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Virtual Organization: An Extensive Overview

Dr. Walied Askarzai
Lecturer, Academies Australasia-Polytechnic, Australia
Bhuvan Unhelkar
Professor, University of South Florida Sarsota, Florida, USA

Abstract:
Virtual Organization (VO) has become a type of organization apt for the new global economy, which requires around the clock and long-distance management. More recently, considerable literature has emerged that attempts to demarcate VO from so called traditional organization. So far, however, there has been little discussion on what constitutes VO. This paper provides conceptual foundations for a better understanding of VO. The paper identifies key parameters on which VO design differ from another non-VO form. The paper also presents a process model of VO that elucidates how a non-VO evolves into a VO.

Keywords: virtual organization, virtual team, virtual employees

1. Introduction

Managers and subordinates interface has always been face-to-face since the beginning of work organizations. Information Communication Technology (ICT) has changed this norm and created a new type of organization interface called VO, where management is virtual rather than face-to-face. Since virtual management has changed the whole concept of work organization, henceforth, it has become crucial to draw a line that demarcates VO from so called traditional organization. The central thesis of this paper is to draw a distinguished line between a VO from non-VO. To address this concern, the paper will proceed along the following spectrum: VO will be defined for purpose of conceptual clarity; emergences, characteristics, types, life cycle and the taxonomies of VO, will be highlighted; VO and VT will be distinguished; definitional frameworks of VO and the process of VO, the core of the paper, will be discussed followed by advantages and challenges of VO; a set of recommendation is offered to overcome the challenges faced by VO; different types of Virtual Employees are discussed and the collaboration tools of VO is enumerated.

2. Definition of Virtual Organization

This section does not take into account all the definitions of VO given in the literature. Instead, the chosen definitions in this section are reviewed, commented and then classified. This may help to provide a clearer definition of VO and its implications.

The terms virtual team, virtual corporation, virtual enterprise, virtual company, virtual management, and mobile workplace are used as synonyms for the term Virtual Organization in the literature (Jacobson, 2004). The VO transcends e-commerce, e-business, e-work and e-government modes (Camarinha-Matos & Afsarmanesh, 2005).

Jacobson (2004) and Reinicke (2010) claimed that the term VO was first coined by Mowshowitz in the 1980s, whereas, Camarinha-Matos and Afsarmanesh (2005) have argued that the term VO was not invented by a single researcher; the concept has matured through a long evolutionary process.

In the literature, there are as many definitions of VO as there are researchers providing them (Guyverson 2006; Larsen & McInerney 2008). A point upon which many authors generally agree is that there is no common definition of VO. Some definitions of VO simply paraphrase the previous definitions, while others attempt to capture the many characteristics of VO.

This paper has classified the definitions of VO into three themes, according to the key words used in the definitions:

Authors, e.g. Ahuja & Carley (1999), Filos & Ouzounis (2000), Hornett (2001), Okkonen (2002), Katzy (2003), Toglaw 2006, Simic (2008), Panken, Zoetekou, Bokhove & Hulsebosch (2010) and Reinicke (2010), have given a *characteristic-based* definition of VO. A "VO" is defined as a temporary or permanent collaboration of geographically dispersed individuals, groups, organizational units or entire organizations, via information and communication technology that pool resources, capabilities and information in a managed way to achieve common organizational objectives. This definition is based on two key characteristics of VO, namely, geographically dispersed and information and communication technologies, as the enablers of VO.

Other authors, e.g. Gazendam (1999), Cueni & Seiz (1999), McKinnon (2003), Zheng (2004), Gould (2004) and Travica (2008), have defined VO based on *sharing core-competencies* by the member organizations. A VO refers to a temporary partnership between organizations or individuals for the development of a product, by sharing their core competencies through communication technologies.

Some authors, e.g. Lee et al., (2007) and Soto (2011), have interpreted VO as customer-driven and market-oriented organization. A "VO" is a non-traditional, interconnected and customer-driven organization, to which member organizations are linked via information technology, in order to share skills, costs and access each other's markets.

This paper uses the definition of VO provided by Askarzai (2013, 2014). Askarzai (2013, 2014) defines *Virtual Organization* as a type of temporary or permanent organization with geographically and time-dispersed members (individuals, departments or organizations). The members share their core-competencies towards the production of a product that cannot be achieved by a standalone member. Core competencies refer to the main strengths of an organization that can be utilised as competitive advantage. The operation of VO is enabled by Computer Mediated Communication (CMC). CMC refers to communication processes where computer-mediated technologies are used as a medium. CMC is divided into two synchronic states; asynchronous (different-time) communication, such as e-mails, and synchronous (same-time) communication, such as video conferencing. The essence of a VO is process management and customer satisfaction.

3. Emergences of Virtual Organization
This section discusses the rationale for the emergence of VO. Virtual Organization is emerging as a result of the shift from an industrial to a digital commercial landscape. This is acknowledged by Camarinha-Matos and Afsarmanesh (2005) the emergence of the VO is a natural process resulting from the evolution of information and communication technologies. Information and communication technologies, such as the internet, enable bricks and mortar organizations (traditional organizations) to geographically disperse their operations (Gould, 2004; Jacobsen, 2004; Simic, 2008; Reinicke, 2010; Soto, 2011).

Stratigea & Giaoutzi (2000), Pang (2001), Gould (2004), Jacobson (2004) and Ebrahim, Ahmed & Taha (2009) have argued that increased market competition, lower production costs and solutions to complex organizational problems are the reasons for the emergence of VOs. In contrast, Stratigea & Giaoutzi (2000), Hornett (2001), Pang (2001), Potocan & Dabic (2002), Jacobson (2004) and Simic (2008) have claimed that the driving factors of the VO are the need for innovation, sharing of core competencies, changes in employee values and attitudes, information and knowledge-sharing by knowledge workers, advances in technology and globalization.

Globalization has changed the way in which organizations conduct business. Many organizations have been forced to compete and operate globally. Expatriates and foreign employees have to be connected to the head-office and work virtually (Pang, 2001; Roden, 2002; Gignac, 2005; Oguntebi 2009; Cordes & Malling 2009; Hakonen 2010; Khan 2011). Standalone organizations are not capable of keeping pace with globalization and increased customer demand. Globalization compels organizations to meet this demand at any time and in any location (Jacobson, 2004; Polyantchikov & Shevtshenko 2010; Soto, 2011). Furthermore, Mogale (2009) pointed out that global competition and the shift from production to service-oriented business are the causes of VO.

Technology is now mobile, much faster, and more reliable and facilitates wireless connectivity. The application of the internet has resulted in most organizations being information dependent. This dependency means that organizations have to continually acquire information for their daily operations (Stratigea & Giaoutzi, 2000; Hunsaker & Hunsaker, 2008; Hornett, 2001). Changes in employees' lifestyles, values and attitudes requires organizations to be more flexible, changes which can be more easily facilitated by VOs (Pang, 2001; Hemingway & Breu, 2003). A VO facilitates greater work and home balance, employment opportunities for house-bound people, a less stressed workplace and a greater degree of freedom and flexibility (Biglow, 2000; Ivan, 2003; Ebrahim et al., 2009; Economist Intelligence Unit, 2009; Cordes & Malling 2009).

Apart from the abovementioned reasons for the emergence of VOs authors like Toglaw (2006); Oguntebi (2009); Hakonen (2010); Ventura (2011) and Lanneborn (2013) in their major studies have outlined these reasons for the emergence of VO; the need for flexibility in workplace, the breakdown of the old bureaucratic ways of working, the need for information flow the complex, dynamic and demanding global market and the vitality for business to survive in global era.

4. Characteristics of Virtual Organization
An organization will never or rarely have all the characteristics of VO (Jansen, Jagers & Steenbakkers, 1999). Furthermore, as pointed out by Watt (2007) dichotomous categorization of virtual and non-virtual interaction is unreasonable as virtuality occurs in varying degrees. However, the literature includes many characteristics of a VO. There are only two key characteristics that distinguish a VO from a non-VO: (1) A VO is amorphous (an organization with no walls). The member organizations are *geographically dispersed* and interact from separate locations (offices, building, cities and countries) (Rittenbruch & Kahler, 1998; Ling Sia, 2000; Hornett, 2001; Pang, 2001; Okkonen, 2002; Toglaw 2006, Lee et al., 2007). (2) *Information and Communication Technology* (ICT) is another key characteristic of a VO, which enables each member organization from geographically dispersed locations to link up with one another and operate as a single organization (Jansen et al., 1999; Preston, 2000; Jacobson, 2004; Boella, Hulstijn & Torre, 2005; Marcin & Wojciech, 2005; Guyverson, 2006; Toglaw 2006, Simic, 2008; Ebrahim et al., 2009; Reinicke 2010). Other central characteristics inherent to VOs are as follows:

- Share of core-competencies: In a VO, each partner offers unique capabilities or core-competencies towards the production process that are not produce able by other member organizations (Syler & Schwager, 2000; Ghilic-Micu & Stonica, 2003; Kasper-Fuehrer & Ashkanasy, 2004).
- Pursuit of common goals: In a VO, all partners are team players and they pursue a common goal (Jansen et al., 1999; Pihkala Varamaki & Versalainen, 1999; Preston, 2000; Marcin & Wojciech, 2005; Guyverson, 2006; Lee et al., 2007; Simic, 2008).
- Membership equality: A VO has a decentralised structure which leads to an organization without hierarchy; each partner has an equal role to play (Ahuja & Carley, 1999; Ling Sia, 2000; Preston, 2000; Stratigea & Giaoutzi, 2000; Simic, 2008).
- Lack of formality: A VO may lack formal rules, procedures and norms and, therefore, the communication processes within the VO are also informal (Ahuja & Carley, 1999).
- Flexible and dynamic: A VO is characterised as a flexible and dynamic organization. Member organizations are freelancers - they can join or leave the organization at any point (Pang, 2001; Okkonen, 2002; Stratigea & Giaoutzi, 2000; Ghilic-Micu & Stonica, 2003; Simic, 2008).
- Market opportunist: A VO is formed temporarily or permanently to exploit a market opportunity (Kasper-Fuehrer & Ashkanasy, 2004; Stratigea &Giaoutzi, 2000).
- VO as an autopoietic system: A VO is knowledge-management based. Knowledge systems developed by a VO are autopoieticsystems (self-productive systems), that is the knowledge created within a VO is self-generated (Pamkowska, 2008).

- According to Simic (2008) a VO is a diversified and multicultural workforce.
- Virtuality is continuum rather than static (Hakonen, 2010; Khan 2011; Ventura 2011).

5. Types of Virtual Organization
There are different types of VO, each with a different purpose, mission and goal (Xu & de Vrieze, 2012). A single organization in the form of a VO is termed an intra-organizational VO and the alliance of organizations pursuing a common goal is termed an inter-organizational VO (Kasper-Fuehrer & Ashkanasy, 2004; Jacobson, 2004).
There are many types of inter-organizational VOs featured in the literature. Authors have categorized these VOs into the following four types:
- Virtual Teams: A VT is a small-scale VO (Cueni & Seiz 1999; Simic, 2008).
- Cyberspace: A type of VO that has a virtual face and serves customers over the internet (Cueni & Seiz,1999; Potocan & Dabic, 2002; Bekkers, 2003; Jacobson, 2004; Marcin & Wojciech, 2005).
- Star Alliance: A dominant organization forms partnerships with other organizations. These partnerships can be outsourced or subcontracted. The dominant organization controls the production process (Cueni & Seiz, 1999; Filos & Ouzounis, 2000; Syler & Schwager, 2000; Potocan & Dabic, 2002; Marcin & Wojciech, 2005; Abuelmaati & Rezgui, 2008).
- Co-alliance or Parallel-alliance: A number of organizations form a VO by sharing their core-competencies and each plays an equal role (Gazendam, 1999; Filos & Ouzounis, 2000; Stratigea & Giaoutzi, 2000; Potocan & Dabic, 2002; Bekkers, 2003; Abuelmaati & Rezgui, 2008).

6. Life Cycle of Virtual Organization
Based on the studies of Filos & Ouzounis (2000) Furst, Reeves, Rosen & Blackburn (2004), Jacobson (2004), Zheng (2004), Lee et al. (2007) and Panken et al. (2010), there are three to four phases of the life-cycle of a VO namely, identification, formation, operation and termination. Figure 1 below exhibits the three phases of the life-cycle of a VO.
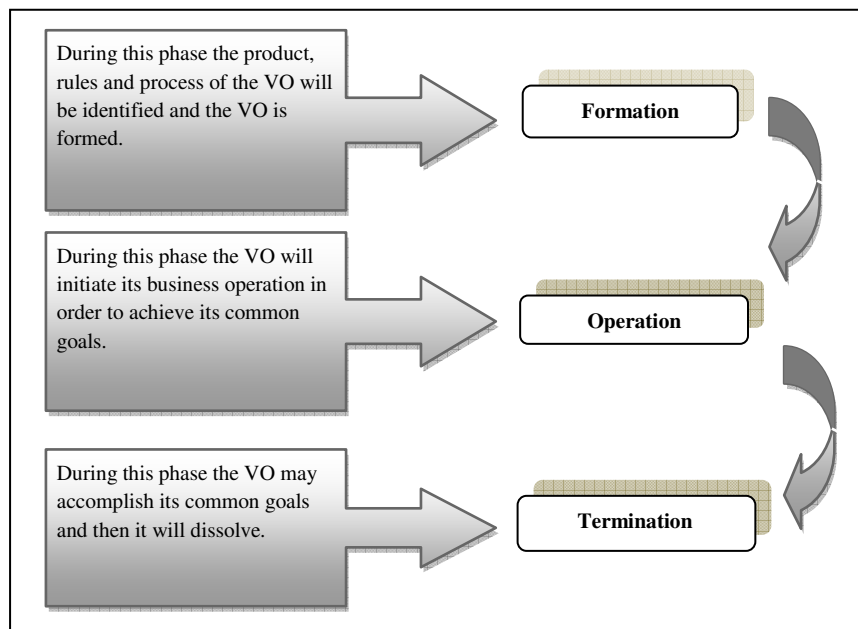

During this phase the product, rules and process of the VO will be identified and the VO is formed. → **Formation**

During this phase the VO will initiate its business operation in order to achieve its common goals. → **Operation**

During this phase the VO may accomplish its common goals and then it will dissolve. → **Termination**

Figure 1: the life cycle of Virtual Organization

7. Taxonomies of Virtual Organization
The taxonomies of VO are based on the secondary characteristics of VO, such as the duration, structure, participation, coordination, visibility and ownership (Filos & Ouzounis, 2000; Camarinha-Matos and Afsarmanesh, 2005; Reinicke, 2010). Camarinha-Matos and Afsarmanesh (2005) and Reinicke (2010) have argued that VOs subsist for a short or a long period of time, depending on the process and goals pursued by the partners. VOs have varied and complex structures (Marcin & Wojciech, 2005; Hindle, 2009). The structure of a VO is fixed if the organization is established by a specific number of partners for a certain period of time and a VO is dynamic if the partners continually join or leave the organization over a period (Filos & Ouzounis, 2000; Stratigea & Giaoutzi, 2000). In a VO, the partners can have multiple or single participation. A partner can simultaneously participate in many VOs or solely participate in one VO, depending on its core-competency and goals (Filos & Ouzounis, 2000). In a VO, a dominant partner can coordinate the processes of the organization; this type of VO is termed star-alliance. A co-alliance, on the other hand, is a type of VO in which all partners have an equal role in coordination of the production process. In terms of visibility, a VO may appear as a single-level or multi-level. The visibility of the VO relates to the partners' location, domain and the roles the partners play. Reinicke (2010) claimed that the dominance in a VO is associated with the ownership status of the resources. A dominant partner has a high level of control, due to high level of ownership and vice versa; an inferior partner has a low level of control due to a low level of ownership.

8. Virtual Organization and Virtual Team

Throughout the literature, the notions of VT and VO are not definitive. This is further complicated by the fact that there is discrepancy between the definitions of the two notions. The authors argue that a VT is a simple form of VO. This is confirmed by Cueni & Seiz (1999), that a VT has the same structure as a VO and also by Okkonen (2002) and Simic (2008), that the simplest form of a VO is a VT. Simic (2008) further states, that a VT and a VO can both have similar features. Hornet (2001) suggests that in the literature there is linkage between the concept of VT and VO. In their books, Robbins, Waters-Marsh, Carcioppe, & Millett (2001) and McAuley, Duberley & Johnson (2007) have defined organization as, "a consciously coordinated social unit, composed of two or more people that functions on a relatively continuous basis to achieve a common goal or set of goals". Likewise, the term 'team', has been defined by Robbins, Waters-Marsh, Carcioppe, & Millett (2001), Gold (2005) and Simic (2008) as "a small number of people with complementary skills who are committed to a common purpose, performance goals and the approach for which they hold themselves mutually accountable". Arguably, based on the aforementioned definitions, the two concepts are analogous.

9. Definitional Frameworks of Virtual Organization

There is an abundance of models in the literature, proposed as pictorial presentations of a VO. This section confers the VO models presented by Stratigea & Giaoutzi (2000), Syler & Schwager (2000), Jacobson (2004) and Reinicke (2010).

The essence of Stratigea & Giaoutzi's (2000) argument is that a VO is a network organization. The function of the network organization is enabled by information technologies. Stratigea & Giaoutzi (2000) present several models of a VO. For instance, a VO as a partnership, based on sharing core-competencies, a VO as a center-less organization and a VO as static or dynamic organization. These models depict different aspects of a VO and they are rather differentiated. Syler & Schwager (2000) refute the claim that a network organization is a VO. Syler & Schwager (2000) further elaborate that a network organization is merely a strategic alliance. They propose two models to illustrate a VO. The first model is based on the degree of flexibility and synergy. Competitive advantage is added to the first model and presented as a per se model. These two models together can be described as a bi-facial model.

Jacobson's (2004) contribution to the body of knowledge on VO is highly significant. The manuscript by Jacobson (2004) is a detailed report on the domain of VO. This report encompasses various models to describe the many facets of a VO. It is beyond the scope of this chapter to provide the details of these models. In summary, the models presented by Jacobson (2004) map the paradigms associated with the VO.

Reinicke (2010) claimed that former definitions of the VO are techno-centric, with some being somewhat narrow and others being broader. To overcome this problem, Reinicke (2010) proposed a model that can be used as a conceptual framework for research on VO. This model is built on three common characteristics of the VO (i.e. geographic dispersion, level of ownership and the duration of their existence). This model includes eight permutations of VOs; each permutation represents a form of VO. Following is a tabular form of this model.

Dispersion	Ownership	Duration
High	High	Long
High	Low	Long
High	Low	Short
High	High	Short
Low	High	Short
Low	Low	Short
Low	Low	Long
Low	High	Long

Table 1: Eight permutations of Virtual Organizations

The literature is lacking a comprehensive, definitive and simple model to represent the concept of VO. Consequently, the research on VOs has been diluted by voluminous models of VO. Askarzai (2013) attempted to solve this shortcoming in the literature by proposing a process model to illustrate the notion of VO.

10. A Proposed Process Model of Virtual Organization

The literature review is used as a theoretical framework to propose the process model for VO (figure 2). The main reason to use a process model to define VO is for a better understanding. A process model is a more effective way to visualise the transition from a non-VO to a VO than to describe the transition verbally. Travica (2008) emphasised the usefulness of a model to make sense of a number of organizations that are claimed to be VOs. This model superimposes the preceding models and integrates the important themes of VO into a unified whole. The model is divided into six zones: (Zone 1), the process model is based on two key characteristics of a VO (i.e. ICT enabled and geographically dispersed). A non-virtual organization becomes a VO when its operation is enabled by ICT, the main factor in the context of VO. ICT capacitates a VO to be geographically dispersed. An intra-organizational VO is a single organization with no partnership and its operation is enabled by ICT. (Zone 2), inter-organizational VO is a type of VO formed by two or more geographically dispersed partners and its operation is empowered by ICT. (Zone 3), an inter-organizational VO is further divided into four types, as explained in a previous section of this paper. (Zone 4), the taxonomies of the inter-organizational VO are depicted, which are also explained in a previous section of this paper. (Zone 5), the projected formation of inter-organizational VO, which is shown at the bottom of the process model, is the simplest representation of a VO. This is a view of VO as a collaboration of core-competencies. (Zone 6), the model also shows the two fundamental phases of the life-cycle of a VO.
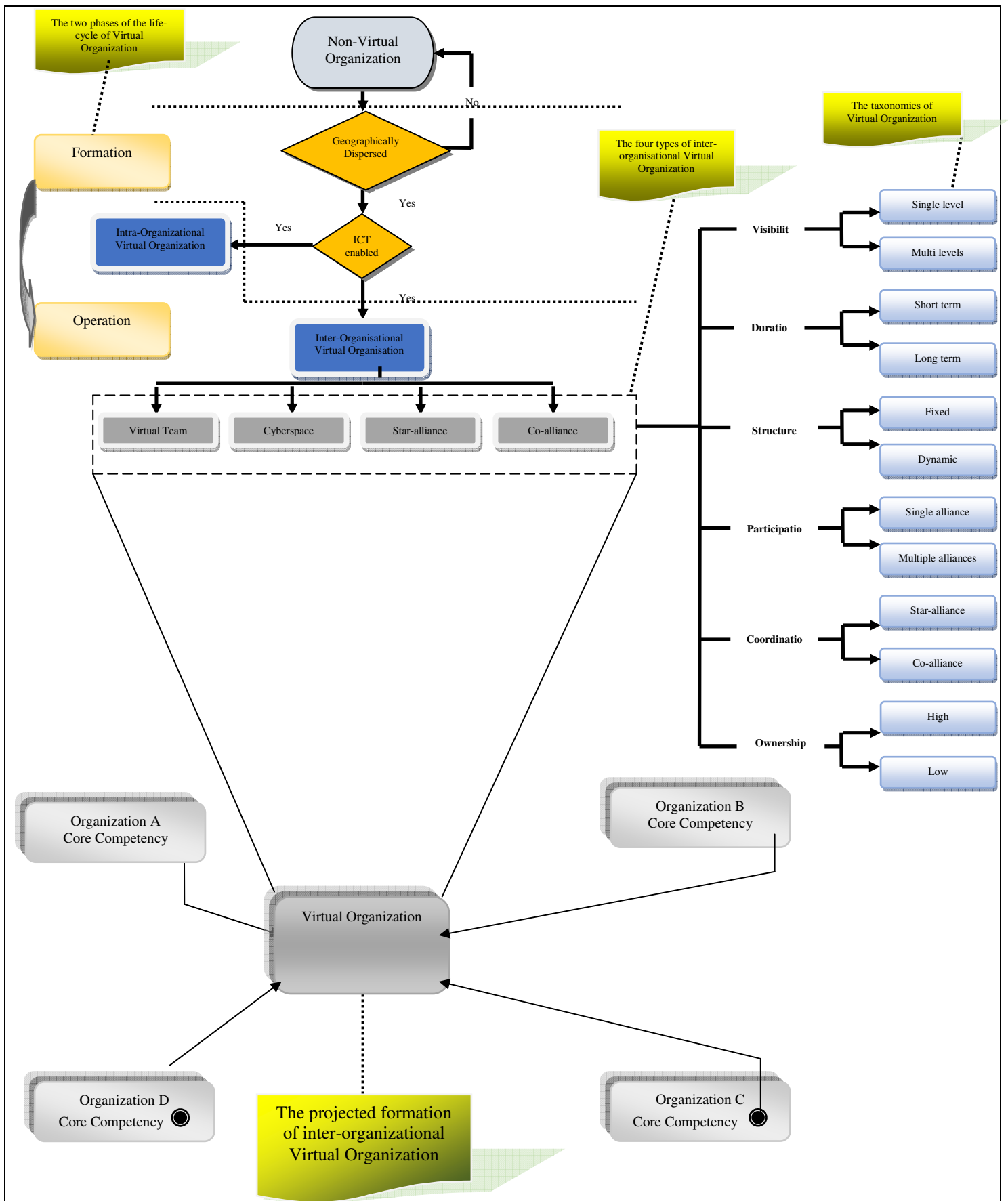
The two phases of the life-cycle of Virtual Organization

Non-Virtual Organization

Formation

Geographically Dispersed

No

The four types of inter-organisational Virtual Organization

The taxonomies of Virtual Organization

Intra-Organizational Virtual Organization

Yes

ICT enabled

Yes

Operation

Yes

Inter-Organisational Virtual Organisation

| Virtual Team | Cyberspace | Star-alliance | Co-alliance |

Visibilit → Single level / Multi levels

Duratio → Short term / Long term

Structure → Fixed / Dynamic

Participatio → Single alliance / Multiple alliances

Coordinatio → Star-alliance / Co-alliance

Ownership → High / Low

Organization A Core Competency

Organization B Core Competency

Virtual Organization

Organization D Core Competency

The projected formation of inter-organizational Virtual Organization

Organization C Core Competency

Figure 2: A proposed process model of a Virtual Organization

A vast proportion of the empirical and non-empirical literature on VO may be labelled as consultative and to a great extent mutually reflective. This literature highlights the advantages and challenges faced by VOs. Moreover, the literature proposed some recommendations to overcome the challenges faced by VOs. For the purposes of the conceptual framework, the advantages, challenges and recommendations highlighted by the literature are discussed below.

11. Advantages of Virtual Organization

- On employee bases; a VO facilitates work and home balance, employment opportunities for house-bound people, a less stressed work place, greater degree of freedom and flexibility (Biglow, 2000; Ivan, 2003; Ebrahim et al., 2009; Economist Intelligence Unit, 200; Lam 2010; Khan 2011).
- On employee bases; Increase job satisfaction, work flexibility, improve time management, reduce travel time and expenses, improve quality of work life, and improve performance and autonomy (Khan 2011).
- On employee bases; virtuality enhances psychological contract as virtual employees have they believe they can be more effective, productive, and efficient when they work remotely (Lam 2010).
- On organizational bases; a VO may unite highly qualified people and it may enable organizations to pool talented employees (Biglow, 2000; Hemingway & Breu, 2003; Frust et al., 2004; Edwards & Wilson, 2004; Ebrahim et al., 2009; Molgale, 2009; Lam 2010; Khan 2011;Intranet Focus, 2012).
- On organizational bases, lower absenteeism, better morale, greater openness, few interruptions at office, lower turnover and customer proximity (Intranet Focus, 2012).
- On organizational bases; a VO reduces the cost of production and increases productivity (Biglow, 2000; Ivan, 2003; Edwards &Wilson, 2004; Sundin, 2006; Ebrahim et al., 2009; Molgale, 2009; Intranet Focus, 2012).
- On organizational bases; a VO eliminates the time and space barriers (Ivan, 2003; Furst, Reeves, Rosen and Blackburn 2004; Ebrahim et al., 2009; Lam 2010; Khan 2011).
- On organizational bases; a VO may assist organizations to control their resources across geographic operations and enhance their competitiveness (Edwards & Wilson, 2004; Ebrahim et al., 2009; Ivan, 2003; Molgale, 2009; Khan 2011; Intranet Focus, 2012). A VO may facilitate effective R&D, knowledge and experiences sharing (Ebrahim et al., 2009; Molgale, 2009).
- On organizational bases; a VO improves collaboration with customers, suppliers and partners and facilitates expansion to new markets (Biglow, 2000; Ivan, 2003; Intranet Focus, 2012; Lanneborn 2013).
- On society base; a VO may reduce carbon footprint, decrease in traffic congestion, improve environment and save in infrastructure and energy (Ivan, 2003; Edwards & Wilson, 2004; Ebrahim et al., 2009; Economist Intelligence Unit, 2009).

12. Challenges of Virtual Organization

12.1. Technical
- Communication breakdown (Biglow, 2000; Pang 2001; Brown et al., 2007; Foti, 2007; Hunsaker & Hunsaker, 2008; Ebrahim et al., 2009; RW Culture Wizard, 2010).
- Knowledge transfer, processes and infrastructure (hardware and software) issues (Biglow, 2000; Pang, 2001).
- The complexity of technology (Pang, 2001; Ebrahim et al., 2009).

12.2. Employees
- Multicultural issues arise due to time, governments, language and cultural differences (Vinaja, 2003; Ebrahim et al., 2009; RW Culture Wizard, 2010; Intranet Focus, 2012).
- The lack of face-to-face interaction could promote feelings of isolation and uncertainty among virtual employees (Toglaw 2006; Sundin, 2006; Cisco, 2007; Mulki, Bardhi, Lassk & Nanavaty-Dahl, 2009).
- The effect of VO on organization's culture and employees' loyalty (Foti, 2007; Brown et al., 2007).
- Work-life balance issues, lack of face-to-face communication and lack of visibility (Pang, 2001; Mulki et al., 2009).
- Due to lack of physical interaction VE may perceive their management less active (Watt 2007).
- Virtual working is more task oriented and less people oriented as there is less interaction on social bases (Toglaw 2006).
- Virtual employees are often separated from their colleagues and management which can result in need for self-organization and sometimes stress (Wiesenfelda, Raghuramb & Garuda 2001).

12.3. Management/Organization
- Performance monitoring and measurement, managerial control, coaching and mentoring, informal interaction, organizational loyalty, interpersonal skills, schedule maintenance, work coordination, internal customers (Molgale, 2009).
- Leadership/management issues in areas of control and monitoring (Biglow, 2000; Pang, 2001; News line 2006; Ebrahim et al., 2009).
- Complexity of manager and employee relations due to distance (Derven, 2007).
- Lack of trust, deadlines, team cohesiveness, lack of physical interaction, loss of face-to-face synergies and wasted time (Pang, 2001; Hunsaker & Hunsaker, 2008).
- One in three managers reportedly agree that virtual teams are managed badly. Two reasons are given: virtual teams are planned in advance, and the difficulty of managing employees from a long distance. The latter is cited to be the biggest challenge faced by management (Foti, 2007; Economist Intelligence Unit, 2009).

- Difficulty in managing teams remotely, lack of trust, difficulty in managing productivity and managing information overload (Pang, 2001; Lojesk & Reilly 2007; Intranet Focus, 2012).
- Time pressure, loss of control and a decline in personal productivity because of diminished team interaction (Gupta et al., 2001; Cisco, 2007; Foti, 2007).
- Based on an empirical study by Furst et al (2004) managers encounter some challenges during the four stages of the virtual team cycle. During the forming stage the challenges are lack of information, lack of trust and slower forming process. During the storming stage, the challenges are less-reach communication channels, conflict due to misunderstanding, and diversity of the work context. During the norming stage some of the challenges are difficulty in developing virtual norms. During the performing stage some of the challenges are the frustration of managers because of low commitment of employees and communication break down.
- Work coordination issues dues to difference in time zone and location, technological discord, communication issues, lack of established work rules and cultural differences (Molgale, 2009).
- In comparison to traditional organizations, VOs face three challenges; a) logistic problems due to differences in time and location, b) interpersonal issues, c) dependency on technology (Cordes &Malling 2009).
- Some of the other challenges faced by VO are; collaboration issues, a reduction in commitment, communication breakdown, cultural and language barriers, job dissatisfaction, job stress, legal issues, logistic issues, management issues, performance, productivity, distracted goals, lack of social interaction, lack of organizational support, technology issues, lack of face-to-face interactions, cultural differences and time zone differences (Khan 2011; Ventura 2011).
- Management face the following challenges; constant organization transformation activities, intense global competition, workforce demographics, cultural differences and rapid technological (Khan 2011).
- VO increases employees' isolation and independence, threatening to fragment the organization (Wiesenfelda, Raghuramb & Garuda 2001).

13. Recommendations to overcome the Challenges Faced by Virtual Organization
- An empirical study on behaviour of employees under Virtual Management suggest that face-to-face interaction needs to be assured, along with other traditional work values, lest such VOs risk losing employee support (Askarzai, Lan & Unhelkar, 2014)
- Recruit the right people (Pang, 2001; Sundin, 2006; Brown et al., 2007; Snell, 2009; Intranet Focus, 2012).
- Respect the autonomy and fulfil the needs of employees (Cisco, 2007; Derven, 2007).
- Establish trust, a constant and consistent communication medium and establish the rules for effective communication (Pang, 2001; Gerke, 2006; Sundin, 2006; Cisco, 2007; Derven, 2007; Hunsaker & Hunsaker, 2008; Economist Intelligence Unit, 2009;Snell, 2009).
- Goals are clear, achievable and agreed by team members (Pang, 2001; Economist Intelligence Unit, 2009; Snell, 2009).
- Acknowledge the cultural differences (Economist Intelligence Unit, 2009; Snell, 2009).
- Team members should meet face-to-face at least once and have an agreed code of practice for the conduct of meetings (Pang, 2001; Intranet Focus, 2012).
- Use the enabling technologies appropriately (Pang, 2001; Derven, 2007; Economist Intelligence Unit, 2009).
- Remote management requires the same good management skills and strong leadership as direct management. Clear and engaging direction should be provided by team leaders (Gerke, 2006; Hunsaker & Hunsaker, 2008).
- Improve the manager's ability, establish a career path and empower employees to manage their own careers (Snell, 2009).
- In a VO context management must be more skill full about building strong relationships (Gerke, 2006; Cisco, 2007; Snell, 2009).

14. Virtual Employees
Numerous studies have attempted to define the term "virtual employee". For example, Lam (2010) stated that accessing information via use of communication devices differentiated VEs from non-VEs. They can work anywhere and anytime. They [VEs] are not necessarily belonging to the same organization. In contrary, VEs are the group of people who work interdependently with shared purpose across space, time and organization boundaries using technology to communicate and collaborate (Molgale, 2009). Wiesenfelda, Raghuramb & Garuda 2001on the other hand suggested than in a virtual workplace, employees work from home, on the road and outside centralised traditional offices.

Several studies have classified VEs into different categories based on the dimensions of time, space and the kind work being carried by VEs as Watt (2007) suggested that the work context of each individual VE is different. Below is the discussion of these studies.

There are two categories of virtual employees, inter-organizational virtual employees and intra-virtual employees. Inter-organizational virtual employees work from and for different companies, change their jobs more frequently and have multiple skills. Intra-organizational virtual employees work in one organization (Gargiulo 2008).

In their seminal article Kurland & Bailey 1999 claimed that Jack Niles coined the term telecommuting in 1980s and many organizations lured to telecommuting as they focused on reducing the cost of maintaining office space (Kurland & Bailey 1999).

Kurland & Bailey 1999 outlined four types of telework, home-based telecommuting, satellite offices, neighbourhood work centres and mobile working. Home-based telecommuting refers to employees who work at home on regular basis. In Satellite offices, employees work outside the home and workplace. A neighbourhood work centre houses more than one organization's employees.

Based on the research of Pang 2001 and, Edwards and Wilson 2004 there are six types of virtual employment, namely telecommuting, tele-centres, mobile, hot-desking, hoteling and virtual teams. Telecommuting employees work at locations away from the organization and use communication technologies to remain in touch with the management. Tele-centre employees work in satellite offices, outside major cities. A satellite office is a part of an organization that is located distance away from the organization. Satellite office reduces commuting time to the office as it allows employees to work away from the organization (Facility Management, 1995; The Financial Times, 2012). Mobile

employees are always on the move and use mobile technologies to remain in touch with the organization. Hyrkkänen, Nenonen & Kojo 2014 defined mobile employees as employees who work more than ten hours per week outside the primary workplace and uses ICTs for collaboration. Hot-desk employees work on customer premises and use the customer's facilities to remain in touch with their organization. Hoteling employees use client facilities such as hotels to remain in touch with the organization. Virtual employees work for virtual teams; these employees collaborate from distant locations using communication technologies as a medium of interaction.

Johns & Gratton 2013 have suggested that there are three waves of virtual work. The first wave, "virtual freelancers" began working as virtual employees in the early 1980s with limited access to computers and internet. The second wave, "virtual corporate colleagues" began when virtual employees had no/limited social ties with the organization. The third wave "virtual co-workers" began when the second wave gained momentum and virtual workers shared their concerns such as their work lives often lacked a sense of community and the richness of collaboration.

15. Collaboration Tools of Virtual Organization

The research by the economist intelligence unit 2009 involved 407 participants. The participants were asked, which of the communicating tools they use to communicate and collaborate with their virtual team?

Table 2 below presents the number of the participants using each communication tool in this regard.

Communication Tools	No of participants
Email	96
Fixed phone	77
Mobile phones or other mobile devices	77
Video conferencing	54
Web conferencing/Virtual meeting space	51
Shared calendar	38
Instant messaging	35
Voice over IP tools	24
Online discussion forum	13
Web-based real-time messaging tools	13
Bespoke systems	8
Wiki	6
Social network site	5
Online office suite	5
Blog	3
Governance tools	3
Others	9

Table 2: Adopted from economist intelligence unit 2009

According to the above research e-mail was/is the most used collaboration tool among the VEs.

16. Conclusion

This paper has given a definitional framework of VO that demarcates a VO from a non-VO. The following conclusions can be drawn from this paper; a non-virtual organization goes through three phases to become VO namely formation, operation and termination; the key characteristics that distinguishes a non-VO from a VO is operation based on ICT and the organization can be geographically dispersed; there are two types of VO an intra-VO and an inter-VO with an inter-VO divided into four types based on its taxonomies. The paper has gone some way towards enhancing our understanding of VO particularly how a VO differs from a non-VO.

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