

INFORMATION TECHNOLOGY AS AN AGENT OF POST-MODERNISM

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Abstract

Society is in a tumultuous state. Today's Western society is characterized by disillusionment, doubt, irony, fragmentation and plurality. With the failure of Modernism and the rise to prominence of Nihilism, Post-Humanism, Post-Structuralism and Individualism, society has entered a thoroughly Post-Modern era.

Over the past couple of decades humanity has increasingly turned to Information Technology as *the great enabler*. Through the capabilities that Information Technology offers, undreamed heights of scientific and technological progress have been reached in an amazingly short span of time. However, rather than uplifting and emancipating society, the wholesale implementation of Information Technology has brought with it a host of unintended and unforeseen consequences. As with the promises of Modernism, Information Technology has not brought society the Utopia that it imagined. Information Technology rather has acted to create a universe characterized by virtuality, constant change, indeterminacy, and an information orientated perspective on the world. Technological progress has not been accompanied by social progress.

Through a comprehensive literature review and an examination of both Post-Modernism and Information Technology, it is proposed that the influences of Information Technology have acted and continued to act to promote Post-Modernism. These influences amongst others include its displacement of space and time, its promotion of the Information Society, its ability to create digital hyperrealities, its destructive influence on tradition and culture, and most of all its catastrophic/revolutionary impact on the identity. Through these influences this paper seeks to prove that Information Technology acts an agent of Post-Modernism.

Chapter 1:

Introduction to the study

1.1. Problem Statement and motivation

Modern society finds itself in a tumultuous state. The sureties of the past have been stripped away. The utopia predicted by the Modern age has not arrived. Society is characterized by a search for identity, for new meanings or new truths. Change has become the norm. Society has emerged from the dream of Humanism and Modernism and found itself in the flexible realities of Post-Modernism.

Post-Modernism is founded on the principles of doubt about the absoluteness of knowledge; no ultimate 'truth' exists. Knowledge is open to interpretation and reality is a flexible and subjective experience. It is upon this foundation of indeterminacy that Post-Modernism rejects the grand-narratives that have structured the societies of the past. These grand-narratives can be considered to be totalizing concepts that attempt to provide human existence with truths or meaning. Society has become disillusioned and no longer accepts these frameworks as providing constructive guidance or value.

Society has increasingly turned to Information Technology to provide the means to re-enchant its disillusioned world, to fulfil its growing needs for effectiveness and efficiency, for entertainment and pleasure, and to provide the means to transcend nature's constraints. This mass implementation has resulted in Information Technology penetrating all aspects of society, 'increasingly at the heart of scientific, commercial and media processes' (Eischen, 2000). Complex information systems, virtual realities, communication superhighways and ubiquitous computing have become the defining characteristics of today's technologically saturated society. Information Technology has risen to be the preeminent technology of today with the computer becoming synonymous with the emerging global, networked society.

This pervasiveness of Information Technology in all aspects of life must inevitably have a massive impact on society and the individual. Floridi (2002: 127) states that '[n]o previous generation was ever exposed to such an extraordinary acceleration of technological power over reality, with the corresponding social changes and ethical responsibilities'. Through Information Technology, society has experienced a revolution that is comparable to that of the Industrial Revolution. Society is being reshaped and remolded around the principles of virtual environments. Hierarchies are being flattened, accountability is being blurred and personal freedoms are being pushed to their extremes. Castells (1989) states the categories of the Industrial and Post-Industrial eras are no longer being found useful for understanding and endowing the new, networked Information society with meaning. This new society, along with the powerful capabilities that Information Technology presents to the individual, has served to render old ethical and societal models inadequate as guiding structures.

Virtual worlds and virtual communities have created new definitions of socialization and society. Digital communication, made possible via the Internet, allows the individual to seek out other artistic, cultural or social experiences than those that physically surround them. This allows the individual to find perspectives which better fit their personal frameworks than the 'truths' proposed to them by their society or culture. The reality of the individual has become one characterized by information. Through this saturation of information the pursuit of optimization via Information Technologies has rendered all objects of reality manipulatable and capable of being improved upon - even the human form is not exempt from this consideration. However, most importantly, in Information Technology the identity has found the means of its ultimate expression and realization, as well as its ultimate playground.

According to Bynum & Moor (in Floridi, 2002: 129), computing has brought massive changes to society's understanding of the world 'changing the way philosophers understand foundational concepts in philosophy, such as mind, consciousness, experience, reasoning, knowledge, truth, ethics and creativity'. It is the author's contention that through Information Technology, society has finally found complete emancipation, but in doing so, has in effect set itself adrift. Through understanding and examining the influences of Information Technology in this paper, the author will attempt to prove that Information Technology acts to promote the various permutations and facets of Post-Modernism, in fact that Information Technology acts as an agent of Post-Modernism.

It is not the author's contention that society should forego the use of Information Technology or even be more cautious in its use, but rather that society should use Information Technology with its eyes open. By better understanding the impacts of Information Technology on society and being aware of its Post-Modern influences, society can more strongly struggle towards authenticity and avoid superficiality, excessive multiplicity and crippling pluralism.

1.2. Outline of the study

1.2.1. Methodology

In this paper a literature review will be done and thereafter the method of examination will take the form of a discussion. As the subject of this paper is an examination of the complexities of Post-Modernism, in which no single truth should be used to govern investigation, and because of the inability of positivism to adequately frame the human experience, the author decided to reject the use of a quantitative study and opt for a qualitative, interpretive approach.

Interpretivism is an attempt to understand the social environment of the individual and how this affects his or her life framework. This provides the ideal premise from which to examine this topic. The literature reviewed provides understanding and meaning, from which the author draws insights and descriptive conclusions. This allows opinions and conclusions to be based on a solid foundation, providing the means whereby a comprehensive, subjective examination of the Post-Modernistic influences of Information Technology on society and the individual can be studied.

1.2.2. Structure of the paper

In order to comprehensively examine the effects of Information Technology as it relates to Post-Modernism it is necessary to first have an understanding of both Post-Modernism and Information Technology. To this end each of these topics will be considered separately in Chapters 2 and 3 respectively before bringing the two concepts together in Chapter 4.

Post-Modernism will be examined first in Chapter 2 and an attempt will be made to provide a clear picture of it. Post-Modernism is an extremely complex and multifaceted philosophy and therefore the author believes it necessary to examine its foundations. This includes the philosophies that proposed grand narratives that are rejected, as well as those philosophies that provide the foundations for many of the facets that characterize Post-Modernism. Using these insights and knowledge the author will attempt to provide an adequate 'definition' of Post-Modernism.

Due to Post-Modernism's indeterminacy and disillusioned outlook it exposes itself to major criticism. In order to avoid excessive bias these criticisms are examined, asking the question of whether Post-Modernism can be considered to be a constructive project? This chapter's examination of Post-Modernism will provide a sound platform whereby the various influences and impacts of Information Technology can be contextualized under the light of Post-Modernism.

As Chapter 2 provides an introduction to Post-Modernism, in Chapter 3 an introduction to the various dimensions that characterize Information Technology will be given. A need for Information Technology was first expressed in the 1830's. This vision however, was only realized over a hundred years later in the 1950s. Since then Information Technology has experienced an unprecedented rise to prominence and has become the most pervasively utilized technology today.

Information Technology has caused a societal revolution and as such it is necessary to examine its nature so that its influences on society can be better understood. The two primary functionalities of Information Technology are the enabling and promotion of communication and the dissemination, distribution and promotion of the primacy of information. These two influences along with various permutations of them have formed the foundation on which Information Technology is shaping the individual and the world. As Information Technology is having a major impact on society, the issue of ethics in this context needs to be addressed. Can society consider Information Technology only to be a tool to be used, with society being ultimately responsible for the outcomes, or can Information Technology be considered as having innate influences, with its use having intended and unintended consequences?

The concepts of Post-Modernism and Information Technology are brought together in Chapter 4 to determine whether or not Information Technology acts as an agent of Post-Modernism. The influences exercised by Information Technology are identified and the way in which these influences serve to shape the individual and society is illuminated.

By considering the nature of these influences and taking into consideration the insights and knowledge gained from Chapters 2 and 3 it can be determined whether these influences promote the different facets of Post-Modernism or create environments in which Post-Modernism can flourish. Both of these conditions can be considered to promote Post-Modernism. The findings of the study are contained in Chapter 4, which provides an answer to the main research question.

The author believes that the mode of business and the face of the organization reflect the changes that have taken place in society and its current state. To this end the Post-Modern organization will be introduced and examined in Chapter 2 as well as the Information Technology-enabled organization being dealt with in Chapter 3. In Chapter 4 the relationship between these two organizational models will be examined and an attempt made to reconcile their common characteristics. It is the author's belief that through understanding the organization of today, one will be in a better position to understand and contextualize the Post-Modernistic nature of society and the individual as well as how Information Technology acts to promote Post-Modernism.

Chapter 2:

An Introduction to Post-Modernism

2.1. Introduction

In order to determine whether or not Information Technology acts as an agent of Post-Modernism, it is firstly important to gain an insight into the complex philosophy of Post-Modernism. This chapter constitutes an attempt to do so, but it should be noted that a detailed examination and understanding of Post-Modernism lies beyond the scope of this paper. Instead the focus will be on trying to provide a comprehensive introduction on the basis of which the effects of Information Technology can be contextualized as Post-Modern or not.

According to Hart (2004: 2), the term 'Post-Modernism' was coined by Jean-Lyotard; defining Post-Modernism as incredulity towards meta-narratives, a rejection of both the meta-narratives and of the process of legitimization via meta-narratives. These meta-narratives are defined as 'Dialectics of spirit, the hermeneutics of meaning, the emancipation of the rational or working subject, or the creation of wealth'. This incredulity towards the meta-narratives forms the general theme of Post-Modernism in all its forms. These meta-narratives or grand-narratives can be taken essentially as religion, tradition, culture, Humanism, Enlightenment, Romanticism and Structuralism. De Beer (1996) states that Post-Modernism is an attack on the rational and realist theories that state that a subject can be accurately considered or represented in thought without taking into consideration factors such as 'culture, language and the body'.

To supply another definition of Post-Modernism, one can say that it is disbelief or disillusionment with the promises of Modernism. Hart (2004: 9) describes Post-Modernism as a complex reaction to the failures of Modernism. It allows society to live without the illusion of Modernism dangled in front of it.

Characteristics which further form facets of Post-Modernism are skepticism, irony, parody, contradiction, relativism, critique, subjectivism, fragmentation and a disbelief in established truths, whether truth actually exists or if it even can be reached. Harding (1995) said that this multi-faceted nature of Post-Modernism has been evident since its outset and arose as a result to Post-Modernism's displacement of the primacy of time. Taking all these factors into consideration, one can see that supplying a definition of Post-Modernism is easier said than done.

Nevertheless, Post-Modernism is an exciting topic to explore as it is characterized by constant change, contradiction and a continual searching for truth. However one chooses to define Post-Modernism, it can definitely be said that it has pervasively penetrated society, with Post-Modernism evident in art, architecture, literature, organizations, marketing and, most importantly, the identity of the individual. Capurro (2003) believes that all present thought can be considered to be postmodern and that society has moved beyond the presuppositions of modern philosophy.

Before examining Post-Modernism in greater depth it is important to establish the difference between Post-Modernism and Post-Modernity. These theories are very similar and easily confused.

2.1.1. Post-Modernism vs. Post-Modernity

Post-Modernism, as stated above, is the philosophy of disbelief, disillusionment or incredulity concerning the meta-narratives proposed by society and history. It is an attempt to free oneself from what is believed to be the illusion and empty promises of Modernism. Post-modernity, on the other hand, is the term used to refer to the art, culture, economics and social environment that characterize a Post-Modern era, resulting from the effects of Post-Modernism on society.

Post-Modernity became evident when it was realized that modernity's Utopian promises were unrealistic and unrealizable. Modernity's promises about the potential of the human race to improve itself, blinded society to many religious and political horrors that were being perpetrated in the name of progress (Hart, 2004: 17). These effects include globalization, consumerism, the fragmentation of society and culture, a post-humanist attitude towards knowledge and a loss of identity of the individual. According to Strassberg (2005: 315), 'postmodernity freed itself from the illusions that the "messiness" of the human world is but a temporary and repairable state, sooner or later to be replaced by the orderly and systematic rule of reason'.

With the blurring of cultural boundaries and the rise of globalization, societies are facing identity crises of global proportions. The Third World continues to suffer in continual wars while millions die of starvation and disease, religious fanaticism and rampant capitalism are in fierce opposition against each other accompanied by the rise of consumerist morals and the virtual realities of technology driven societies. Hart (2004, 16-17) defines Post-Modernity as the historical period in which society lives today, that which is taken to have succeeded and occurred as a result of the modern age, 'Postmodernity can be construed as what occurred to the world when we stopped trusting in modernity, when order and reason, moral progress and enlightenment, ceased to be high values held in common'.

According to Schultz (1998), Lyotard defined modernity as a culture characterized by constant change as a result of the pursuit of progress via scientific discovery and rationality. Post-modernity, Lyotard claimed, is the culmination of this process, the resultant effects of living in a state of constant acceleration. Change has become the status quo, making progress unnoticed and obsolete.

Despite the fact that Post-Modernism and Post-Modernity are distinct, in the author's opinion it is not possible to examine Post-Modernism under the effects of Information Technology without including Post-Modernity. Post-Modernity is essentially Post-Modernism on a societal level. By examining Post-Modernism one is actually examining Post-Modernity, since the latter cannot exist without Post-Modernistic thought.

2.2. The Foundations of Post-Modernism

Post-Modernism is difficult to conceptualize properly owing to its multifaceted nature and wide field of application. In order to gain a better understanding of Post-Modernism, its origins are examined. This will include the reasons for its rise to prominence as well as the philosophies that helped to form its foundations. These philosophies are those in which society's disillusionment precipitated the rise of Post-Modernistic thought as well as those by which Post-Modernism was influenced and evinces many similarities.

2.2.1. The Collapse of Modernism and the rise of Post-Modernism

Post-Modernism has been defined as the disbelief and disillusionment with the promises of Modernism. It is important, in the author's opinion, to understand the reasons for this disillusionment, why Modernism failed and how this failure precipitated the rise of Post-Modernism.

Modernism as a philosophy gained increasing recognition and momentum towards the end of the 19th century. Two of its tenets were that it was necessary to discard previously accepted notions and that thorough change was required in order to advance society. This progress through change was driven by belief in the notion of progress through rationality and scientific advancement, in the ability of the human to reshape his environment through technology. This scientific advancement, however, was increasingly integrating the modern outlook of the human world, with philosophies placing more emphasis on freedom, in both the individual and group contexts (Stevenson, 2005: 198).

The age of Enlightenment and Romanticism was brought to a screeching halt by the horrors of World War I. It became inconceivable for people to retain their belief in the systems and philosophies that had sent millions of young men to their deaths in the bloodied fields of France.

Tarnas (1991: 364) states that Western society lost its faith, not in religion, as it had in the previous century, but in rationality, science and autonomous human reason. Modernism, with its previous momentum and its promises of a better world of progress through wholesale change, stepped up to the plate to fill the void left by the other philosophies.

Despite Modernism's optimistic view to the future, modernistic attitudes to change, progress, rationality, destiny and technology culminated in World War II. Nazis inflamed by the promises of progress and destiny, put millions to death with no consideration for the consequences of their actions. With a war dominated by technology and requiring the use of innovative tactics and propaganda, it can be said that World War II was a Modern war.

The disillusionment caused by the devastation of Europe, the death of so many people, but most of all, the horrors of the Holocaust, emphasized the serious failings of the Modern age and signaled the beginning of its inevitable downfall. According to Tarnas (1991: 400), '[u]nder the cloak of Western values, too many sins have been committed. Disenchanted eyes are now cast onto the West's long history of ruthless expansionism and exploitation - the rapacity of its elites from ancient times to modern'.

Despite its evident failings, Modernism could still be perceived in the latter years of the 20th century. Its influence could be seen in the Cold War, in which the West was pitted against Communism, in the sociological upheavals caused by the Vietnam and Korean Wars, and the rise of activism pushing for reform and equal rights. It became increasingly obvious that the revolution that Modernism was supposed to have brought about through science and progress had not occurred. Society did not achieve the emancipation for which it had strived and hoped.

Tarnas (1991: 388) states that society had put itself into an unenviable position, '[u]nder the West's direction and impetus, modern man had burst forward and outward with tremendous centrifugal force, complexity, variety and speed. And yet it appeared he had driven himself into a terrestrial nightmare and a spiritual wasteland, a fierce constriction, a seemingly irresolvable predicament'. Post-Modernism's disillusionment with progress and change, its nature of irony, critique and parody, was an inevitable result of society's rapid technological progress without concomitant social, moral or ethical progress.

However, despite these influences, Post-Modernism is not the sequel to Modernism, as the name would seem to imply. It is rather society's disagreement and disillusionment with what has been promised by Modernism, i.e. society's reaction against Modernism. However, Post-Modernistic thought did not only originate as a result of Modernism and has existed for centuries, with individuals such as Frederick Nietzsche and David Hume laying the foundations for Post-Modernism, displaying skepticism and opposition to the meta-narratives of truth and reality.

Post-Modernism should also not merely be considered to be an opposing philosophy to Modernism; indeed both philosophies share many similarities in their rejection of tradition, radicalism and freedom of expression. Post-Modernism does not disregard the usage of Modernistic principles, but rather is the realized failure of these ideals and promises of emancipation.

As has been evidenced with Modernism, Post-Modernism's disillusionment with a philosophy or meta-narrative is fundamental to its own ideals and beliefs. The rational philosophies of Humanism and Structuralism are therefore examined to further establish a framework for Post-Modernism.

2.2.1. Opposing Philosophies

2.2.1.1. Modern Humanism

As was stated above, in order to understand Post-Modernism it is necessary to understand the philosophies that it rejects. One of the most influential of these philosophies is Modern Humanism. Modern Humanism (Humanism) is the belief in the subject and the consciousness as the foundation of an individual's knowledge and experience of the world. Humanism thus can be considered to propose a strong meta-narrative.

A famous declaration that is synonymous with Humanism, was made by Descartes: *cogito ergo sum* ('I think, therefore I am'). This declaration places the human at the centre of the universe as well as rejecting metaphysical and religious views on the body and soul. Humanism returned humanity to a more hallowed state, gave it a more prominent role in the events that unfold around it. Stevenson (2005: 133) defines Humanism as the primacy of human thought. Its core concept was that all human action and thought was important, interesting and valuable. The role of God and the Church were minimized as the human mind became the ultimate achiever of man's destiny; these ends were achieved through scientific knowledge and the understanding of the universe surrounding humanity. Tarnas (1991: 224) said the achievements of the present were increasingly emphasized. Humanity viewed self-consciousness as the evolutionary vanguard of human experience. Because of the central role the human mind plays, advocates of Humanism believed in the existence of a single, coherent, universal 'Self'. Owing to its primacy, the 'Self' is considered to be independent of physical conditions and environmental influences.

Humanism possessed a profound faith and placed a huge amount of emphasis on human reason. Humanistic principles stated that there exists only an external world to the 'Self' and this external world can be understood rationally through science. The knowledge produced by scientific analysis can be considered as truth. Through the discovery of these truths; thought, history, nature and the whole of reality could be rendered intelligible.

2.2.1.2. Structuralism:

Another philosophy that proposed a strong meta-narrative that is rejected by Post-Modernism is Structuralism. Structuralism arose in the late 19th century and was an attempt to understand human identity and society. Owing to Post-Modernism's emphasis on relativity and plurality, it strongly rejects this meta-narrative since human identity and society are considered to be in constant flux and cannot be adequately understood by totalizing concepts.

Structuralism is a philosophy that studies the logical relationships between foundational structures as a means of understanding social and cultural structures, identities and linguistics. Human behaviour and the identity of the individual are all determined by the influence these structures have on shaping the individual and on shaping the individual's environment. The individual has no control over these influences because, as Hart (2004: 18) explains, no individual can be fully aware of these governing rules. These identified structures are thus used to better understand the meaning and truth that is experienced by the person or social environment. Tarnas (1991: 390) states that Structuralism is strongly evidenced in the literature of the period with human identity in novels evincing a sense of selfhood based on a belief in background and the historical narrative of the period.

Structuralism is directly opposed to the Existentialist view that each person is responsible for his or her own destiny. As a result of these structures imposed upon the identity of the individual, the concept of human choice and freedom has been rejected by Structuralism.

Modernism, which had its roots in the Enlightenment, attempted to understand the world in terms of rational and objective terms, and Structuralism became a major tool in the quest to uncover universal truths.

The rejection of these rational philosophies forms an essential part of the character and belief systems of Post-Modernism. Other philosophies such as Nihilism, Post-Humanism, Post-Structuralism and Deconstruction also reject the meta-narratives that have been proposed. Post-Modernism has drawn extensively from these philosophies and Post-Modernism can be seen to find its roots within these philosophies.

2.2.2. Foundation Philosophies

2.2.2.1. Nihilism

It can be seen that Post-Modernism and Nihilism have many points in common. Both Nihilism and Post-Modernism reject metaphysics and previously accepted moral and ethical structures. Both philosophies have rejected the principles of rationality and enlightenment as well as calling the veracity of the identity into question. It is due to these commonalities that Post-Modernism is sometimes construed as being a nihilist philosophy.

Developed by Frederick Nietzsche, towards the end of the 19th century, Nihilism claims that the reality by which we experience the world is unknowable or unreachable and therefore does not exist. As a result, human existence or the world in which we live is without an objective meaning, purpose, essential value or any truths. According to Stevenson (2005: 205), Nietzsche believed that there is no such thing as objectivity, that all experience is subjective and because of this subjectivity, facts do not exist, they are only interpretations. As the philosophies of Western culture are based on the acceptance of a meaningful reality, their quest for the truths of absolute knowledge and meaning are considered groundless and pointless.

As morals and ethics are based on what Nihilism views as a foundationless reality, traditional rules of behaviour and morality are dismissed outright as baseless and outdated. Relying on these baseless foundations will result in society continuing to degenerate and morality deteriorating until an inevitable collapse or a much needed complete reformation of societal structures occurs.

Sukenick (1969: 41) offers an alarming illustration of a Nihilistic outlook, '[t]ime is reduced to presence, the content of a series of discontinuous moments. Time is no longer purposive, and so there is no destiny, only chance. Reality is, simply, our experience, and objectivity is, of course, an illusion. Personality, after passing through a stage of awkward self-consciousness, has become... a mere locus for our experience'.

Despite Nihilism's pessimistic views on reality and society, it does offer a light at the end of the tunnel. It is the author's opinion that this 'light' is Nietzsche's ultimate goal and purpose for Nihilism. By acknowledging Nihilism, society can strive to overcome it, to uplift society to a more Utopian level. Woodward (2002) interprets Nietzsche as claiming that 'once society has given up the desire to think in terms of foundations and grounded truths, the value will be seen to lie in untruth - life is itself a tapestry of errors, a tissue of erring, and a wealth of unfounded interpretations'. Stevenson (2005: 206) supports this thought by saying that Nietzsche believed that society must look beyond the meta-narratives of good and evil in order to realize the full potential of living; '[w]e need to define our own values and disregard the feelings of the herd. As an individual you should live for yourself, on your own terms'.

This reinterpretation of the world that Nihilism desires is described by Nietzsche as complete Nihilism. By embracing complete Nihilism and rejecting society's archaic and outdated value systems, society will achieve the means whereby Nihilism and the need for Nihilism can be overcome. By discarding the old categories of valuation, morality and ethics, society will be able to create new value systems. These value systems would take into account the untruth of reality, acknowledging and avoiding the hypocrisies and subtle depravities of modern society. A new ethical and moral framework would be created which would only take into account this world and this life. The result of complete Nihilism or overcoming Nihilism can be considered to bear a great many similarities to the Utopian desires and predictions of Anarchism.

2.2.2.2. Post-Humanism

Post-Humanism arose from the realization of the inadequacies of Humanism and the realization of the limitations and fallibility of human knowledge and the relative nature of science. Post-Humanism does not, however, forsake the strong rationality that characterizes Humanism. Instead it acknowledges Humanism's limitations and attempts to transcend the ideas and images of Humanism to incorporate its fallibility. As a result, Post-Humanism has had a great influence on Post-Modernism.

Besides grasping the limitations of rational knowledge, Post-Humanism also removed the human being from the centre of truth and meaning, demoting humanity to the status of just another one of the many species that inhabit the planet. Human knowledge is downgraded to a less hallowed position, with human intelligence seen as fallible and limited and the acknowledgement that rendering all of reality intelligible is impossible. Tarnas (1991: 386) maintains that: 'the absolutist closures of Humanism's systems appeared to limit the unpredictable possibilities of the universe and the personal autonomy of the human individual'.

It is in the technological age of today that the Humanist 'self' is completely undermined and the Post-Humanist 'self' finds its expression. Post-Humanism sees nothing special in the current form of humanity, viewing it as limited and imperfect. Biotechnology and other technologies are seen as providing the means whereby it can be improved upon and these limitations overcome. This principle, called '*techno-transcendence*', simply means using technology to improve or enhance the physical human form. This theory is applied to extending the human life span, improving eyesight, hearing and physical strength. Concepts such as the human cyborg, originally considered to belong to the realm of fiction, are increasingly becoming a reality. Conceptually cyborgs already exist in society as people become increasingly dependent on technology to function in day-to-day activities.

With the advent of the Internet and the introduction of virtual realities the Humanist definition of the autonomous 'self' is no longer seen as applicable. Individuals are capable of connecting to the Internet and representing themselves in any manner they please. This is graphically illustrated by the increased usage of identity multiplicity in virtual communities.

The 'self' is also no longer seen as the repository of knowledge. Humanity now relies on a variety of data storage devices to fulfill this function. Human knowledge has grown so extensive that huge data centers are being required to store the information and databases of the Internet. It is the author's opinion that these data centers make the Humanist claims of rendering reality intelligible seem naïve and slightly arrogant.

The Post-Humanistic attitude towards the self is also very evident in late capitalism. In consumer societies, the identity of the individual can tend to be very fluid, with individuals identifying themselves by what they consume and what they value. Thus the identity, the 'self', is built upon consumer trends, stimulated needs and purchasing habits. Individuals themselves, not only their identity, also become commodities to be traded and valued. This is evinced by organizations increasingly referring to and viewing their employees as resources or capital. Taking into consideration these influences, it can be said that the human consciousness is definitively removed from the centre of the universe.

2.2.2.3. Post-Structuralism

Post-Structuralism and Post-Modernism have come to penetrate one another dramatically. As in Post-Modernism, gone are the underlying certainties of the totalizing concepts proposed by Structuralism. Post-Structuralism found that these structures were unable to adequately examine the individual and society. When the fluid nature of reality was grasped, this undermined the foundation of these over-arching structures as it was felt that truth and meaning cannot be trusted to remain static.

Hart (2004: 18) identifies Michael Foucault as one of the most important thinkers of Post-Structuralism. Foucault agreed with the proponents of Structuralism that language and society were shaped by structures, but he disagreed with the idea that the underlying governing structures could definitively explain the human subject. According to Tarnas (1991: 351), '[a]ll human experience was indeed structured by largely unconscious principles, but those principles were not absolute and timeless. Rather, they varied fundamentally in different eras, different cultures, different classes, different languages, different persons and different existential contexts'. It was also found that it is impossible for individuals to stand outside of these structures because they are inevitably biased as a result of these or other structures that have served to shape them. Thus the objectivity required of Structuralism is not obtainable and reality becomes unknowable with meaning being shaped by this uncertainty.

Post-Structuralism has some similarities to Post-Humanism in respect of their views on knowledge and identity. In Post-Structuralism the hallowed state of rational knowledge is also disputed. Knowledge is simply viewed as another attempt at the foundational structures of Structuralism. The foundation of knowledge is based upon structures but these structures are considered to be indeterminate. Knowledge is also shaped by the biases of the structures in which it is created or processed. Thus due to the fallibility of its creation, all knowledge becomes fallible as well.

The Post-Structuralist identity is also very similar to the Post-Humanist identity. The identity of the individual is indirectly structured and created via his/her interaction with environment. Reality is also seen to exist with indeterminate properties and the individual's sense of meaning is shaped by this uncertainty. The 'self' is in a constant state of flux and thus identity is construed as being open to constant change.

Post-structuralism, along with deconstruction (examined in the following section), are seen as the foundations of what was to become Post-Modernism. In fact, Post-Structuralism's views on reality as being an indeterminate linguistic universe, form the basis of Deconstruction and Derrida's concept of '*Differance*'.

2.2.2.4. Deconstruction and Differance:

Deconstruction and *differance* both played a major role in the formation of Post-Modernism and have formed the foundations of Post-Modernism's skepticism and acceptance of fragmentation and pluralism. Tarnas (1991: 398-400) believes that as a result of this critical analysis, philosophies proposing meta-narratives and claiming the existence of a single truth have been undermined and exposed as ultimately fallible.

Deconstruction examines meaning and the potential ways that meaning is constructed in a text and the ways in which it can be understood. Jacques Derrida, the founder of deconstruction, argued that all text contains assumptions based on prior knowledge and the subjectivity of the author. Stevenson (2005: 276) defines deconstruction as: 'the practice of unraveling meaning from written language to show how what's written is put together out of assumptions that can't be true. Presence is one of these false assumptions. It is the idea that the meaning of words is limited by the intentions of the speaker or the writer'.

Hart (2004: 160) describes deconstruction as the indication on 'how a discourse has been put together from various earlier discourses and exposes any and all forced joins and smoothing over'. It is a means of examining an argument or theory and carefully breaking it down into its various components, identifying its core arguments, origins and logic. In this way it is possible to obtain a more complete understanding of the text, arguments, statements or theory by highlighting the frameworks that form the basis of the author's statements. It also presents a means of identifying biases, holes in the author's logic and potential misinterpretations that could be caused by the language used.

However, Derrida stated that despite deconstruction aiding comprehension it is impossible to reach an end truth in the text due to subjectivity. What is meant can be different from what appears to be meant; meaning can often disguise itself. Derrida dubbed this potential difference in the meaning of words *Differance*.

Differance presents a means of resolving differences and multiple interpretations in arguments. It is based on the principle that instead of searching for unifying principles or commonalities, one should demonstrate how an idea can contain different or opposing meanings within the same text. *Differance* states that it is impossible to experience the text outside of the subjective to obtain objectivity. The reader therefore has no means of judging or evaluating the text as these would be proposing fallible subjective meta-narratives that themselves need to be deconstructed. According to *differance*, in order to obtain a proper understanding of the text, the question, 'where do you speak from?' needs to be asked of both the reader and the author.

Deconstruction can be used in this way to reveal the unsuitability and incompleteness of meta-narratives. Due to Post-Modernism's inherent skepticism and doubt, deconstruction is a major tool in the arsenal of the Post-Modernist. Post-Modernism rejects the validity of a single claim to truth, stating that truth is subjective and needs to be constantly revised.

As such *differance* is very much evident in Post-Modern narratives. Currie (1998) evinces Post-Modernism use of *differance* by its rejection of historical determinism (a one-sided account of history). Post-Modernism states that there is not one version of history, but many histories into which the 'truth' has been fragmented. This 'truth' can only be completely known by taking into consideration these multiple fragments.

Critics see the concept of *differance* as surrendering objectivity to personal subjectivity. Post-Modernists argue against this, saying that objectivity is an impossible state to reach. Therefore the truest reflection can only be obtained by acknowledging *differance*.

The background information on Post-Modernism provides insight into its motivations, belief system (or lack thereof) and the reason for its multi-faceted characteristics. In the next section a more concise definition of Post-Modernism will be attempted in order to provide a background against which the effects of Information Technology can be considered.

2.3. Post-Modernism defined

As has been illustrated by the above sections, Post-Modernism as a philosophy originates from a number of different philosophies and not merely the rejection of meta-narratives or the disillusionment with Modernism. These multiple facets and inherent plurality are a defining characteristic of the Post-Modern mind. Tarnas (1991: 395) says 'the postmodern mind may be viewed as an open-ended, indeterminate set of attitudes that has been shaped by a great diversity of intellectual and cultural currents'.

The author realizes that this definition proposed for Post-Modernism is in itself the proposal of a meta-narrative and is no less subject to deconstructive criticism, but for the purpose of this paper, adequately conceptualizing Post-Modernism is necessary.

On the basis of the views put forward by Tarnas (1991: 395-398), it is possible to highlight some commonalities that can be found in the different philosophies that characterize Post-Modernism:

- Real, concrete experience is seen as more of a priority than fixed abstract principles.
- No single thought system should govern belief or investigation.
- Human knowledge is subjectively determined by a multitude of factors, i.e. the value of all truths and assumptions must be constantly questioned.
- Reality is not solid and self-contained but a fluid, unfolding process, an open universe continually affected by one's actions and beliefs. It is possibility rather than fact.
- The quest for knowledge must be endlessly self-revising as the search for truth is constrained to be tolerant of ambiguity and pluralism. The result of these outcomes will be knowledge that is relative and fallible.

What becomes evident is that the central theme of Post-Modernism is the indeterminable nature of the reality in which society exists, the nihilistic view that reality is without objective meaning, purpose, essential value or any truths. It is this view that undermines the meta-narratives, the hallowed nature of science, the quest to discover meaning through change and fuels the directionless and disillusioned attitude that characterizes Post-Modernism.

The indeterminate nature of reality also promotes dissent, pluralism and fragmentation as it is felt that no one meta-narrative can adequately explain the social reality in which society exists. The fragmentation of societal views results in Tarnas (1991: 401) concluding that no post-modern world-view exists nor does the possibility of one exist. '[t]he postmodern paradigm is by its nature fundamentally subversive of all paradigms, for at its core is the awareness of reality as being at once multiple, local and temporal, and without demonstrable foundation'.

Due to Post-Modernism's disillusionment with totalizing concepts, concepts that previously gave direction and meaning, Post-Modern society condemned itself to a state of freedom never experienced before. With this loss of determining influences, the only truth is existence itself, an existence which is characterized by uncertainty, contradiction and languor. According to De Beer (1996), this freedom and lack of determinism implies the rejection of stable identities and the rise of 'impermanence, contradiction, non-identity, simulacra and difference'.

While the individual is free from totalizing concepts, he is still not free of the environment in which he exists, technology or his context. Without the deterministic influences of meta-narratives, the individual is more vulnerable to being shaped by these forces. As environment, technology and context are all subject to change the individual is pushed further into a state of flux, constantly changing and adapting.

This constant state of change results in the individual still failing to achieve the desired emancipation, hence resulting in further impoverishment and disillusionment. Tarnas (1991: 398) offers Nietzsche's less than simple solution to this predicament; that to be authentic, one has to admit and encounter the meaningless of reality and one's own inauthenticity. It is the struggle that gives meaning. It is the author's opinion that Post-Modernism in this way also signifies the end of traditional culture and community and signifies the rise of the individual through the self-centered struggle for authenticity and identity.

To summarize the Post-modern mind, Tarnas (1991: 394) offers the following explanation: 'The Western mind in response to these many complexly interwoven developments had followed a trajectory that by the late 20th century had largely dissolved the foundations of the modern world view, leaving the contemporary mind increasingly bereft of established certainties yet also fundamentally open in ways it had never been before. The intellectual sensibility that now reflects and expresses this unprecedented situation, the over-determined outcome of the modern mind's extraordinary development of increasing sophistication and self-deconstruction, is the postmodern mind'.

Owing to its criticism of other philosophies and its rejection of meta-narratives, Post-Modernism lays itself open to strong criticism. This, combined with its belief in pluralisms and subjectivism, in irony and parody, make it difficult for many to conceptualize it as a constructive project.

2.4. Criticisms of Post-Modernism

Post-Modernism's rejection of truths, previously accepted world-views and reality make it seem extremely fallible to many people. Some truths constitute the foundational mechanisms of the universe and cannot be considered to be arbitrary. This severely limits the ability of a society or culture to subjectively construct them. Facts such as gravity and foundational mathematics are not mere constructs and cannot be considered subjective or relative. This highlights a major flaw in the Post-Modernist theory, posing the question of where one draws the line on doubting and disputing facts. If a negation argument is used against Post-Modernism, it no longer has a foot to stand on. (A negation argument states that all connotations or results of an argument must be true otherwise it must be accepted that the argument is false.)

Post-Modernism's rejection of ethics and morals forms the basis of its strongest criticisms. This often leads to Post-Modernism being accused of being a Nihilist philosophy. In this light it is accused of encouraging the deterioration of society, of being ambivalent about the state of the human race and promoting belief in radicalism and anarchy (not to be confused with Anarchism). Post-Modernists argue that this rejection of ethics and claims to universal moral codes is instead a need for the rethinking of the current ethics and morals that have given rise to consumerism and uncaring capitalistic machines. Post-Modernism does not imply that ethical and moral behaviour is not possible, but rather that it should be determined by each individual and not enforced via over-arching narratives.

Due to Post-Modernism's disillusioned, and what can be considered overly critical attitude, it is often accused of having very little active input. Due to the fluid nature of Post-Modernism and the highlighting of the subjective, it becomes difficult to actively state a point as all the arguments one would state would be open to deconstruction and would in themselves be proposing a meta-narrative.

This deconstructive view on the world also seeks to undermine the validity claims of the historical philosophies, seeing them as trying to impose a truth on a fluid, subjective world. The historical philosophies have a strong and proud history, being built on the works of many great philosophers. Post-Modernism has yet to achieve this maturity and its sweeping rejection of these philosophies may be construed as arrogant, superficial and without a suitable premise.

Post-Modernism is also seen as directionless and completely relative. This openness to all possibilities results in indeterminacy without a solid foundation for a world view. Post-Modernism it might seem, has resulted in the humanity's search for meaning degenerating into a disorientated and relative effort. With the lack of a concrete direction going forward, it is difficult to see how Post-Modernism can be construed as a constructive project. It should perhaps be seen as something to be overcome rather than promoted.

Three aspects of a Post-Modern society or Post-Modernity are examined below. These aspects serve to illustrate some of the criticisms that are levelled against Post-Modernism and provide real world motivations for these view points.

- Mass communication (the spread of pluralisms and simulacra).
- Consumerism (the valuation of everything and thus its devaluation)
- The effect of Post-Modernism on social movements (the undermining middle line).

2.4.1. Mass Communication

An essential characterization of Post-Modernity is that it is a culture of mass media and communication. Woodward (1992) states that the most obvious effect of mass media has had, has been the fragmentation of world views and a deepening of pluralism. This is brought about by exposing society to multitude of alternative and potentially conflicting points of view. The media and information technology have made people increasingly aware that there are multiple versions of history, not just one. Woodward (1992) characterizes post-modernity as the 'end of history', asserting that it can be regarded as an era of fragmentation, multiplicity and pluralism.

Mass communication predominantly makes use of symbols and images of reality. According to Hart (2004: 24), '[w]e no longer live with the real but with the hyper real; signs have replaced referents'. The concept of *Simulacra* is introduced, in terms of which the only thing that exists is that which is seen or reproduced. This relationship of society to simulacra is graphically illustrated in Post-Modern society's consumerist nature and, in the author's opinion, that most Post-Modern of technologies, the Internet.

Mass communication highlights two issues of concern: that of the increasing fragmentation of society as it is flooded with information and the increasing usage of simulacra. Both of these influences herald the transition of society from the real to the virtual. These influences can disrupt the individual's perception and experience of reality. The individual can become unsure of what to believe, what is real and what is not. This can result in the individual doubting the authenticity of their experience of reality as well as doubting the authenticity of their own lives. While in some cases this may be constructive, exposing the individual to the realization of inauthenticity, it can more easily be destructive and cripple the identity in disillusionment and despair.

2.4.2. Consumerism

The rise of consumerism or a consumer culture has gone hand-in-hand with the rise of late capitalism and Post-Modernism. Thorne (2005: 590) states that '[t]he postmodern exhibits a fundamental attraction to the capitalist marketplace, identifying with its logic of pleasure and plurality, of the ephemeral and discontinuous, of some great de-centered network of desire of which individuals seem the fleeting effects'.

Although the consumption of goods is a necessity for all societies around the world, it is only in societies of a Post-Modern/capitalist nature that the profound effects of consumption on a massive scale serve to shape and form the society. Post-Modern consumerism is characterized by efforts to manipulate markets on a massive scale, the prolific use of marketing campaigns via the usage of strong imagery and the huge purchasing power of the consumer. Through mass production and an entertainment-obsessed pop culture, capitalism creates fantasy worlds likened to reality, thus facilitating the creation of false needs and desires.

In the current Post-Modernist era of rampant globalization, the blurring of national boundaries results in the loss of culture and tradition. Feenberg (1996) explains that the convergence of cultures and societies results in a single amalgamated global society, with the loss of cultural specificity. As the global society continues to grow, fewer and fewer cultures will remain outside of the consensus to constitute a cultural difference. The individual loses the frameworks that were previously used to construct his or her identity. Consumerism serves as a mechanism whereby this identity gap can be filled, even if it means by being inauthentic.

In consumerism the identity is not the only thing to lose its previous status in the social environment. Eldred (2000) states that in a consumerist society everything becomes valued; everything is given a price as a value of capital. Money becomes the primary enabler of society, with everything being 'devalued' to its direct or indirect monetary value. Eldred (2000) goes on to say that '[t]he capitalist world gathers itself in money...everything that is (exists) has a direct or indirect relation to money; the totality of beings passes through money'.

The principle of valuation changes the experience of the world. As action is itself valued, society is continually pushed by what Eldred (2000) calls the 'destiny of the win.' The individual is required to act in a calculating manner, considering the value of his actions and the value of the representation of image of the win. Thus in consumerism the image and the value of the representation take precedence over the physical essence of reality. Symbols and imagery have become the real product of consumption, and not the product itself. This is in line with the Post-Modernistic characteristics of simulacra, imagery and symbols, and has the same potentially destructive influences that were identified in the previous section.

Post-Modernism rejects the meta-narrative that culture represents. As a result globalization tends to cause the dissolution of traditional culture. However, consumerism devalues it still further by valorizing it. According to Stevenson (2005: 290), 'as the cultural messages conveyed by the arts become devoid of traditional cultural values, they become just that much more easily repackaged and sold as the latest style. In this way, culture loses its connection with history as it becomes commodified'. Due to Post-Modernism's nature of irony and parody, nothing is considered sacred anymore.

Consumerism highlights one of the more unpleasant facets of Post-Modernism. In the author's opinion it is due to Post-Modernism's directionless attitude, its lack of a moral compass that consumerism with its environments of superficiality, self-centeredness, greed and arrogance has been created and allowed to flourish.

2.4.3. Activist Movements and Feminism

As a result of Modernism's radicalism and New Age thought, activist movements have come to the fore in the modern age. Modernism rejected the generalizations and totalizing concepts of culture, region and gender. The individual is not formed by his or her culture, gender or race but rather is an individual whose identity is fluid and affected by its context. Highlighting prejudices and generalizations is seen as outdated, shortsighted and ultimately irrelevant. In the Post-Modern age, the emancipation that the activist and social reform movements were supposed to bring about has proved to be a false promise. Societies have not been uplifted, women still suffer a lower social status and in many cases minorities have been absorbed into the majority, becoming just another part of the faceless multitude. Stevenson (2005: 288) states that the undermining of activism occurred as a result of the pluralisms and globalization of Post-Modernism. These factors have reduced the struggles to only taking place in small fragmented spheres of influence and they have thus become less influential.

Paul (1993), a prominent feminist, expresses her disillusionment with Post-Modern society: 'What postmodernism has done, to my way of thinking, is to point out that we live and have always lived in a world where we males and females cannot simply be human. This is no more possible than it is possible that we can just be people in a racist culture. Our language, intellectual history and social forms are gendered: there is no escape from this fact and from its consequences on our lives'.

Post-Modernism in many cases is fundamentally opposed to the attitudes of activists. An illustration of this case can be Post-Modernism's views on feminism: instead of being a feminist, fighting for the rights of women, a woman should just be a woman, equal in her difference to every other human.

Post-Modernism criticizes the feminist epistemology, the proposing of a meta-narrative of masculine domination, the feminist generalizations and needs for identification by defining themselves against a dominant masculine culture.

The issue highlighted here is that due to Post-Modernism's lack of a foundation and its views on the fallibility of reality, all attempts at meaning and truth become irrelevant. This serves to undermine all philosophical projects, not only the historical philosophies, that it views as hierarchical and impoverishing, but even those with admirable goals. This again raises questions about Post-Modernism being a constructive project.

2.5. The Post-Modern Company

Post-Modernism has dramatically affected society and the individual, and very often these changes in society are reflected in the nature of the business environment. This is definitely the case with the Post-modern company where organizational structures, processes and the nature of the employee are all influenced by Post-Modernism.

The traditional, modern ideal of an organization can be described as a hierarchical organization characterized by political struggles through the control of knowledge. The modernist belief in a world that can be understood via rationality and that the pursuit of this knowledge will bring organizational success implies a belief in the predictability of the world and business. As the world and thus business is seen to be predictable, organizational change is expected to occur in an orderly manner.

However, the fragmentation of the organization as a coherent unit, and the loss of stability and predictability have all become apparent in the organizational environment of today. This organizational chaos is an indication that the modernistic and traditional forms of doing business are failing.

In today's environment of constant flux there is a constant need for innovation, agility and flexibility. McBride *et al.* (1997) harshly criticize the modern form of business, stating that an organization's slavish obedience to modernist ideals results in an inability to adapt. This type of organizational system benefits no-one and cannot provide information that is in tune with the needs of the organization.

The Post-Modern organizational type would perhaps be a truer reflection of the business environment, incorporating its unknowability and unpredictability. The Post-Modern organization is one that is a product of the post-modernity of society. It knows how to operate in a Post-Modern environment and how to take advantage of it. Montuori (1998) says this new organizational type, while incorporating some of the characteristics of the modern organization, differs dramatically in that it stresses a flat reporting structure, heterogeneity, dynamism, alternating between simplicity and complexity, and promotes the radical and free distribution of knowledge throughout the organization.

Structure

Organizational policies are geared towards innovation. The spreading of information creates a network of expert, knowledgeable people that are flexible, agile and independent. Hart (2004: 17) states that Post-Modernism encourages pluralism, encouraging not modernity, but 'more of modernities'. This multiplicity is definitely a characteristic of Post-Modern organizations. The Post-Modern organization recognizes the non-deterministic, fluid nature of the future and is structured to adapt and react to best take advantage of it. Montuori (1998) believes that these multiple modernities enable organizations to harness the social creativity of their entire workforce and can be applied to defining new ways of working and creating competitive advantage.

Staff

Post-Modernistic individuals' attitudes of disillusionment and individualism constitute a double-edged sword in the organizations of today. According to Montuori (1998), organizations are faced with a form of organizational nihilism. 'What was once certain--job description, job security, useful skills, and a certain pride and dignity in one's status and security if not intrinsically in one's work--are all deeply questioned if not gone. The notion of unlimited progress--economic and therefore also personal--is devastated by postmodernity'.

On the flip side of this, Montuori (1998) maintains that organizations characterized by post-modern thinking, have on their door-step a new form of intellectual worker. According to Robins & Webster (1999: 204), this type of knowledge worker is 'highly adaptable, innovative and well educated' and are integral to corporate success. The post-modern worker is primarily concerned by allegiance to the project rather than to the greater organization itself. They experience little concern regarding job-security are often move from one contract to another, developing their skills, knowledge and reputation. This allows for a new form of business, one that is flexible, agile and knowledge centered.

Criticism of the Post-Modern Organization

Skeptics, criticizing the new Post-Modern form of business, state there is little that is exciting or 'sacred'. The Post-Modern era has brought with it huge sweat shops, set up in Third World countries, where thousands upon thousands of young people are paid minimal wages for the mass production of goods for the markets of the West. Such products are bought because it is the image of the real, not the real itself that is consumed in Post-Modern markets. The rich are getting richer on the bent backs of the poor. The Post-Modern organization is accused of disregarding ethical standards, of being chaotic and without structure, and just as dehumanizing as any organizational type before it.

2.6. Conclusion

Post-Modernism, as has been illustrated, is an extremely complex philosophy that can be difficult to conceptualize. It is filled with contradictions; the rejection of truth while in the same breath proposing truth, the rejection of religion while still longing for a Saviour or Messiah. Post-Modernism denies the veracity of knowledge, viewing it as being subjective and open to deconstruction. It is characterized by the rejection of traditional structures and culture resulting in the individual being left to define his or her own version of reality.

There are a number of differing viewpoints on Post-Modernism. These viewpoints attempt to encapsulate Post-Modernism, providing a definition and a view of the future. Using the information examined in this chapter it is possible to list a few of these instantiations of Post-Modernism:

- Post-Modernism is a disillusionment with society, the character of the individual and ultimately reality itself. Post-Modernism is thus a nihilistic philosophy.
- Post-Modernism is a rejection of what was proposed by Modernism. It is disbelief in the claims of the primacy of the human mind, enlightenment through science and reason, and the upliftment of society through moral progress.
- Post-Modernism is the belief in fragmentation and plurality. No one view of reality can be taken as the truth since all views are subjective. Experience is characterized by *differance* and needs to be deconstructed and subjected to constant questioning.

- Post-Modernism is pop-culture, characterized by the superficiality of society and the individual being inauthentic and in a constant state of flux. The image/representation has assumed primacy over the physical.
- Post-Modernism is an opportunity for the world to be re-enchanting. An epoch in which the outdated morals and ethics of the past age that have failed and continue to fail the world can be reengineered to suit the present situation.

There are no easy answers when considering Post-Modernism. Whether one decides that Post-Modernism is nihilistic, destructive and is a symptom of the ills of society or that Post-Modernism represents a unique epoch where for the first time true authenticity can be reached and society itself can undergo a rebirth, is in the author's opinion immaterial. Post-Modernism can be considered to be both of the above choices. It cannot be considered good or bad as that would be proposing a meta-narrative, it simply is.

While society has become Post-Modern it has also become saturated with Information Technologies. Due to this complete saturation, Information Technology has had a dramatic impact on the character of society. As the goal of this paper is to determine whether or not Information Technology acts as an agent of Post-Modernism, it is necessary, as has been done with Post-Modernism, to gain an improved understanding of Information Technology - its origins, applications and the implications of its use before any inferences can be drawn between Information Technology and Post-Modernism.

In the author's opinion, what can be concluded about Post-Modernism is that for the first time in the history of the human race, society and the individual, for better or for worse, are truly free of meta-narratives and free to discover their own destinies. What mankind makes of this freedom will ultimately determine the goal of Post-Modernism and whether it is a constructive project or not.

Chapter 3:

Information Technology

3.1. Introduction

In order for the effects of Information Technology to be examined, it is the author's opinion that as in the case of Post-Modernism, Information Technology itself needs to be understood.

Information Technology is defined by the Oxford English Dictionary as 'the study or use of systems such as computers and telecommunications for storing, retrieving, and sending information'. An alternative definition can be found in the Random House Unabridged Dictionary: 'The development, implementation and maintenance of computer hardware and software systems to organize and communicate information electronically'. It is the author's opinion that these definitions are inadequate to illustrate the complexity of Information Technology. In order to properly understand Information Technology, one must define its underlying conceptualizations and processes (Eischen, 2000). Once one has gained this understanding, it will be easier to contextualize the effects of Information Technology on society.

Information Technology has become ubiquitous. It has spread to almost all aspects of society and has taken many differing forms. Information enabled by Information Technologies has risen to a place of prominence, becoming the central driver of modern society. Powerful communication channels, enabled by the mechanisms of Information Technology, have made real-time communication and the transportation of massive amounts of data possible. These revolutionary influences of Information Technology on society are reflected in the changed face of today's organizations. Business processes are being optimized and automated, the nature of the organizational work force has been changed and organizations are increasingly implementing innovations in the pursuit of cost reduction and competitive advantage.

Information Technology is playing a greater and greater role in the technological future of the human race and it is therefore important to subject its nature to scrutiny. What are the implications of its use? Can Information Technology affect society and, if so, why? In the author's opinion these are important questions that need to be addressed not only in the context of this paper but by all those interested in mankind's technological destiny.

3.2. The Rise of Information Technology

John Neuman in 1949, predicted that the use of technology would evolve from solving problems of physical manipulation e.g. substance and energy, to the more flexible problems of information, process and control (Eischen, 2000).

This statement, while aimed at technology in general illustrates, in the author's opinion, the progression of the application of use of Information Technology.

Information Technology, originally conceived as the field of computing, arose in answer to the needs of the Industrial Revolution. However, due to more complex needs and changing technologies, Information Technology evolved out of computing. Information Technology has become the most pervasively implemented technology, with its most prominent arm, the Internet, increasingly becoming the lifeblood of modern industry and society.

By examining the history and rise to prominence of Information Technology, the author believes that Information Technology and its influences on society will be better contextualized. This background knowledge will provide insight into why Information Technology has become so pervasively implemented as well as highlighting the motivations for the implementations of Information Technology.

3.2.1. The Origin of Information Technology

Information Technology as a technology has its roots historically in algorithmic structures. An algorithm can be considered as a logical procedural means by which a task is performed or a specific end goal reached. According to Eischen (2000), Information Technology essentially provides a mechanism whereby logical algebraic functions can be defined to produce consistent outputs for specific processes. Many things can be considered to take the form of algorithms and can be found throughout the social and natural environment. These social practices or naturally occurring phenomena can be broken down into repeatable patterns and constituted as an algorithmic structure that Information Technology can then attempt to replicate.

But this is putting the horse before the carriage. Information Technology, then simply computing, found its initial expression in the Industrial Revolution. The Industrial Revolution's need for optimization and increased productivity resulted in the first attempts at applying algorithmic logic to an automated process. These first attempts took the form of simple mechanical computing, i.e. mechanical machines designed to respond to certain inputs and perform a simple output such as weaving machines or tide-tables (Eischen, 2000). While this may seem insignificant it represents a major milestone in mankind's technological history and has had a dramatic impact on technological thought since.

In the 1830's Charles Babbage conceived the paradigm that has shaped the form of modern computing to this date. He created a conceptual machine called the *Analytical Engine*. Rosenberg (2004: 87), the Analytical Engine proposed the concept of a programmable machine that would be able to successively calculate differing algebraic calculations rather than just a single function. However, the increased demand for enhanced production capabilities dominated the initial development of computing, resulting in an emphasis on mechanical computing rather than the all-purpose functionality envisaged by Babbage.

This paradigm of solving a specific static requirement would continue until the 1940's. The demands of World War II brought to the fore the need for smarter, more flexible computing and information manipulation. This period also marks the origin of the Information Society, with 'systematic information gathering, analysis, and distribution, in the workplace, in the organization of consumption, and in political relations' (Robins & Webster, 1999: 4).

In August 1944, Babbage's concept of the Analytical Engine was realized in the completion of the first fully programmable computer, Mark I. This computer, however, bore very little likeness to today's desktops. It weighed 5 tons and was operated via paper tape onto which code instructions had been inputted. Eischen (2000) states that 'the Harvard Mark I represents a convergence of technologies, ideas and institutions that would dominate many of the basic features of information technology for the next thirty years.

Using advances in electronics, John Von Neumann, Wallace Eckert and John Mauchly sought to overcome the problems that characterized the behemoth computers like the Mark I. These challenges were issues such as limited memory, the generation of a huge amount of heat, the consumption of huge amounts of power, and most obviously the considerable amount of space required. The use of manual, wired programming made the definition of new functionalities difficult and time-consuming. The limited information storage and processing capabilities further hampered the potential of computers to be put to pervasive problem solving. These efforts resulted in the basic architecture that characterizes all computers to this day: 'stored-programs, binary logic of programs and computation, basic input and output units, a control unit and an arithmetic unit' (Eischen, 2000).

From 1950 to 1970 computers continued to be developed according to the framework created by Neumann, Eckert and Mauchly. However, the computer industry continued to be constrained by the limitations of the technology. The systems could only be afforded by organizations with large spending budgets. The industry's frustrations were compounded by the fact that vendors' hardware and software was not compatible with that of other vendors so the user would be locked into a system once installed and a hardware configuration that was static. Raymond (1998) likens each new development to 'building a new cathedral' such was the magnitude and difficulty of each deployment.

These problems persisted until the development of the Integrated Circuit and later the microprocessor. According to Eischen (2000), '[t]he technology transformation provided by the IC (integrated circuit - DN) pushed the creation of a multi-purpose information machine that could process, manipulate and most importantly create information in multiple formats'. The microprocessor further enhanced this flexibility by enabling a single chip to perform multiple functions as opposed to the multiple chip architectures, in which each chip was dedicated to a single function. This enhanced programmability made possible by the microprocessor is one of the driving factors behind the rise to dominance of software solutions.

Using these technological advances, the computer finally became widely available to the public in 1977. The Apple II became the world's first Personal Computer (PC). The introduction of the PC saw the introduction of Graphical User Interfaces (GUI) and easily usable input/output devices such as the mouse. The PC was also a major contributor to the rise of software as the dominant industry driver. Software acted and continues to act as the determining factor in the uses and possibilities of overall computing (Eischen, 2000). With the aid of software, the computer was truly able to perform multiple functions, becoming the ultimate realization of Babbage's Analytical Engine. The rise of software signified the end of an era and a palpable transition from Computer Technology and the emergence of Information Technology.

Information Technology now makes use of a host of specialized and advanced functionalities. Data storage mechanisms provide the means to store Terabytes of data, dual core processors provide greatly enhanced calculation and performance capabilities, and increasingly advanced software and programming languages have enabled the physical world to be replicated in the virtual world almost seamlessly.

According to Eischen (2000), the line between what can be understood, transformed and manipulated by Information Technology is increasingly becoming blurred. It is this capability of Information Technology that enables it to filter through to all aspects of society and be pervasively implemented.

3.2.2. The Pervasiveness of Information Technology

Avgerou (1998: 17) states that a technology is considered to be pervasive if it fulfills the following criteria:

- Generates a wide range of new products and services.
- Reduces the costs and improves the performance of the processes, services and products of many sectors of the economy.
- Gains widespread social acceptance.
- Generates strong industrial interest as a means for profitability and competitive advantage.

On the basis of this analysis, Avgerou (1998: 17) states that, 'IT is singled out as being the most pervasive technical innovation of the post World War II era'.

It is the author's opinion that the pervasiveness of Information Technology in society will continue increasing, even past a state of complete saturation. This is due to the fact that the integration process will become more and more seamless as society increasingly adopts Information Technology solutions making further adoptions less disruptive and alarming (Masutti, 2001).

Information Technology has become the default choice for solving every problem with which modern society is currently faced. In a society which focuses on optimization and improvement, Information Technology has become the great enabler, being used in a myriad of different applications and disciplines. According to Eischen (2000), 'software is increasingly at the heart of scientific, commercial and media processes that would be impossible to replicate without software enhanced tools'.

Information Technology has become the technology of choice for making communication possible. Traditional communication networks are being replaced by digital ones and the most powerful network of all, the Internet, is connecting the entire globe. Text, images, sounds and movies can now be distributed with the greatest of ease (Rayport & Jaworski, 2002: 40-45). Further advancement in the entertainment field has been the introduction of increasingly advanced computer games, pushing the graphical and sound capabilities of computer hardware to their limits. More recently there has been a fusion of the communication channels and gaming software to produce Massively Multiplayer Online Network Gaming, i.e. multiplayer gaming across the Internet.

Information Technology has become the backbone of modern organizations. Agile, visionary organizations have seized the opportunities afforded to them for enhanced communication abilities, better process management, extreme optimizations and the re-engineering of archaic business principles. Torres (1997) states that these factors have led to Information Technology fundamentally transforming the production process and organizational environment. Information Technology also plays a pivotal role in the scientific and biological realms of knowledge. In fact the impact of Information Technology on the scientific world has been revolutionary. Information Technology has assisted in the quest to discover the origin of the human race, to explore and understand the surrounding galaxy and to extend life spans or to save lives.

Advanced mathematical systems have allowed for the calculation of complex equations that would previously have taken decades to perform (thus rendering them impossible). They have also allowed for the creation of models from data captured from thousands of different I/O points predicting and understanding topics ranging from the creation of the universe to the understanding of DNA and the deconstruction, analysis and understanding of the human genome. It is the author's opinion that many of the scientific accomplishments of the last 50 years would not have been achieved without the aid of complex Information Technology systems. However, Information Technology itself has also benefited from this relationship with the sciences. Rosenberg (2004: 11) says that the complex computing needs of the scientific community have been the incentive for creating computers with more data storage capabilities and faster processing power, which has driven the research into more powerful computers.

The best illustration of Information Technology's pervasiveness in modern-day society is the Internet. The Internet is amongst the most ubiquitous of technologies and, in the author's opinion, has the most potential to influence and reshape society.

3.2.3. The Internet

Rosenburg (2004: 105) provides a text book definition of the Internet as 'a vast computer network, linking computer networks around the world, so therefore a network of networks'. However, one cannot possibly simply define the Internet. The Internet has become the most powerful and influential of all the Information Technologies. It has become a veritable revolution in its own right, reshaping the face of the entire globe. To define the Internet as a 'network of networks', according to Lester (in Rosenburg, 2004: 17), 'is like calling the Space Shuttle, a thing that flies'.

The Internet serves as the primary source of information for most connected individuals, acting as a distributor of information as well as a hugely rich repository of useless and useful information indiscriminately mixed. It has become one of the primary mediums of communication in today's society, acts as an enabler for organizations, opening up new avenues to pursue profitability as well as creating entirely new paradigms of business. The Internet is also a virtual playground in which individuals can lose themselves in virtuality and multiplicity. The Internet has become so pervasive that Rosenberg (2004: 622) avers that: 'the Internet is so big, so powerful and pointless that for some people it is a complete substitute for life'.

The Internet was originally created by the United States Department of Defense in 1969, though it was originally called ARPANET. ARPANET was created for the purpose of exchanging military research and providing a communication mechanism in the event of war with the Soviet Union. However, its users started making use of it for non-scientific social discussions and personal messages. It was thus soon transformed into what Torres (1997) called 'an interactive electronic post-office'. ARPANET soon expanded beyond the Department of Defense and came to be utilized by other organizations in the private sector. It grew with linkages to other networks being added and started gaining functionalities and forms far beyond that which was initially envisioned. This new metaphorical and literal 'network of networks' became known as the Internet.

Despite its wide spread application and usage it had yet to become pervasively utilized by the public due to compatibility issues between networks and platforms. According to Eischen (2000), these problems continued to plague the burgeoning global network until the advent of the Hyper Text Transfer Protocol (HTTP), Hyper Text Markup Language (HTML) and Universal Resource Locators (URLs). These technologies provided the means for pervasive implementation in the public domain as incompatibility issues were overcome by providing a common platform from which information could be shared. This system was dubbed the *World Wide Web* and provides the most commonly used facet of the Internet.

Due to its capacity to rapidly distribute text, images and sounds regardless of technological constraints, the Internet allows for multitudes of people to connect and communicate across the globe. It enables differing societies and cultures to meet and exchange information and allows for the building of new types of communities. Apart from its usage on a personal level it also provides the communication backbone for most modern organizations, thus allowing for improved services, international operations as well as allowing them to reach many diverse markets worldwide.

The Internet has become the most influential of all the Information Technologies. This is primarily due to encouragement of the two main functions of Information Technology: Information and Communication.

3.4. Functions of Information Technology

The main functions of Information Technology can be generalized to two main aspects: Information and Communication. Information Technology originally arose as a means of storing, disseminating and manipulating information. With the rise to prominence of networks, Information Technology expanded to include the communication of this information as well. However, the pervasiveness of Information Technology in society has introduced dimensions and complexities to these two aspects that were never anticipated.

3.4.1. Information

Information Technology provides exactly what its name states, it is the technology of Information and hence the production, distribution and administration of information are its primary domain. Information due to its rapid distribution, dissemination and storage has taken a central role in today's daily life becoming the primary factor in production, distribution, administration, communication and entertainment and leisure. Capurro (1989) stresses the important role that information and knowledge plays in shaping society and warns that information should not be considered trivial. Capurro (1989) believes that the production, storage and implementation of a society's knowledge acts to preserve and increase its social character ' [i]t has taken three hundred years to open written knowledge to vast sectors of society. This was not only a technical but also an educational as well as a socio-political process'.

Owing to the primacy of its role in society, information is being produced in greater quantities every day, increasing exponentially the amount of information available to society. Marx (2004) states that old or previously used data is still maintained and used due to the low cost of data storage, being less costly to store information than to discard it.

The ability to store and maintain information also allows for the easier creation and generation of new knowledge. Marx (2004) describes this compounding effect of information as the *value-added model*. In the value-added model, using previously created data and models, one can more easily create new data and models due to the foundations of knowledge previously created.

The Internet, with its vast storage and distribution capabilities, has become a huge repository for most of humanity's knowledge. Data Centres, huge facilities purely dedicated to the safe storage of data, are being required to store the huge amounts of information as more and more is produced and published on the Internet every day. There is a plethora of Information at one's finger tips on virtually every topic conceivable. Increasingly complex search algorithms such as those implemented by search engine giant Google, are required to gain relevant information from this sea of information.

The Internet is not only used for the storage of information. It also acts as the primary mechanism of its distribution via email-groups, bulletin boards, websites and online communities. According to Rosenberg (2004: 604), '[t]he volume of information transmitted over the new electronic media continues to expand, and technological innovations contribute to more ways to transmit information - a direct reflection of the ever increasing importance of information to advanced societies'.

This primacy of information is one of the major contributing factors to the emergence of what is today called the *Information Society*. The Information Society has become so saturated by Information and Information Technologies that it has become completely dependant on them and is being shaped by them. The Information Society has resulted in a restructuring of the social relations to reflect the primacy of information.

Information has become a commodity, with relationships being geared to 'maximize the generation, manipulation, dissemination and commercialization of information' (Eischen, 2000). The Information Society evinces a marked transition from the physical to the virtual, the real to the hyper-real. The effects and characteristics of the Information Society will be explored in greater detail in Chapter 4.

3.4.2. Communication

Information Technology has become the primary enabler of communication. In today's society the need for the transmission of information has never been as high. Traditional communication mechanisms and channels are no longer adequate to handle the demand for real-time data, the demands of distance, mobility or the capability of handling the required mass of information. Technologies such as Voice-Over-IP (VoIP), Wireless Infrastructure (WiFi), Fibre Optics and Broadband are increasingly becoming the norm. The Information Technologies responsible for enabling communication have been named 'Information Communication Technologies' (ICTs).

Not only does Information Technology act as an enabler and distributor for communication, it also acts as a motivator. ICTs have rendered possible cost-effective ways of communicating across the globe, with the Internet playing a central role in this communication revolution. According to Coyne (1998), the wide spread usage of the Internet and electronic communication has caused the world to become smaller. News and market information is broadcast around the globe instantly, allowing for people on the other side of the world to stay up to date on faraway events and trends. People are encouraged to explore the pathways of the Internet, to meet new people, to more actively stay in contact with their remote friends and relatives. The number of people connected to the Internet has been increasing dramatically over the past decade. Networks have spread across national borders, bringing together people eager to share information, regardless of differing cultural backgrounds (Rosenburg, 2004: 590-591).

One can meet people from around the globe in the virtual environments of the Internet; even browse the websites of obscure rural towns in Central America.

New forms of communication that are made possible via the use of ICTs include (amongst many others); e-mail, newsgroups, instant messaging, biographical logs (blogs), bulletin boards and websites. Other cutting-edge communication technologies such as video conferencing or 3G allow an individual to hold conversations with crystal-clear visual footage of the other individual. This means that people can now enjoy visual communication and not just purely audio-communication, a benefit previously only offered by face-to-face communication.

The new methods of communication have resulted in changes to the existing methods of discourse. According to Stahl (2002), these technologies result in a much quicker exchange of ideas and arguments. The usage of hyperlinks and hypertext has also resulted in a new method of comprehension. The line of thought is not followed to its conclusion and does not follow a synchronous path. Hyperlinks dispersed amongst the text allow one to change from one text by one author to another text by another author in mid-sentence. Stahl (2002) maintains that this leads to a thought process that is shorter and more concise.

Owing to the major influence they have on traditional discourse paradigms, ICTs have also had an impact upon the mechanisms for the transmission of messages, society's languages. Capurro (1989) stresses the importance of language, warning that the impact of Information Technology on language should not be taken lightly. He maintains that language is not something that is added to a society but exposes the very essence of its nature.

Coding systems have arisen among users of electronic mail and digital messaging. These codes (emoticons) are used, says Rosenberg (2004: 604), to replace the missing vocal, facial and body signals that usually accompany face-to-face conversations.

Other coding systems have arisen to allow for the faster encoding of messages as well as a reduction of the typing burden. These coding systems mostly come in the form of acronyms or shortened words. Spelling is done phonetically with digits mixed in to allow for the shortening of the word e.g. 'L8R → later'. These coding systems have also arisen as a result of the proliferation of mobile technologies and the user interfaces these technologies implement.

Language gaps also no longer pose barriers to communication, as language text can now be translated by a number of different engines, allowing people to send messages in their home language whilst the receiver will receive the message in the language of their choice. Turban *et al.* (2002: 797-798) state that such technologies are becoming prevalent on the Internet. Translation engines allow website information to be translated into the language of choice as well as in community environments, allowing for more people from varied cultural backgrounds to communicate. These technologies, however, are still in their infancy and the quality of the translation leaves a lot to be desired.

ICTs have also led to the introduction of new words into the English dictionary. These words were previously considered industry jargon, but have now become so prevalent that they have become accepted in everyday language. Rosenberg (2004: 5) substantiates this by pointing out that more and more Internet-specific language is being entered into the Oxford English Dictionary: '[a] whole raft of new words are going in from modern culture, but the IT and Net-based ones include: .com, FAQ, HTTP, homepage, information superhighway, MP3, search engine, spam, smiley face, snail mail, WAP and Y2K'. Words that have already been added include 'e-commerce, cyber squatting, dot-com, webcam and XML'.

The enhanced communication and information-handling capabilities of Information Technology have given organizations windows of opportunity. By using Information Technology, organizations are more in touch with their processes, thus allowing for dramatic optimizations, the offering of better services to their customers, as well as rendering innovative competition possible.

3.5. Impact on Organizations

Information Technology has served to dramatically change the face of the organization. This impact goes beyond just the obvious applications of modernizing the production processes, modernization will always occur and has been occurring for the last 200 years since the Industrial Revolution. It is rather a much more profound impact, affecting the underlying concepts of management and service delivery.

Traditional organizational paradigms have been found lacking in the new virtual marketplace and organizations have had to change their business processes and management styles. Torres (1997) believes that 'high tech information technologies have become the critical factors in the transformation of production in the post industrial era'. The organizational structure has become increasingly fluid, business paradigms need to be reevaluated and reengineered, knowledge management needs to be optimized, and customers are increasingly demanding more detailed information just as more information needs to be gathered on customers. Information itself is now traded, with organizations relying increasingly on white-collar information workers rather than physical production mechanisms.

All of these new trends in organizations and business management are made possible by the communication and information administration capabilities of today's Information Technologies. The need for technological and competitive innovation is illustrated by Turban *et al.* (2002: 1) who aver that: 'competition today is not among products, but among business models...The hottest and most dangerous models out there are on the web'.

However, the increased implementations of Information Technology are not without risk. As organizations make use of more Information Technologies they expose themselves more and more to the risks of data-loss, become more reliant on potentially faulty information networks and software.

This also exposes them and increases the damage potential of malicious software such as viruses and trojans. Increasingly organizations need to put in place drastic measures to protect the integrity of their systems and data. Turban *et al.* (2002: 547-548) warn that organizations need to be increasingly concerned with authentication, authorization, auditing, confidentiality, integrity and availability. All of these are difficult to implement and impact on an organization's bottom lines.

3.5.1. Information Technology as an optimizer

Information Technology has opened up huge opportunities for organizations and has been amongst the primary drivers of organizational change. The revolutionary consequences of Information Technology and ICTs on organizations' communication patterns and information requirements have been likened to those of the Industrial Revolution.

The Internet has become one of the primary motivators for organizational change. As the Internet's primary function is one of communication, this has been the main benefit the Internet has brought to organizations. Organizations have been quick to seize the window of opportunity the Internet offers with commercial connections being the fastest growing component of the Internet (Madon, 2000: 90). Organizations are using these enhanced communication capabilities to establish closer links with customers, business partners, vendors and information resources. Organizations can now communicate up and down the value supply chain, making faster, more reliable interconnectivity possible between supply chain partners. This integration of the supply chain can help to optimize services and reduce turnaround time. The Internet also assists in organizations' horizontal communication as well, by allowing for communication with organizations in other industries and facilitating the cross-proliferation of knowledge.

Real-time communication between organizations (B2B) and between organizations and their customers (B2C) has become a reality. Jaworski & Rayport (2001: 2) say that this ability to communicate in real time rather than in cycle time enables organizations to be in constant dialogue with their customers and their markets. Organizations are now aware of the micro details of their business as they happen. They are able to provide feedback information to their customers as events occur and can provide increasingly better and more complex services.

The increased strength of communicative capabilities has allowed organizations to take full advantage of the opportunities presented by globalization. This has allowed them to internationalize their operations as well as giving them access to a literal world of new markets. According to Robins & Webster (1999: 76), '[e]conomic activity is increasingly pursued by irrespective of national frontiers, held together by a global web of relationships within and across corporate organizations that are owned by myriad and dispersed shareholders'. They are now able to successfully market and distribute their products while still maintaining control from their domestic country of origin.

Not only has globalization exposed organizations to new markets it has also enabled them to access new labour pools. Less expensive labour and facilities can be found in Third World countries seeking external investment allowing them to maintain or improve upon domestic market profit margins.

3.5.2. New Paradigms

New business trends are based on foregoing the old paradigms of doing business and focusing on achieving maximum efficiency and effectiveness in today's environment. This means forgetting the traditional practices of organizations enacted in the modern age of mass production and deciding how profitability can best be achieved in the present environment. 'Old job titles and old organizational arrangements - departments, divisions, groups, and so on - cease to matter. They are artifacts of another age. What matters is how we want to organize work today, given the demands of today's markets and the power of today's technologies' (Hammer & Champy, 1993).

These new paradigms include innovative methods such as rapid prototyping, iterative development, Just-In-Time delivery and Business Process Re-engineering. Many of these new paradigms shift away from the philosophy of 'Get it right first time', focusing rather on the output than on the means. Paradigms of thought commonly used in Software Development have also filtered through to the industries within which they operate. Practices such as flow diagrams, black box development and use cases, which previously were only seen in the offices of the I.T. departments, have become the mainstay of modern organizations. Organizations are realizing the benefits of business process diagrams and modularity, not only for ensuring the sound performance, reliability and repeatability of their processes, but also for future optimization and ease of alteration. Cooper (n.d.) states that these practices are proving their value to the organization by their impact on improving the understanding, monitoring and controlling of the business processes.

Two examples of exciting paradigms that have emerged directly from Information Technology's impact on the organization are the Virtual Office and Open Source.

The Virtual Office

The paradigm that the virtual office draws from is that of the *virtual product*. Davidow & Malone (1992) define a virtual product as something that exists before it is produced, '[i]ts concept, design, and manufacture are stored in the minds of cooperating teams, in computers and in flexible production lines'. Using this concept, the virtual office can be considered as one that is highly adaptable and flexible, being able to respond quickly to changing market conditions and technologies. Davidow & Malone (1992) go on to state that the virtual office would be extremely permeable and would have continually changing interfaces between the organization, supplier and the customer. The organization's structure also becomes fluid with offices, departments, divisions, accountability and responsibility all changing according to the needs of the situation or environment.

With current technological developments, the paradigm of the virtual office can be taken much further. As a result of high-speed connections, employees are able to connect remotely to their organizational intranets and perform the same functions they would if they were physically in the office. Konsbruck (n.d.) states that the importance of distance will be reduced because computers and ICTs will enable employees to *telecommute* as they find that they can perform the same functions at home as they could in a centralized workplace. Using simple technologies such as messaging software or forums, projects can be discussed, managed and administered. With newer technologies facilitating the creation of avatars (virtual representations of themselves) employees can interact with their colleagues in interactive environments, creating a full-blown simulation of the office environment.

The paradigm of the virtual office can be extended to its most extreme, with the organization not actually possessing true physical space, but entirely established on the Internet. All that would be required would be a set of servers to store the organization's data and a technological infrastructure sophisticated enough to provide for the sharing of source code, data and software applications, and for project and employee administration.

Open Source

Open Source represents one of the most exciting and dynamic business models to have arisen out of the Information Society. Open Source is a development model that turns traditional thought on software development on its head.

Open Source is a philosophy and a way of doing business that is gaining momentum worldwide. Open Source software is made freely available for any organization or individual to distribute or modify, providing that the accompanying license agreement is abided by. According to Martin *et al.* (2002): '[t]he only stipulation to the free use of Linux is that if a programmer makes modifications or extensions to Linux, he or she agrees to share them with the rest of the worldwide Linux community'. Major players within the I.T industry, e.g. IBM and Apache to name but a few, have chosen Open Source in their long-term strategies, giving the movement enough punch to make it a realistic and viable choice for many organizations.

The driving principle behind Open Source software is that if the source code is made visible to any and all outside parties, people will be able to adapt it for their own uses, modify the code and debug any existing problems, ultimately resulting in a better piece of software. This can occur at an extremely rapid pace and at dramatically reduced costs when compared to conventional software development. Owing to the high quality of code being introduced to the product, Open Source products demonstrate a high level of robustness and reliability, higher security as well as reduced administration and operating costs.

It is important to remember when considering Open Source as a business opportunity that not all Open Source software is necessarily provided without cost. The word 'free' is often qualified by 'Free, as in Freedom.' This essentially means that while the software is provided for a fee, as with proprietary software, the users are free to make changes and adapt the product to their purposes. This allows the organization to be able to transcend the limitations of the product, altering it to suit their very specific business needs, instead of forcing a fit and imposing change on the business processes due to the limitations of the software. Open Source opens up the possibility for the usage of Information Technology in domains that were previously unexplored or were considered unreachable. This is primarily due to the fact that commercial or proprietary software is driven by a profit motive and market trends while Open Source is driven by the need for a solution to a specific problem (Lin, 2003).

3.6. *The Nature of Information Technology*

3.6.1. The Ethical nature of Information Technology

When one considers the ethical nature of technology and thus Information Technology, one is presented with two contradictory points of view. The first is that technology is just a tool to be used and the other is that technology has social consequences and effects and is thus not neutral.

If one considers technology as a tool, it is ethically neutral. Phahlamohlaka & Kroeze (2005: 426) state that this view regards technology merely as an instrument that is contextually dependant on its construction and usage. This is not to say that technology cannot be used for harmful or unethical purposes, but rather that it is the effects and the usages of the technology that are subject to ethics and not the technology itself.

By the very nature of this study it is evident that the author's view is that Information Technology is not neutral. By examining the effects of Information Technology one is acknowledging its inherent capacity to alter society, not only in its usages but also in the process of its use. Capurro (2003) states that today's society is labouring under the grave misapprehension that technologies are completely free of biases, whether social, political or economic. This is a potentially dangerous point of view as it can blind society to the influences and impacts that technology has on their lifeworlds which can result in unrestrained or even unnoticed technological determinism.

Information Technology is the conversion of social knowledge and practices into digital form (Eischen, 2000). As technology is created by an individual, packaged within the technological mechanisms are the context of their creator's subjective experience (the principles of deconstruction) and the intended and unintended influences and consequences of its designed outputs.

Thus every technology alters its user's life-world because it provides its user with a particular world-view and specific ways of interacting with others.

Phahlamohlaka & Kroeze (2005:428) state that if the reality whereby an individual experiences the world changes, the individual's 'essence of being' is also changed. Heidegger calls this effect *Enframing*.

Enframing is defined by Xuanmeng (n.d.) as 'the mode of revealing which challenges, orders and determines the standing in reserve'. Stated more simply, enframing is the means by which something is understood. It assists in the establishment of personal belief systems, what one perceives to be real, how one interprets this perceived reality and how one interprets one's experiences in this reality. It essentially establishes the frameworks and boundaries of an individual's life-world. Taking technology as an enabler of enframing, it must be concluded that technology by its very usage and not only its end purpose, shapes the individual and society.

Condella (2001) states 'the essence of technology is nothing technological... Heidegger rejects what he calls the instrumental or anthropological definition of technology, which reduces technology as a whole to a particular instantiation'. Condella (2001) says that it is exactly this perception that technology is just something technological that has given rise to the illusion that society is in control of technology and not vice versa (*technological determinism*).

3.6.2. Technological Determinism

Technological determinism is defined by Robins & Webster (1999: 73) as the idea that social progress and cultural change are driven by technological innovation and development. It is the author's opinion that this has definitely been the case in today's Western culture as evidenced by the rapid increase in science and technology as well as the rise of the Information Society.

Technological determinism is an interesting concept in that it results in a feedback circle of faster and faster technological advancement. As one realizes the benefits that can be gained from technology, one becomes increasingly receptive to new ideas and new implementations. One wants to implement newer and better technologies, becoming blind to all other methods of problem solving besides the technological (Condella, 2001). New technologies will be required to help solve problems that the introduction of other technologies caused. Better technologies are required to further optimize mechanisms whose inefficiencies were only realized through technologies. One can almost say that once you have seen the light, there is no going back.

It is the author's opinion that this deterministic influence of technology has been the main contributing factor in society's rapid technological advancement and progress. Technological determinism states that technology impacts on and determines the course of the development of a society, according to Heidegger (1977): '[w]ithin the periphery of the epoch of modern technology, the only thing we have left is purely technological relationships'. Thus technology also begets the introduction of more technologies.

This results in a society that becomes technologically dependent, which in turn pushes the course of development of the society further down the path of technological advancement and increases its dependence. This relationship can be summed up as technological advancement, which results in societal change, which results in technological advancement, which results in societal change and so on. Condella (2001) notes that 'there is a certain inevitability with regard to technological being. Once modern science set it into motion, it could not seemingly be stopped'.

3.7. Conclusion

Society has embraced the communication capabilities of Information Technology and has placed information as a dominant force in society. Currently one can consider Information Technology to be pervasively implemented throughout society, and as has been illustrated, it is predicted that this pervasiveness will continue. It has become difficult to imagine a normal existence without Information Technology being used in some form or another.

What is also clear from this chapter is that Information Technology does not exist independently of society - it is a social phenomenon. When implemented in society technology brings with it intended and unintended social implications. 'It opens dimensions of oppression and liberation, of destruction and aesthetic design, of ideology and plurality, of consent and dissent' (Capurro, 2003). Taking these social implications into consideration, it must be concluded that Information Technology is definitely not neutral. Because of the saturation of Information Technology in society and its non-neutral nature, the individual and his or her personal relation to the world is hugely influenced by Information Technology. Xuanmeng (n.d.) considers the pervasiveness of Information Technology and asks the question: 'Is not then the individual's existence threatened in an age when modern technology holds sway?'

Having laid a solid foundation by examining Post-Modernism and Information Technology, it is now possible to examine the pervasive, non-neutral social influences of Information Technology in the light of Post-Modernism and to determine whether or not Information Technology does indeed act as an agent of Post-Modernism.

Chapter 4:

Information Technology as an agent of Post-Modernism

4.1. Introduction

In Chapter 2 of this paper Post-Modernism was examined - the multiple facets that characterize it, the meta-narratives it rejects and what can be taken as its foundations. Information Technology was examined in Chapter 3, providing an introduction to the influences that Information Technology applies to a society as well as examining its nature as a non-neutral force.

Conlon (2000: 111) believes that Information Technology provides functionalities that are vital to the development of Post-Modernism. These functionalities include, amongst others, the distribution and enablement of the global economy, the storage and dissemination of information via databases, the changing of the workplace and rise of the information worker, the speeding up and optimization of social as well as professional life, an increase in the ability to communicate and the creation of virtual worlds on the Internet. Owing to the pervasiveness of Information Technology in all aspects of life, and its aforementioned non-ethical nature, there will inevitably be an impact on society and the individual.

Taking into consideration the multiple functionalities and resulting effects of Information Technology the following influences can be identified:

- The saturation of society with information
- The primacy of representation over reality
- The displacement of space and time
- The facilitation of Consumerism
- The displacement and rejection of cultural heritage
- The redefinition of traditional societal forms
- The potential for techno-transcendence
- The inadequacies of traditional value and ethics
- The redefinition or loss of Identity

These influences penetrate each other and should not be considered mutually exclusive. This interdependence results in a complex and powerful net of influences that has a major impact on the life-world of the individual. An attempt will be made to draw correlations between the influences of Information Technology and the various facets of Post-Modernism that were identified in Chapter 2. Using the insights gained from this chapter, an attempt will be made to determine whether or not Information Technology acts as an agent of Post-Modernism.

The organization plays a central role in today's society. It is the author's opinion that the changes in society are reflected in the changes in the organizational structure and the way organizations conduct their business. This chapter will bring together the concepts of the Post-Modern organization and the Information Technology-enabled organization in order to provide support and context for the hypothesis of the Post-Modernistic influences of Information Technology.

Throughout this paper the author has been referring to the Internet as the most Post-Modern of all technologies. This will be made clear in this chapter. The effects of the Internet will be distributed throughout the chapter and it becomes very obvious that the Internet acts as a primary driver of Information Technology's Post-Modernistic influences. To this end the revolutionary influences of the Internet are worthy of an introduction before examining the influences of Information Technology.

4.2. The Internet

Nowhere in today's society is the pervasiveness of Information Technology and its effect on society more keenly felt than on the Internet. The Internet is the primary enabler of communication and promotes the proliferation of massive amounts of information throughout society. The Internet has had and will continue to have a major influence on shaping the identity of society and the individual. The values, concepts and principles of traditional societies are giving way to the mass of interconnected ideas communicated to them via the Internet. Commonly held beliefs are being refuted by the information available on the Internet causing people to question their personal environments more closely. The Internet has caused the emergence of new ways of being and new definitions of identity and community. This rich complexity has resulted in a new virtual realm of experience emerging, one that is not bound by the physical world rules of society and science (Rosenburg, 2004: 590), and one that many of its users find preferable to reality by far.

Despite the fact that the Internet has brought to society a new and exciting way of existing, it is the author's opinion that it is important to look past the glitz and glamour of the Internet and not to take the Utopian predictions at face value. The Internet has introduced new definitions of identity and society, but to say it will result in the upliftment of man to a better society is perhaps overly optimistic and quite naive. Capurro (2003) believes that while the Internet may be revolutionary, it is definitely not Utopian: '[f]or every empowering or enlightening aspect of the wired life, there will also be dimensions that are malicious, perverse or rather ordinary'.

According to Berthon & Katsikeas (1998: 149), the Internet in many ways embodies the anti-foundational philosophies of Post-Modernism. It is neither owned by anyone nor does it have a central controlling body or hierarchy.

Rayport & Jaworski (2002: 577) state that because it is owned by nobody and has no physical borders, no one government can lay claim to any part of the Internet. As a result of this lack of ownership and its autonomous nature, the Internet has also become extremely difficult to regulate and control.

The revolutionary impacts of the Internet are graphically demonstrated by this extract taken from John Barlow's (1996) 'A Declaration of the independence of cyberspace'. John Barlow is a founding member of the Electronic Freedom Foundation, a leading online civil liberties organization. This declaration is also a very good illustration of the Internet's Post-Modern nature. It rejects the meta-narratives of traditional society and government, and illustrates the rise of the virtual world as an environment preferable to that of physical reality.

Governments of the industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of the Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather.

We have no elected government, nor are we likely to have one, so I address you with no greater authority than that which liberty itself always speaks. I declare the global society we are building to be naturally independent of the tyrannies you seek to impose on us. You have no moral right to rule us nor do you possess any methods of enforcement we have true reason to fear.

Governments derive their just powers from the consent of the governed. You have neither solicited nor received ours. We did not invite you. You do not know us, nor do you know our world. Cyberspace does not lie within your borders. Do not think you can build it, as though it were a public construction project. You cannot. It is an act of nature and it grows itself through our collective actions.

The anti-foundational motives are furthered by the fact that the communication paradigm of the Internet is a many-to-many model. No single body or technology is responsible for the transmission of messages and the distribution of information. Due to the lack of control, changing technologies, ideas, motivations, and personal agendas, the Internet is in constant motion and moves in unpredictable directions. This leads Berthon & Katsikeas (1998: 153) to say that 'the Web has no foundational cause, goal or indeed trajectory'. People are completely free to act as they please, argue any point of view they desire, add to the repository of useful information or purposefully mislead people. These freedoms assist in emancipating the individual from the meta-narratives of societal structures and the constraints of nation, culture, tradition, family and ultimately their own identity. It is a truly Post-Modern technology.

The Internet, however, like most things associated with Post-Modernism, has two faces. On one hand the Internet does provide the world's greatest repository of knowledge, provides untold benefits to organizations, allows for instantaneous communication across the globe, and promotes the democratizing forces of freedom of expression and individualism. On the other hand, it raises difficult problems with regard to the protection and dignity of human life.

The list of degradations, immoral behaviour and risks to society both physically and morally is just as long as the list of the benefits that the Internet brings. Sager *et al.* (2002) paint a disturbing picture of the very real and easily reachable underworld of the Internet: '[t]housands of virtual streets are lined with casinos, porn shops, and drug dealers. Scam artists and terrorists skulk behind seemingly lawful Web Sites. And cops wander through once in a while, mostly looking lost. It's the strip in Las Vegas, the Red Light district in Amsterdam, and New York's Times Square, all rolled into one - and all easily accessible from your living room couch'. The encouragement and enablement of this mass of morally questionable facilities has raised the concern that the Internet has too much freedom, that some form of control has become necessary.

The users of the Internet are looking to their governments to establish some form of control over what can be accessed. They are therefore looking to their governments to protect them from themselves.

The Internet offers to its users an unimaginable range of choices. It is the epitome of an essentially eclectic environment. The Internet is nothing if not a huge connection of vastly different topics, ideas, philosophies and functionalities. The choices a user must make when surfing can range from simple decisions as to what path to take or to more profound choices that raise difficult moral and ethical questions. This range of choice and the mass of information available on the Internet serves to promote the first of the influences of Information Technology to be examined, that of the undermining of knowledge by the mass of information, resulting in an increase in fragmentation and plurality.

4.3. The Influences exercised by Information Technology

The ultimate result of the increased usage of Information Technology by society forms one of the major points of contention regarding the influences of Information Technology. On one side of the argument Information Technology is viewed as a liberator, with modernistic promises of empowerment and emancipation. The other side of the argument assumes a nihilistic stance, viewing Information Technology as a threat since emancipation and empowerment have not happened. Rather than enriching the life of the individual, Information Technology has actually impoverished it and has given rise to a new wave of fetishism, enslavement and domination (Kellner, 2002: 299). This section does not constitute an in-depth exploration of the ultimate result of society's use of Information Technology but is focused instead on highlighting the Post-Modernistic influences it exercises. It is the author's opinion that Information Technology may emancipate society from traditional restrictions and allow for enhanced self-discovery, but that these freedoms will not bring about the Utopia formerly envisaged.

4.3.1. The Saturation of society with information

One of Information Technology's most profound effects on society is its capacity to handle and produce information. This effect, while innocent at first glance, has resulted in the saturation of society with information and is one of the main drivers of technological determinism.

The most obvious impact of the mass of information being offered to society is that of plurality. One is increasingly being bombarded with potentially differing information on the same topic. This presents one with the opportunity, by considering these alternative sources of knowledge, to better consider the proposed information in the light of analysis and deconstruction.

However, if one views this situation from a Post-Modern perspective, this is not an opportunity to gain greater insight into a topic, although the possibility of doing so does indeed exist. Instead, this plurality raises the question of truth. What version of the knowledge does one consider to be the truth? They are all truths and at the same time none of them is a truth. What is the individual to believe?

Due to the saturation of society with information, the nature of the discourses whereby information is exchanged has also been altered. The thoughts of the discourse tend to be shorter and more concise, and have resulted in a change in the way that society interprets meaning. These shorter discourses tend to disguise the deeper meanings and interpretations of information. Internal reflection and contemplation of this knowledge are discouraged due to the pace and momentum of current society. This results in information never being completely understood and being only partially received. Society exists in a 'sea of signs', being saturated with more and more information that has less and less meaning (Alvarez & Kilbourn, 2002).

Capurro (1996) states that through the data administration capabilities of Information Technology (storage, distribution and manipulation) the hierarchical concept of knowledge is distorted and weakened. Information and knowledge has become viewed as something to manipulate, a commodity to be traded. According to Stevenson (2005: 287), Lyotard predicted that in a Post-Modern society knowledge would lose its importance. Instead it would be used as a product of exchange with its own value, similar to any other commercial product, only more fluid and mobile.

Information Technology provides its users with a range of choices and options in terms of life styles and everyday applications. With the rapid pace and continual development of technology, in order to stay up to date, society cannot totally embrace or adopt specific solutions or practices, but has a need to stay continuously flexible.

As digital communication and Information Technologies advance, the spread and cross-proliferation of information and knowledge presents the individual with endless possibilities as well as the potential for vastly differing but equally effective solutions to problems; socially, culturally and in the professional environment. This influence of increased choice highlights Information Technology's role as an agent of empowerment and emancipation. Coyne (1998) maintains that '[t]he Internet and other computerised communications networks have the potential to free us from hierarchical structures, allow for individual expression, and enable the ultimate definition of our individual and collective humanity'.

Introna (1995: 2), however, disagrees with this premise, deconstructing it to the following logic:

1. Technology increases choices.
2. Increased choices leads to more freedom.
3. Therefore increased technology implies more freedom.

Introna (1995: 2) believes that this logic is inherently flawed as increased choice does not necessarily mean more freedom but can actually be impoverishing, providing too much choice or complexity for the individual to effectively handle. This effectively removes the ability of the individual to use their freedom or to make constructive choices.

The saturation of society with information can also result in an increasingly analytical and deconstructive world-view. The human experience and even reality itself becomes data and information to be deconstructed and understood. Floridi (2002: 130-131) states that '[t]he physical world undergoes a process of virtualisation and distancing in which even the most essential tools, the most dramatic experiences, or the most touching feelings, from war to love, from death to sex, can be framed within virtual mediation, and hence acquire an informational aura'.

While information has been elevated to a state of primacy in current society, the dissent and plurality created by contradicting views and the commodification of information has completely undermined the veracity of knowledge and fact. By throwing knowledge into doubt, the individual's perception and experience of reality is blurred. If all realities are considered doubtful, one is thrown into the dilemma that no one reality is 'real'. What is reality? Does reality even exist? This situation is compounded by Information Technology's ability to create false realities via the use of representation and the creation of hyperrealities.

4.3.2. The Primacy of representation over reality

The concept of *Representation* can be considered to be the re-presentation or simulation of reality through alternative means. This primarily occurs through the use of imagery but can be achieved through text and data. According to Coyne (1998), representation is a central theme in Information Technology. Through Information Technology, virtual worlds can represent objects in a virtual space, creating entire virtual realities. Information Technology also makes extensive use of representation in its communication mechanisms. De Beer (1996) states that representation simplifies a topic, thought, idea or message to a picture or word. This can help to minimize complexity and allow for quicker understanding of a concept. The adage 'A picture is worth a thousand words' is the principle upon which representation is based.

Representation is playing an increasingly important role in today's economic processes. In an Information Society where consumerism is established, marketing campaigns seek to sell the image or concept of the product rather than the actual product itself. Organizations are also making extensive use of representation in designing their business processes. Lending from software development, the modelling of process is increasingly playing a more significant role in organizations. According to Cooper (n.d.), modelling through its representation of the world and processes is 'proving its value for understanding, monitoring and controlling'.

The representation of a topic or idea is playing an integral role in the usage and design of user interfaces (UI). Icons representing the command to be executed are the *de-facto* option for UI when designing systems. The use of icons provides a context for the command, gives it a much-needed sense of realness in the artificial world and encapsulates guiding information to the user via the image used. Another method whereby representation is used in UI is the use of *interface metaphors*. The interface metaphor is a technique of applying a concept or metaphor to the user's interaction environment, e.g. Recycle Bin or Desktop.

The metaphors are used in order to provide the user with a context for interaction, providing for the simplification of the using process, while still providing the user with extensive information on how to interact with the system through the virtual environment. Preece *et al.* (2002: 55) explain that interface metaphors combine familiar knowledge with new knowledge to assist the user to understand the system and its usage.

Representation, through its blurring of the distinction between the representation and the actual physical object creates what Berthon & Katsikeas (1998: 151-152) call *hyperreality*. Hyperreality is defined as the phenomenon where the representation of the artifact is conceived as being better than the real thing. This is illustrated through concepts such as increasingly real simulations and comprehensive and comprehensible virtual worlds (Nunes, 1995). This can result in the real, physical world being rejected in favour of the fantasy worlds of computer gaming or the virtual environments of the Internet. Hyperrealities in this light pose a major risk to society. Berthon & Katsikeas (1998: 151) warn that the saturation of society with hyperrealities can result in a loss of sense of authenticity, of what is real and what is not.

The hyperreal is not restricted to the avenues of pleasure and entertainment but also exists through the realities created by the saturation of society with data and information. A virtual reality, not of simulation, but of data, emerges from this sea of information. These virtual data realities have created a representation of the world in which space and time have ceased to matter, becoming merely additional considerations in the pursuit of effect.

4.3.3. The Displacement of space and time

One of the most fundamental capabilities of Information Technologies is that they act as enablers of communication. Information Technology allows for communication to take place across the length and breadth of the globe and allows for the possibility for data to be requested, transferred and received almost instantly. The world has become smaller with the emergence of the global village and time has assumed less of a controlling role since it is becoming increasingly relative. It is important to consider that a mutual relationship exists between distance and time - the displacement of one affects the validity of the other.

ICTs have had a major influence on breaking down the barriers caused by distance and separation, and due to this distance, on the time required to surmount these barriers. The capacity for information to be transmitted instantly across the world provides mechanisms for real-time updates and the feedback of live information. The Internet operates 24 hours, 365 days a year; the importance of time is displaced, making it a mathematical equation when considered in this context. Gratification is also almost instantly available, regardless of one's personal time and location. Anything and everything is available almost instantly. The relevance of local time and locale is uncoupled. Rosenberg (2004: 165) states that Information Technology has pushed place and time into roles that they cannot possibly fulfill.

When connected to the Internet physical restraints and categories of distance and location cease to matter. Spatial co-ordinates are exchanged for pseudo names and IP addresses. The replacement of the traditional social face-to-face interaction with interaction that is characterized by communication across wide reaches of space and across multiple time zones further minimizes the importance of physical location. According to Nunes (1995), in cyberspace '[t]he 'Voyeur-Voyager' experiences an immediacy which dissolves space and time: a perpetually repeated hijacking of the subject from any spatial-temporal context'.

Rapid technological change also meddles with the individual's sense of time and has resulted in the individual experiencing a form of temporal acceleration. In the past technological change would usually span three or four generations. Currently due to Information Technology's rapid growth and advancement a single generation can experience several successive technological changes in a relatively short span of time (Dupuis, 1989: 439). It becomes increasingly difficult for society to track the passing of time as change has become a constant influence; therefore it becomes disregarded or unnoticed.

Due to Information Technology's rapid development and constant state of change, society is constantly looking to the future rather than looking back and remembering the past. The recent past has also assumed a role of lesser importance because of the ability to acquire instantaneous feedback. The needs for optimization, for events to happen faster and more accurately, are all drivers behind the focus on the instant and the future. The current date and time becomes less important as the future is always seen as better. One is in a state of constant expectance, of anticipation of things yet to come (Coyne, 1998). The emphasis on achieving the valorized 'win' creates a sense of incompleteness and unease, and provides the individual with a never-ending series of goals still to be achieved.

4.3.4. The Facilitation of Consumerism

Information Technology plays a pivotal role in the socio-economic dynamics of society. It is the author's opinion that Information Technology acts as the primary enabler and motivator for consumerism and its rapid spread. Information Technology acts as the infrastructural back-bone for consumerism, providing the technological means necessary for mass production as well as providing the communication channels required of consumerism's massive marketing efforts. It is the author's contention that Information Technology is the life-blood of consumerism; that without it, consumerism would not be able to exist.

Consumerism requires massive marketing efforts in order to commoditize life-worlds. The Internet serves as the new frontier for marketing products, as marketing campaigns have access to an unprecedented number of viewers. Market profiling can be more easily done since communities of like-minded individuals tend to congregate in the same web spaces. Life-styles can further be promoted through the profiling of websites and promotion of certain actions and beliefs. According to Robins & Webster (1999: 99), an essential requirement in these marketing efforts is the generation of huge amounts of data in order to create useful statistical data, profile demographics and identify emerging market trends. Data is also gathered under the motivation of customer service, being able to provide advertising tailored to your individual desires. Without the mechanisms of Information Technology the storage of this data would be impossible and the gathering of relevant information from this veritable sea of collected data would be completely inconceivable.

Through the communication channels of the network society, the increasing emphasis on the representation of objects is blurring the distinction between the image and the actual physical object. This is poignantly obvious in Information Technology's ability and tendency to create hyperrealities.

These hyperrealities provide the perfect environment for consumerism to flourish. Artificial, beautiful worlds are created whereby false and superficial wants can be stimulated. One's every need and desire can be fulfilled by the purchase of the advertised products. According to Rifkin (2000: 47), '[i]n the new network economy what is really being bought and sold are ideas and images. The physical embodiment of these ideas and images becomes increasingly secondary to the economic process. If the industrial marketplace was characterized by the exchange of things, the network economy is characterized by access to concepts, carried inside physical forms'. What one is purchasing is not the product but hyperreality. This not only assigns a false superficial value to an object, it also undermines the integrity of all physical objects. Reality itself becomes replaceable as it becomes a commodity that is bought and sold.

Through the replaceability of reality the identity is also commoditized. According to Pullinger (1999), an individual now has the opportunity to 'choose different identities, both through the facilities of the Internet and by the lifestyle choices made possible through IT-driven consumerism'. One is able to switch identities as easily as switching an item of clothing. A more fluid self has emerged, a self that is viewed as an object to be manipulated (Marx, 2004).

Consumerism also has a direct link to the global economy (Robins & Webster, 1999: 101). Without the influences of globalization, consumerism would not have been able to proliferate throughout the world to the degree that it has today. The global, networked information society provides the technological infrastructure that enables mass production and distribution, and also provides the communication superhighways for consumerism's rampant marketing campaigns. The impact of Information Technology's influence on the identity combined with the global society supplanting traditional values and culture serves to make the individual increasingly receptive to the temptations and feeling-of-belonging that consumerism offers.

In the author's opinion, consumerism represents one of the most dangerous and destructive influences of Information Technology and Post-Modernism. It promotes the creation of false identities and usurps the role of culture and society, replacing them with impermanent and superficial ideologies. Xuanmeng (n.d.) warns that '[i]n this way the human becomes "They", but in so acting loses his or her own possibility to be'. It becomes the ultimate expression of inauthenticity, and portents the complete loss of individuality and the destruction of the identity.

4.3.5. The Displacement and rejection of cultural heritage

When Information Technology penetrates a society, it brings with it the influences of mass information, increased communication, consumerism, the global society and a promotion of individuality. With the ability of Information Technology to break down the constraints of distance and time individuals are having their traditional life worlds challenged by new, exciting and potentially opposing outlooks. These alternative outlooks may contradict the value systems provided by their culture, throwing into doubt previously accepted knowledge and truths. According to Feigenbaum (2001), this has a massively destabilizing effect on the society and can reshape the collections of habits, outlooks, methods of communication and identities that are associated with a culture.

Information Technology does not only throw into doubt the veracity of traditional cultures, it also acts to promote the forces of globalization. Kellner (2002: 285) states that the emerging global economy and network society finds its foundations in communication and information technologies. Global computer networks have made globalization possible by creating a technological infrastructure by which the global economy can be enabled.

Globalization can provide massive economic benefits. It provides access to international markets, promotes external investment and encourages the improvement of local infrastructures. However, globalization, like most things associated with Information Technology has two faces.

Information Technology has a massive impact on traditional forms of value and meaning. As Western society tends to be the most vocal proponent of Information Technology, it is generally the values of Western society that come part and parcel with Information Technology's implementation. Western culture brings with it democratizing forces such as freedom of expression, equal rights and individualism. In this respect Information Technology allows for the emancipation of communities, undermining the influence and control of subjugating or overly dominating cultures. However, Information Technology has the exact same influence on cultures that were constructive or benevolent. The cultural value systems are supplanted regardless of the nature of the recipient culture. The recipient culture in this way loses its specificity and becomes part of the uniform global culture. Feenberg (1996) states that as Information Technology affects more and more cultures, fewer will remain outside of this amalgamation to constitute a cultural difference.

The benefits of globalization and Information Technology are also primarily motivated by Western thought. When applied in different contexts and environments these 'emancipating' and 'beneficial' forces can have many alarming and unintended consequences. Traditional values and knowledge can flounder under the onslaught of the moral ambiguities of the international world. The glitz and glamour of hyperrealities can also make traditional systems seem outdated and boring by comparison. Traditional norms of communication and respect are seen as pointless or inefficient. Globalization can result in the recipient culture being left without any moral or ethical value foundations, resulting in the wholesale collapse of the society.

These influences of Information Technology on traditional forms having been grasped, the implementation of Information Technology has come under the spotlight when used for the purpose of socio-economic development. The developer must consider the social shaping force of Information Technology and be consciously aware of the very negative impacts the introduction of this technology could have on the population.

Introna (1995: 3) states that the cost of development and technology is rarely exposed or debated with the same vigour as its benefits and for those who want to use Information Technology for development these destructive impacts on culture must be a major concern.

While the influence of Information Technology may prove disastrous to individual traditional cultures, it could turn out to be beneficial to individuals themselves. Lombardo & College (1997) aver that: '[o]ne of the most interesting aspects of the global society is that as it spreads and integrates; it increasingly empowers individuals and unique and diverse elements of the human population'.

4.3.6. The Redefinition of traditional societal forms

Information Technology has had a huge impact on the social structures that characterize today's society and as such the individual is being required to re-think his or her understanding of the world. Information Technology has served to undermine the influences of tradition, cultural heritage, community and family, and has served to create new definitions of society. According to Conlon (2000: 115), '[t]he old structures of neighbourhood, employment, family and church no longer have the power to connect society that once they had'. Society has evolved to a state predicted by Castells (1996) where it can no longer be understood or represented without taking into consideration its technological tools.

With the saturation of society with Information Technology and the rising influence that information is playing, a new type of society has emerged that is very different from traditional societal structures - the Information Society. The Information Society is one that has become so saturated with information and Information Technologies it has become completely dependant on them and is being shaped by them. The Information Society represents a major shift in the functioning of society. It dramatically impacts on traditional economic value models, definitions of society, social interaction and on the identity of the individual.

Information Technology fuels industry and provides for the needs of the individual and the community. Information Technology becomes the cement that holds society together. According to Alvarez & Kilbourn (2002), 'the Information Society is so profound, so far reaching, potentially so disruptive to our conceptions of self and society that even present language is inadequate for conceptualizing the phenomenon'.

The Information Society has resulted in society increasingly beginning to redefine itself along the lines of what occurs in virtual environments. Lombardo & Colledge (1997) state that a network model is replacing the hierarchical Newtonian model that previously defined human existence and nature. This network model evinces the attributes of the Internet with bottom-up, distributed power relationships. Traditional forms of hierarchy no longer fit the mold; society is increasingly relying on horizontal rather than vertical lines of accountability. Traditional views on solidarity in a society are being exchanged for the promotion of plurality and individualism. This leads Capurro (1996) to state that Information Technology produces a chaotic society, not of irrationality, but rather the chaos of a multitude of conflicting views. Capurro (1996) states that '[c]oupling knowledge and information technology implies the possibility of plurality and dissent within a society as well as between different societies'.

The influence of Information Technology has not only served to change and shape society but it has also, through these impacts, marked the rise of individualism, giving rise to new ways or paradigms of 'being' in society. Increasingly the forces of social cohesion are questioned as the mechanisms whereby values are created are undermined (Dupuis, 1989: 441). Prior to the mass bombardment of society by the mass media and the saturation of society with information, the transmission of values and meaning occurred via a macro-social process of community and education. Today these systems are no longer seen as a valid means of defining an individual's life-world - the individual would rather create his or her own definitions of meaning and value.

The Internet has also created new definitions of communities and societies as these structures are moved to virtual environments. This paradigm of the virtual community is being extended to its full potential, with the Internet introducing revolutionary concepts of virtual education, virtual organizations, virtual politics and virtual friendships and even virtual romances. These virtual environments represent new ways of being and interacting in a society. Individuals may also find that they experience a greater sense of community in the online world than they do in the physical world (Turkle, 1996). This could be due to the ability of their representation of themselves to socialize better than their authentic selves, or they might find it easier to communicate because of the detachment of the socialization, or they might just be discovering a community of like-minded people.

The Information Society is one that has become dependent on information. This dependence and saturation of information can cause everything in the individual's reality to pick up an 'informational aura'. This gives rise to one of the main characteristics of an information society - what Introna (1995: 1) calls *Instrumental Reason*. According to Introna (1995: 1), 'instrumental reason's validity is found in the morally justified aims of efficiency and effectiveness'. This type of society is not only obsessed with optimization from a business point of view, but also with the optimization of their daily lives. In an information-saturated world everything can be known, and owing to the motivations of instrumental reason, everything can be improved upon. All things become objects to be manipulated in the pursuit of effect (Introna, 1995: 1). This enables information flows and processes to be made more effective, efficient and cost-effective. Optimization of processes results in greater cost benefits to organizations, greater performance and reduced time-to-market. This obsessive pursuit of optimization is the primary motivating factor for automating the workplace and morally justifies the existence of and creation of human cyborgs.

4.3.7. The Potential for techno-transcendence

Through the rapidly advancing technologies of Information Technology, society is now being faced with the very real possibility of the human cyborg. A cyborg is defined as a human being that is partly or entirely machine and thus dependent on a machine for existence. However, if this definition is used it can be said that the reality of the cyborg is already upon us. There are many people walking around with pace makers installed, hearing aids, prosthetic limbs, never mind the individuals whose very life is maintained only because of machines, e.g. quadriplegics and patients on life-support machines. In the paradigm of cyborgs, the post-humanistic principle of techno-transcendence can be identified, the transcending of the limitations of the current human form through technology.

Through the advances in biotechnology powered by Information Technology the true realization of the cyborg can be achieved. However, the creation of cyborgs has profound ethical and moral questions attached to it. Not taking into account the extremely pertinent arguments of de-humanizing mankind to unthinking machines, the introduction of cybernetics to the human form could have profound repercussions on identity and religion. According to Phahlamohlaka & Kroeze (2005: 416), '[t]his would have a serious effect on people's self-identity as the "image of God". Could technical improvement replace the dogma of sanctification? Could immortality via personality preservation replace resurrection?'

If one extends the paradigm of the cyborg out of its literal meaning and extend it to a more metaphorical context, one would be presented with a world full of cyborgs. Due to the saturation of technologies in society, individuals have become entirely dependant on machines to fulfill their existence. Consider the commonplace technologies of today: cellular technologies, televisions, microwaves, fridges and computers. All of these are seen as integral technologies that society that cannot do without. All of them are empowered through Information Technologies of different complexities.

Drees (2002: 602) states that language is also increasingly reflecting society's growing symbiosis with technology. For example, people are often heard to say that they are 'under stress', need to 'let off steam' or need to 'shut down'. All of these expressions come from the realm of machinery and Information Technology. This causes Drees (2002: 602) to say that humanity may consider itself made in God's image but increasingly refers to itself as being made in the image of machines.

Society's increased usage of the Internet has also opened up a range of possibilities for the implementation of the paradigm of the cyborg. If one considers an average user of the Internet, the user can be abstracted and considered an I/O device for this network of networks. All that the user provides are inputs that provoke some sort of processing, and following this, receive and internalize the delivered outputs. According to Dery (1996: 234), this type of situation is increasingly becoming a reality as more and more people plug into the Internet and spend increasing amounts of time on-line: 'growing numbers spend their days in static observation mode, scrolling through screenfuls of data. Bit by digital bit, we are becoming alienated from our increasingly irrelevant bodies'. Images from the movie 'The Matrix' inevitably spring to mind when confronted with this imagery.

However extreme the analogy used to illustrate the paradigms of the human cyborg, it is the author's opinion that it is a potential reality that is looming larger and larger. The potential uses of Information Technology are restricted only by the human imagination. The human imagination is potentially infinite, thus it must be concluded that the usages of Information Technology are potentially infinite. Information Technology therefore has the ability to permeate every aspect of our existence. We will become the metaphorical human cyborg, and through this complete saturation, the literal human cyborg becomes inevitable.

4.3.8. The Inadequacies of traditional values and ethics

Laudon (1995: 34) defines ethics as the decision-making process and the resulting actions of free human beings: '[w]hen faced with alternative courses of action or alternative goals to pursue, ethics helps us to make the correct decision'.

Information Technology not only poses ethical problems itself but also, as has been shown, has a major impact on the life-worlds upon which the evaluation of these ethical questions is based. Ayers (1999) states that this problem is compounded by the fact that 'technology is advancing at a rate well beyond our human capacity to cope with the moral and ethical dilemmas associated with it'.

As a result of the freedoms that are engendered by Information Technology, society has grayed the areas of what can be considered to be ethical behaviour and what cannot. These concerns regarding ethics are being illustrated poignantly by the abuse of the aforementioned freedoms that is occurring on the Internet. These activities are blatantly pushing the boundaries of moral and ethical behaviour and are threatening the protection and dignity of human life. Issues such as the following have arisen: What information and content can be considered unethical? Is it even possible for information to be ethical? Is it not less ethical to restrict freedoms in view of the abusive content on the Internet? What are the responsibilities of organizations and countries in relation to the Internet? Is control necessary and how much control should be used? Where does accountability lie? However, Lyon (1988: 149) states that technological thought often tends to skate over the debate of ethics due to the emphasis on logic and technological advancement.

Information Technology has a major impact on the shaping of the individual's life-world. Because the life-world of individuals is changed, their perceptions of what is right and what is wrong and thus their perception of truth is changed.

Information Technology brings to the user a mass of additional information and potentially contradictory views. This casts doubt upon the veracity of previous claims to morals and ethics.

Further issues are being raised by the introduction of smarter, more comprehensive software systems such as Customer Relationship Management (CRM) and Decision Support Systems (DSS). CRM systems gather and store personal information on the users of websites and the activities they conduct when browsing. Solove (2004: 2) states it is now possible for 'digital dossiers' to be created on individuals. These technologies render possible the preservation of all details of an individual's life - likes and dislikes, purchasing habits and credit records. What becomes of concern is how far and how much information is being collected. For what purpose is it being used and to whom is it being distributed? Moreover, what is of more concern is that all of this data is being collected and distributed without the user's knowledge or consent.

Decision Support Systems also place the question of ethics on difficult turf. With the automation of the various functions right up to the decision-making level, it is now becoming necessary for the software systems themselves to be subjected to ethical questions. According to Stahl (2002), this highlights an increasingly poignant and difficult dilemma: 'If knowledge is based on trust in others, does that mean that one must trust computers in the knowledge society, and if so, what does it mean to trust a computer?'

With the advent of the Internet, a new type of social movement and petty criminal has risen to the fore: the hacker. Regardless of whether one agrees with the hacker's agenda or not, hackers provide a good example of how Information Technology encourages a disregard for traditional values and ethics.

Rosenburg (2004: 442) explains that the term 'hacker' has multiple meanings that have changed over time. The following are two of the definitions that exist:

- A programmer who breaks into systems to prove that it is possible, and that no system can resist his efforts. Such a hacker is sometimes called a cracker.
- A programmer who is a variant of the above, but feels that society benefits by his actions; that hidden information is brought to light or proprietary software is made available to the entire community of programmers.

Hackers spend most of their time in the cyberspace of the Internet. They are the absolute personification of the 'computer geek' sitting hunched over his computer late at night, music blasting through his ear-phones, oblivious to the world around him.

According to Lin (2003), hackers define themselves as creative and skilled programmers who push the limits of what is possible. Hackers disregard notions of privacy, organizational property and proprietary software, feeling that if products are made available to the public, they are in the public domain. They are firm supporters of the concept of the Internet as a completely free environment, an environment beyond the legislative borders of physical nations. This leads to a complete disregard for the privacy issues of others and a 'hands-on-imperative' as regards all software (Rosenburg, 2004: 442). This attitude has given rise to what is called the 'hacker ethic', which primarily promotes the central role of computers in society and the viewpoint that all information should be freely available.

The hacker culture gains a lot of its influences from the open source culture. The two cultures share a great many similarities, the exposing of code to the public domain, the sharing of knowledge, the decentralization of societal hierarchies and an Information Technology-orientated perspective on the world.

It is not a rare occurrence for hackers to exploit vulnerabilities in well-distributed proprietary software products to which open source stands in direct opposition, for instance Microsoft Windows. The hacker culture opposes the profit goals, closed attitudes and what they consider to be monopolistic motives of such corporations. These individuals do not even consider their disruptive actions to be unlawful, believing that their actions will serve to benefit society and are therefore morally sound.

As has been illustrated in the previous sections, Information Technology disrupts the traditional forms of culture and community as ways of being. To a large extent moral and ethical claims are based upon these social structures. If these social structures have been altered, or a new form of society has emerged, it stands to reason that the moral and ethical codes of a society should undergo the same transformation.

Stahl (2002) states that most current thought regarding ethics is based on the assumption of 'a sense of community based on reciprocal moral obligations that are largely secured through situated, embodied practices and institutions that are often overlapping and mutually inclusive'. Stahl (2002) argues that if these practices and institutions become virtualized, then a major reconsideration of the fundamental human categories needs to take place. In order for ethical and moral values to remain useful, they need to be redefined to take into consideration the information superhighways of the Internet, the potentially infinite applications and capabilities of Information Technology, and the new contexts of virtual existence.

4.3.9. The Redefinition or loss of Identity

All the aforementioned influences of Information Technology have either a direct or indirect impact on the character and identity of the individual. If the principles of Post-Structuralism are taken into consideration, society, ethics and culture all serve to shape the subjective life-world of the individual. Consumerism, the displacement of distance and time, and the dissent caused by fragmentation and plurality all serve to disrupt and disorientate the identity of the individual. All of these factors should be taken into consideration when considering Information Technology's influence on the identity. According to Turkle (1996), '[w]e are moving from modernist calculation toward postmodernist simulation, where the self is a multiple, distributed system'.

As in most things associated with Information Technology, there are two opposing views regarding the influence of Information Technology on the identity of the individual. Marx (2004) states that through Information Technology, the individual now enjoys more moral and tactical freedom than ever before. However, this does not necessarily mean upliftment and emancipation, rather it means that the identity is free from totalizing concepts and free to express itself in any way it desires. An alternative view is also offered that Information Technology undermines the individual's identity framework resulting in the collapse of the identity rather than its strengthening. It is the author's opinion that regardless of whether the impact on the identity is positive or negative, it can be guaranteed that a massive change in the traditional identity of the individual is inevitable.

According to Pullinger (1999), '[w]e no longer live in a society shaped by a story, but in a turbulent world continuously shaped and reshaped under two main influences: information technology and the search for identity'. This search for identity is made all the more difficult as society redefines itself from a physical reality to an information-based reality.

As the plurality of information has resulted in the mind becoming increasingly fragmented, the individual is now living in a reality that is characterized by constant flux.

In a traditional social community, vocations and culture all helped to provide a story for the individual to follow. Pullinger (1999) says these social structures helped provide answers to the questions of identity and life: '[w]hat is the meaning of my life? [w]here am I going? [w]hat choices are available to me?' As the market place and organizations become increasingly flexible, jobs disappear or are transformed, traditional social interaction and communities become obsolete, identities which were previously derived from these are left without a coherent foundation.

Through the tools, software and networks of Information Technology the uniqueness or individualism of the identity is promoted. The individual can no longer merely accept the meta-narratives passed onto them by society and culture. The ambiguities created by Information Technology and the undermining of truth have encouraged the individual to seek their own worlds of understanding.

The individual is given the means for freedom of expression, is encouraged to explore and discover the world, encounter different life-styles, meet new people and be challenged by different paradigms of thought. The Internet provides the individual with a world of information that could potentially contradict that which they had previously accepted as truth. It can also provide a window into a philosophy or culture that they find more acceptable, that more closely aligns with their personal values and sense of meaning. This is not to say that Information Technology will always cause dissent. It could by the very mechanisms provide knowledge and insights that reinforce currently accepted value systems. However, through Information Technology the 'blinkers' have been removed, the individual can now make that choice for him or herself.

This process of increased awareness and the ability to discover information on virtually any topic provides the foundation for and promotes the process of self-discovery. This method of self-discovery can be consciously or unconsciously explored on the internet. Newsgroups and chat forums have presented Internet users with new forms of communicating and relating to others, providing the means for these increased attempts at self discovery. This has become so prevalent that Rosenberg (2004: 624) states that the virtual worlds of Internet seem to be predominantly populated by individuals intent on self-discovery and understanding.

According to Suler (2002), '[a] single person's identity embodies multiplicity. You possess many sectors within your personality and play numerous roles in your life - such as child, parent, student, employee, neighbour and friend'. Through the tools and mechanisms of Information Technology the personality can be deconstructed and the individual is able take on different personae and explore the different facets of their personality as desired. This type of identity switching has become increasingly prevalent in the virtual communities of the Internet. Borgman (2000) states that since many individuals find self-expression in the physical world difficult, they look to the Internet to provide the means to define and affirm themselves.

Due to the nature of the Internet and the detachment of the individual from his or her physical environment, it is possible to present an image of oneself in exactly the manner you desire. This enables the individual to become anything and anyone they want to be, or only to reveal of themselves that which suits their current needs (Rosenburg, 2004: 590). The individual's representation can vary to suit his environment, highlighting or exaggerating certain of the characteristics, changing attitude and temperament. Personal histories and stories can be manufactured, one can even go as far as changing one's gender to explore aspects of the opposite sex. Rosenberg (2004: 590) states that 'if all the world's a stage, then cyberspace has become the stage of choice for many'.

The online environments are not the only mechanisms by which multiplicity can be explored. Computing gaming also provides an ideal environment in which the different facets of the personality can be expressed. In most computer games the individual is required to create an *avatar*, a representation of himself or herself within the virtual world of the computer game. The avatar provides the means by which the player can interact with the world around him and is responsible for performing the activities, functions and tasks required by the game. As in online communities the player can give these avatars whatever characteristics they desire, changing their appearance, changing their sex and even changing the species to which they belong.

A few years ago the Internet acquired a new dimension of gaming: that of Massively Multiplayer Online Role-Playing Games (MMORPGs). According to Reynolds (2003), '[t]he ostensible point of a traditional MUD or MMORPG is to use some form of in-game representation to meet a set of goals such as: solving puzzles, killing things or accumulating resources. All of which is based on some form of player-character representation interacting with other players, in-game artefacts and other game elements'. Gamers represent themselves as avatars in the game, almost translocating themselves into the virtual world. As in traditional computer gaming, through the avatar the player performs the tasks and functions required of the game, only now it is possible to also interact with other gamers from around the world. MMORPGs combine the attractions of online communities and computer gaming in a single amalgamation creating extremely diverse, rich and complex hyperrealities. These hyperrealities have created environments for multiplicity and representation that, in the author's opinion, have never existed before. The dangerous possibility exists of the gamer becoming completely abstracted and disconnected from the physical world, consciously choosing fantasy over reality.

Hillman & Ventura (1992) state that there is a continuous affirmation of the distinction between psyche and the environment, between waking and dreaming, between the conscious and the subconscious. When this affirmation becomes blurred or grey, individuals can start to lose a sense of themselves. Berthon & Katsikeas (1998: 153) believe that this process is dramatically accelerated by the forces of Information Technology and this, in the author's opinion, is even more evident in computer gaming.

The forces of virtuality and multiplicity have served two purposes: they have allowed the creation of individual avenues down which the multiple facets of the personality can be explored and have allowed the individual to experiment with different ways of 'being' in the world. However, Slouka (1995) warns that due to the ease with which Information Technology can render the exploration of multiplicity possible, this can result in these multiple selves springing up everywhere. This excessive multiplicity could put the true identity of the individual under extreme pressure resulting in a 'springtime for schizophrenia'.

The rise of Information Technology has placed the identity on a fulcrum. The opportunity exists for the strengthening of the individuality of the identity or its demise. The ultimate result, in the author's opinion, depends largely on the strength of character of each individual.

4.4. The Post-Modern Organization

In this section an attempt will be made to determine whether the structure and processes of an Information Technology-enabled organization (examined in section 3.5) have created a Post-Modern organization or promoted Post-Modernism within the organization (as identified in section 2.5).

Post-Modern organizations have the following characteristics:

- Flexible and innovative business models.
- The flattening of traditional, hierarchies in favour of open communication.
- An increasingly flexible work force capable of performing a multitude of functions.
- An organizational structure increasingly concerned with data and information.
- The unadulterated pursuit of optimization.

Thorne (2005: 584) identifies organizations that make extensive use of Information Technology as being characterized by:

- The open and free flow of information.
- Permeable internal and external boundaries.
- Shifting work responsibilities and lines of authority.
- The blurring of the distinction between the organization, its customers and suppliers
- Work practices which are more about communication and information than any material source.

As is shown these two types of organization are essentially synonymous. Using this premise it can be concluded that the Post-Modern organization and the Information Technology-enabled organization are one and the same. If these two concepts are brought together a complex and agile organization emerges that evinces Post-Modernistic characteristics and principles that are realized through Information Technology.

4.4.1. The Post Modern organization realized

Organizations competing in today's markets need to be able to respond quickly to changing conditions, predict market trends and act appropriately. Turban *et al.* (2002: 1) state that the greatest risk to an organization is not inefficiency but irrelevancy. Organizations can no longer afford to be the ponderous monolithic giants of yesteryear. According to (Castells, 1989), these inflexible structures have given way to smaller, more innovative and profitable enterprises.

The traditional hierarchies in organizations have needed to be remodelled to fit the new organizational environments and attitudes as well as the new type of employee, the information worker. The paradigms of business that technologically agile organizations employ, completely disregard the traditional business models of yesteryear. The business models of Open Source and the Virtual Office highlighted in Chapter 3 are examples of these revolutionary concepts of achieving value delivery. It can be concluded that the Post-Modern technology-enabled organization is characterized by the following attributes:

- Flexibility of employees

Organizations have an increasingly short turnaround time in their employees, (Castells, 1989). This is resulting in to two opposing trends. Firstly, from the point of view of the organization, as a result of changing market trends and constantly evolving technologies employees are increasingly only being appointed for fixed, short-term contracts. Secondly, from the point of view of the employee, as industrial production becomes more dependent on information services, employees increasingly desire to expand beyond their horizons, no longer constrained by loyalties to their place of work or their location, focusing instead on loyalty to themselves.

- Automation of processes

Production processes have been converted into information systems, allowing them to be more agile, ensuring the correctness of processes, as well as providing accurate information on the organization's activities. An example of this could be an Inventory Control System. This information system allows for the micro-management of stock levels as well as the automation of the ordering process. Paradigms such as Just-In-Time delivery are made possible through the accuracy of Information Technologies.

- Flexibility of production

New technologies in production allow for short production runs to be cost-effective, rather than relying on mass production and consumption to absorb cost, (Castells, 1989). This short production time has allowed for the increasing individualization and customization of products. This enables organizations to meet the greater flexibility of consumers' lifestyle choices that has become evident due to the rise of consumerism.

- Flexibility of information flows

The intranets and networks of organizations promote horizontal and peer-to-peer communication. This improved communication serves to break down the hierarchical and inflexible structures of modern organization and allows for the sharing of information and the coordination of disparate activities.

As has been illustrated throughout this chapter, most things associated with Information Technology and Post-Modernism have both constructive and destructive influences. The modernization and automation of the production process has resulted in, and will continue to result in, lay-offs. According to Pullinger (1999), '[j]obs are changing at an accelerating pace as corporations invest in IT as a management tool that will enable them to grow and compete in global markets. For their employees, work is often transformed or relocated'.

Organizations are evolving from industrial production to increasingly information-centric environments. As this process spreads, job-security will become increasingly doubtful, even for the information worker, as Information Technology rich environments are far from stable.

Within today's organizations, information has become the great empowerer. This availability of information is generated and stored by the organization's Information Technology systems. Information is gathered on all aspects of the organization, allowing for the identification of bottlenecks, cost-reduction, more informed decision-making and better strategic goals. However, as Thorne (2005:586) states, this comprehensive information gathering means that nothing is sacred '[e]ven sacred, transcendental beliefs, rituals and symbols are rendered as instrumental techniques to increase productivity'. Even the organization's staff is not exempt from this process, becoming part of the information gathered and offered to management. This results in workers being 'informed', i.e. being treated in the same manner as processes, profit margins and inventories, all aspects of the organization requiring optimization. This consideration of the human capital of an organization supports and promotes a post-humanistic outlook. Apart from the most obvious post-humanistic aspect of aligning human beings to capital in 'human capital', staff being 'informed' makes them increasingly replaceable by the automation and optimization of processes.

Information Technology-enabled organizations have the ability to compete in global markets and take advantage of the benefits globalization brings them. These organizations disregard the concerns of time or locale, serving customers and markets from around the world. International organizations can create an international workforce piggybacking on a global IT infrastructure. This can provide organizations with cost benefits since their domestic workforce may be considered too expensive. This ability to maintain a global infrastructure illustrates the organization's rejection of nationalism and loyalty to a domestic market or workforce, viewing both concepts as outdated and to be disregarded in the pursuit of profit.

4.5. Information Technology as an agent of Post-Modernism

Taking into account the multiple functionalities and influences of Information Technology, do the societal influences of Information Technology act to promote the various facets of Post-Modernism that were identified in Chapter 2? Can one consider it to be an agent of Post-Modernism?

While information has been moved to a state of primacy in society today, the dissent and plurality created by contradicting views and the commodification of information has completely undermined the veracity of knowledge and fact. The pluralism caused by Information Technology and the need for constant change can be seen as fueling the Post-Modernistic doubt of meta-narratives and the encouragement of fragmentation. By casting doubt upon knowledge, the individual's perception and experience of reality is blurred. Information Technology can thus also be seen as promoting the Post-Structuralist theory of an indeterminate universe as well the Post-Humanist rejection of knowledge as a meta-narrative of truth.

The pluralistic and fragmentary impacts of Information Technology are compounded by the strong socio-economic influences that accompany its implementation. These forces, combined with the rise of individualism, have resulted in the destabilization and ultimate rejection of traditional concepts of value, culture and society. These social structures offer meta-narratives that are no longer seen as offering viable truths and frameworks for understanding the human experience. Owing to the capabilities of Information Technology, the identity can be increasingly self-orientated and no longer has any place in its life-world for the constraints of cultural forms and community.

Despite their inadequacy, these societal structures provided a framework for the construction of ethical and moral values. With society increasingly disregarding these social structures as no longer appropriate or useful, the traditional moral value models are also being seen as increasingly irrelevant.

The many different implementations of Information Technology have raised ethical and moral dilemmas that the current ethical and moral standards cannot answer. This stance on the inadequacy of current ethics and morals can be seen as nihilistic as well as evidence of a rejection of the meta-narratives that are proposed by these value systems.

Information Technology's destabilization of the identity and promotion of the rejection of social structures, which previously supplied a sense of community and belonging, has made the individual increasingly vulnerable to the offerings and hyperrealities of consumerism. Consumerism is a strong symptom of Post-Modernism in its encouragement of inauthenticity and superficiality.

The capitalist markets of today are wholly dependant on their Information Technology infrastructures. Information Technology provides the means for mass production, the communication channels for mass marketing, increases organizational knowledge, allows for dramatic optimization, information storage and the infrastructural backbone for the realization of the global economy. Through its enablement of consumerism in this regard, Information Technology can be seen as promoting Post-Modernism.

Information Technology also places a great deal of emphasis on images and makes use of representation in most of its permutations. As society has become saturated with Information Technology, the image has come to play a central role. Combined with Information Technology's propensity to create hyperrealities, Information Technology is found to support and promote Post-Modernism's use of simulacra, through which the image and concept gains primacy over reality itself. This encouragement of the use of simulacra is another major factor in the rise of consumerism.

Information Technology has allowed for the overcoming of natural laws. Communication across the globe forms the foundational infrastructure upon which the global society is built. This effect, however, has also resulted in the primary constraints of time and locale becoming less important. Information Technology has also resulted in the individual losing a sense of time due to temporal acceleration and an indeterminacy regarding the present. All these factors have resulted in reality becoming increasingly permeable and subjective, as well as supporting Post-Modernism's displacement of time and space.

In Information Technology the Post-Humanistic dethroning of the human being from the centre of the universe is realized. Apart from the realized fallibility of knowledge and the malleability of the 'self', the human form is also seen as being able to be improved upon. The metaphorical cyborg is already seen to exist in society, with most of society being entirely dependent on Information Technology in their daily existence. The possibility of the literal cyborg is increasingly becoming a reality through the sciences that are being empowered by Information Technology. The realization of the cyborg can be seen as the Post-Humanistic desire to transcend the limitations of the human form.

The Post-Modern organization is seen to be one and the same as the Information Technology-enabled organization. The organizational structure reflects society's rejection of traditional paradigms, conventions and forms of hierarchy. The Post-Modern organization is one that is not afraid to reject outdated business models in the achievement of its goals. Radically different business models such as the Virtual Office and Open Source, and an increasingly flexible workforce and production processes, are all characteristic of the Information Technology-enabled Post-Modern organization. However, this type of organization also highlights some of the more unpleasant facets of Post-Modernism: the post-humanistic view of the replaceability of humans, the obsessive need for constant optimization and the rejection of national loyalty in the pursuit of profit. The Information Technology-enabled Post-Modern organization is a strong indication of the Post-Modernistic influences of Information Technology.

These compounding and interwoven influences of Information Technology all ultimately impact on the identity of the individual. Information Technology, as has been demonstrated, renders reality increasingly flexible and open to interpretation. This encourages plurality, fragmentation, dissent and a general rejection of the meta-narratives offered by societal structures. All these influences result in the life-world and reality of the individual being seriously destabilized. Through Information Technology, the identity can be further disorientated by the virtuality and multiplicity implicit in its use. Individuals are becoming increasingly detached from reality as information saturates their existence, with everything being manipulatable in the pursuit of effect, even the identity itself. Information Technology has the potential to render the personality so flexible and thin that it can be considered negligible. However, through the same mechanisms that serve to fragment and undermine the identity, the individual has the opportunity to frame his life-world in a manner of his own choosing, allowing for the expression of true individualism. Information Technology provides avenues whereby the identity has acquired a means for self-discovery and playful experimentation. Due to the mass of knowledge made available and the self-orientated perspective that Information Technology promotes, the identity has the possibility to be strengthened and for the first time in the history of humanity, ultimately realized.

Taking all of this into consideration, it can be said that Post-Humanism, Post-Structuralism and Nihilism are all influences that Information Technology has brought to bear on society. Bearing these conclusions in mind, and considering the impact on the identity of the individual which, in the author's opinion, is the ultimate symptom of Post-Modernism, it can thus be said that Information Technology definitely acts as an agent of Post-Modernism.

4.6. Conclusion

The saturation of society with Information Technology has resulted in a fundamental change in the individual and society. Through the encouragement of plurality and a society characterized by constant flux an indeterminate reality has been created. The displacement of space the time and the creation of hyper-realities has resulted in reality being moved into a role it cannot possibly fulfil.

Through Information Technology the identity has been pushed on to a fulcrum. Consumer culture has promoted superficiality and immediate gratification and has undermined the deeper contexts of individuality. Fragmentation and multiplicity has the potential to render the identity excessively thin and without a solid foundation.

However, while it is very easy to slip into Frankensteinian or Promethean views on Information Technology and technological determinism, Information Technology's influences cannot only be construed as destructive. It has been shown in this chapter that Information Technology can provide the means for not only the identity's collapse but also its ultimate realization. Information Technology promotes individualism, providing the means for freedom of expression and self-discovery. While plurality may cast the individual adrift in ambiguities, it also has the potential to emancipate the mind of the individual from totalizing, restrictive meta-narratives.

According to Tarnas (1991: 409), 'The postmodern era is an era without consensus on the nature of reality, but it is blessed with an unprecedented wealth of perspectives with which to engage the great issues that confront it'. Using this premise and taking into consideration the findings of this chapter, it can be concluded that the multiple functionalities and influences of Information Technology provide the mechanisms whereby the Post-Modern era is promoted and realized. Information Technology does indeed act as an agent of Post-Modernism.

Conclusion

By making use of an extensive literature review on both Post-Modernism and Information Technology, this study sought to identify whether or not Information Technology acts as an agent of Post-Modernism. Each of these topics was examined separately in Chapter 2 and 3, providing knowledge, insight and context. Chapter 4 sought to answer the main research question by bringing these two concepts together, highlighting the different facets of Information Technology's impact on society and the individual's lifeworld. Ultimately it was concluded that Information Technology promotes the various facets of Post-Modernism and creates environments that allow Post-Modernism to flourish. In this way Information Technology is construed as acting as an agent of Post-Modernism.

The secondary research goal in this paper has been an analysis of the Post-Modern and the Information Technology-enabled organization in order to determine whether a link exists between the two. This was performed by identifying both organizational models in Chapters 2 and 3 respectively, after which in Chapter 4 it was determined whether or not they are intrinsically linked.

It was found that the Post-Modern organization and the Information Technology-enabled organization are one and the same. The Post-Modernistic tendencies of the Post-Modern organization are promoted and enabled by the capabilities of Information Technology. It can also be concluded, due to the finding of this study, that the implementation of Information Technologies within the organization also acts to promote the Post-Modern nature of the organization. One cannot consider the one organizational model without taking into account the other.

Post-Modernism is a difficult philosophy to conceptualize. Foremost in any new examination of Post-Modernism is the question: Why would one want to promote or encourage Post-Modernism? It definitely does not strike one as being constructive. Surely society would be better served by a humanistic philosophy, one that provides structure, guidance and answers? The simplest answer is that Post-Modernism is a direct result of the lack of acceptable and enduring answers. Structure and guidance are fallible (as are all things created in a subjective, human world) and often do not lead to the desired end goal. Humanism has been attempted and Post-Modernism is the result. Modernism has failed and Post-Modernism is the result. One does not have to like Post-Modernism or agree with Post-Modernism, but it cannot be denied. Not liking the shade of blue of the sky does not make it change its colour. If one considers the ultimate goal of Post-Modernism, one can consider it to be like that of Nihilism, the overcoming of Post-Modernism, representing for the first time the achievement of true emancipation and freedom of thought. It could also represent the beginning of a massive societal collapse brought on by superficiality and depravity. Equally possibly, Post-Modernism could have no ultimate goal, and could be the end result of humanity's compounded knowledge and quest for meaning. Ultimately, by attempting to predict the future of Post-Modernism one inevitably begins straying into the meta-narratives of Modernism or Humanism. All one can do is sit back and make the best of an unhappy and invidious situation.

Information Technology has arguably been the most revolutionary and deeply felt impact of the modern age. Society empowered by Information Technology now has the ability to overcome the constraints of natural laws and barriers. Through its wholesale implementation, society is filled with the metaphorical cyborgs, unable to exist or survive without technological assistance. It must be remembered, however, that Information Technology is by no means an ethical technology and brings with its use, destructive and constructive forces, as well as liberating and constricting ones. By its very nature Information Technology is serving to change and disrupt society.

Information has risen to occupy a place of reverence, being the life-blood of modern society and economies, with new capabilities in communication changing the way people interact and the nature of society's discourses. All of these concerns regarding Information Technology are graphically illustrated by the most prominent of Information Technologies, the Internet. The networked Information Society has increasingly become dependent on the Internet for all of its processes: economic, entertainment, information storage and communication. It has even resulted in the creation of virtual societies. Through the use of Information Technology a new type of culture has emerged - the technological culture - which constitutes an amalgamation of global society with that of the Information society, introducing a new way of 'being' in the world.

After examining both the influences and characterizations of Post-Modernism and Information Technology, it can be seen that the two go hand-in-hand and are intrinsically linked. Like Post-Modernism, Information Technology offers contradictory and paradoxical positions. Information Technology can be both a liberator and tyrant, both constructive and destructive. One cannot ignore the fact that the rise to prominence of Information Technology over the last 25 years has also occurred at the same time as the rise of Post-Modernism. While Post-Modernistic thought has been obvious for over a century, Post-Modernism has found its ultimate expression in the Information Technology-saturated world of today. It is only through Information Technology, it has been demonstrated, that the means for these and many other facets of Post-Modernism can be so totally realized.

Throughout this paper one has been presented with society's fragmentation, its loss of reality, its superficiality, its disillusionment and its disbelief in meta-narratives. However, one is also presented with a view of complete emancipation, self-expression and the struggle for authenticity. If one combines the visions of the future of Information Technology and Post-Modernism, predictions can range from technological Utopias to dehumanized cyborgs, society's rebirth or apocalyptic visions of its inevitable degeneration and collapse.

Dupuis (1989) assumes a humanistic stance, stating that '[n]o matter how powerful technology becomes or how infinite seem to be the possibilities it allows us to glimpse, the future of society remains in the hands of humankind'. However, in the cold light of Post-Modernism, humanity no longer assumes a controlling role and Dupuis (1989) seems relatively naïve and overly optimistic. The predictions of technological determinism are increasingly obvious and pertinent in the technology-saturated Post-Modern world. However, to aver that humanity's future is linked to its technological destiny is an equally doubtful proposition, setting up a meta-narrative vulnerable to critical analysis and deconstruction.

This paper has demonstrated that Information Technology acts as an agent of Post-Modernism. Therefore ultimately the question regarding the technological future of the human race is whether or not Post-Modernism will prove to be a constructive or destructive project. Owing to Post-Modernism's indeterminate nature and its rejection of grand, sweeping statements, that is a question that the author is unable to answer or even attempt.

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