabling environment. Golnaz and John (2012) argue that strategic leadership must be willing to establish security policies, invest in needed technologies, provide procedures, be willing to embrace cultural diversity

Participant	Gender	Current Job Title	Number of years of experience
VT001	Male	Consultant, Process Engineering and Health care	5-10
VT002	Male	Project Manager, IT Consulting	15-20
VT003	Male	Project Manager, Consultant, EPCM	> 20
VT004	Male	Project Manager, Engineering	10-15
VT005	Male	Consultant, ERP IT	5-10
VT006	Male	Designer Draughtsman, EPCM	10-12
VT007	Female	Project Manager, IT Banking	10-15
VT008	Male	Engineer, Consultant EPCM	10-15
VT009	Male	Managing Director, Subcontractor EPCM	10-15
VT010	Male	Project Director, Tertiary Institute	15-20
VT011	Male	Head of Project Management Office, Banking	15-20
VT012	Male	Principal Electrical Engineer, Energy Sector	10-15
VT013	Female	HR Consultant, Projects	10-15
VT014	Male	Team Lead, IT Consulting	15-20
VT015	Male	CEO, Leading International Engineering Organisation	> 20
VT016	Male	Business Unit Manager Projects	10-15
VT017	Male	Mechanical Engineer Rail and Transport	15-20
VT018	Female	Senior Procurement Lead Projects, Oil and Gas	10-15
VT019	Male	Principal Consultant, IT Projects	15-20
VT020	Male	Executive Director Projects, Consulting	> 20
VT021	Male	Sales and Marketing Director, Engineering Projects	> 20
VT022	Male	Project Manager, Telecommunications	15-20
VT023	Male	Project Manager, Engineering Oil and Gas	15-20
VT024	Male	General Manager, Engineering Project Firm	> 20
VT025	Male	Projects Portfolio Manager, Insurance Firm	15-20
VT026	Female	Projects Administrator, Mining Organisation	10-15
VT027	Male	Projects Head, Civil and construction firm	> 20
VT028	Male	Project Manager, ERP Consulting	10-15

TABLE 1: AN OVERVIEW OF THE PARTICIPANTS



FIGURE 2: VIRTUAL PROJECT TEAM (VPT) DRIVING FORCES THAT EMERGED

(THE TOP NUMBER REPRESENTS THE NUMBER OF TIMES THE KEY CATEGORY EMERGED FROM INTERVIEW DATA. THE NUMBER AT THE BOTTOM (IN BRACKETS), REPRESENTS THE ASSOCIATED NUMBER OF PARTICIPANTS).

and set attainable goals to enable virtual teams to succeed. Strategic leadership undoubtedly plays a critical role in formulating, executing and maintaining the decision-making framework. This holistic view of strategic leadership overtly implies that it is indeed the core driving force for improving the performance of VPTs within an organisation.

#### 4.1.1 VPT support structure

Strategic leadership should put a proper support structure in place, or else the project delivery by VPTs will be impacted negatively (VT024). Strategic leaders need to have new ideas for leading and managing people. This calls for support structure and inventiveness, control and creativity, as well as leadership that recognises and rewards both individual and group achievement. As VPTs operate under volatile conditions, strategic leadership should therefore be prepared for any complex challenges from VPTs in order to support them. VPTs should operate within defined structures and processes, and an agreed and formalised defined decision-making framework (Derven, 2016). Strategic leadership undoubtedly plays a critical role in formulating, executing and maintaining the decision-making framework.

#### 4.1.2 Inclusivity and diversity

Inclusivity and diversity matters have a detrimental effect on the performance of VPTs, and one that should be managed carefully. Leaders need to be conscious of the different cultures and races constituting VPTs. Derven (2016) concurs with these findings and advocates that it is imperative that inclusive leaders be selected to ensure the success of VPTs. They must embrace diversity and inclusivity in all its facets to capture the best ideas, use complementary skills sets and create cohesion. Good leaders must be self-aware, inquisitive and committed to building a team culture of mutual respect. It is just as important for them to create an environment in which new ideas are encouraged and explored. Derven (2016) adds that, "An inclusive VPT leader values and promotes the contributions of the full team, rather than relying only on individuals who are more outspoken, extroverted and egalitarian in their approach".

#### 4.1.3 Instilling a virtual culture

Instilling a virtual culture emerged as one of the key requirements for VPT success. Leadership should infuse the feeling that each member is looking out for the other VPT member or else, other members will feel isolated (Flynn, 2016). Members of VPTs should take time to learn other members' cultures and create a common virtual culture that aligns all VPT members. This assists in various ways, for example, if someone needs something from the main office, the office bearers should expedite the required items without delay.

#### 4.1.4 Establishing a VPT for success

Leadership needs to establish solid foundations for ensuring the success of VPTs when building VPTs. Failure to do so, will lead to failure and overruns that can even collapse the entire organisation. It is important to note that VPTs must be established to accomplish organisational objectives. It is therefore critical to clarify how VPTs fit into the larger enterprise goals. This helps, inter alia, to drive VPT motivation, establish critical project milestones and monitor progress (Derven, 2016).

### 4.2 Strategic support system

Providing a VPT Strategic support system was found to be the second key driver for improving the performance of VPTs as Figure 2 illustrates. It emerged 275 times from 26 participants. Interview statements implied that strategic support is a multi-dimensional key category stemming from five key sub-concepts, namely business communication etiquette, PM methodology, VPT collaborative tools, strategic resource pool and enabling technology usage. The findings of this study indicate that, resource allocation, coordination, and communication support systems are vital for improving the performance of VPTs, as they can then excel in executing projects. Heller et al. (2010) advance that developing global leaders by providing oversight, support and feedback is critical to improving the performance of VPTs. They further advocate that an appropriate support system be adopted to meet challenges that the leadership may face. Such a measure will undoubtedly improve the performance of VPTs in the future. The finding is consistent

with Chen, Guo and Li (2008) who advocate that "strategic support system" is a system that provides essential conditions to achieve strategic objectives, and to protect the strategic implementation process. Below are the dimensions/details of the findings on the significance of a strategic support system:

#### 4.2.1 Business communication etiquette

A communication etiquette specific to VPT emerged as a key VPT strategic support pillar. A communication strategy has unarguably played a pivotal role in VPTs using ICT to facilitate communication and coordinate tasks. Project managers need a suitable business communication etiquette to monitor communication among team members. If management and VPT team leaders adopt such an etiquette, it will avoid messages that could be interpreted negatively and impair VPT performance. Dube & Marnewick (2016) affirm that effective communication among team members leads to trust, which, in turn, will improve their performance. They added that communication is the backbone of VPTs effectiveness. An interviewee (VT013) argues that:

*"At a larger level, since technology and virtual teams are advancing and increasing, perhaps South African business society could benefit from developing its business communication etiquette to be more in line with the many tools, options and instant and constant availability that they allow. We need to change some of our norms and ways of doing things to adapt to the changes we have seen in communication technology including timely responding to emails".*

Findings of this research claim that there are still gaps in closing the communication gap. The findings assert that, communication is a challenge and need to be properly planned and managed (VT025, VT026).

Where multiple languages are concerned, it is important to note, however, that South Africa's particular culture shape, and is shaped by, the organisation of work and the practices that emerge (Hinds, Liu & Lyon, 2011). They aver that members of a VPT can find different solutions to similar problems. This is because these solutions evolve differently

in different national cultures. The rationale behind this is that assignment of meaning varies and how the problem is framed, and that appropriate practices vary. This means that VPTs in South Africa can adopt different approaches to solutions compared to those of their counterparts in the global village. Although culture was not a key category that emerged from the interview data, it somehow appears to influence the way in which VPTs in general resolve matters of concern.

From the above, a VPT Communication business etiquette is critical for improving the performance of VPTs. Difficulties experienced in this regard can be overcome by including clear goals and vision, well-defined processes and clear roles (Olariua & Aldeab, 2014). Although this confirms the research findings, the findings further claim that VPTs, from a South African perspective, PM experience leadership challenges in this area that although some project managers have qualifications they lack the skills of leading people from different cultures (VT016, VT020 & VT021).

#### 4.2.2 Strategic resource pool

Research findings point out that strategic resource or talent pools are important in improving the performance of VPTs (VT015 and VT023). Yamall (2011) concurs that, strategic resource pools should be properly planned and implemented taking into consideration talent requirements of the organisation. However it was clear from the findings that most RSA organisations rely on external resource pools based outside RSA due to skill shortages. Findings of this research further claim that resource pools allow organisations to manage project costs better as resource pool costs are shared throughout the organisation (VT015).

However it is imperative that Strategic resource pools focus on appointing employees with the necessary experience, skills and expertise who can work efficiently. From an employee perspective, the timing and relevance to them also needs to be explored. If these measures are applied, it will ensure that all employees within the organisation remain motivated, including those outside resource pools. Failure to do so, will not only affect team spirit, but also result in lower productivity by VPTs.

#### 4.2.3 VPT Collaborative tools

Collaborative tools enable VPTs to work together in a systematic way to deliver projects successfully. They complement standards and processes. Drouin & Bourgault (2013) advise that training and tools constitute a key dimension of strategic support system that has a positive effect, not only on the performance of teams, but also on the quality of decision-making. The findings suggest that, right tools should be selected and deployed. It is best to deploy a mix, selecting the best fit approach for the purpose and context. Videoconferencing is better than teleconferences for group interactions, whereas for quick updates, e-mail, instant messaging and document sharing can work well. Live interaction is best for controversial, complex, or conversations likely to be misinterpreted. If language proficiency is a challenge, graphics can be used, avoiding slang and colloquialisms, and providing detailed follow-up after every interaction to check for understanding, will be the best approach (Derven, 2016). When asked if VPTs are given collaborative tools to improve the performance of VPTs, VT006 argues that:

*"No, they are not getting the right technology .... It's a South African thing for thinking that the guy on site doesn't need a cell phone with Skype, or a laptop with Skype or Internet. But, if you don't have the right tools, you take longer than is required. So, make sure the technology that is out there, is available. Don't say that this is just a technician, so "gonna" give him a tape measure, a traditional tape measure!"*

Dube & Marnewick (2016) elucidate that ICT tools facilitate the effective sharing of data and information among team members. This aligns with the findings of this study which further add that collaborative tools build cohesion which in turn contributes to strategic support system (VT008 and VT022).

#### 4.3 Sound VPT project management

Sound VPT PM is the third most significant factor that emerged from the analysis of interviews that assists in improving the performance of VPTS in project execution. As illustrated in Figure 2, Sound VPT PM emerged 182 times

from the interview data, from 23 participants. When he was asked for his point of view about VPT PM, VT001 stated that, "So coming to this virtual point, so the project manager, his duty is that whatever the team is experiencing, should be taking care of the team". VT002 further defines a project manager as "a person that the people actually have to love the most because you need to get your people to do what you have asked them to do". The finding aligns with the fact that Sound VPT PM comprises a social interaction process that actively orchestrates collaborative work; it influences and motivates people to find new opportunities, achieve their potential and reach their objectives (Humala, 2015). The findings allude that, Sound VTP PM is the ability of the VPT leader to establish ground rules, build trust, develop self-management skills among team members, model appropriate communication, empower the team and address conflicts effectively. If a top management support system is lacking, VPT leaders will fail dismally in improving the performance of VPTs. Similarly, Anantamula & Thomas (2010) claim that VPT leaders involved in projects must adopt effective leadership and team management practices. These practices must be based on prevailing cultural values, legal and political issues, time-zone differences, and information systems. The finding of this study alludes that, the implementation of such practices will be more effective if VPT Leaders understand the local language in the areas in which they are executing projects.

Some of the participants did complain that in most cases, PMs do not have the privilege of selecting and establishing their own VPTs. They are just given a team to work with and are then expected to motivate and work with the team thereafter. Again, this might be another source of implementation challenges being faced in improving the performance of VPTs. Strong VPT project management is essential for improving the performance of VPTs. A project is as strong as the VPT leader (VT008). This opinion notwithstanding, it emerged that, without a strategic management support structure and the right tools, even best leaders would fail. VT003 argues that:

*"No it comes back to two things, top management giving the managers the money to do these things and secondly the*

*project manager having the insight to know what a thousand dollars a month is going to buy him in terms of access to information and keeping his people motivated".*

Heller et al. (2010) dispute that "understanding the challenges or differences in virtual teams, compared with traditional teams, is the key to better understanding what a virtual leader should look like and what knowledge, skills, and abilities are required to be effective." This corresponds with the findings of this research.

VPT Leaders must set individual goals and objectives that team members can understand. Setting goals enhance individual self-regulation and allow team members to monitor and evaluate their own performance. The participants agree that a good overall VPT member experience can be achieved through the use of multiple forms of technology. Sound VPT PM should therefore include a thorough knowledge of the use of ICT and be complemented with a top management support structure. The main dimensions of Sound VPT PM that emerged from participants were categorised as, advocating sound leadership as key, building VPT dynamics, a VPT PM Skills set and managing VPT project delivery.

#### 4.3.1 Building VPT dynamics key

VT022 defines VPT dynamics as how the team gels together, how they understand their work and interact so that they can deliver a successful project. VT005 defines team dynamics further and claims that, "Team dynamics for me is really how people work together". On building VPT dynamics Flynn (2016) advises that creating VPT transparency and openness is vital. Covering up and hiding bad news lead to suspicion, gossip, inefficiency and bad reputations. This resonates with findings of the current study that the project manager should be able to influence and ingratiate himself into the hearts and minds of the people and be able to rally them and build trust (VT013, VT018). Dube & Marnewick (2016) concur with this statement in that frequent communication and team cooperation improve trust in VPTs. Hietajärvi, Aaltonen & Haapasalo (2017) highlight that generative learning assists an organisation's capacity to respond to everyday dynamics and to manage inter-organisational integration in complex projects.

On the contrary, although Hietajärvi, Aaltonen & Haapasalo (2017) confirm the findings of this study, there are notable gaps that were reported. These gaps need to be managed and closed. The findings report xenophobic tendencies, critical skill shortages, volatile labour market, fighting for scarce resources and lack of international standards as some of the challenges hindering progress in inter-organisational integration (VT004, VT011, VT021 and VT022). There are efforts to address some of these gaps by both government and the industry. However, some of these challenges like shortage of skilled resources will take time to resolve. It is therefore vital that management and VPT leaders involve themselves in building team dynamics and ultimately improving the performance of VPTs. Team members themselves should also be involved and make sure that their tasks are completed.

#### 4.3.2 VPT Project management knowledge

The findings suggest that, VPTs require different skills and approach. Derven (2016) concurs and advocates that VPTs are unique. Selection of a competent team leader is vital and should be based not only on technical expertise, but also on inclusive group leadership skills. The findings claim that, to be effective, VPT leaders must be sensitive to both results and relationships. They need to be proficient at translating the organisational vision into team goals and be able to act as a conduit to the team about changes in organisational direction. Good VPTs always serve as advocates for the team. With their superior influence skills, they should build relationships at the beginning of team formation and at important inflection points. The support they provide will guide their team members and give them sufficient latitude to accomplish their daily jobs and VPT responsibilities (Derven, 2016). Due to the critical shortage of skilled leaders and the fact that VPT leaders often join teams well after the project has commenced, may contribute to the challenges to improve the performance of VPTs.

On "soft skills", Heller et al. (2010) advocate that personal attributes or qualities are a key category of competencies critical for improving VPT performance. They concur with the views expressed by the participants in this study. The general view is that key attributes or competencies include

open-mindedness, flexibility, interest in and sensitivity toward other cultures, ability to deal with complexity, resilience, optimism, energy, and honesty. Interviewees also pointed out that VPT leaders need to understand local languages in order to deliver projects effectively. If South African-based project managers intend to manage a project in Mozambique or Angola, it would help if they can speak Portuguese (VT022). Although this matter was not raised widely as a key point in the literature reviewed, the use of interpreters to assist VPT managers was mentioned.

#### 4.3.3 Managing VPT project delivery

In managing VPT project delivery team cohesion can be strengthened by project manager sharing project vision and project goals upfront (VT005, VT022). This resonates with findings from Punjani (2013) who advocates that a VPT leader should develop shared vision and guide every team member so that they appreciate their contributions to accomplish project objectives and develop a high-performing team. It may be difficult to have a situation where VPT members, as well as the project manager, are pulling in different directions. This causes chaos, leads to frustration and can break any cohesion effort.

In managing effective VPT project delivery, Golnaz & John (2012) claim that team members should have good interpersonal communication skills and the ability to take on leadership roles when necessary. This brings us to the concept of team leads that emerged from the interviews. Commenting on team leads, Toegel & Jonsen (2016) termed this "shared leadership" or "distributed leadership". Participants claim that team leads need to be appointed to assist the project manager in managing project delivery. This allows for effective communication and resource management. PMs should leverage on the power of VPT leads to reach and manage VPT members as well as other project resources and logistics (VT003, VT022). VT011 further claims that "So, a potential solution that comes to mind is that you have got a team lead that fulfills the function of a project manager on the other side". This allows the project manager to focus on managing outcomes through the team leads.

It emerged from the participants that VPT monitoring and giving feedback is critical. The project manager should ensure that the team members have a clear overall understanding of project team goals and priorities. Group effort leads to team members being more effective than working as individuals on any given project task. Commenting on improving the performance of VPTs, Dube & Marnewick (2016) advocate that organisational goals could easily be converted into the desired standards of performance for the project. They claim that project managers should continually measure, monitor and review the progress of projects to ensure that they are delivered within the defined scope, time and budget and that the quality of the product meets organisational and customer expectations.

#### 4.4 Building a Resilient virtual community

Building a Resilient Virtual Community, was found to be the fifth key category driving VPTs. The concept of "Resilient Virtual Community" emerged as a key category for improving the performance of VPTs as illustrated in Figure 2, Building a Resilient Virtual Community emerged 62 times from interview data, and from 14 participants. VT022 defines VPT dynamics as to how the team gels together, how they understand their work and interact so that they can deliver successful projects. VT005 defines team dynamics further and claims that:

*"Team dynamics is how people are able to work together and complement each other and deal with different element about each other, whether it is social feelings or norms or stereotypes and backgrounds and religious elements but how you are able to work together as individuals to come together for the delivery of an output. Team dynamics is crucial".*

From the interview data, Team dynamics can cement or destroy team performance. If left unchecked, negative team dynamics can lead to loss of revenue through unproductive conflict, mistrust and demotivation. It can also lead to customer dissatisfaction and loss of future business (VT018). For project execution, team dynamics should form part of

management. VPT members need to talk to one another, to their head office and even to other members in different VPTs. They also need to share data and information. VPT members might be scattered in different sites, yet they still all belong to a virtual community, in most cases, working for the same organisation.

Firms with VPTs have to transfer organisational policies and cultures to work with dispersed business teams across collaborating organisations, geography, and cultures (Hosseini et al., 2016). Heller et al. (2010) advocate that VPT leaders should be able to work in a variety of settings, with diverse types of people and with a willingness to listen to new ideas. They further claim that VPT leaders must be able to deal with complexity and should be able to make decisions that include multiple variables, with considerable uncertainty, and in evolving environments. Participants explain that, VPT leaders must be resilient, resourceful, optimistic, energetic, creative, and should have a positive attitude. This empowers leaders to take on important challenges. High levels of physical and emotional energy will keep them from getting discouraged. Honesty and integrity are vital for a resilient virtual community as they enable leaders to develop and maintain the critical component of trust.

#### 4.4.1 Building a cohesive team

A virtual community should be united in all its dealings in order for it to prosper. Participants claim that this should start from top leadership empowering team leaders. Zuofa & Ochieng (2017) support this and advocate that within VPTs, developing a shared identity among the members is essential for the promotion of a sense of togetherness. In building a cohesive team there is a need for managing conflict as well as consideration for rewards and recognition. (VT005) notes that, rewarding VPTs for good performance motivates and ultimately improves the performance of VPTs. Incentives for achieving goals at high quality and on time motivates VPTs (VT015). Top management should implement practices designed to increase the recognition of team members' contributions (for example provision of team autonomy) and favourable treatment such as providing training and tools, in order to improve the performance of

VPTs (Drouin & Bourgault, 2013). This will result in improvement in decision-making, quality and teamwork.

#### 4.5 ICT Critical element for improving the performance of VPTs

In this study, ICT emerged as a critical category for improving the performance of VPTs. Figure 2 shows that ICT emerged 70 times from the interview data from 22 participants. Although it emerged as the fourth significant driver, 80% of the participants agreed that ICT is vital for improving the performance of VPTs. The findings are in line with the findings of Hosseini & Chileshe (2013) who conclude that the potential of a company in terms of its ability to provide and support necessary communication technologies when considering adopting VPTs at any time, is of crucial importance. VT010 disagrees and declares that "Technology cannot assist in developing a unified culture". VT011 claims that "Our challenges are not technology, our challenges are people". This is also supported by Flynn (2016) who argues that any solution involving technology will fail if it does not recognize the importance of human factors. Hosseini et al. (2016) concur and advance that the use of ICT within and between organisations is increasing and both face-to-face and ICT should be used for interaction. This implies that, although technology is vital for VPT existence, it cannot work in isolation. It also depends on other critical factors like willingness, experience and skills to use that technology. The human touch is still very important to the success of VPTs.

Commenting further on the significance of technology in VPTs, Derven (2016) claims that although ICT is a greater enabler for VPT success, it also creates barriers as it is a flawed substitute for the understanding and communication that face-to-face interactions afford. The state of affairs might even be worsened by acute language and cultural differences that inhibit understanding. Due to these limitations of technology to promote a shared understanding, VPTs should be afforded opportunities to meet in person, ideally when the team is formed and at critical junctures. If it is difficult for the team to meet, it becomes even more important to thoughtfully use technological tools as a proxy



to promote human bonding and trust. Main dimensions raised by the participants were categorised as, enabling efficient project delivery, enabling 24/7 communication, enabling knowledge and information sharing and saving costs through ICT. The dimensions of ICT will be evaluated next.

#### 4.5.1 Enabling knowledge and information sharing

ICT emerged from the interviewees as an enabler of data and information-sharing among team members or between VPTs and head office. This is in line with the findings of Szymczak & Walker (2003) that technology plays a key role in improving the performance of VPTs. They hold that ICT enables constant communication and seamless access to data repositories and interfaces so that every team member has the same view of all the required resources. This notwithstanding, it emerged that VPT teams in South Africa face more ICT challenges than their counterparts in the developed world.

On knowledge- and data-sharing, Drouin & Bourgault (2013) claim that VPTs have access to more information owing to the wider range of knowledge contributed by their members. This leads to shared wisdom and greater team learning. Poor information-sharing starves VPTs of the "oxygen" needed to learn and deliver results. It leads to team members merely co-existing and not collaborating (Flynn, 2016). It is therefore important to note that the 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 people (Zuofa & Ochieng, 2017). Mainga (2017) claims that high time pressures towards the end of the project, too much focus on short-term project deliverables, and fear of negative sanctions when disclosing project mistakes, are the top three most ranked factors that prevent knowledge transfer across projects. In the end, these deficiencies also affect efforts to improve the performance of VPTs. This aspect of technology did not reflect in the literature covered so far, which means that there is limited information on this matter.

Although saving costs through ICT is another critical benefit participants mentioned during the interviews, there is limited literature on this point. When one looks at how resource

pools assist projects throughout the world, there are numerous cost benefits, mainly in the form of accommodation, flights and subsistence allowances. This emerged strongly from the findings.

#### 4.6 Government support

Government support turned out to be the sixth most significant driver with a significant impact on improving the performance of VPTs. It emerged 42 times from the interview data from 12 participants as critical for improving performance of VPTs. Government support aims to resolve difficulties experienced with ICT infrastructure, visas and approval of projects by government entities, all of which often delay projects. Although at present literature in this area is very limited, it is important to mention that, without government support for an enabling infrastructure and environment across all industries VPTs will continue to suffer. Organisations cannot resolve all the challenges they face on their own. VPTs demand a knowledge economy and the government should be seen playing a major role in maintaining a relevant skills development Policy. VT016 further argues that technical skills such as those of plumbers, electricians and millwrights are scarce and that the government should spearhead skills development in this area.

VT011 blames the government for creating a job entitlement culture, that is, the entitlement of saying; "This is my job, this is mine and nobody will do it" (VT011). Government is also called upon to focus on the barriers affecting skilled labour and to find solutions to rectify this matter. Commenting on job entitlement culture, VT015 expresses considerable frustration:

*"Yes, I agree we haven't made it easy for international people to come and work in South Africa, especially the highly skilled ones. We don't attract them to the country; we don't offer them incentives, and we don't offer favourable tax benefits".*

The government should formulate a collaborative framework or policy to streamline VPT activities and resource management (VT015). Such a framework will enable government, management and VPT leaders to engage with organisations to facilitate the execution of projects by VPTs

across borders. A further prerequisite is a standard process or framework for exporting capital for payment of equipment and resources. VT015 elucidates:

*"If you register your projects, for example, with government, to say that you "gonna" have 10 people operating in India, 30 people operating out of Ghana, 5 out of Kenya and there will be another six from Australia and the project management offices will be in South Africa, you register that project and you make it TAX efficient. You then make easy flow of money and payment to those various countries".*

For enabling a VPT environment or framework, VT016 argues that:

*"The role of government is to create an enabling environment. Are we enabling people to travel? Are we enabling the IT that we were talking about? Is it cheap for people to communicate"?*

Most participants claim that government plays a critical role in creating a favourable VPT environment. Most of the projects need government approval in one way or another via the different arms of government (VT017, VT022, VT023, VT026 and VT027). The gist of these comments by the respondents is that they urge government to get more involved and possibly draw up a framework for addressing the challenges faced by VPTs within and outside of the country. Ultimately, appropriate action by government will have a positive effect on endeavours to improve the performance of VPTs.

Overall, most of the interviewees indicated that government regards ICT as a matter of low priority, which has a negative impact on improving the performance of VPTs (VT011, VT021). ITU (2016) confirms this and ranks South Africa 88th in the world, and 3rd in Africa. Participants generally agree that government must do more to address ICT gaps and challenges. The government tasked the National Planning Commission to oversee government strategic planning. The Commission confirms its research and the ITU findings. They confirm that only 17 percent of South Africa's population is able to access the internet. This is far less than even a quarter of the population. The Commission advocates that South Africa needs greater investment in research and development, better use of existing resources, and more agile institutions that facilitate innovation and enhanced cooperation between public, science and technology

institutions and the private sector. Institutional arrangements to manage the information, communications and technology (ICT) environment need to be properly structured to avoid a digital divide. The potential of technology is huge, and still largely untapped in most developing economies. Developing countries lack skilled labour capital and also use it less efficiently. It is important to note that the continued and equitable expansion of reliable information and communication technology depends on electricity. The real digital divide over the next 20 years will be between those who have access to reliable electricity to power these devices and those who do not (National Planning Commission, 2013).

#### 5.0 CONCLUSIONS AND IMPLICATIONS

Drivers for determining project effectiveness of VPTs are acknowledged in the literature as a key and essential component to enhance project performance. However, despite the proliferation of studies in developed economies on VPTs, most of them been on team factors as opposed to individual, subgroup or organization setup, the knowledge on the factors determining their effectiveness, suffers from a scarcity of research amongst practitioners and stakeholders particularly in Sub-Saharan Africa. To address this knowledge gap, this study sought to explore the drivers for improving the performance of VPTs in developing economies particularly in South Africa. Data was collected using semi-structured interview to Project participants who had participated in VPTs in South Africa. The main aim was to explore the drivers and how they influence the performance of VPTs in project delivery.

Using grounded theory constructivist approach, six key critical VPT Driving Forces emerged from the interview data, namely, Strategic Support system, Strategic Leadership, sound VPT PM, Advocating ICT critical, Government support, and Building a Virtual Community. The findings further indicated that, of the six categories, Strategic support system emerged the most and a key category, emerged 275 times from 27 participants. On the other hand, Strategic leadership was central for the integration of other categories into the VPT after constant comparison of all codes and categories (Hallberg, 2006). It emerged 246 times from 27

participants hence as the core category for VPT success. The category with the largest number of influences on other categories becomes the core category (Allan, 2007; Glaser, 2012).

### 5.1. Theoretical Implications

The literature review reveals that no attempt has been made to explore the effectiveness of VPTs, particularly in Sub-Saharan Africa. As a result, a need to answer questions about what happens when people across nations and cultures work closely together. Some researchers claim that Africa has been left out in most of the studies. Therefore, first, this study makes a significant research contribution by exploring drivers for improving the performance of VPTs in South Africa. Therefore, this research sheds light and provides insights on the understanding of the best mix of capabilities and diversity necessary for improving the performance of VPTs, an area previously under-researched. It also expands the knowledge of VPTs by explaining the dimensions under each driver and how they influence the performance of VPTs across the developing economies and particularly within the Sub-Saharan Africa context. Second, this study is significant because the identified drivers not only deepen our understanding of how such issues should be perceived within the developing country context but further contribute to the reduction of challenges coupled with unsuccessful project delivery related to VPTs. Third, the findings from empirical investigations on the drivers are important for Team leaders, managers, team members and organisations to improve the high failure rates and or performance that are typically associated with VPTs in South Africa

### 5.2. Practical Implications

The following important implications are suggested. For researchers, practitioners and government, the establishment of drivers for improving the performance of VPTs would enable and provide them with an opportunity for the proper focus when setting up a VPT.

For, researchers (academia), this study provides further avenues for investigating the influence of drivers on the performance of VPTs. Such an approach would enable the

development of South Africa-specific framework for project-based organisations. Such kind of implications does not only focus on the dissemination of knowledge but also provide direction on how the findings will change the implementation of VPTs for future project delivery.

For practitioners, the study's findings could be used to provide the project team members such as clients, contractors, and consultants, and other project stakeholders, important lessons and an understanding of which drivers for improving the performance of their engagement. The outcome of this would lead to improved future project delivery associated with VPTs. Further, enhanced understanding of how these drivers are of particular importance to project managers, contractors and consultants in improving the performance and decision making when intending to participate in VPTs. Therefore, the South African projects would benefit from minimising costs and time while enhancing capacity through virtual teamwork based on the enhanced and better management of the VPTs as identified. Furthermore, the South African project-based organizations should consider the drivers for improving the performance of VPTs as a basis for improving project delivery and minimize problems, which may arise due to inefficient and ineffective VPTs

For the government, an appeal is therefore made to the government to provide an enabling environment with a view to driving relevant skills development in this country. Government entities should work together with tertiary institutions to include a compulsory industrial attachment. In order to improve the performance of VPTs, these drivers have to be fully implemented. In managing effective VPT project delivery, team members should have good interpersonal communication skills and the ability to take on leadership roles when called upon to do so. This might be in the form of team leads to assist project managers in managing and controlling resources. In addition there is also a need for government to lift barriers that prevent domestic organisation to seek international capability (VT012, VT022). Most of the literature reviewed did not cover this requirement. The findings from most participants claim that there is a need for technological advancements. This therefore might be a challenge that is mainly facing VPTs in developing countries.

### 5.3. Limitations and Future Research

Whilst this research makes a number of significant contributions to academia and the practice, a number of limitations are acknowledged. Firstly, from a geographical and sampling perspective, the participants were drawn from one geographical location only, namely South Africa, in sub-Saharan Africa project-based organisations. Therefore, the findings may not generalise to organisations operating in other countries. Future studies should be conducted and extended in other regions with emphasis on organisations operating in different countries with the same socio-economic, business environment, political stability, and landscape. The second limitation is that the study did not differentiate the views of clients, consultants and contractors due to the nature of the study as the grounded theory approach was used hence a small sample size. Therefore, future studies are required to investigate this aspect further with a larger sample and test the criticality of these drivers.

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# THE HEXAGON OF DRIVING FORCES FOR IMPROVING PERFORMANCE OF VIRTUAL PROJECT TEAMS IN EMERGING ECONOMIES



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