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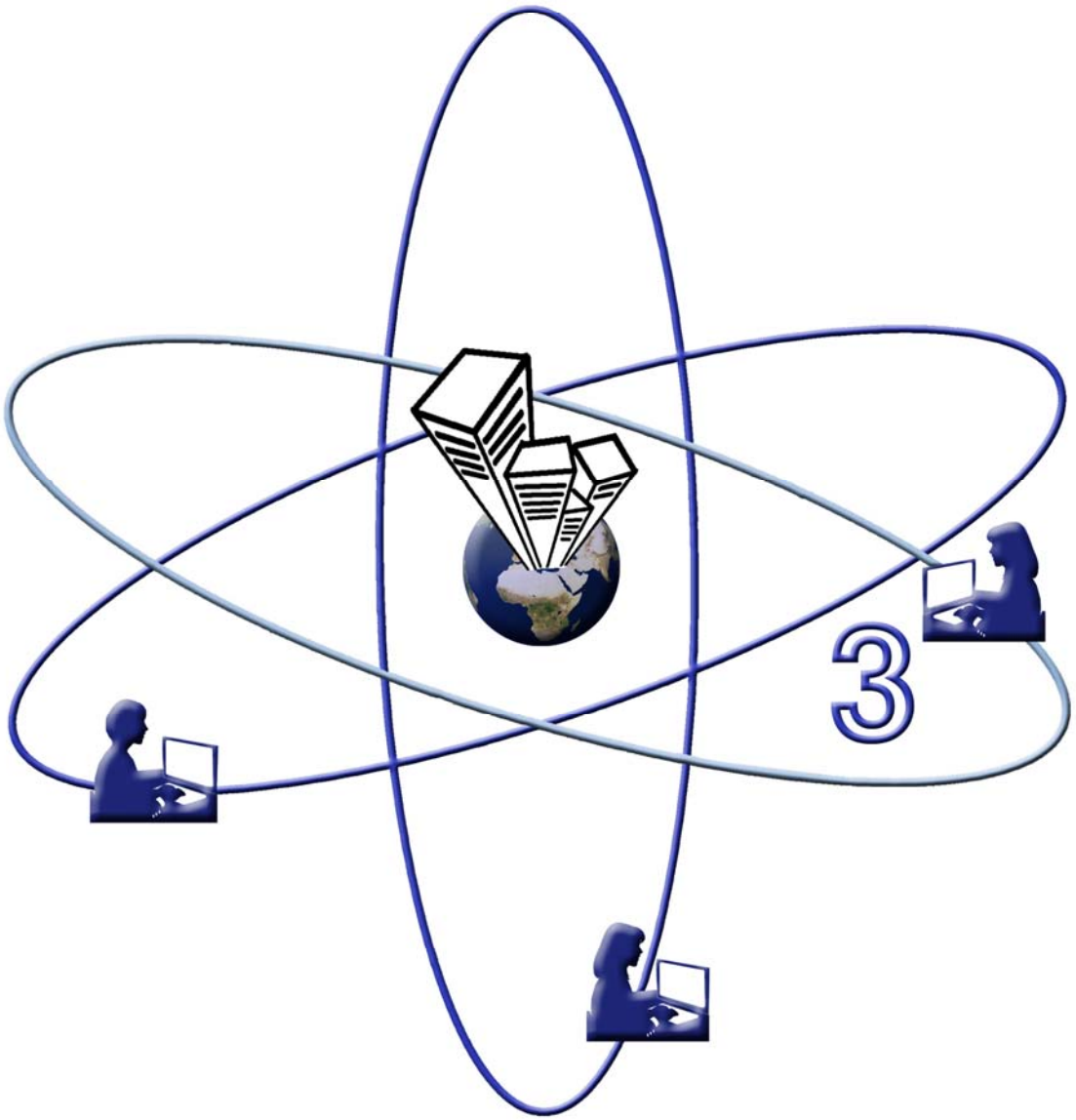
The management of people, processes and places in the virtual workplace

LITERATURE OVERVIEW



CHAPTER 3: LITERATURE OVERVIEW

> ***"... stressed the need to focus on "intellectual capital" in a business environment where ideas are "currency", information and customers are money, and vision is valued."***
>
> **Walter Wriston in**
> **Maynard Jr. & Mehrtens**
> **The Fourth Wave: business in the 21st century**

> ***Man is the animal that can direct and control his own evolution.***
>
> **Bennis**
> **Beyond bureaucracy: essays on the development and evolution of human organisation**

3.1 INTRODUCTION

Economic growth enabled development that left us with a legacy of invaluable innovations, which not only changed the nature of work, but also the way in which people lived, communicated and travelled. These developments occurred in cycles, referred to as waves of change, which is covered in the following part.

The literature review explores the waves of change with the "*transition from the Industrial-Bureaucratic Age to the Information-Network*" (Lipnack & Stamps, 2004:29), also referred to as the Information Age or Fifth Wave, of which the virtual workplace forms part. Irrespective of the type of workplace ***(place)***, that is traditional or virtual, both utilise business processes ***(process)*** to transform inputs into outputs. Managing the business processes in the virtual workplace may require a different management style ***(people)*** from that in the more traditional workplace, as the challenges faced in the virtual workplace differ from those in the traditional workplace. The literature review covers ***people-process-place*** with a review of the changing nature of work (section 3.2). ***People-process*** covers business processes and business

process maturity (sections 3.4.1 up to 3.4.7 and 3.7.1). The virtual workplace is discussed with the focussing on ***people-place*** (sections 3.3.1 to 3.3.6). Process is also discussed in sections 3.5.1 and 3.6.1 respectively. Figure 3.1 depicts the literature overview including the gap between ***process-place***.

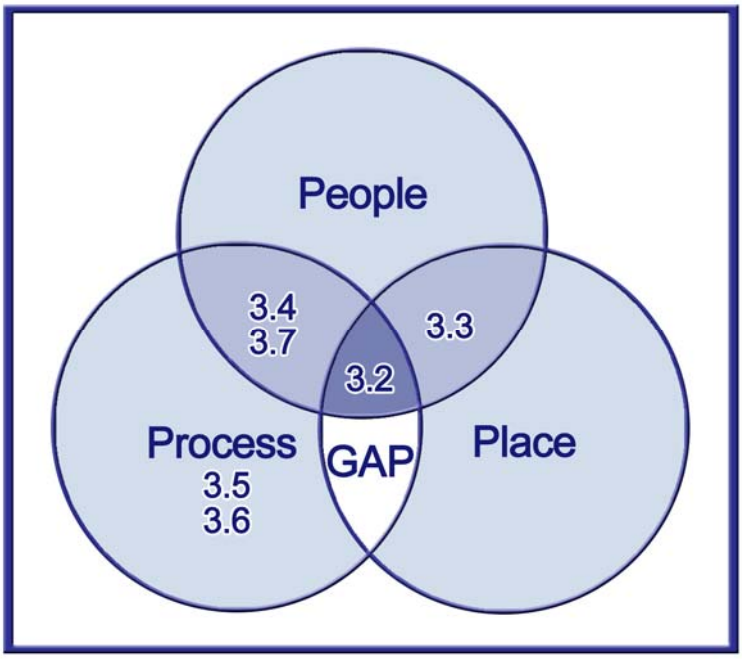


Figure 3.1: Literature overview

The literature review conducted as part of step 1 of the Extended Hermeneutic Circle of Learning is depicted in figure 3.2. This step is also discussed in chapter 6 as part of the application of the Extended Hermeneutic Circle of Learning.

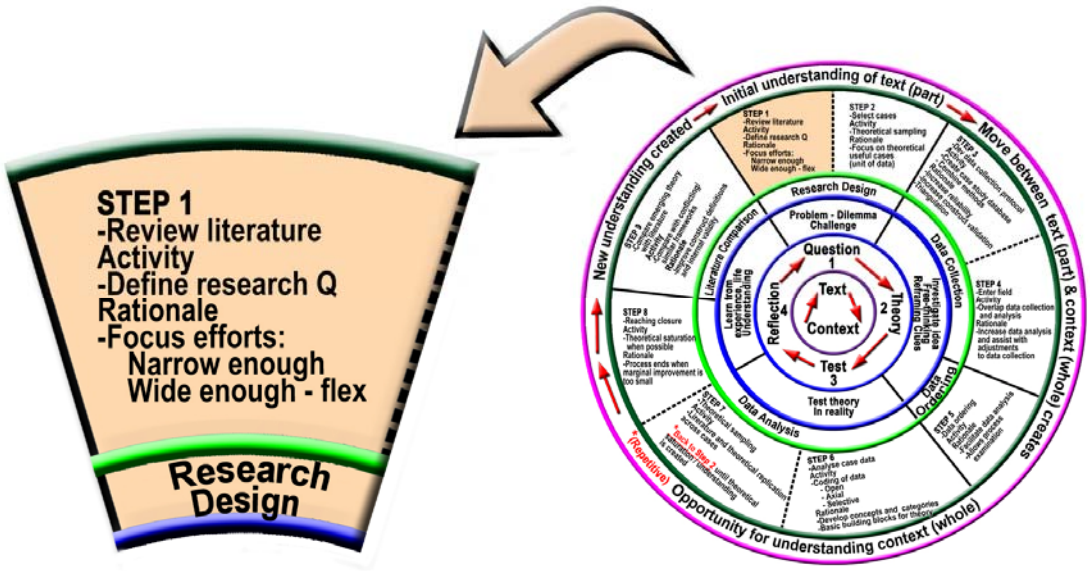


Figure 3.2: Step 1 – Literature review

3.2 THE CHANGING NATURE OF WORK

This section covers ***people-process-place*** as seen in figure 3.1, as part of the literature review depicted in figure 3.2.

3.2.1 Waves of change

The Kondratieff cycles or long waves of economic development were discussed by the Russian economist, Nikolai D Kondratieff, and today these are known as the K-waves. These economic cycles last between 48 to 55 years with the floor or base of the cycle having a high correlation with worldwide depressions (Volland, 1987:123). This is consistent with Kondratieff who did not provide an explanation for the waves, but speculated that they were the result of periodic overexpansion in large industrial capital projects and infrastructure. Each wave makes use of new, unique technologies (Lynch, 2003:1), which assist in solving problems once thought impenetrable. Although the long cycles or waves of economic development are well defined, research into the relationships between stock markets and leading innovation cycle industries has not yet been done (Hilmola, 2007:393). The lack of such research is noted and will not impact on this research as it is beyond the scope of this thesis.

Economic growth is stimulated by the development cycles of industries ***(process),*** aided by capital investment as speculated by Kondratieff, and these development cycles are characterised by key innovations (Wonglimpiyarat, 2005:1350), such as:

- cotton in the K1-wave
- coal and iron for industries relying on steam power as well as the railways in the K2-wave
- steel for industries using electrical power and chemical manufacturing in the K3-wave
- oil (energy) for industries manufacturing electronics, synthetic materials and pharmaceuticals in the K4-wave
- integrated circuits and microchips for Information and Communication Technology (ICT) in the K5-wave
- nanotechnology entering the K6-wave

3.2.1.1 First Wave: Industrial Revolution

The era preceding the First Wave or K1-Wave, which is before 1780, was characterised by agriculture being the largest production sector ***(place)*** in the world (Volland, 1987:131). Finlay (2002:2) takes the era preceding the First Wave or Agricultural Revolution back to about 10 000 years ago. During this period inhabitants ***(people)*** exchanged their nomadic life style and hunting for cultivating the earth and the development of farming techniques as well as taming animals ***(process).*** Toffler (1980:14) places the First Wave in the same time frame as Finlay, namely from 8000 BC until 1650–1750 AD. This era was also characterised by goods produced for the survival of the inhabitants ***(people)***, implying that the producer of the goods was also the consumer (Toffler cited in Tjaden, 1995:4).

The term “Industrial Revolution” was first used by Arnold Toynbee (1852–1883) to describe the development of England’s economy during the period **1760–1840**. There is a contradiction in the timelines used by Toynbee and Lynch with the First Wave (**1770–1830)** also described as the water mechanisation age, as water powered

production replaced hand crafted ***(people, process)*** production (Lynch, 2003:1).

Technological innovations ***(process)*** characterising this period include the use of new basic materials, namely iron and steel as well as the invention of new machines, such as the spinning jenny (*Encyclopaedia Britannica,* 2002) and canal transportation (Lynch, 2003:1) which relates to water mechanisation as described earlier.

Iron and steel, as invaluable new basic materials, paved the way for the expansion of railroads, which became the most significant quality of the Second Wave.

3.2.1.2 Second Wave: Railroadisation

The word “railroadisation” (Lynch, 2003:1) perfectly describes the K2-wave **(1820–1880).** The Second Wave is dominated by extensive iron railroad expansion ***(process)*** improving the distribution and delivery of goods and services to remote markets ***(place)***. Markets also include the consumer ***(people)*** of goods and services. This is supported by Volland (1987:134) with the development of the world’s largest railroad transportation infrastructure as sixty-eight percent of the steel produced in 1880 was sent to Bessemer steel rails. New sources of energy, such as coal and the steam engine (*Encyclopaedia Britannica,* 2002), as well as locomotives (Lynch, 2003:1) form part of the inputs shaping the global economy.

3.2.1.3 Third Wave: The Second Industrial Revolution (electrification)

The Second Wave was followed by another significant development, namely electricity ***(process)***. The second industrial revolution occurred during the late 19th and early 20th centuries **(1870–1920)**. Electrification led to the production of inexpensive types of steel, transforming railroads and ultimately laying the foundation for ***(place)*** modern cities (Lynch, 2003:1). Electric infrastructure led to the

development of skyscrapers, electric lifts, light bulbs and telephones, consequently becoming core to modern day man's existence ***(people)***.

3.2.1.4 Fourth Wave: Motorisation

The **1910–1970** is known as the motorisation wave, or alternatively the K4-wave (Lynch, 2003:1). High on the list of developments for this period (Volland, 1987:136) is new iron reserves found in China and South America, which pushed steel production to new heights in 1925 and 1926 with stainless steel being produced in 1927. A combination of the development of tools, machinery and computers lead to the establishment of the automatic factory ***(place and process)*.**

Developments in transportation and communications, such as the development of the automobile, aeroplane, telegraph and radio ***(process)*** is also central to this era (*Encyclopaedia Britannica,* 2000).

One of the most significant developments during the second half of this period is the development of the assembly line ***(process)*** in 1913 to 1914 by Henry Ford in the production of his Model T Ford. Human power ***(people)*** was replaced to some extent in these factories ***(place)*** by machine power ***(process)*** ***(****Compton's interactive encyclopaedia,* 1995).

Henry Ford developed a system that was able to deliver parts, subassemblies, as well as assemblies built on subsidiary assembly lines, thus establishing the first production line. Precise and accurate timing lead to the constant moving of the major assembly line, which lead to huge gains in productivity. Davis and Brabänder (2007:2) elaborate on the work done by Henry Ford in that decomposing a bulky piece of work into small, quantifiable and the most beneficial, optimised tasks, such as a production line, significantly reduces manufacturing costs. The sequencing of tasks and the allocation of resources (people and material) to execute the defined tasks, lead to what we today know as a ***process.***

Another well-known scientist from this era is Frederick W Taylor whose time and motion studies had a huge influence on the way ***people*** worked. Productivity was enhanced through the elimination of waste time and limitation of motion in the execution of activities. Time and motion studies centred on the key elements of a specific job and the way in which these elements could be put together best for maximum efficiency, in other words the best method to perform a task in the shortest period of time (*Encyclopaedia Britannica,* 2002).

The aim of the scientific approach (Schönberger, 1985:509–510) was to standardise the labour component of production as non-standard labour was expensive. Standardisation in this context refers to standard *methods/motion* ***(process)*** and standard *times*. Taylor re-worked the five steps found in the scientific method into a procedure for use in methods studies and this is summarised in table 3.1 below.

Methods	
Scientific method	**Method studies**
Define problem	Select a present task for method improvement or select a new task for method development.
Collect data	Flowchart present method (the before chart), or create a flowchart for a new task.
Generate alternatives	Apply questioning attitude, principles of motion economy, etc to arrive at an alternative method and flowchart this new method (after chart).
Evaluate alternatives and choose	Evaluate new method via savings in: cost, delays, time, transportations, effort, transportation distances and storages. Choose best method.
Implement	Implement – in training and in job planning.

Table 3.1: Methods study and scientific method
(Schönberger, 1985:515)

Taylor's Scientific Management Principles still influence the work environment today (Davis & Brabänder, 2007:2) in the sense of:

- Develop the "one best way" to perform a task ***(process)***.
- Select the best skilled person to perform the job ***(people)***.
- Train, teach and develop workers.
- Provide monetary incentives for workers adhering to the defined methods.
- Divide work with the approach of managers being responsible for planning work methods and workers for the executing of the job according to the defined methods, that is process as we know it today.

Another characteristic of this era is the time it took to circulate written correspondence because of the time it took for written correspondence to travel back and forth as technology, such as email and the internet, did not exist.

Work in the Second Wave businesses, (K4-wave according to Kondratieff's waves), were repetitive and specialised, that is with very little variance ***(process)*** andunder tight schedules (Toffler, 1980:384–386, 407). Workers ***(people)*** were obedient and punctual with a willingness to perform routine work, without questioning it. Authority resided with the "boss" and each employee had only one supervisor and a visible status distinction existed. Roles and responsibilities were very clearly defined. The primary role of workers (Tjaden, 1995:5) was to operate machines and keep them running at peak performance. Thus, the role of workers ***(people)*** was to serve the needs of the tools of production ***(process)*** instead of the process supporting the people. This goes hand in hand with economics being focussed on mass production with large capital investments and relates to the establishment of the assembly line (mass production) and accompanying specialisation.

3.2.1.5 Fifth Wave: Information Age

The Third Wave (Daly, 2001:19), relates to the current knowledge age, driven by information technology and demands for freedom. This wave started off in the mid-1950s and leads the way to the transition to the Information Age. Note the overlap in the time frame as Lynch (2003:1–2) states the K5-wave to be the Informational Wave **(1960–2020)**.

Given the capabilities provided by the information technology wave, countless opportunities and methodologies exist to collect, analyse, disseminate and transform data into information for use by business management, scholars and tutors. Thus, the Information Age is the primary generator of social and economical change due to the speed at which data can be processed and communicated (Lynch, 2003:2).

The growth of Industrial Age businesses was driven by capital as it needed to achieve economies of scale through mass production. Information Age businesses are driven by data, information, knowledge and technology.

3.2.1.6 Sixth Wave: Nanotechnology

Nanotechnology is entering the K6-wave, bringing revolutions in the research arena as nanotechnology deals with the nanometer scale, which is one-thousandth of a micrometer or one-billionth of a meter. "*Nanotechnology represents interdisciplinary research since it requires interdisciplinary education, networked research and improving human performance"* (Wonglimpiyarat, 2005:1350).

Cognisance is taken of nanotechnology as part of the Sixth Wave, but it will not be explored in detail as it falls beyond the scope of this research.

3.3 THE VIRTUAL WORKPLACE

"Virtual" can be seen as relating to the changing work environment with many of the changes in the work environment manifesting as the boundaries of

time, space and organisations are surpassed (Watson-Manheim, Chudoba & Crowston, 2002:191).

Various definitions relating to the virtual office environment have been developed by researchers and the following were found in the literature. This section covers ***people-place*** as depicted in figure 3.1.

3.3.1 Defining the virtual workplace

The virtual workplace is a series of loosely coupled workplaces, including the home office, remote offices and hotel rooms (Caldwell & Gambon, 1996:32).

The virtual workplace covers a variety of mobile and remote work environments ***(place)*** translating into working from a distance with the emphasis that any company considering moving in this direction should have clear company objectives and requirements (Davenport & Pearlson, 1998:51). It is furthermore important that an organisation has knowledge of the types of virtual workplaces in order to address the specific requirements of such a company.

This theory is supported by Pasternak (1994:20) who expresses the opinion that a virtual workplaces relates to a hotel-style, check-in workplace where few, if any workers have a permanent desk.

The definition by Baker (2000:51) states that virtual workplaces exist in all kinds of locations varying from satellite offices, telecommuter locations, home offices and shared office “hotels” ***(place)***. However, the central characteristic is the network of connections that is created between co-workers ***(people)*** through the use of various types of technology, such as laptops, personal digital assistants (PDAs), modems, dedicated phone lines, software support, cell phones, fax, printers, video- and teleconferencing as well as intranet and internet. Therefore people need not be physically located in the same space/location, but are joined together through technology ***(process)***. Thus, the virtual workplace is the synergy of minds meeting and exchanging information electronically.

The definition as provided by Zemliansky and St Amant (2008:2,3) corresponds closely with that of Baker, as the virtual workplace is viewed as a knowledge society with ***people*** working closely and successfully together using technology ***(process)*** to work from a distance ***(place)*** to transfer knowledge (implicit and explicit) in order to achieve specific goals. Specific reference is made to having the relevant knowledge as a vital resource. This supports the statement made earlier that we are showered by immeasurable volumes of information from across the globe with undifferentiated information being of little value. Information is distributed effortlessly within the virtual workplace, thus increasing its value while also saving time and money. Therefore analysing relevant information, building explicit (technical) and implicit (managerial) knowledge is of key importance to having the appropriate knowledge. This also supports Handy's perspective on knowledge and learning as discussed in section 2.2.1.

The virtual workplace (Travica, 2005:46) is in essence a temporary association of various constituencies consisting of groups, individuals and firms who come together to jointly take advantage of a sudden emerging market opportunity. Further clarification is also given with regard to the meaning of "virtual" as "virtually" describes basically or effectively existing, although not formally and tangibly. This meaning of "virtual" is supported by the *Oxford advanced learner's dictionary* as it describes virtual as "*almost or nearly the thing described … invisible*". The virtual workplace therefore is not the same as the traditional workplace, as the virtual workplace exists where and when needed with flexible or permeable boundaries.

There is harmony between Travica (2005:46) and Watson-Manheim et al (2002:192) as virtual work is identified as work being done by telecommuters (individuals) on the one hand and virtual organisations (groups), such as user communities on the other hand ***(people)***. Hence, virtual relates to "*work environments* ***(place)*** *where individuals (****people)*** *are physically and temporally dispersed".* The element of virtual teams which are formed is based on skill and not location (Townsend, De Marie & Hendrickson, 1998:23) can be seen from the example of the of B-1 bomber development team being

located in different countries ***(place)*** (Boudreau, Loch, Robey & Straub, 1998:120,122).

The virtual workplace can also be viewed more from a social perspective (Allenby & Fink, 2005:1035) in that a decentralised workforce ***(people)*** is more protected against disruptions caused by disease and disasters, such as the 11 September 2001 attack on the World Trade Centre in New York. However, they also state that organisational structures are moving away from rigid, fixed structures to more fluid and changeable structures.

When analysing these different opinions or descriptions of the virtual workplace, certain similarities can be seen, namely flexibility, quicker adaptability of the organisation to changes in the environment, employees working off-site, that is not at the organisation's premises and the opportunities offered by technological development.

The above-mentioned characteristics are combined, which emphasise the difference between a traditional workplace and a virtual workplace (Watson-Manheim et al, 2002:192), as follows:

- *"the location of workers;*
- *where and how work is accomplished; and*
- *the basis of relationships between workers and organisations and between organisations."*

For the purpose of this research the definition as provided by Baker (2000:51) will be used in conjunction with the social perspective as stated by Allenby and Fink (2005:1035).

The virtual workplace can therefore be described as a ***decentralised workforce (people)*** with locations varying from satellite offices, telecommuter offices, home offices as well as hotels and airports ***(place).*** Of cardinal importance to the virtual office is a ***network of connections*** created to link co-workers. Connections are created through the use of technology, such as laptops, personal digital assistants (PDAs), modems, dedicated ADSL phone

lines, software support, cell phones, fax, printers, video- and teleconferencing as well as intranet and internet ***(process).*** The emphasis is on ***co-workers being joined***/linked together, not by being located at a central location, but ***through technology***. A fluid and flexible structure allows for the virtual office to ***quickly adapt to changes*** in the environment. Workers are ***protected against disruptions*** caused by disasters, such as the attacks on the Twin Towers in New York on 11 September 2001, thereby enabling the organisation to act on its ***social responsibility*** towards its employees.

The definitions and description given above refers to a selection of virtual workplaces of which can exist with each fulfilling a specific purpose. In the section below these different virtual workplaces (Davenport & Pearlson, 1998) will be reviewed in order to provide a more comprehensive perspective of the virtual workplaces.

3.3.2 Grouping of virtual workplaces

Although a grouping of virtual workplaces is provided below, it should not be seen as cast in stone, as these virtual workplaces evolve over time to adjust to the specific requirements of organisations implementing them. It is therefore apparent that certain aspects that have initially been identified as shortcomings by one author, can be shown as advantages by another. The following section covers telecommuters, tethered (joint) workers, home workers and fully mobile workers who work from a variety of places, such as hotelling, hot desk, telework centre or from home

3.3.2.1 Telecommuters

This is the most common and stationary agreement referring to occasions where workers with fixed, traditional offices occasionally work from home (Davenport & Pearlson, 1998:5). Hill and Miller (1998:667) define teleworkers as those with a fixed substitute worksite at home.

In close correlation with the above description is the definition provided by Illegems and Verbeke (2004:319) in which they define "*telework as*

paid work from home, a satellite office, a telework center or any other work station outside the main office for at least one day per workweek." This definition also shows a close relationship with telecommuting being the reduction of commuting distance by working at home; in a non-traditional satellite office which houses employees from different functional areas; in a telecottage situated in a rural area or in a neighbourhood office where employees from different organisations share facilities (Shin, Sheng & Higa, 2000:86).

The shortcomings posed by telecommuting relate to it being a low-risk, low-reward technique as no office space is saved with the consequence of very little cost savings for the company and no real transformation in management as the state of affairs basically stay the same.

Zemliansky and St Amant (2008:113) on the other hand offers an almost opposite view of telecommuting than that stated by Davenport and Pearlson. Individual rewards are found in greater job satisfaction obtained through enhanced balance in work and family lives, forestalling of office politics, lower absenteeism and higher morale. Company rewards relate to significant space saving, the opportunity to recruit employees from a greater geographical area as well as a reduction in support staff. Another important perspective added is the social benefits obtained through pollution reduction due to fewer vehicles using roads during peak hours.

3.3.2.2 Hotelling

Hotelling as term is used to refer to a "hotel room" or cubicle, also known as a workstation, where the employee can make and receive phone calls along with linking his or her laptop computer to the organisation's network. This workstation can be a traditional or open plan office that became redundant or can be located at a suburban office. This category of office is well-liked with firms rendering professional services as their consultants often working on-site with

clients. The firm Ernst and Young in Washington DC, who makes use of this model, has found that workers focus less on the office and more on the client (Cascio, 2000:85).

This type of virtual workplace has limitations in that employees do not get the same working station (cubicle) every time they visit the office, counteracting the advantages offered by a fixed traditional office. Workers may prefer to work from home or off-site rather than going into a “hotel room” or cubicle.

3.3.2.3 Hot desk

This idea relates to hotelling and is for the most part relevant to individuals in sales and service, where four people on average share an office. This has been put into practice by amongst others, IBM and Cisco Systems (Cascio, 2000:85).

3.3.2.4 Telework centre

Miniature corporate office environments, which offers more technology than what may automatically be accessible from home, such as videoconferencing facilities, is another alternative that can be considered. This miniature office can be located in a residential area, accommodating employees residing nearby saving commuting time and maximising productive time. Ontario Telebusiness Work Centre near Los Angeles is one example where this concept has been applied. (Cascio, 2000:85). This can be compared with Zemliansky’s (2008:112) term “telecenters” which encompass shared office space, a compressed work week, satellite centres, as well as mobile offices. South African examples of mobile offices can be found in the Business Express train operating between Pretoria and Johannesburg, as well as the business busses with internet technology provided by ABSA. Baker’s telecommuter locations also match up with Zemliansky’s “telecenters”.

3.3.2.5 "Tethered (joint) worker"

This type of virtual workplace is not commonly found. Employees have little mobility and are expected to report to their office on a regular basis, such as checking in every morning, receiving their call cards and hand held computers. They are then free to spend their time in the office complex as needed. This could possibly lead to increased creativity (perceived creativity) as moving around the working environment could expose employees to other stimuli.

However, the shortcomings associated with this concept relate to some employees finding it distracting to move around in the working area, therefore preferring to return to a specific office or workstation on a daily basis to attend to work in progress. Managers at Chiat Day expressed their concern "... We didn't want people thinking that they didn't have to come to the office anymore ..." when office space became limited (Davenport & Pearlson, 1998:54).

3.3.2.6 Home workers

These workers have no other office than a room at home and this arrangement is appropriate to employees who do not have distractions such as children at home, small lodgings or at-home-spouses. It should be ensured that adequate office space is available for office equipment needed such as fax machines, computer, desks and filing cabinets together with extra high speed telephone lines. ATandT assisted their employees in equipping home offices with the needed office equipment (Davenport & Pearlson, 1998:55).

The shortcomings as explained by Davenport and Pearlson (1998:54) corresponds with those stated by Zemliansky and St Amant (2008:113–117) in that employees become disconnected from their jobs and fellow employees, have a lack of office support services, along with reduced social interaction or direct communication, supervision and possible lack of career advancement.

3.3.2.7 Fully mobile worker

These workers rely heavily on mobile technology such as the Third Generation mobile (cellular) phone communication standard, also known as 3G connectivity, as they may not even have an office at home. They are unremittingly on the move, either assisting a client on site or being on the road. This is typical of representatives, including field sales and customer care. Consultants and IT representatives typically fall into this category.

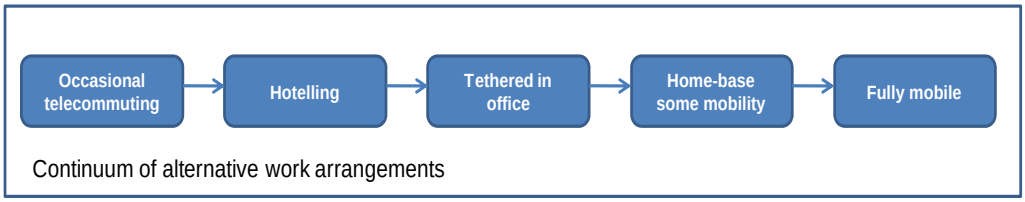


Figure 3.3: Continuum of alternative work arrangements
(Davenport & Pearlson, 1998:53).

Although the different types of virtual workplaces as described above are very similar and often overlapping in nature, the ones at either end of the continuum are quite distinct, moving from least mobile or flexible (occasional telecommuting) to most or fully mobile (fully mobile).

Any organisation considering a virtual workplace needs to evaluate the type of workplace that will suit its operations best, taking cognisance of the advantages and disadvantages identified as part of the virtual workplace, thereby limiting “romanticising” of working in a virtual workplace.

A summary of the grouping of the virtual workplaces can be seen in table 3.2, followed by a discussion on people in the virtual workplace and the types of work suitable for the virtual workplace.

Type of office	Advantages	Disadvantages
• Telecommuting	• Low risk	• Low reward • No space saving • Low flexibility
• Hotelling	• Increased customer satisfaction due to employee often being located on client's premises, eg consultants	• No specific cubicle allocated to employee • Advantage of traditional office negated
• Hot desking	• Relates to hotelling, but mostly to those in sales	
• Telework centres	• Almost unlimited access to technology • Located in residential area	• Overheads to maintain premises
•"Tethered workers"	• Control over job and assignments delegated • Increase creativity due to external stimuli	• Distractions from moving around in the working area
• Home workers	• Ideal for those employees who do not have distractions at home, eg children	• Becomes disconnected from the organisation and the bigger picture over time
•Fully mobile workers	• High flexibility • Low overheads	• Specific type of person needed who can adapt to being "on the road"

Table 3.2: Grouping of virtual workplaces

3.3.3 People in the virtual workplace

The virtual workplace led to companies having employees around the globe with the daunting task of managing a diverse workforce, including components such as recruitment, selection, compensation, training and development (Nelson & Quick, 2000:43). Davis and Khazanchi (2006:93) state that team work and collaboration are further complicated due to the dispersed nature of work and teams, particularly in terms of geography, time and culture, which are inherently part of the virtual workplace. Trust, culture, management, recruitment and development and technology aspects can each be seen as expert fields on its own. The aim is not to discuss each of these fields in detail. The aim of this thesis is to discuss the management of people, processes and places in the virtual workplace (chapter 5) based on the relationship between people, processes and places in the virtual workplace. Thus, the purpose of the following section is to reflect on aspects related to people.

> ***Lipnack and Stamps (1997:227) suggest that "In the networks and virtual teams of the Information Age, trust is a 'need to have' quality in productive relationships." The Information Age is enabled by information technology.***
>
> **Staples and Ratnasingham (1998:128)**

3.3.3.1 Trust

Remote or distant workers are people working in a different geographic location from their co-workers and managers. These virtual workers can be telecommuters working from home, that equates telecommuting, or be nomadic workers who regularly work for multiple clients at different sites and may not have a permanent office. They can also be working out of their car (Davenport & Pearlson, 1998:53; Zemliansky & St Amant, 2008:346,347; Staples, 2001:3).

Telecommuting is just one form of a work arrangement resulting in remote management, meaning that workers and management need to get accustomed to working with and managing those they do not see except on a pre-arranged occasion (Staples, 2001:3; Handy, 1995:40). At the heart of such a management endeavour is trust, because if "*we want the benefits of the virtual workplace we will have to rediscover to run organisations more on trust than on control"* since virtuality requires trust to work (Handy, 1995:44). Trust is the belief or confidence in a person or an organisation's integrity, fairness and reliability (Lipnack & Stamps, 1997 in Staples, 2001:4). Trust is seen as a psychological state, that is the *"the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control the other party"* (Mayer, Davis & Schoorman, 1995:712; Webster & Wong, 2008:44). The emphasis is on the willingness to take a risk and accepting the vulnerability associated with it. Lewis and Weigert's (1985:968**)** risk and potential

doubt as elements of trust corresponds with risk and vulnerability as described by Mayer et al (1995:712).

Staples (2001:11) has found trust to significantly impact on perceptions of performance, job satisfaction and job stress for both remote or virtual and non-remote workers. According to Iacono and Weisband (1997:1) high levels of trust were achieved among people working in virtual teams as they were focussed on work content and moved more efficiently between work tasks. There is also a component of value instilled as trust is created by "leaders who follow and support organisational values".

There are two forms of interpersonal trust, namely cognition-based trust and affect-based trust. Cognition-based trust focuses on what is deemed to be "good reasons" providing confirmation of trustworthiness, responsibility and competence, thus trust is the cognitive choice of whom we will trust, in which respect and under which circumstances (Lewis & Weigert, 1985:970). Affect-based trust consists of the emotional bond created between people who indisputably care for each other and include components such as a willingness to help and to listen (Webster & Wong, 2008:45; Lewis & Weigert, 1985:970; McAllister, 1995:26; Staples, 2001:11; Staples & Ratnasingham, 1998:137). Managers of virtual employees should aim at building cognition-based trust through frequent, unambiguous communication and through focussing of "*activities that lead to employees trusting managers based on their demonstrated competence, responsibility and professionalism"* (Staples, 2001:12, 13). This viewpoint corresponds with Hammer's (2001:145) who refers to strong and dynamic leadership fostering cohesion. This translates into managers leading by example. It also has a correlation with the enacted values as discussed as part of culture in section 3.3.3.2.

"Managers have often relied on assessing behaviours, through direct observation, as their coordination and control mechanism. Observing

behaviours is no longer a feasible coordination and control mechanism in a virtual workplace; trust can be used instead. *From the virtual employees' perspective interpersonal trust is very important since the potential of isolation is high. The informal communication and information-gathering opportunities for employees in virtual work environments are typically less than in non-virtual settings. The employees rely on their managers to keep them informed of necessary information and to support their activities with effective feedback and recognition*" (Staples & Ratnasingham, 1998:128). The potential of isolation correlates with the disadvantages of the virtual workplace discussed in section 3.3.6.2.

Seven rules of trust reflecting on mutual trust, freedom created through the setting of boundaries thereby creating trust and recruiting the right people for the virtual workplace are covered in table 3.3. For the whole (virtual workplace) to work, the units (people and process) have to gel with the goals of the whole, thus matching the discussion on the hermeneutic circle in sections 2.2.2 and 2.2.3. Building of trust though face-to-face interaction with the emphasis on the person and not the job is important, as trust is not and can never be an impersonal commodity. Multiplicity of leadership, that is having the right leader for the job at hand is included in the rules of trust. The seven rules that need to be kept in mind are presented in table 3.3 (Handy, 1995:44–47).

Rules of trust	
Rule	**Description**
Trust is not blind	It is unwise to trust people you do not know well, have not observed over time and are not committed to the same goal. Larger organisations need relatively constant, smaller groups.
Trust needs boundaries	Unlimited trust is unrealistic. Energy and effectiveness is released by freedom within boundaries. Trust means confidence in someone's competence and commitment to goals. Define goal, assess results.
Trust demands learning	Change is the only constant. Keep abreast of change by exploring new ideas. Individuals capable of self-renewal key. Recruitment and placement along with choice of group leaders important.
Trust is tough	If you cannot trust, you become a checker. If employee does not live up to expectations and can not be relied upon to do what is required , the person needs to go. Then trust becomes ruthless.
Trust needs bonding	Self-contained units responsible for delivering results are building blocks of an organisation based on trust. For the whole to work, the units have to gel with the goals of the whole. Vision, mission. Trust is not and can never be an impersonal commodity.
Trust needs touch	Balance high tech with high touch to build big trust organisations. Paradox: The more virtual, the more people need to meet in person. Meetings different – more about process than task, more about person that deliverable. Get-togethers are the lubricant for virtuality. Reinforce corporate goals, strategies. Watch culture grow.
Trust requires leaders	Best trust-based organisations need multiplicity of leaders. Perfect formula for a team is communication, total confidence in each other to get job done, passion for the same goal. If anyone does not pull his weight, he does not deserve the confidence of the others. Leadership is a team effort based on job to be done.

Table 3.3: Seven rules of trust
(Handy, 1995:44–47)

3.3.3.2 Culture

"Cultural diversity in the workplace is growing because of the globalization of business" (Nelson & Quick, 2000:43). Inherently part of each organisation is its culture which is *"the set of shared, taken-for-granted, implicit assumptions that a group holds and that determines how it perceives, thinks about and reacts to its various environments".* The given definition highlights three important elements of organisational culture, namely that organisational culture is passed on to new employees through a socialisation process, influences employee behaviour and consists of visible (dress code, special parking spaces) and invisible (value system) components. The invisible value system is part of organisational culture with values being *"(1) concepts or belief, (2) pertain to desirable end-state or behaviour,*

(3) transcend situations, (4) guide selection or evaluation of behaviour and events, and (5) ordered by relative importance." These values are made up of adopted and enacted values. Adopted or espoused values relate to the preferred values and norms explicitly stated by the company, such as trust, loyalty, integrity. Enacted values, such as responsibility, accountability are exhibited in employee behaviour (Kreitner & Kinicki, 2001:68, 69). The adopted values of trust, loyalty and integrity correspond with the discussion on trust in section 3.3.3.1 and are vital components supporting the virtual workplace as described by the case study participant (Appendix A). According to the case study participant it translates into an *"enabling culture"* that is required for the virtual workplace.

Zemliansky and St Amant (2008:557) acknowledge cultural differences between co-workers in the virtual workplace in that low-context cultures and high-context cultures exist. Low context cultures are results oriented, heterogeneous and use explicit forms of communication, such as written or spoken communication sharing specific intentions. High-context cultures value relationships, are homogeneous and use implicit forms of communication, such as body language (Zemliansky & St Amant, 2008:557).

This thesis has as focus organisational culture supporting the virtual workplace and thus has included cultural differences in section 6.12, on future research.

Crucial to creating sustainable success in the establishment of an enabling culture with process based thinking is a comprehensive and active change realisation programme (Snabe**,** Rosenberg, Moller & Scavillo, 2009:232–234).

3.3.3.3 Active change realisation

Active change realisation is an expertise on its own and although it cannot be covered in detail, it is included, as it is crucial as part of

establishing a culture supportive for the virtual workplace. Change realisation consists of two components, namely a hard and a soft component (Snabe et al, 2010:232). The hard component relates to processes, organisational structures and technologies, whereas the soft component has as essence staff behaviour, organisational culture and a process-oriented thinking.

The recommended approach for change realisation is the implementation and execution of a comprehensive change realisation program which addresses information, communication, training and support (Snabe et al, 2009:233).

The following business enablers for change realisation need to be taken into account (Snabe et al, 2009:233–234):

- Clear and visible support for business process management by the organisation's top management together with practicing of process-oriented thinking and action.
- Transparent and open, unambiguous communication.
- Training of all role-players in the appropriate methods, standards, tools and procedures.
- Structured, programmatic approach.
- Promotion of process-oriented thinking together with the creation of trust.
- Promoting initiative and personal responsibility among all involved parties.

Bilodeau (2004:5) links successful change to an unbroken leadership chain from top to bottom and this has a close resemblance with management (section 4.3.2). According to Bilodeau (2004:5) an unbroken leadership chain consists of:

- the leadership team being the first link, namely the process architecture framework
- middle management being second link, namely the process maps

- frontline employees being the third link in the action leadership chain, that is with procedure and work instructions

The Unbroken Leadership Chain Top to Bottom (Bilodeau 2004:5) depicted in figure 3.4 also includes the process components related to each link. This is followed by a discussion on managerial barriers and management aspects related to the management of people, processes and places in the virtual workplace.

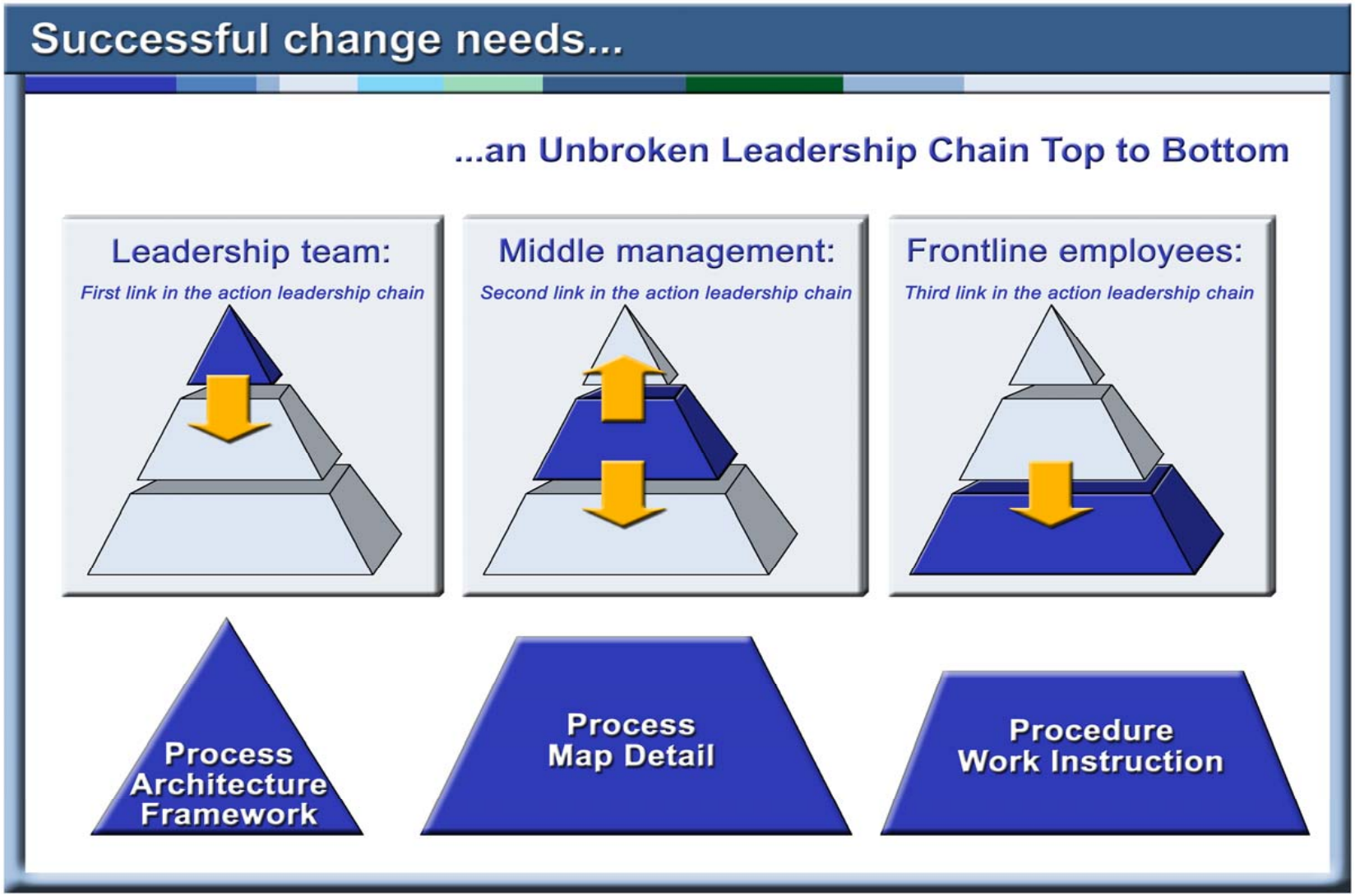


Figure 3.4: Unbroken leadership chain top to bottom
(Bilodeau, 2004:5)

3.3.3.4 Management

Gilberg (1998:110–111) recognised the shift in management style, that is a shift from the traditional and hierarchical to more participative and supportive management styles. He also identified certain barriers, namely:

- Organisational barriers

  Higher value is placed on tradition than on innovation; uniformity, consistency and control enforced by top management rather than individual initiative and freedom; there is rigid adherence to a formal bureaucratic authority structure.
- Situational barriers

  This is the physical constraints experienced due to the lack of time as well as decision-making being influenced by the interaction between tasks and specialised knowledge.
- Subordinate barriers

  This refers to resistance to change when subordinates do not see the direct benefit they gain from the proposed change in work and work structure.
- Managerial barriers

  More participative and supportive management translate into less control over operations and deliverables management are accountable for.

A shift over time from a bureaucratic management style to a more participative and collaborative management style led to organisational change. The identified barriers show a relationship to what is experienced today, as the nature of work have changed with global, economic and organisational change dictating flexibility from management with technology being one of the distinguishing features in the modern workplace (Nelson & Quick, 2000:487). In the context of this thesis the modern workplace refers to the virtual workplace with the job fitting the people. The need to recruit the right person with the

right personality traits fitting the job, that is a person suitable to work in the virtual workplace, is discussed in section 3.3.3.5.

Management and decision-makers face many complex problems and barriers today which require collaborative efforts and partnerships from individuals covering many different areas of expertise (Davis & Khazanchi, 2006:93). This statement has a matching link with the barriers and collaboration identified by Gilberg (1998:110–111). McCormack et al (2009:795) has the viewpoint of moving across old functional silos thereby enabling enterprise-wide, horizontal thinking with support structures that include horizontal teams, partnerships and shared ownership or also referred to as collaboration. His viewpoint matches that of Hammer (2001:224) who refers to this as organisational structures loosening up. Hammer (2001:224) states "*The days of the proudly independent manager running a sharply defined unit are over. Collaboration and teamwork are now as necessary in the executive suite as on the front lines. Teach managers how to work together for the good of the enterprise rather than stab each other in the back for narrow gain."*

Clear and Dickson (2005:220) distinguishes between a *"Fordist"* and *"Post-Fordist"* management style of which the *"Post-Fordist"* management style is described as decentralised decision-making with greater discretion over work-related activities, more flexibility and less bureaucracy, hence supporting telecommuting and virtual workplace. A *"Fordist"* management style encompasses strict, prescribed tasks executed under the supervision of a hierarchy of managers, with very limited discretion and decision-making opportunity, thus it is in complete opposition to the virtual workplace.

As mentioned earlier, recruiting the right person for the job and workplace is crucial, as not everyone can function in a flexible workplace, such as a virtual workplace. The following section discusses recruitment and personality traits.

3.3.3.5 Recruitment and personality traits

There is a relationship between fitting the job to the people and employing suitable people to work in a virtual workplace as can be seen in the case study conducted with Company F. It is important to identify people who want to work in a virtual environment and who can benefit from the flexibility it offers, thus recruiting the right people. Recruitment can be described as those activities in human resource management, which are undertaken in order to attract sufficient job candidates who have the necessary potential, competencies and traits to fill job requirements and assist the organisation in achieving its objectives (Swanepoel, Erasmus, Van Wyk & Schenk, 2000:291). Another crucial component of recruitment is the retaining of critical, scarce skills with telework, or the virtual workplace, offering the advantage of attracting, motivating and retaining employees, who represent the organisation's human capital resource base (Illegems & Verbeke, 2004:321).

The case study stated employing suitable people for the virtual workplace and this correlates with what Swanepoel et al (2000:291) and Illegems and Verbeke (2004:321) say about identifying suitable people with the right traits fitting the job.

Linked to this are the personality traits of those people who can work successfully in the virtual workplace, since the virtual workplace is not suitable for all people. According to Nelson and Quick (2000:82–83), personality traits is one component of personality theory. The other components relate to psychodynamic, humanistic and integrative theories. The psychodynamic theory has as essence the unconscious determinants of behaviour based on the work of Sigmund Freud. The humanistic theory focuses on individual growth and self-actualisation whereas the integrative theory aims to describe personality on the basis of psychological processes. With the focus on personality traits the authors state that in order to understand individuals, their behaviour patterns must be broken down into observable traits and care should

be taken not to ignore the influence of situations on personality and personality traits (Nelson & Quick, 2000:82). Their specific mentioning of observable traits corresponds closely with the enacted values (Kreitner & Kinicki, 2001:69) which were discussed as part of the cultural aspect in section 3.3.3.2.

The personality traits identified as part of conscientiousness, as found in the "Big Five" personality traits (Kreitner & Kinicki 2001:148; Nelson & Quick 2000:82) in table 3.4 below correspond with the personality traits identified during the research.

The "Big Five" personality traits	
Extraversion	The person is gregarious, assertive, talkative, outgoing and sociable (as opposed to reserved, timid and quiet)
Agreeableness	The person is cooperative, trusting, warm, soft-hearted, and agreeable (rather than cold, disagreeable, and antagonistic)
Conscientiousness	The person is hardworking, responsible, organised, achievement-oriented, persistent and dependable (as opposed to lazy, disorganised, and unreliable)
Emotional stability	The person is calm, self-confident, relaxed, unworried and cool (as opposed to insecure, anxious and depressed)
Openness to experience	The person is creative, curious, imaginative, broad-minded and cultured (rather than practical with narrow interest)

Table 3.4: The "Big Five" personality traits
(Kreitner & Kinicki, 2001:148; Nelson & Quick, 2000:82)

Appendix D (Geldenhuys 2002:46) contains an extended list of personality traits grouped according to relationships with people, reporting style, feelings and emotions and thinking style.

3.3.3.6 Development and training

Development and training as discussed in this section, address the people component as part of the virtual workplace. Training and development serves a dual role in that it helps management to meet its human resource requirements and it equips the workforce with the necessary skills to perform their activities and increase their marketability (Nel, Gerber, Van Dyk, Haasbroek, Schultz, Sono & Werner, 2001:163). Training and development can have many forms due to technological advances and two types of learning are distinguished, namely distance learning, which is often more informal and formal learning which is classroom-based. Time constraints and the cost of attending on-site (formal) training make distance training through the use of the internet and other electronic interfaces a good option (Zemliansky & St Amant, 2008:331). This is supported by Rayport and Jaworski (2002:607) who state that the internet as training or education medium offers education at lower cost compared to classroom-based training. Distance learning is also known as e-learning and is defined by Elliot Masie as "*the use of technology to design, deliver, select, administer, support and extend learning*" (Sinnet, 2002). The flexibility of on-line training enabled by advanced technology provides internet users and employees with the freedom, flexibility and mobility to access the internet anytime, anywhere and any place (Zemliansky & St Amant, 2008:402, 403). A further distinction is provided related to synchronous and asynchronous training. Zemliansky and St Amant (2008:274) distinguish between synchronous learning technologies which enable real-time collaboration and interaction contributing to community building and which help to "*stave off feelings of isolation*". In contrast to this asynchronous technologies enable anytime, anyplace collaboration.

Facilitators may not necessarily be online and interacting with students at the same point in time.

A study was conducted by Staples and Webster (2007:90) to identify potential best practices for individual team members. They found training that informs team members of the best practice activities necessary for high performance in a virtual team environment, including how to perform those activities well, is needed. Skills that were reported to be very important include the ability to organise effectively, competency in an individual's area of responsibility, adequate technical skills to use the information technology tools available as well as good time management skills (Staples & Webster, 2007:72). These skills show a correlation with personality traits and communication as discussed in sections 3.3.3.5 and 3.3.3.8. This translates into development and training not only to be viewed in the light of what technology offers, but also that appropriate training is needed, in other words informative training enhancing performance.

3.3.3.7 Performance management

Informative training supporting high performance goes hand in hand. As part of performance management employees should be given accurate descriptions of the tasks they have to perform. This will enable them to judge their abilities against demands. In addition to this they should be provided with clear objectives and standards against which they can measure their levels of performance accomplishment (Staples & Webster, 2007:90). Clear goal-setting as part of effectiveness in the organisation is paramount for performance management (Nel et al, 2001:68). In their discussion on people's time visions, which is the manner in which they experience time, Saunders, Van Slyke & Vogel reflects on the matching of techonology to time visions as part of performance measures, such as automated scheduling tools (asynchronous media) making priorities and deadlines visible, assisting in the scheduling and synchronising of activities thereby creating a work rhythm with monitoring and tracking of

activites across time zones, (Saunders, Van Slyke & Vogel, 2004:25). This correlates with clear objectives and goals as discussed by Staples & Webster (2007:90).

Structuring of formal and informal communication and interaction around sound communication pointers is recommended as it helps to convey clear messages. These communication pointers can relate to performance management as well as setting clear, accurate goals and communicating it unambiguously. They are essential for enhanced performance.

3.3.3.8 Communication and communication pointers

Staples and Webster (2007:71, 72) refer to effective communication as the transferring of ideas, sharing of information, listening and internalising ideas of others. Advising team members of problems is also included in effective communication. Communication is essential in virtual teams and virtual employees as face-to-face communication and spontaneous interaction happen occasionally. Segerstad and Ljungstrand (2002:155) describe face-to-face communication as multimodal with the sending and receiving of messages in visual and vocal modalities. Zemliansky & St Amant (2008:471) describes synchronous communication as communication happening in “real time” with two or more people being connected simultaneously. This “real-time” communication can be done through a face-to-face meeting, a telephone call or a telephone conference. This correlates with face-to-face coordination meetings allowing synchronous dialogue among all its members (Maznevski & Chudoba (2000:480) Using communication tools that can make up for the loss of face-to-face communication and assist in having interaction was suggested. Responsiveness with regard to the prompt answering of phone calls and emails, even if an employee or team member does not have sufficient information to share at that point in time, should be noted (Staples & Webster, 2007:72). This links back to the skills mentioned in section 3.3.3.5. Email communication or asynchronous communication

is usually informal. Informal communication does not require a recipient's immediate presence and participation (Zemliansky & St Amant, 2008:471). Table 3.5 in section 3.3.3.9 depicts the different synchronous and asynchronous virtual work tools and methods of communication as defined by Zemlianksy & St Amant (2008:349).

Different communication media are appropriate for different messages and the aim is to use the media most appropriate for the situation (DeKoven in Lipnack & Stamps, 1997:99 -100). He expands on this when he uses the example of email being the middle step between fax and phone. Although an email is more informal than a fax it still carries accountability in context of the written text, but not as concrete as a fax. The presence of paper as output when using a fax brings a sence of permanence and formality with it. Due to the more informal nature of email it can take longer to reach conclusion. Lipnack & Stamps (1997:100 -101) use the following examples to illustrate the different types of communication media used by virtual teams. In context of this thesis reference is made to virtual workers:

- Email which is more informal and continous
- Telephone and telephone conference calls which occur as frequent as required
- Voicemail as an indispensable part of a project
- Face-to-face meetings at intervals as determined by the team members and workers
- Real-time video conferencing followed by participants on their desktops irrespective of their location

The media as mentioned above need to be evaluated based on the virtual workers' product and process media. Product media relates to the manner in which work is being presented, such as documentation, presentation, reports and plans. Process media relates to the communication methods required to get the work done including the process of interacting across boundaries (Lipnack & Stamps, 1997: 85, 86,208, 209). Maznevski & Chudoba (2000:481, 486, 487) found that

workers or team members may have a preference with regard to communication media, such as having preference of telephone calls above email or fax and conference calls to resolve complex matters. They also has as viewpoint that effective virtual teams and virtual workers in context of this thesis, have distinguishing strong, repeatable, sequencial patterns, that is a “basic rhythm” which is set by face-to-face meetings. These face-to-face meetings create the heartbeat that support workers while working remotely.The frequency of face-to-face meetings is determined by task complexity, required level of interdependency and members’ ability to communicate effectively over a distance. This has a strong colleration with clear, unambiguous communication as discussed as part of communication pointers below. Individual coordination meetings fulfill the role of assisting in decision-making and relationship building, thus the rhythm created by these meetings provide continuity and long-term stability to the workers enabling them to work efficiently and confidently remotely (Maznevski & Chudoba 2000:487). The concept of rhythm is also discussed by Lee (1999:21) with him referring to it as the alteration in the intensity of being busy within a cycle, that is alternating cycles of being very busy and being less busy. Thus, a cycle can be repeated daily with a rhythm of being very busy in the mornings.

Following on the technology, such as email mentioned above, is the development of instant messaging (IM) which is becoming increasingly popular for informal communication. IM allows employees and social communicators to send and receive short text-based messages in real-time and to see who else is online. The sending and receiving of instant messages is much faster than traditional email and usually shorter than email messages. IM can also be used to communicate one-on-one and with small groups of people who know each other (Cameron & Webster, 2005:86, 87). In the South African context this is known as the short message system (SMS).

Cameron and Webster (2005:91, 100) further reflect on communication in terms of appropriate types of media and the richness thereof, for example face-to-face meeting or communication might convey caring while an official memo might convey legitimacy and formality. This correlates with DeKoven's example of a fax being more formal as well as the different media as discussed by Lipnack & Stamps (1997:100 - 101). Communication via IM may suggest a light and informal tone and non-authoritative conversations, breaking down hierarchical barriers. Rich media are thought to be best for communicating vague ideas or concepts. Face-to-face communication would rate high on richness and email based communication would be considered lower in richness with IM being a combination of face-to-face and email, thus placing IM in an intermediate scale of richness (Segerstad & Ljungstrand, 2002:150). According to Cameron and Webster (2005:100) IM is perceived to be much less rich than face-to-face communication, symbolising informality. Language used as part of IM display characteristics associated with the spoken word, is steno-typed, that is shorthand and includes specific features such as "smileys" (Segerstad & Ljungstrand, 2002:153, 158)

Due to technological advancements computer-mediated communication is done today. Although technologically advanced, the impersonal nature of computer-mediated communication resulted in interpersonal skills such as tact and graciousness being diminished and rudeness in the use of the computer increasing. People who conduct face-to-face discussions in a quiet and polite manner may become impolite and unrestrained when communicating using computer conferencing or electronic mail (Nelson & Quick, 2000:270). Many examples of computer-mediated communications can be found today, such as the voice prompts that callers need to follow when phoning a financial institution or an insurance company, for example to follow the voice prompts to select "new or existing customer", "private or business client", "updating of existing details", and so forth.

The following communication pointers from Bilodeau (2004:22) deal with communication in a structured manner. These pointers are helpful in assisting to communicate clear, unambiguous messages:

- *Who*, that is an informed spokesperson or influencer, such as business owners and project sponsors.
- *Says what,* relating to the business process message that is being communicated, including the management strategy and roadmap (Snabe et al, 2009:105, 237).
- *To whom,* that is the audience being addressed, such as new employees, business process modellers, business analysts, project teams and support staff. Grouping of people with the same requirements per session is advantageous as it helps to provide the audience with a focussed message. Other audience members include steering committees, business managers, system users, suppliers and customers (Snabe et al, 2009:227).
- *How,* that is the type of communications channels being used, such as road shows for project overview and sensitisation, video conferencing, written communications in the form of pamphlets, posters and flyers and posting to the intranet and electronic news system. The latter can be seen as a central communication area (Snabe et al, 2009:239).
- *When,* that is the timing and frequency of communication, such as creation of project awareness including continuous information on business transformation. This is followed by specific information related to training. All audiences need to be involved when communication related to the implementation phase is done, with continuous feedback to the business and project sponsors (Snabe et al, 2009:238).
- *With what effect*, meaning measuring the effectiveness of the communication effort in terms of *output*, that is how well the selected media reached the audience (numbers reached); *out-takes* referring to the degree in which the audience understood and recognised the message and *outcomes*, namely the extent

to which the desired outcome and behavioural change were achieved.

These communication pointers have relevance to active change realisation (section 3.3.3.3 and 3.3.3.8) with its associated communication and is also useful when communicating using the virtual work tools as discussed below.

3.3.3.9 Virtual work tools

The different virtual work tools covering communication, conferencing and collaboration as listed and discussed by Zemliansky and St Amant (2008:349–350) are depicted in table 3.5: Representative virtual work tools. Each of these tools has its own usage fulfilling different needs of workers, namely:

- Communication tools

  These tools are available to practically all organisations and individuals, and are the least sophisticated technologies when compared to the conferencing tools. Most workers and individuals use these communication tools when at the office or at home.

  Examples of such tools are: telephones, mobile phones, facsimile, email, email attachments, Microsoft Office, intranets, web browsers, search engines, voicemail notification and instant messaging services.

  Segerstad and Ljungstrand (2002:154) see email as being an asynchronous messaging system that does not require visual confirmation of the receiver's presence at the time of sending the message. Dialogue suffers less due to less time delays when compared to traditional or "snail mail".

- Conferencing tools

Conferencing tools, such as those listed in table 3.5 as part of representative virtual work tools are more sophisticated and support the real-time meetings between remote workers as well as those meetings between remote and office workers. Conferencing facilities require strong infrastructure, making the establishment of such facilities more expensive. Employee training in the proper, effective use of the different conferencing tools is also required.

Examples of such tools are: audio-conferencing using different telephony devices, video-conferencing with full motion video and audio, conference bridges adding audio participants to a video conference and web casts.

- Collaborative tools

  These tools are the most sophisticated virtual work tools which provide functionality to include project and document management functions in communication and conferencing tools. Collaborative tools are expensive to acquire and maintain; require ongoing management and employee training and often require integration with organisation applications.

  Examples of such tools are: workflow systems integrating email, facsimile and telephone messages, participant directories, centralised documentation systems and project management systems.

Representative virtual work tools		
Virtual work category	**Representative tools**	**Applications**
Communication	Telephony	Synchronous voice
	Voicemail	Asynchronous voice
	Facsimile	Asynchronous text
	Email	Asynchronous text and graphics
	Office productivity suites	Knowledge documentation
	Enterprise file storage	Knowledge storage
	Web sites	Access to documents and processes
	Web browsers and search engines	Knowledge location
Conferencing	Audio conferencing	Synchronous audio
	Video conferencing	Synchronous audio and video
	Webcasting and streaming	Synchronous and asynchronous audio and video
	Web conferencing	Synchronous audio, video and documents
Collaboration	Project management	Collaboration and control
	Unified communications	Audio, text and documents
	Shared product and documentation development	Synchronous and asynchronous collaboration
	Knowledge management	Document repositories and retrieval

Table 3.5: Representative virtual work tools
(Zemliansky & St. Amant, 2008:349)

3.3.4 Type of work for the virtual workplace

Information technology, that is the level of internet connectivity, was suggested as important enablers needed for effective remote or virtual work (Staples, 2001:11). The types of work suitable for the virtual workplace relate to *"tacit"* tasks which can be project- and program-oriented, and done by persons such as system programmers, program analysts, documentation writers, sales staff and research associates (Zemliansky & St Amant, 2008:351; Roderick & Jelly, 1991:40). Saunders et al (2004:19) state that asynchronous work enable virtual teams to effectively bridge time zones thus enabling them to be more productive over more than one time zone, This is illustrated by the example of code being written by a team in London. In the evening (London time which is day-time in the USA) the code is tested by the USA team members. Upon completion of testing the code it is forwarded to the Tokyo based team for debugging. This results in the London team having

tested and cleaned-up code the following day. The notion of time zones is also included in parapgraph 1.1.2.

The dimensions and attributes of virtual work as can be seen in table 3.6.

Dimensions and attributes of virtual work		
Dimension	**Attributes**	
	Less challenging	**More challenging**
Definition	Structured Defined Static	Unstructured Ad hoc Dynamic
Complexity	Single task Repeatable	Project or program Single use
Talent	Individual Generic skills Homogeneous skills	Team Specialised skills Heterogeneous skills
Constraints	Not time sensitive Not budget sensitive Not mission critical	Time critical Budget critical Mission critical

Table 3.6: Dimensions and attributes of virtual work
(Zemliansky & St Amant, 2008:351)

Accessibility to the various networks and systems is also determined by the type of work being done, as different employees fulfil different roles, requiring different profiles and access. These different roles are clear from Stair and Reynolds (1998:512,513) who state that employees, managers and customers are users or individuals, who regularly access the systems to perform their activities, whereas system analysts specialise in analysing and designing business systems. Programmers are individuals who modify or develop programs to suit specific user requirements. This also relates back to roles and responsibilities as reflected upon in section 3.4.6.

Work in the virtual workplace is done through the use of internet and other supporting infrastructure. This infrastructure is reviewed in the following section. It should be noted that this discussion is not technical in nature, but focusses on the technology supporting work in the virtual workplace.

3.3.5 Infrastructure

The telephone enabled telework, also known as telecommuting, enabled workers to work away from the office, which could be at home. The virtual workplace was created through the introduction of the internet as the internet enabled workers to connect to servers and other networks of data and real-time communication. This was further expanded through the use of local area networks (LAN), virtual private networks (VPN) and wireless technology, all of these being modern information and communication technologies. These technologies provided internet users and workers with the freedom, flexibility and mobility to access the internet anytime, anywhere and any place (Zemliansky & St Amant, 2008:402–403).

The internet is not just *one "single, giant network to which many computers are attached",* but it is a *"consortium of networks",* meaning a "*network of millions of computers and thousands of intertwined networks"*, thus "*overcoming physical boundaries providing efficient long-distance technology that connect many sites*" (Rayport & Jaworski, 2002:33–34). This relates back to the bridging of time and space as discussed in section 1.1.1.

The intranet is a powerful business tool used by organisations. The intranet is distinguished from the internet in that the intranet is *"the internal network using internet-like infrastructure and protocols which efficiently facilitates communication, collaborative work, information exchange and a strong knowledge development platform providing incontestable competitive advantage"* (Zemliansky & St Amant, 2008:440). The internet is seen as the enabler to obtain access to many different websites whereas the intranet is seen as the organisation's knowledge hub, both being essential to the traditional and virtual workplaces. The intranet usually presents a closed

network with content accessible by identified users only (Zemliansky & St Amant, 2008: 441).

Without these technologies the virtual workplace would not have existed. The discussion of the virtual workplace concludes with the advantages and disadvantages as identified in the literature.

3.3.6 Advantages and disadvantages of the virtual workplace

The virtual workplace has unique challenges along with advantages and disadvantages which need careful consideration in order to create a strong, productive environment. The advantages and disadvantages as obtained from the literature overview are discussed below.

3.3.6.1 Advantages

Certain advantages found within the virtual workplace show a relationship with information technology as discussed as part of chapter 1 (Zemliansky & St Amant, 2008:3–5,113–117).

The primary advantage offered by the virtual workplace is the crossing of boundaries and the bridging of time and space, thus establishing a less centralised and more independent, empowered workforce. This workforce benefits from complementary market forces in that they can capitalise on their efficacy, becoming more affluent. Location and the restrictions it places on a workforce do not apply to the virtual workplace, for instance, as is the case with a centralised workplace. Cost normally associated with the relocation of employees is reduced. The advantage of this is that less time and money is spent travelling to and from a centralised office. Time, the scarcest resource in all contexts can be utilised more effectively for professional as well as personal and family purposes, thereby allowing for higher overall satisfaction and a sense of well-being and empowerment (Cooper, 1995a:6).

. Advantages, such as increased efficiency and productivity in the "anytime-anyplace" office together with enhanced job satisfaction due to increased flexibility in location and time of work have been identified (Hill & Miller, 1998:678; Kepczyk, 1999:16; Zemliansky & St Amant, 2008:8; Roderick & Jelley, 1991:38). Davenport and Pearlson (1998:55) found that valued, skilled and distant employees are retained by accommodating specific needs, such as reducing long daily commuting to head office. Kepczyk (1999:16) furthermore indicates that more flexible work schedules allow employees to work when they are most productive, such as late at night or early in the morning, thereby supporting greater productivity due to fewer interruptions and a more focussed environment.

The advantage of having access to highly skilled workers who are not interested in dealing with the traditional office environment are noted by Kepczyk (1999:16) and Zemliansky and St Amant (2008:4) and importantly, allows access to the labour pool of the disabled opening many new opportunities for them. Employees have the further advantage of savings on corporate clothing and the accessories associated with that (Cooper, 1995a:6).

Davenport and Pearlson (1998:54) and Cooper (1995a:6) note organisational advantages which are derived through the virtual workplace, namely a reduction in real estate (less office and parking space) due to fewer real estate requirements. Additional organisational advantages are found in increased knowledge of high-tech equipment due to communications being done through the use of technology (Davenport & Pearlson, 1998:54; Cooper, 1995a:6). This correlates closely with "...Connections are created through the use of technology..." in section 1.2, describing the virtual workplace.

Hill, Erickson, Holmes and Ferris (2010:349) states that the benefit of working from home increased when combined with a flexible work schedule and this perceived schedule flexibility translated into less

work-life conflict. This supported the case that "*workplace flexibility is beneficial both to individuals (in the form of reduced work-life conflict) and to businesses (in the form of capacity for longer work hours)"*.

The advantages as described above correspond with advantages discussed and provided by the research participants, including the method of working, pace of work, procedures, scheduling, work criteria, work goals, the workplace, work evaluation, work hours, kind of work and amount of work mentioned by Clear and Dickson (2005:220).

3.3.6.2 Disadvantages

Disadvantages need to be managed to minimise the negative effects and therefore we need to take a closer look at what the possible disadvantages may be.

According to Cooper (1995b:14) a tendency to overwork can manifest itself when the "traditional clock" does not monitor the employee, such as reading emails before bed-time. Hill (1995:2) states "*Giving a workaholic an electronic briefcase may in some ways be like giving an alcoholic a bottle of gin*."

A feeling of isolation, not only from social interaction but also from advancement within the organisation can occur, that is employees can become disconnected from their jobs and fellow employees (Cooper, 1995b:14; Zemliansky & St Amant, 2008:113–117; Roderick & Jelley, 1991:39). This corresponds with Hill and Miller (1998:669) referring to detachment from corporate culture together with a failure to realise career growth, which correlates with Zemliansky and St Amant and Cooper's viewpoints. Forfeiting opportunities of being involved in high-ranking projects can be seen as going hand in hand with the failure to realise career growth. Staples and Webster (2007:85) also reflect on isolation in that virtual employees and virtual team members become more reliant on technology for communication, thus becoming isolated. The author indicates that virtual team members are less likely to know

colleagues' status unless explicitly shared with each other. The options for interaction in the virtual workplace are limited, thereby emphasising the point of quick responses as discussed in section 3.3.3.8.

Negative influences with regard to teamwork and peer-relations with co-teleworkers and telemanagers have also been identified by Hill and Miller (1998:669), with Cascio (2000:84) highlighting lack of trust in co-workers.Hill and Miller (1998:670) is furthermore of the opinion that a tendency to procrastinate can develop, with a blurring of boundaries between work life and private life disrupting the balance. This shows a relationship with Cooper (1995b:14) pointing out that those households tend to suffer added stress when deadlines draw closer.

Set-up and maintenance cost is a possible disadvantage (Cascio, 2000:82) as the virtual workplace is dependent on technology working flawlessly. There is more than one viewpoint to this, since technology can become less expensive over time, such as laptops, with new technology being more expensive when initially launched.

A further disadvantage, from an employer's as well as employee's perspective, is security and the safeguarding of information as well as documentation against possible leaking.

The disadvantage as mentioned by Hill and Miller (1998:680) of having to carry out administrative functions adding to the workload, is in line with Zemliansky's viewpoint that home workers have a lack of office support services.

The advantages and disadvantages for both employee and employer, as summarised in table 3.7, amongst others that may be identified, need to be recognised and considered by management as it will have an influence on the successful functioning of people in the virtual workplace.

ADVANTAGES/DISADVANTAGES FOR THE EMPLOYER		ADVANTAGES/DISADVANTAGES FOR THE EMPLOYEE	
ADVANTAGES	**DISADVANTAGES**	**ADVANTAGES**	**DISADVANTAGES**
• Reduced cost in relocation/ transfers of employees • Saving in office space and related cost, eg parking space • Reduced labour turnover, relating to highly skilled employees • Increase contact with clients promoting higher customer satisfaction • Reduced absenteeism • Access to a labour pool of the disabled • Higher productivity	• Loss of control over work load assignment • Fear a reduction in productivity • Performance management can become problematic • Initial cost in setting-up of the virtual work place	• Better quality family, work life • Less time spent on daily commuting • Less commuting/travelling • Reduced stress due to less commuting • Decreased travel expenses • Flexibility - Fit work schedule to personal preference, i.e. early mornings/late at night. • Decreased absenteeism • Higher productivity due to less interruptions • Higher productivity due to less time wasted in traffic • More focussed work atmosphere • Save on corporate clothing • Capitalise on efficacy, becoming more affluent • Work opportunities for disabled employees • Higher over-all sense of well-being • Own time management • More freedom • More relaxed due to comfortable environment • Pace own day • No routine • Independent	• Tendency to procrastinate • Allowing family to interfere • Concerns over career growth and promotions • Becoming detached from the organisation culture • Alienated from organisation • Perform own administrative duties – less office support • Forfeit certain benefits, eg subsidised parking • Can experience a decrease in empowerment • Overwork • Isolation from social interaction • Loneliness due to less social interaction • Technology not supportive or unavailable - slow internet • Remote access to servers • Very early or late hours due to time zones • Miscommunication • Language problems – other language than mother tongue • Expected to work longer due to working virtual • Two bosses – remote and at home base • Limitation in email size • Availability of information
ADVANTAGES FOR EMPLOYER AND EMPLOYEE Crossing of boundaries, bridging of time and space Enhanced utilisation of time – scarcest resource worldwide Less centralised and more independent, empowered workforce Increased knowledge of supporting technologies Reduced pollution due to less harmful emission s–fewer vehicles		**DISADVANTAGES FOR EMPLOYER AND EMPLOYEE** Problems in securing and safeguarding information Lack of trust in co-workers and telemanagers Initial start-up cost relating to equipment	

Table 3.7: Advantages and disadvantages of the virtual workplace for employees and employers

Irrespective of the type of workplace, that is the traditional workplace or virtual workplace, both require business processes that take inputs and transform it into outputs (Chase, Aquilano & Jacobs, 2001:92) creating value for the organisation and its customers.

Hence, the next section will focus on defining business processes together with business process management and improvement as found in the literature.

> ***Processes are not just something your business does;***
> ***Processes are your business.***
>
> **Davis & Brabänder (2007:2)**
> ***ARIS design platform: getting started with BPM***

3.4 BUSINESS PROCESSES

"Process is not about the routinisation and bureaucratization of work but about positioning all individual activities in the larger context in which they are performed. A process specifies which steps must be performed, by whom, where, in what order, and so on ..." (Hammer et al, 2004:16).

The following review of business processes has relevance due to business processes' supportive action in the virtual workplace.

Definitions for business processes as found in the literature are reviewed in the following section. This section covers ***people-process*** as depicted in figure 3.1.

3.4.1 Defining business process

When the concept of transforming inputs (resources) into outputs (products) is applied to a commercial organisation the term "business process" is used (Adesola & Baines, 2005:38).

Rummler and Brache (1990:45) state that a business process consists of a sequence of steps intended to produce a product or service. A comprehensive definition for a business process can be found in Hammer (2001:53, 54) where he describes a process as "*an organised group of related activities that together create a result of value for the customer."* This definition is structured in such a way that it gives precise detail of what a process and its outcome is. When unpacking the definition the following is learned:

- "*Group* of activities" states that no one single task alone can obtain the desired result of value, but that more than one activity is needed.
- "*Related* and *organised"* relates to activities that are interrelated and need to be executed in an explicit, unambiguous sequence in order to obtain the desired result. There is no room for unrelated activities.
- "*Together*" refers to the different, related activities having a common goal in mind and personal agendas are expelled.
- "*Create a result of value*" relates to the value created for the customer and this emphasises that a process is not an end in itself, but a means of creating the desired value.

It is important to understand that value is created through the execution of the whole process and that all the different, defined tasks have been grouped together to obtain synergy and assist in the systematic and orderly execution of the activities, paving the way towards one clear, common, agreed-upon goal. The goal is to get more out of the entire organisation (and not the individual) and this is obtained by improving the performance of the end-to-end business process to which individual workers contribute (Hammer et al, 2004:14).

Becker, Kugeler and Rosemann (2003:4) make a clear distinction between a process and a business process. A process is viewed as a "*closed, timely and logical sequence of activities"* executing actions related to a process-oriented object, such as an invoice. A business process, on the other hand, is driven by the organisation's business objectives and the business environment, such as order processing within a factory. A similarity is observed as Becker et al

(2003:4) and Hammer (2001:53, 54) refer to a process as related, sequenced activities.

The definition for a business process as provided by Davis and Brabänder (2007:6) shows a close correlation with Becker et al (2003:4) as well as Hammer (2001:53, 54) in that a business process is classified as "*the definition of the tasks, and the sequence of those tasks, necessary to deliver a business objective."* Not only is reference made to the aim of delivering a specific business objective, but also that the tasks should be executed in sequence.

The tasks executed, irrespective of the type of process (Hunt, 1996:116–118; Conti, 1993:40) require building blocks, namely an input, output, control and mechanism. Inputs are required to produce outputs using different mechanisms, such as people and equipment with controls governing the activities of the process.

The following generic statements (Hunt, 1996:118) show a correlation with Becker et al (2003:4) and Davis and Brabänder (2007:6) and relate to a business process as:

- *The steps and decisions involved in the way work is accomplished;*
- *A process can be either an operational activity or a decisional activity and should be described using a verb;*
- *A series of related activities that take an input, add value to it, and produce an output for an external or internal customer;*
- *A sequence of repeatable, value-adding activities, characterized as having measurable inputs and outputs; and*
- *A description of how work gets done."*

These building blocks, including the characteristics reviewed in section 3.4.4 are reflected as the attributes of a process (Myburgh, 2007) as can be seen in figure 3.5.

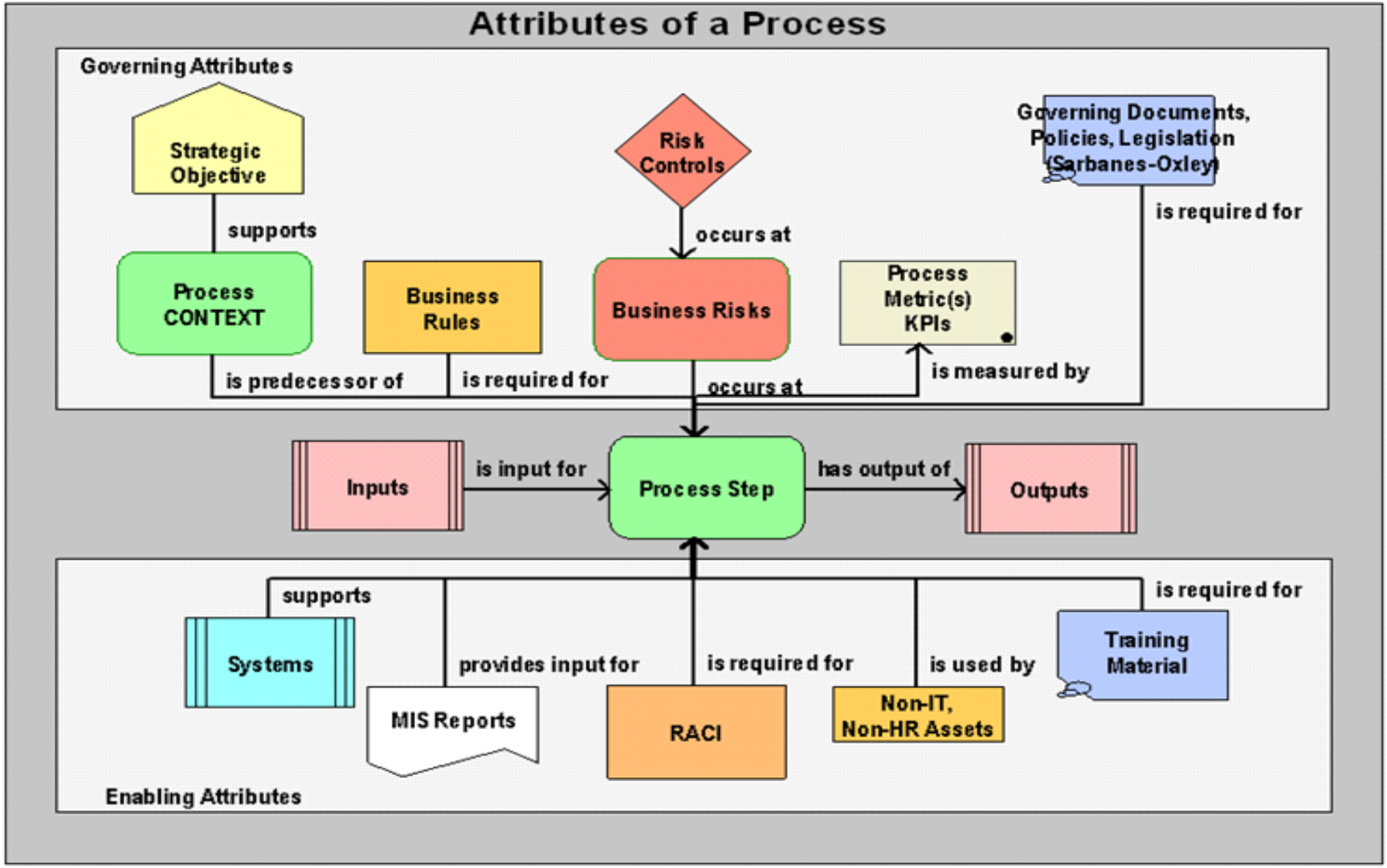


Figure 3.5: Attributes of a process (Adapted from Myburgh 2007).

Earl (1994:13) provides a broader view of processes stating that a process is a lateral or horizontal organisational form, which summarises the interdependence of tasks (responsibilities), roles, people, departments and functions (activities) needed to provide a customer with a product or service. In correlation with Earl (1994:13) and with the changing workplace and the evolvement of organisations, Galbraith (1995:14) states that *"if structure is thought of as the anatomy of the organization, processes are its physiology or functioning. Vertical processes allocate the scarce resources of funds and talent. Horizontal or lateral processes are designed around the work flow."*

3.4.2 Types of business processes

Different types of processes are required to support an organisation holistically and Earl and Khan (1994:21) distinguish between the following four types of processes, namely:

- *Core processes* supporting the primary value chain activities with the focus on external customers. The order fulfilment process is typically part of an organisation's core processes as well as insurance underwriting as part of the services industry.
- *Support processes* act as *"backup"* for the core processes with primary focus on internal customers. These processes deal with secondary administrative activities within the value chain, such as the processing of accounts payable. The administrative processes as discussed in the next section relate to the support processes.
- *Management processes* aim at planning, organising and controlling resources, such as people, technology and capital as cited by Davenport (1993:285–295).
- *Business network processes extend beyond the boundaries of the organisation into suppliers, customers and allies.* Integration of inventory, distribution and logistics processes is typical of these business processes. These processes relate to the customer and production processes as discussed below.

Different kinds of work as performed in the workplace require different types of business processes (Rummler & Brache, 1990:45, 46, 188; Harrington, 1991:9; Davenport, 1993: 285–295), namely:

- *Administrative processes* are invisible to the external customer but necessary for the effective management of the organisation. Typical examples of such processes are budgeting, training, recruitment and facility management.
- *Customer processes* that have as result a product or service received by an external customer. Marketing and sales, billing, order processing, loan processing and food preparation are examples of customer processes.
- *Management processes* specifying the managerial actions needed to support the business processes. Management processes relate to the activities performed by senior management with strategy formulation and strategic decision-making being the least structured of the different management processes. Planning and budgeting processes are more tactical and structured than the strategy processes. Performance management and reporting processes can depend heavily on management and administrative resources. Resource allocation (skilled workers, technology and capital) is a major responsibility of senior management. Human resource management and infrastructure building processes also form part of management processes (Davenport, 1993:285–295).
- *Production processes* as defined by Harrington (1991:9) correlates to Customer processes (Rummler & Brache, 1990:45, 46, 188). The production processes relate to any of the processes that come into physical contact with hardware, software or materials used to produce goods or services to an external customer, excluding packaging, shipping and delivery.

Dividing processes in primary (core or main) and supporting processes is difficult and incorrect according to Lind (2003:133) due to *"... a lack of solid foundation for determining what is core and what not ..."* as activities

performed by an organisation are aimed at adding value to potential or specific customers.

These different types of processes can be summarised using the typology of processes provided by Earl and Khan (1994:25).

Core processes are well defined, *highly structured* with its focus on how the organisation is conducting business with external customers who in turn can influence the organisation's competitiveness and positioning within the marketplace. The *core, as well as network processes,* are *primary processes* as it relates to business execution with external customers and suppliers. However, due to process integration across boundaries, *network processes* tend to be *less structured* therefore posing more uncertainty and risks.

Support and management processes are *secondary processes* supporting the primary processes. *Support processes* (administrative activities) are *highly structured,* whereas the management processes (decision-making) can be structured or unstructured.

The typology of process as discussed is depicted in figure 3.6.

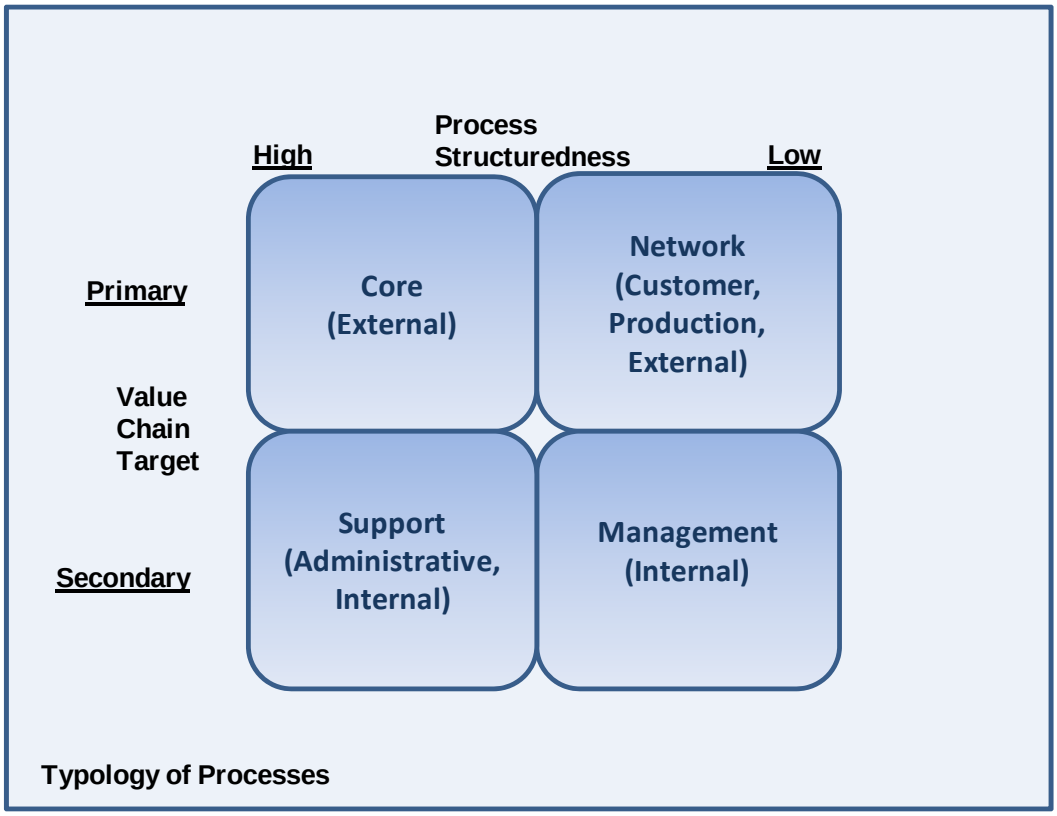


Figure 3.6: Typology of processes
(based on Earl & Khan, 1994:25)

Brown (2008:249) states that "*Business processes rarely live in isolation*". In order to ensure proper process execution you need to understand process interaction and process dependencies. Brown (2008:260–264) therefore distinguishes between independent, dependent and event-driven processes:

- *Independent processes* are autonomous and require no interaction with other processes during its execution. Hence, the independent process is not depending on triggering events from other processes. All activities within the process are determined by the process itself. Brown (2008:263) states that *"Completely independent processes are relatively uncommon in practice."*
- *Dependent processes* require inputs or triggers from other processes, which are inputs that are generated as part of another process. *"Every process that depends upon human participation is a dependent process."* (Brown, 2008:263)
- *Event-driven processes* relate to completed activities within a process serving as the triggering event for the next activity.

Brown (2008:264) also states that the execution of activities within an independent business process can be controlled as each execution of the business process is viewed as an independent unit. Management of independent business processes is therefore *"relatively straightforward".* Management of dependent business processes are more complex and requires a service-level agreement (SLA) to assist the process manager in determining whether a problem exists or not.

3.4.3 Business processes levels

An understanding needs to be created of the way in which business processes support the organisation's value chain or value stream and the associated end-to-end business activities. Hammer (2001:64) indicates that this understanding of the manner in which the business processes support the organisation in contributing to achieving the goals of the end-to-end or super process is done by asking the "what" and "how" questions, such as what is its purpose, what product, how does the process create value for customers, what do you measure in the process and what do other people contribute to the process? Hammer's "how" and "what" is in correlation with Davenport in Smith and Fingar (2003b:47) who state that the "how" focus on the work done in the organisation and the "what" on products.

Business process levels relate to the level of detail that can be included in a specific process, such as value chains with no details portraying enterprise level with the expansion of these processes to the lower levels to include unique processes and activities applicable to specific areas (Hunt, 1996:52–54). The level of detail captured within each of these process levels fulfils a specific requirement, such as the enterprise value chain providing top management and executives with an organisational view; end-to-end processes (value streams) providing complete sets of activities; sub-processes providing details on activities executed by different role players followed by individual activities done by a single person and the lowest level consisting of single tasks (Hayden & Draft, 2004:19). At the lowest level,

system development and configuration for workflow is being done by system developers.

Defining business process levels, also called decomposition (Hunt, 1996:3) relates to the partitioning or breakdown of a business process map's functions into its different components (horizontal or vertical) and levels (enterprise level, main process level, sub-process level, activity level and task level). This also relates to Earl and Khan (1994:13) and their perspective of interdependence of tasks. Table 3.8 below is an example of how a transport company in South Africa defined its business process levels with strategy governing process at all levels.

Business process levels	
Level	**Content**
Level 0	Transport Company Value Chain : **What** (Groups of Macro Processes)
Level 1	Decomposition of each value chain activity into a set of business areas, each with a specific accountable process owner: **What** (Macro Process)
Level 2	High level process per business area: **What** (Process)
Level 3	Sub-process detail per business area: **How** (Sub-process)
Level 4	Detail process information: **How - with what** (Activities)

Table 3.8: Defining business process levels
(Myburgh, 2007. ARIS Business process day conference)

The decomposition of the different process levels as used by a financial institution is depicted graphically below in figure 3.7, showing the interdependence of tasks.

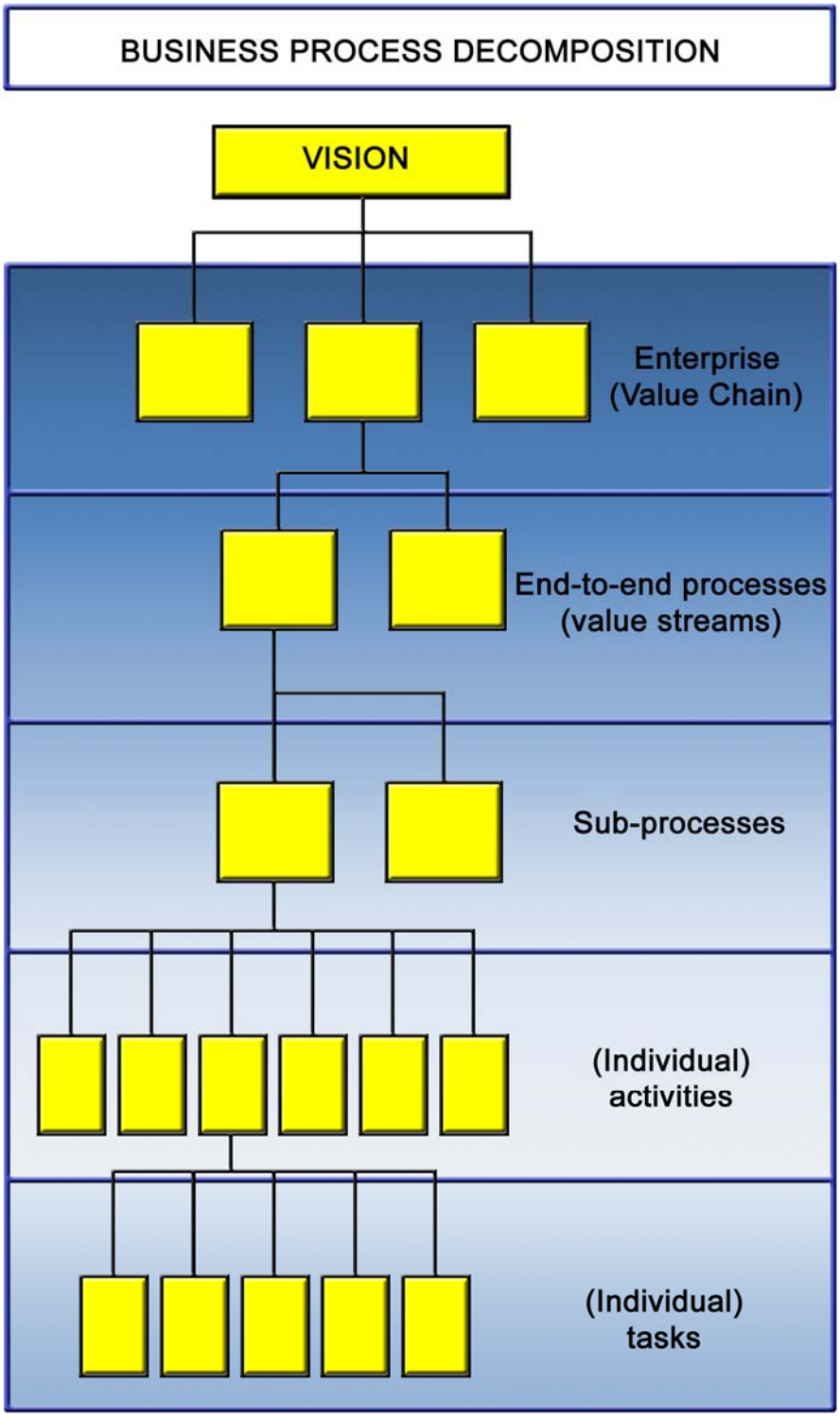


Figure 3.7: Business process decomposition
(Hayden & Draft, 2004:19)

The different levels of process decomposition can be described as:

- the enterprise value chain level being the highest level description of the organisation's processes
- the end-to-end processes, also referred to as value streams as being the complete set of activities, across organisational boundaries, that deliver fulfilment to the customer
- the sub-processes as being the level where generally all or most of the activities are executed by different role players within one organisational department/division
- the individual activities level relating to activities performed by a single role player
- the individual task level which relates to individual tasks making up a single activity. A task is usually executed without interruption and does not pause for the arrival of additional information (Hayden & Draft, 2004:19).

When reviewing the two approaches (Myburgh, 2007; Hayden & Draft, 2004:19) the following similarities are observed:

- both start at enterprise level
- both have a macro or end-to-end process view
- both have sub-processes which relate to the business processes in an organisational unit
- both include activity level

The main difference observed is the inclusion of tasks level in the decomposition of processes as used by the financial institution.

Structuring business processes in different levels is one component of well-defined, well-managed processes. Such processes have other general characteristics as described by Harrington (1991:15, 16) in the section below.

3.4.4 Characteristics of business processes

Common characteristics of well-defined and well-managed processes (Harrington, 1991:15, 16) are part of the actual managing of business processes, namely:

- a process owner who is accountable for the process performance
- the process scope or focus defining the boundaries of the process
- well-defined interfaces linking processes and responsibilities
- documented work instructions, procedures and training material
- measurements and feedback controls as close as possible to the point of activity
- customer related measurements and targets
- known cycle times
- formalised change control procedures governing process maintenance

Smith and Fingar (2003b:47–48) has as viewpoint that business processes are a set of coordinated, collaborative and transactional activities that deliver value to a customer and that business processes have the following characteristics:

- "*large and complex,* involving the end-to-end flow of materials, information and business commitments
- *dynamic*, responding to demands from customers and changing market conditions
- *widely distributed and customised across boundaries* within and between businesses, often spanning multiple applications on disparate technology platforms
- *long-running,* that is a single instance of a process such as "order to cash" or "develop product" may run for months or even years
- *automated*, at least in part (Routine or mundane activities are performed by computers wherever possible, for the sake of speed and reliability.)
- *both business and technical in nature* with IT processes being a subset of the business process, thus providing support to larger processes which involve people and machines

- *end-to-end processes are transactional and collaborative* and are dependent on distributed computing systems
- *dependent on and supportive of the intelligence of humans* (This relates to processes executed by humans that are too unstructured for a computer or that requires face-to-face interaction and problem-solving skills.)
- *difficult to make visible* as many organisations' business processes are not documented, incomplete or embedded in their history

Smith and Fingar (2003b:47–48) provide a more detailed description of business process characteristics than Harrington (1991:15, 16), but there is a correlation as both Harrington and Smith and Fingar refer to the boundaries of the business processes as well as the human component for business process ownership and decision-making. Reference is also made of the documenting of business processes with Harrington emphasising the importance of having documented instructions and Smith and Fingar reflecting on the lack of having documented processes.

In Hammer (2001:62–63) Pierre Leroy describes four distinct features of business processes which summarise the above discussion on business process characteristics:

- Processes are *teleological* in that the process focus on the outcome of work rather than on the work itself, thus emphasising the "what" and the "why".
- Processes are *customer-focussed,* thus seeing the work from the customer's perspective. Instead of focussing on marketing and selling, rather focus on building a partnership with customers to solve their problems.
- Processes are *holistic* as it transcends individual activities, thereby concentrating on the fitting of activities to create the best outcome for all parties involved.
- Processes are *well-designed ways of working,* therefore creating sustainability and seeking to institutionalise success by designing high-performance ways of working.

To complement and add completeness to the discussion on business processes, business process modelling is reviewed in the following section, section 3.4.5.

3.4.5 Business process modelling

Davis (2001:2) describes business process modelling as the documentation, analysis and design of the structure of business processes, its relationship with the resources required to implement it and defining the environment it will be used in.

> ***Process modeling is an area where artists (heavy right brain utilisation) meet scientists (heavy left brain utilisation), internal knowledge workers meet external knowledge workers, business meets IT. It is not only about the final artefacts (the models), which represent the outcome of these modelling sessions, but it is the process of modeling itself and its impact on subsequent activities and projects, which deserves attention.***
>
> **Rosemann (2006:251)**

Process modelling is the approach used to visibly present existing (as-is) as well as future (to-be) processes as part of process improvement projects. Process modelling stems from flow diagrams which was one of the first systematic approaches developed by Goldstine and Von Neumann in 1946. Nowadays business process analysts prefer to use the term "process modelling" instead of "flowcharting" or "flow diagrams" as *"process modelling claims a more disciplined, standardised, consistent and overall more mature and scientific approach"* (Rosemann, 2006:249, 250). Over time there has been an increased focus on business process modelling, thus leading to the prefix "business" being added to process modelling. This encourages the *"community of business representatives, end-users, and most of all, potential process owners not only to understand process models, but also to more actively model their own business processes"* (Rosemann, 2006:250). The reasoning behind this is that it could be easier for a business process owner to pick up on business process modelling techniques than to articulate the complexities of the business domain to a business process analyst

(Rosemann, 2006:250). This expression of business process ownership correlates with the distinction being made between processes and business processes discussed in section 3.4.1 which focuses on defining business processes (Becker et al, 2003:4).

In the modelling of business processes different business process model types are used. Different business process model types provide different views and information to different audiences such as the following:

- Organisational charts are used to document organisational structures, which depict organisational units, positions and its relationships for use by management and human resource divisions.
- Entity relationship models are used to model logical data structures and various dataflow diagrams for us by system administrators and information technology divisions.
- Event-driven process chains are used to display the practical sequence of functions that forms the business processes for use by the business people, including their training (Scheer, IDS, 2006:4:21,76, 98).

Taking note of the pitfalls related to business process modelling is important in order to create an understanding of difficulties experienced in the business process domain, such as management, governance, business process modellers and their skill base and sources of information. It means then understanding the difficulties related to people and processes as part of business process modelling.

3.4.5.1 Business process modelling pitfalls

The following business process modelling pitfalls have been identified (Rosemann, 2006a:251–254; Rosemann, 2006b:378–384):

Business process modelling pitfalls	
Strategy and governance	
Lack of strategic connections (1)	- Business process modelling connected (direct or indirect) to critical business matters especially where business process maturity is low, competing for corporate attention and funding. *"Establish and maintain a clear and widely shared understanding of the contribution being made by process modelling to the better execution of corporate strategy"* (Rosemann, 2006a:251).
Lack of governance (2)	- Lack of governance renders questions such as accountability for business process modelling, business process tools, methods, procedures, reporting lines and funding. - Governance distinguishes between business areas being responsible for the content of their business processes and a central process management group being responsibility for consistency in modelling conventions. *"Governance, i.e. accountability and decision processes related to process modelling requires a clear specification and has to be adapted with changes in the objectives, scope or size of the modelling initiative"* (Rosemann, 2006a:252).
Lack of synergies (3)	- Different drivers for business process modelling exist, namely documenting, costing, or simulating of business process for improvement purposes. - Re-use of already modelled business processes for different purposes and different audiences. "*Be aware of all stakeholders with potential interest in modelling, and try to migrate them to one platform"* (Rosemann, 2006a:252).
Stakeholders	
Lack of qualified modellers (4)	- Skills needed by business process analysts enabling them to facilitate business process workshops and translate information and documentation into structured and suitable business process models. - Not just modelling of a business process in a tool but understanding the business process. *"Business process modelling requires specific skills, which are different to the classical profile of a business analyst"* (Rosemann, 2006a:253).

Lack of qualified business representatives (5)	- Firstly have people with detailed knowledge of the as-is business processes. These people will also be ambassadors for business process change and therefore have a crucial role in active change realisation as organisational change realisation is business process based. - Secondly, people who know the project direction, timeframe, responsibilities and project objects, thus, involving the right people at the right time. *"The right mix of business representatives is crucial for the project success"* (Rosemann, 2006a:253)
Lack of user buy-in (6)	- Collaborative business process modelling effort between the business process representative and the business process analyst needed to align expectations and perceptions. "*Make sure that the way you visualise your models is liked, intuitive and well-accepted by your users"* (Rosemann, 2006a:254).
Tools and related requirements	
Lack of realism (7)	- Companies tend to underestimate the number of business processes that need to be designed. Be realistic. *"Do not under-estimate the number of models which you will have to maintain in your repository over the next three years"* (Rosemann, 2006b:378).
The chicken and egg problem (8)	- The chicken is the modelling tool and the egg the modelling language or framework. On the one hand it is the desire to model business processes in a specific manner, not having a tool supporting the desired modelling method, leading to tool customisation. On the other hand business process modelling tools are acquired based on recommendations leading to the methodology being adapted to suit the tool. The latter works better in case of low business process maturity and a lack of capability to do tool customisation. *"Be aware of the Catch 22 related to selected tools and methods*" (Rosemann, 2006b:378).
Lack of details (9)	- Constraints related to what portion of a business process can be modelled, eg the constraints of the Business Process Management Notation (BPMN) and the modelling of risks associated with Sarbanes-Oxley; or Unified Modelling Language (UML) originally developed for system analysis and design. - Select the tool and methodology best suited to the requirements of the organisation, acknowledging

	limitations beforehand. "*Be aware of the limitations of the selected modelling language and tool"* (Rosemann, 2006b:378).
Lost in translation (10)	- Translation of business processes into system processes. The different purposes of these processes require different levels of detail and thus different ways of modelling. *"While an automated translation of business models to system models is a nice feature, the capabilities of related interfaces but also the actual opportunities for a 100% translation are often (still) limited"* (Rosemann, 2006b:378).
Practice of modelling	
Lost in a drawing tool (11)	- This point reviews drawing tools, such as Visio. This type of tool is suitable for single processes with a limited life span. More advanced solutions, such as ARIS, offer functionality related to an advanced repository, analysis and reporting capability. This links back to having a tool suitable for the business process initiative. *"Drawing tools have their raison d'être; however they might just not be appropriate for larger business process modelling activities"* (Rosemann, 2006b:379).
Lack of complementary methodologies (12)	- Find a methodology which supports the entire business process lifecycle and together with the modelling tool facilitates sound model lifecycle management, including modelling conventions, quality assurance, etc. *"Complementary methodologies are required to fully utilize the capabilities of modelling tools and techniques"* (Rosemann, 2006b:379).
L'art pour l'art (13)	- Distinguish between "modelling just-in-case" and "modelling just-in-time". - Modelling "just-in-case" relates to business process modelling done on enterprise-wide level with completeness featuring higher than relevance. Business process models are done just-in-case someone needs it. - Modelling "just-in-time" is having a business process model available when required, that is for a specific purpose. *"Process models have to be relevant, not necessarily complete"* (Rosemann, 2006b:380).
Lost in syntactical correctness (14)	- Obtain synergy in the selection and customisation of modelling techniques, taking current and future objectives into account. *"Customizing of the modelling technique should strive towards*

	applicability, not perfection" (Rosemann, 2006b:380).
Focus on models and not on modelling (15)	- The experiences relate to stimulating discussions and learning that occur during business process modelling, creating a change reaction and increasing business process awareness. *"The experiences during the journey are part of the overall outcomes of process modelling"* (Rosemann, 2006b:380).
Lost in detail (16)	- A common problem is delving into too much detail. The more detailed the model, the longer it takes to design, review and maintain it and the quicker it becomes outdated. - Different levels of detail are visible in high level business processes, such as value chains, compared to executable processes. *"Define an appropriate level of detail in light of the underlying objectives"* (Rosemann, 2006b:381). This links to having and using the right level of detail for the right audience as discussed earlier.
Design to-be models	
Lack of imagination (17)	- Address the classic three step methodology of business process improvement, that is firstly to understand the as-is business process, secondly to find ways to improve it and thirdly to take action. This has the danger of focussing on overcoming shortcomings rather than realising inspirational, new strategic goals through "out-of-the-box thinking". *"A good understanding of the existing process is important, but it should never be the only source of ideas for the new process"* (Rosemann, 2006b:381).
Lost in best practice (18)	- Take caution when using best practices which consolidate features from existing "good cases" as it may not provide the required results. Best practice is about applicable best practice and its wider use. "*So called best practice models can be useful in terms of structure, content, overall guidance and opening up more possibilities. The notion of best practice is, however, typically over-rated* (Rosemann, 2006b:382).
Design to-be models solely centred on new IT (19)	- Resolve problems within process improvement and do not necessarily implement new IT. It could be "quite healthy" to ask for process improvements that explicitly do not make use of IT changes. *"Business process models stimulate an integrated organisational and IT view on process change. An exclusive focus on IT*

	solutions ignores other potentials resulting from non-IT improvements" (Rosemann, 2006b:382).
Modelling success and maintenance	
Modelling success is not process success (20)	- The to-be process it is still only a process and has not been implemented, and therefore not yet changed anything. *"Appreciate the ideas which went into the new process design, but be aware that only the implementation matters"* (Rosemann, 2006b:383).
Lost in model maintenance (21)	- Sound practices for model life-cycle and review management as part of quality assurance is crucial as model repositories are becoming bigger. This responsibility resides with the centralised business process group whereas the responsibility for the correctness of the business processes is with the business process representative. This responsibility includes business process ownership which resides with business. *"Establish sound, but appropriate procedures and ownership for maintaining an increasing model repository*" (Rosemann, 2006b:383). This relates to governance and the defining of role and responsibilities.
Lack of measuring modelling performance (22)	- Have a clear understanding of what parameters need to be changed, the measurements and the nature of the change. This means not simply changing a business process for the sake of change, but to execute well thought through changes. *"If you can't measure it, you can't manage it – and, more importantly, you can't claim it as a success"* (Rosemann, 2006b:384).

Table 3.9: Business process modelling pitfalls
(Based on Rosemann, 2006a:251–254; Rosemann, 2006b:378–384).

Additional viewpoints on business process governance include business process governance being seen as the creation of the right structure, metrics, roles and responsibilities needed to measure, improve and manage the performance of an organisation's end-to-end business processes (Spanyi, 2008) which correlates with the process of keeping everything under control (Hamaker & Hutton, 2003:1). Zemliansky and St Amant (2008:518) state that in support of business

process governance process standardisation may be achieved through joint modelling and design approaches which will also ease the modelling effort amongst different divisions where process integration is needed.

As mentioned in table 3.9 governance is accountability and defining of roles and responsibilities related to the business process domain establish accountability. Defining roles and responsibilities are crucial for the execution and support of the business process domain. This also has a bearing on the type of work done in the virtual workplace (section 3.3.4) and the subsequent access to systems, since different roles have different profiles.

3.4.6 Business process roles and responsibilities

This section highlights roles and responsibilities as discussed by Bilodeau (2004:15–16), Scheer et al (2002:135), Hammer (2001:65–70) and Hunt (1996:56–57).

Roles and responsibilities	
Role	**Responsibilities**
Business process owner Bilodeau (2004:16)	- Define business process cope. - Document business process. This point differs as it is listed as part of the responsibilities of the business process modeller. - Provide business process training, communication and support. Business process training is done by the business process owner, whereas business process modelling training resides with the business process support office. - Monitor, manage and improve business process performance. - Manage Sarbanes-Oxley risks and controls. - Ensure accurate documentation with processes reflecting current practice. - Plan and manage business process change. - Liaise with other business process owners to ensure

	integration of business processes. - Comply with audit activities.
Scheer et al (2002:135)	The role of the business process owner is further expanded by Scheer et al (2002:135) with specific reference to the institutionalisation of business process management and continuous improvement principles: - Continuously improve process. - Develop new concepts to be used for optimisation purposes. - Explore to find new solutions. - Cooperate in development and improvement of business process management principles. - Provide directives to employees who participate in owned processes. - Supervise the execution of directives given with additional support to their managers. - Obtain resources needed for execution of owned processes - Review proposals for business process changes. - Create inter-functional teams needed for analysing and optimising of business processes.
Hammer (2001:65–70)	Hammer (2001:65–70) describes the following responsibilities of the business process owner which has a matching relationship according to Scheer et al (2002:135): - Every process needs to have a process owner who manages the process end-to-end, that is from start to finish. This includes managing changes to the process, building the supporting tools, roll-out into the organisation and monitoring of the process performance. - Deploying the measurement system, evaluating process performance, publishing the performance levels to all relevant role-players and introducing steps to improve process performance. - Support and educate all people involved in the process execution. This involves local representatives in the case of dispersed processes. - Act as steward of a key business asset, namely the business processes that determine how well the organisation functions in creating value for its customers. - Business process owners are the visible evidence of a company's commitments towards processes.
Hunt (1996:56–57)	Business process ownership resides with top management and must be a selected person:

	- within the business process structure of the organisation - who is responsible for the output performance of the business process - who has the power to manage the business process and sub-processes assigned to him or her - who has credibility within the business domain - who has excellent management and communication skills - who assists in establishing critical, strategic business processes that need to be improved - who chooses, supports and provides business process teams with them with the deliverables they are accountable for - who are involved in the finalisation of the newly designed (to-be) business process - who is involved in ensuring cross-functional integration and clarify and integration matters
Business process modeller Davis & Brabänder (2007:342); Davis (2001:224)	- who does business process modelling - who does business process verification - who complies with business process standards
Business process custodian and support office Bilodeau (2004:15)	- who owns the business process management process also referred to as the change control process - who defines and enforces business process standards - who providesbusiness processmodelling training and support - who facilitates process alignment and integration - who maintains the business process architectural framework - assesses business process maturity level - reports on business process objectives and business process performance - provides business process management governance

Table 3.10: Business process roles and responsibilities (Based on Bilodeau, 2004:15–16; Scheer et al, 2002:135; Hammer, 2001:65–70; Hunt, 1996:56–57; Davis, 2001:224; Davis & Brabänder, 2007:342)

As mentioned in table 3.9 as part of the measuring of model performance, an understanding of the nature of business process changes and the reason for the business process change is vital in order to execute well thought changes

(Rosemann, 2006b:384). This was followed by clarifying that business process change control forms part of the roles and responsibilities of the business process owner in that the business process owner manages the process end-to-end and therefore reviews proposed changes to the business process. The following section will review some of the factors that could lead to business process changes.

3.4.7 Business process changes

Changes that can influence business processes necessitating changes to the business processes as Scheer, Abolhassan, Jost and Kirchmer (2003:3) showed are indicated below. Examples have been included for illustration purposes:

- o New or changing customers, suppliers or other market partners
  - Example: New suppliers due to new business operations in the mobile telecommunications industry.
- o New or changed market offerings (goods, services, information, others)
  - Example: A fixed line telecommunications company moving into the mobile phone market.
- o Mergers and acquisitions
  - Example: A telecommunications company acquiring another telecommunications company in Nigeria or a financial institution acquiring another financial institution in Angola.
- o Changing legal regulations
  - Example: A telecommunications company being listed on both the Johannesburg Stock Exchange and New York Stock Exchange thereby making Sarbanes-Oxley compliance mandatory.
- o Availability of new or modified technologies like application systems
  - Example: Wireless and 3G-technologies.
- o Outsourcing of specific activities

- Example: Outsourcing of an information technology division and warehousing.

o New business models

- Example: A fixed line telecommunications company embarking on a new business model to penetrate the mobile telecommunications industry.

o Cultural differences in various locations

- Example: A financial institution having business partners in Mozambique, Nigeria and Angola.

It is important to note that sound practices for the sustaining of the model life-cycle and review management is needed as has been indicated in table 3.9 as part of the modelling success and maintenance portion (Rosemann, 2006b:383).

The following sections review business process management (section 3.5.1), business process improvement (section 3.6.1) and business process maturity (section 3.7.1) as part of the business process discussed and a literature review. The purpose of these sections is to distinguish between the relevant concepts and create and understanding in terms of their management positioning.

3.5 BUSINESS PROCESS MANAGEMENT

"Process management provides the means to discover and describe exactly how a company operates, and the process tools for controlling and analysing the business. It enables companies to control the lifecycle of business processes and enables them to put new process into practice without writing software or producing new applications."

Smith et al (2003:116-117)

Business process management and its definitions as found in the literature are reviewed in the following section. This section covers the ***process*** portion as depicted in figure 3.1. As part of the literature review conducted for this thesis business process management is viewed from a high level or managerial level and not from an operational perspective. This positioning is portrayed in figure 3.8.

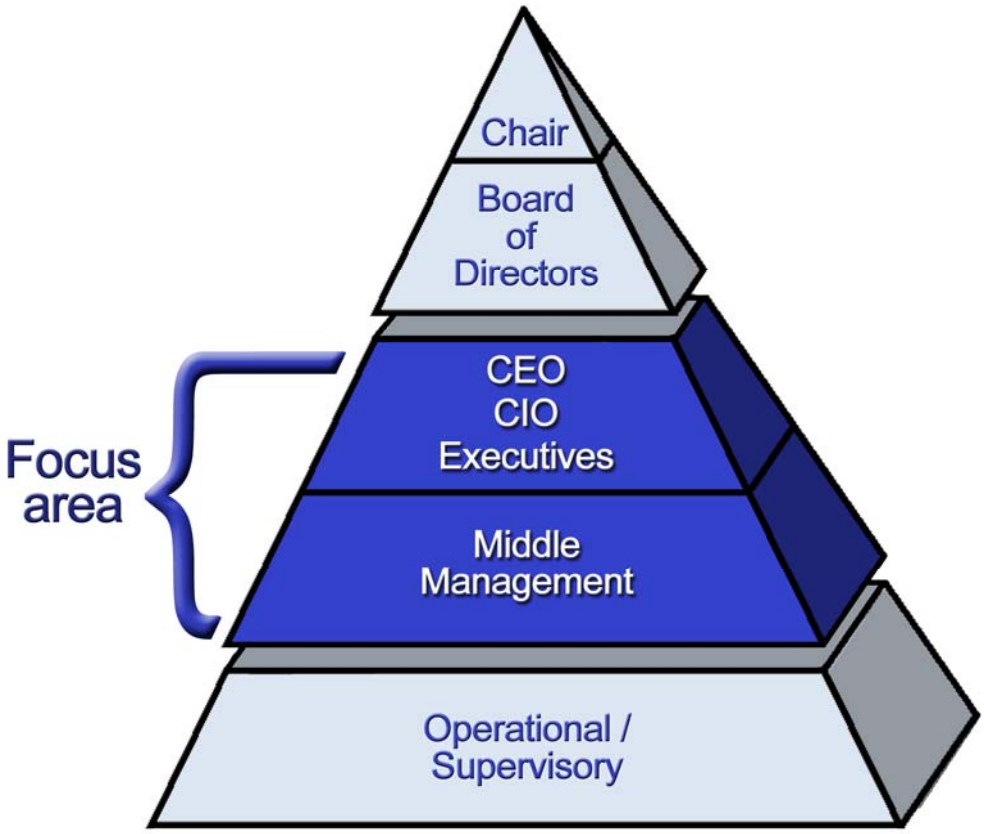


Figure 3.8: Positioning of business process management

3.5.1 Defining business process management

Wang and Wang (2006:179) postulate that businesses have been adapting to swiftly changing environments, including changing from "*centralised and closed to distributed and open with the business processes displaying more complexity because of interaction between their internal components and interaction of the processes with the environment. As a result, organisations are paying more attention to supporting business process management able to adapt to the new complex environment.*"

Processes vary from rigid, high-volume production processes to more flexible office processes – the key being analysing and optimising processes as everything that is done within an organisation is process driven (Davis & Brabänder, 2007:2).

In order to understand Business process management (BPM) we need to take cognisance of the different elements it consists of. Scheer et al (2002:11) state that BPM consists not only of designing and documenting business processes, but also includes the functional procedures and feedback mechanisms needed to process results, enabling an organisation to establish a continuous improvement process assisting with business process improvement. Such supporting procedures, feedback mechanisms, inputs and outputs are graphically displayed in figure 3.7. The viewpoint of BPM consisting of different elements as expressed by Scheer et al (2002:11) above, is supported by Davis and Brabänder (2007:3) who emphasise that BPM is about the most efficient way of bringing resources together, supporting an end-to-end cross-functional process that provides the customer with the value required.

The following core BPM definition is provided by McCoy, Sinur, Rosser, Kerremans and Melenovsky (2007:2).

> ***"Business process management is a management practice that provides for governance of a business process environment towards the goal of improving agility and operational performance. Business process management is a structured approach that employs methods, policies, metrics, management practices and software tools to manage and continuously optimise an organisation's activities and processes."***
>
> **McCoy, Sinur, Rosser, Kerremans and Melenovsky (2007:2)**

It is important to note the two areas covered by the definition, namely:

- the intent of business process management, which is governance of the business processes environment, and secondly
- a structured approach consisting of various practices to continuously optimise process-based performance.

McCoy et al (2007:2) continue by stating that apart from the above-mentioned areas covered by the definition of BPM, it is also important to take note that organisations have the desire to close gaps between strategic vision and goals as well as operational execution and achievement of goals. BPM is therefore a set of managerial practices and methodology offering direct, visible results.

The definition for BPM as provided by Melão and Pidd (2000:121) corresponds with McCoy et al (2007:2) stating *"BPM can be seen as a collection of methodologies, techniques and tools supporting the analysis and improvement of business processes."*

Melão and Pidd (2000:111) also provide a theoretical view of BPM in the context of software engineering, thereby placing business processes in four positions, namely:

- o functional, indicating the functions or activities executed as part of the relevant business process flow
- o behavioural, relating to how and when the functions or activities are executed
- o organisational, relating to where and by whom the functions or activities are executed as well as physical components, such as storage and communication methods
- o informational, that is describing units flowing through the processes including its structure and relationships

The *theoretical view* of Melão and Pidd (2000:111) can also be found in Weske, Van der Aalst and Verbeek (2004:2) who cite that a Workflow Management System (WFMS) is required for interpretation of a process

instance, including the process participants, where and how the process activities are executed. Weske et al (2004:2) focuse on *"enactment, i.e. the use of software to support the execution of operational processes."* Therefore BPM is defined from a technology perspective as *"supporting business processes using methods, techniques and software to design, enact, control and analyse operational processes involving humans, organisations, applications, documents and other sources of information."*

When viewing BPM from a *system perspective* it can be seen as the routing of tasks (workflow) within a predefined set of business rules, governing the execution of the activities (*TIBCO Education Services*, 2006:13). The system supporting the automated business process is only developed once the business process has been defined and approved.

BPM can be viewed from *a modelling perspective* with business process modelling being used widely within organisations "*as a method to increase awareness and knowledge of business processes, and to deconstruct organisational complexity*" and a "*large number [of] graphical process modelling languages has been developed to aid organisations in the documentation of their processes*" (Recker, 2010:182–183). The Business Process Modelling Notation (BPMN) represents the much needed standardisation in business process modelling languages, which are standardised graphical constructs and rules on how to combine these constructs. BPMN is supported by free as well as commercial modelling tools (Recker, 2010:182–183**).** Acknowledgment is given to fact that there are many business process modelling tools and languages in use, however, the BPMN standard is emphasised as a "*de facto* standard for process modelling (Recker, 2010:194).

Jeston and Nelis (2009:11) place emphasis on the managerial component of BPM when they state that BPM is:

- *"more than just software*
- *More than just improving or reengineering your processes – it also deals with the managerial issues*

- *not just hype – it is an integral part of management*
- *more than just modelling – it is also about the implementation and execution of these processes, which requires analysis.*

As a management discipline, BPM requires an end-to-end organisational view and a great deal of common sense, both of which can often be in short supply."

According to Zairi (1997:78) BPM is a more general approach to organisational improvement and the definition provided by the author summarise many of the elements mentioned in the preceding discussion, namely:

"*...an approach which is all-encompassing and is dependent on strategic elements, operational elements, use of modern tools and techniques, people involvement and, more importantly, on a horizontal focus which will best suit and deliver customer requirements in an optimum and satisfactory way*" (Zairi, 1997:78).

BPM is further governed by a set of seven rules (Zairi, 1997:65) as BPM is involved in the main aspects of business operations focussing on value add. These seven rules address requirements related to customer focus, documented procedures, measurement of performance, a continuous approach, proper systems and structures and are in correlation with the definitions provided in the preceding portion. These seven rules are:

- "*Major activities have to be properly mapped and documented;*
- *BPM creates a focus on customers through horizontal linkages between key activities;*
- *BPM relies on systems and documented procedures to ensure discipline, consistency and repeatability of quality performance;*
- *BPM relies on measurement activity to assess the performance of each individual process, set targets and deliver output levels which can meet corporate objectives;*
- *BPM has to be based on a continuous approach of optimization through problem solving and reaping out extra benefits;*

- *BPM has to be inspired by best practice to ensure that superior competitiveness is achieved, and*
- *BPM is an approach for culture change and does not result simply through having good systems and the right structure in place."*

The BPM definition provided by Davis and Brabänder (2007:7) summarises the discussion on BPM, stating that BPM is *"...a systematic approach to managing and improving an organisation's business by the active, coordinated management of all aspects of the specifications, design, implementation, operation, measurement, analysis and optimisation of business processes in order to effectively and efficiently deliver business objects."*

The research done as part of this thesis acknowledges the value added by the different types of BPM software tools; however, evaluation of BPM software is beyond the scope of this research. This limitation has been noted as part of limitations in section 6.11.

In conclusion of the business process management literature review acknowledgement is given to strategic, tactical and operational issues related to business process management (Indulska et al, 2006:6–10; Bandara et al, 2007:3–8).

Business process management issues		
Strategic	**Tactical**	**Operational**
•Change management •Lack of governance •Lack of top management support •Lack of employee buy-in •Lack of support for process owners •Lack of common mind share of BPM •Broken link between BPM efforts and organisational strategy	•Lack of expertise •Lack of measurable returns •Lack of coordination •Lack of standardisation •Lack of BPM understanding •Lack of visibility •Lack of performance measures •Lack of progress in process maturity •Lack of clear starting point •Lack of linkage in external business partners •Lack of standards •Weaknesses in process specification •Lack of BPM education •Lack of methodology	•Lack of tools for holistic BPM •Lack of technology capability •Lack of process monitoring •Lack of integration •Lack of tool support for process visualisation •Perceived gaps between process design and process execution •Miscommunication of tool capabilities

Table 3.11: Business process management issues
(Based on Indulska et al, 2006:6–10; Bandara et al, 2007:3–8)

Although table 3.11 is structured around strategic, tactical and operational issues it still corresponds with detail indicated in table 3.9: Business process modelling pitfalls. Both tables reflect on matters, such as the need for change management, governance, support from top management and expert skills. Performance measures, standards, as well as integrated tools are also covered in both tables. The corresponding matters listed from business process modelling and business process management perspectives show the relatedness of the business process matters.

Business process management however differ from business process improvement and hence business process improvement needs to be reviewed.

3.6 BUSINESS PROCESS IMPROVEMENT

There is a clear distinction between business process improvement (BPI) and BPM. Business process improvement is reviewed in the following section as part of the ***process*** portion depicted in figure 3.1. This is to clarify the difference between business process management and business process improvement.

3.6.1 Defining business process improvement

Business process improvement (BPI) differs from BPM as BPI has as focus to repair "*broken processes"* (Madison, 2005:55) whereas BPM refers to the management approach including policies, methods and metrics (section 3.5.1).

Harrington, Esseling and Van Nimwegen (1997:3–5) states that the BPI effort is focussed on defining, understanding and improving the activity flow within major business processes with the aim of reducing cost, cycle time and error rates. They also distinguish between BPI for product processes and BPI for administrative processes. BPI for product processes focus on the improvement of production processes used for producing delivered goods or services, such as "processing a cheque at a bank" or "manufacturing of a boat". BPI for administrative processes has as aim to improve the support processes, such as ordering processing and accounts payable. This distinction between production and administrative processes correlates with types of processes (section 3.4.2).

The following formal definition for BPI is provided by Harrington et al (1997:5), namely "*a methodology that is designed to bring about step-function improvements in administrative and support processes using approaches, such as FAST, process benchmarking, process redesign and process reengineering."* The step-function improvements match McCormack et al (2009:794) who state that business process improvement is based on many small evolutionary rather than revolutionary steps.

Recognising the symptoms of a "*broken process*" is vital before embarking on a BPI initiative and these symptoms include the following (Madison, 2005:55–59):

- unhappy customers complaining about service, response times and poor quality
- a long time to get things done, such as long turnaround time on customer requests
- the process is done incorrectly and produces errors, such as incomplete information on reports
- management throw people at the problem without resolving it, for example even with employing more people, the bottleneck remains and staff turnover increases (five managers for one division in five years)
- employees experience high frustration levels while working due to confusing processes
- processes span multiple departments causing finger-pointing and blaming, such as sales blaming service representatives to solve missing customer data
- processes are not measured or controlled, such as different people performing the same process each following their own method
- inventory buffers are idle meaning that continuous flow of products is absent
- data redundancy due to no integration between multiple data bases
- too many reviews and sign-offs
- complexity and special cases falling outside the set routine causes chaos
- circumvention of established procedures to expedite work meaning that the regular process is too slow or cumbersome
- no one manages the whole process leading to pieces of the process being managed by different departments
- management throws money at the problem without solving it, such as trying to solve the problem by adding technology
- management doing fire-fighting or crisis management without addressing the problem in the process

These symptoms have a close correlation with Smith et.al, (2003b:22, 54,63, 90–94) and their identification as reasons for BPI, namely:

- Detect bottlenecks.
- Detect deadlocks and business process inconsistencies.
- Detect duplications of and within business processes.
- Detect variants of the same business process, meaning more than one version of the same business process.
- Detect work not finalised on time resulting in overtime.
- Detect customer complaints and dissatisfaction.
- Detect multiple (repeating) activities, such as approvals, hand-overs and inspections.
- Detect if there is a noticeable gap between actual and desired business process results.
- Detect frequent occurrence of the same problems or dilemmas.

Seethamraju and Marjanovic (2009:922) state that BPI is often reduced to a process modelling problem with process modelling done by a process analyst whose "*experience is limited to the explicit knowledge expressed by process models."* They argue that BPI is a complex, knowledge-intensive and collaborative process that requires a set of co-ordinated, contextualised knowledge management processes supported with a BPI methodology. This notion of having a supportive BPI methodology is evident in the definition of Harrington et al (1997:5) of BPI stated earlier.Business process modelling is then the enhancement and documenting of processes as part of the BPI initiative, which is one component of BPM (Seethamraju & Marjanovic, 2009:922).

We need to take cognisance of business process maturity as it plays a role in the organisation's view of business process management and business process improvement initiatives. Business process maturity may influence the strategy and approach to people and processes in the virtual workplace and has been included as a specific area of future research (section 6.12).

3.7 BUSINESS PROCESS MATURITY

Business process maturity is defined in the following section, including the different levels of business process maturity and the identification of business process maturity components. This section covers ***people-process*** as depicted in figure 3.1.

3.7.1 Defining business process maturity

McCormack et al (2009:794–795) view business process maturity as a four-step path which advances business process maturity in a systematic manner, as each step builds on the achievements of the previous step, thereby guiding an organisation to become business process oriented. These four steps are:

- *Ad hoc,* with business processes unstructured and undefined. Business process measures are not in place. Jobs and organisational structure are focussed on traditional functions and not on horizontal processes.
- *Defined,* meaning basic business processes are defined, documented and available in a business process map with change control in place to manage business process changes. Jobs, as well as the organisational structure however remains functional with representatives from the different functional areas, such as sales, or manufacturing meeting regularly to align and coordinate processes.
- *Linked,* referring to the breakthrough level achieved. Management employ process managers with strategic intent and results. Jobs and organisational structures stretch outside the traditional functions.
- *Integrated,* meaning that the organisation's vendors and suppliers cooperate on process level. Jobs and organisational structures are based on processes with the possibility that traditional functions can become subordinate to the actual process. Process measures and process management are deeply embedded in the organisation.

The business process maturity levels as defined by Bilodeau (2004:4) correspond with McCormack et al (2009:795), although different terminology is being used. The levels referred to by Bilodeau (2004:9) are:

- *Initial* or ad hoc, and sometimes chaotic with only a few business processes defined. Success is dependent upon individual efforts.

- *Repeatable,* with the basic business process being defined, including output and cycle time, thereby allowing repeatable success.
- *Defined (or linked),* relating to business processes being documented, standardised and integrated into an architectural framework.
- *Managed (or integrated),* allowing data collection to monitor the business processes performance as well as the quality of the business process. Business processes are understood and controlled.
- *Optimised,* relating to continuous improvement through quantitative feedback, piloting innovative ideas and technologies.

McCormack et al (2009:795) expand on these steps through the identification of maturity components, namely process view and process job, followed by process management and measurement. These components are described as follows:

- *Process view,* referring to the documenting of business processes steps, activities and tasks in visual and written format, thereby enabling people in different job functions to communicate via the same process vocabulary, including having broad understanding of the processes spanning the organisation and not only documentation. This correlates with the viewpoints on the need for process standardisation as part of the business process management methodology.
- *Process jobs* include horizontal rather than vertical responsibility with people taking ownership of the end-to-end process, such as the order fulfilment process owner. This shows close correlation with the defining of business process management (section 3.5.1) with business process management requiring an end-to-end organisational view (Jeston & Nelis, 2009:11) with the focus on horizontal linkages between key activities (Zairi, 1997:65).
- *Process measurement and management systems* include integrated process measurement systems, rewards for business process improvement, outcome measures as well as customer- and team-driven measures.

These maturity components are supported by sub-components which provide the structure and culture needed for the maturity components to become functional:

- *Process structure* or a process management team which stretch across old functional silos, thus enabling enterprise-wide, horizontal thinking with support structures that include horizontal teams, partnerships and shared ownership.
- *Customer-focussed process values and beliefs,* which strengthen the organisation. This may include trust in the customer's sales forecasts and the belief that all team members are fully committed to business process improvement.

These components show a strong correlation with ownership, trust and a collaborative partnership as discussed in chapter 4.

Appendix F is an example of typical questions that can be asked in order to determine business process maturity.

3.8 CONCLUSION

According to Dastmalchian (2001:1) organisational survival and success depend on the level and quality of flexibility an organisation has and the degree in which flexibility is being incorporated in the organisation, allowing for effective and efficient adaption to change in the environment. This quest for flexibility leads to increased development in technology. The reduction in time and space as barriers of trade result in increased market activity as well as the integration of spatially separate markets. Bell in Dastmalchian (2001:1) states that the Industrial Era (Second Wave) businesses are organised around labour and the production of goods whereas Post-industrial (Third Wave) organisations are focussed on the creation of knowledge and the use of information. The latter also includes flatter hierarchies, increased horizontal communication, as well as the disappearance of boundaries between functional areas. Bell in Dastmalchian

(2001:1) notes *"The prototypical post-industrial forms of organisations are networks, joint ventures, strategic alliances and virtual organisations."*

The nature of work changes as organisations transform from one era to the next. In order to get an understanding of what this transformation comprises of, we need to understand how work changed over time and how it impacts on our culture as well as the impact it has on our social experiences or *Erlebnis*. Creation of understanding can be achieved through the Extended Hermeneutic Circle of Learning as discussed in chapter 2.

The estimated timelines relevant to the waves of change with its overlap in time frames as covered from approximately 1780 until 2020 have been summarised by the researcher in figure 3.9. The innovation highlights ***(process)*** of the individual waves are displayed in figure 3.10 and organisational change ***(people)*** and the establishment of the virtual workplace ***(place)*** are depicted in figure 3.11.

Changes in the nature of work can however not be viewed in isolation, as they have impacted on and are still impacting on management approaches and the business processes supporting the work place. The literature review covered the changing nature of work as it evolved during different phases. This was followed by a review of the different types of virtual workplaces, people in the virtual workplace, as well as the types of work for the virtual workplace and infrastructure. The advantages and disadvantages of the virtual workplace conclude the virtual workplace review. Following on this is a review of business processes, business process management and business process improvement, including the difference between business process management and business process improvement. Business process maturity and its different components are included in the latter part of the chapter.

This is followed by research into people, processes and places in the virtual workplace in chapter 4.

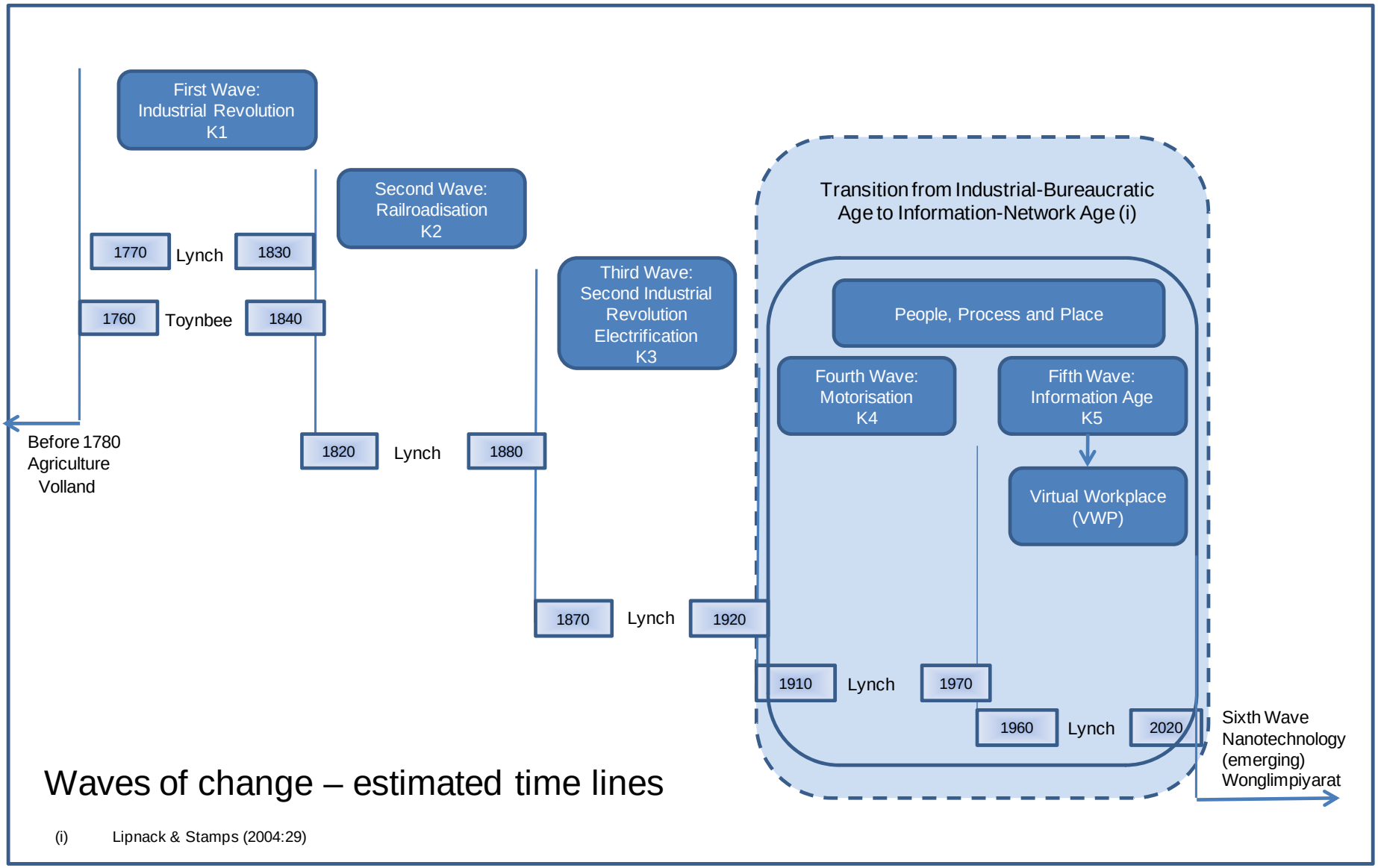


Figure 3.9: Waves of change – estimated time lines

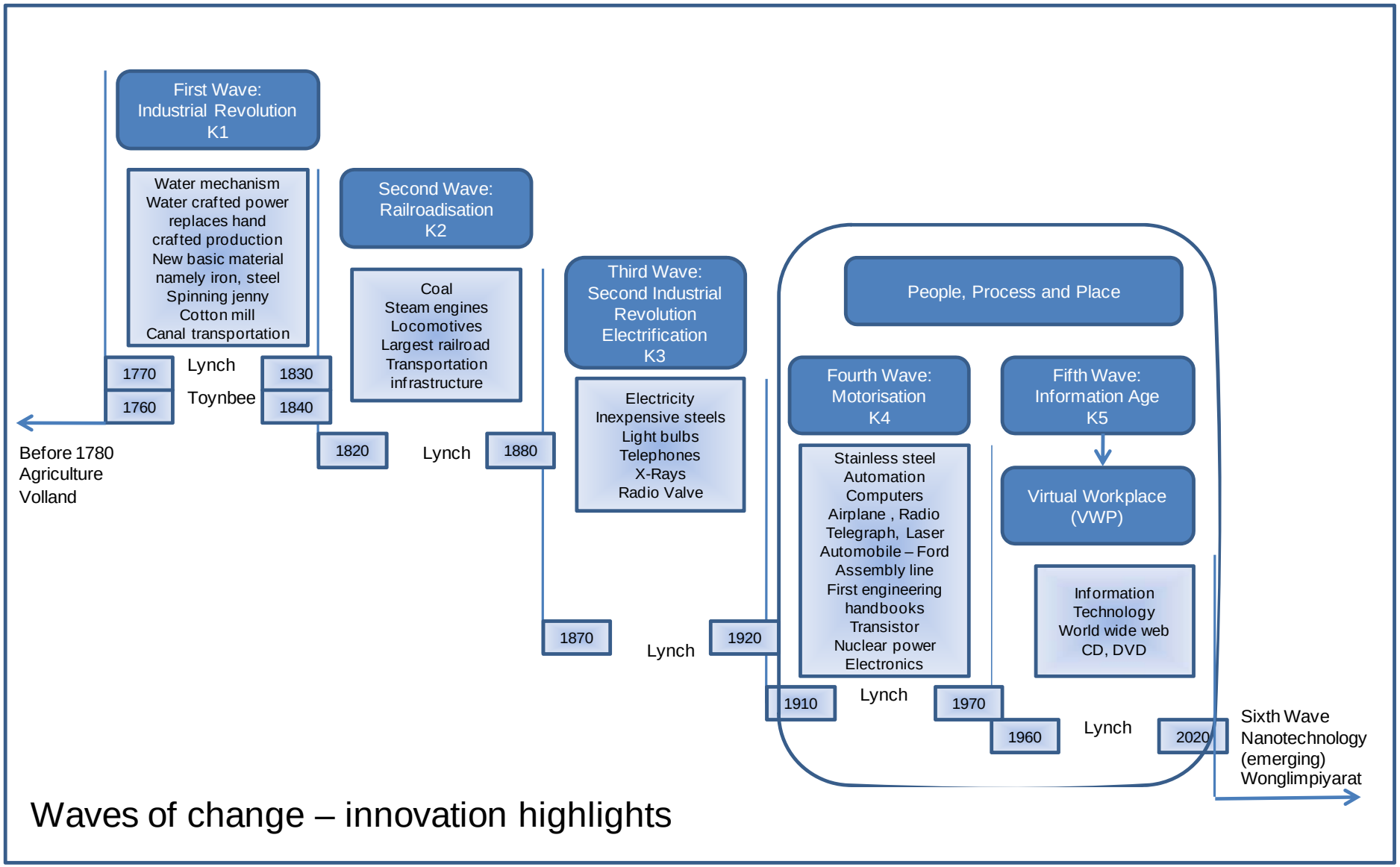


Figure 3.10: Waves of change – innovation highlights

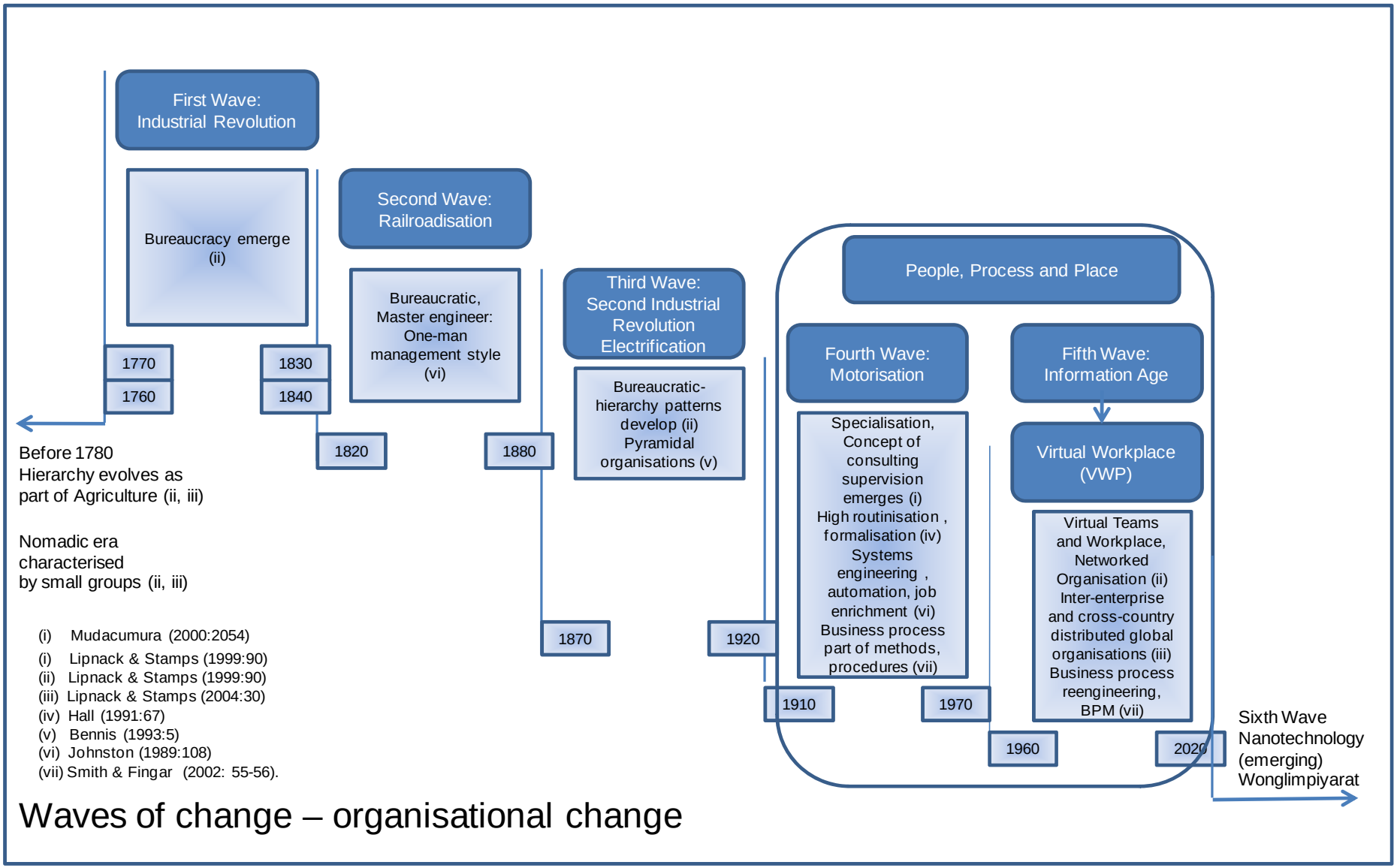


Figure 3.11: Waves of change – organisational change