INFORMATION TECHNOLOGY AS AN AGENT OF POST-MODERNISM

D.F. NEL & J.H. KROEZE

UNIVERSITY OF PRETORIA

jan.kroeze@up.ac.za

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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.

Introduction

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.

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. Through Information Technology, society has experienced a revolution that is comparable to that of the Industrial Revolution. 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'. 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. 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.

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 authors' 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 authors 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.

Background considerations

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 the forces that are instrumental in Information Technology's influences on society. To this end Post-Modernism, the pervasiveness of Technology, the ethical nature of Technology and lastly Technological determinism will be briefly considered before examining the Post-Modernistic influences of Information Technology

Post-Modernism

Post-Modernism 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, illustrating its complex and multifaceted nature. 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'.

- 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-enchanted. 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.

To provide a view or definition of Post-Modernism is easier said than done, as Post-Modernism could equally be taken as all or any one of the above as well as none of them. Despite this the authors believe that the definitions offered are all inadequate to illustrate the complexities and multiple facets of Post-Modernism. Post-Modernism is above all else a social phenomenon and the result of the continued evolution of the Western mind.

The pervasiveness of Information Technology

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 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 input-output 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 authors' 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.

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 authors' 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).

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 authors' views are 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. Condella (2001) supports this by stating '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'.

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.

The authors thus believe that the view of technology as just a tool is potentially dangerous 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.

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.

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.

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'. It is the authors' opinion that this deterministic influence of technology has been the main contributing factor in society's rapid technological advancement and progress as well as the rise of the Information Society.

Taking the above two views into consideration, it can be said that technological determinism has a two-fold effect: increasing both faster technological advancement and societal change. The resultant effect is a society that becomes technologically dependent, which in turn pushes the course of development of the society further down the path of technological advancement, further increasing 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'.

Information Technology as an agent of Post-Modernism

Information Technology has arguably been the most revolutionary and deeply felt impact of the modern age. As has been argued above, it is also not always 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.

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. By drawing correlations between the influences of Information Technology and the various facets of Post-Modernism the authors will attempt to prove that Information Technology acts as an agent of Post-Modernism.

The saturation of society with 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. The ability of Information Technology to store and maintain information 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. With the rise to prominence of networks,

Information Technology also provides the mechanisms for the mass communication of this information as well.

Capurro (1989) believes that the production, storage and implementation of a society's knowledge acts to preserve and increase its social character. Thus while this capability of Information Technology may seem innocent at first glance it has resulted in the saturation of society with information, is one of the main drivers of technological determinism and has resulted in a wholesale restructuring of social relations to reflect this primacy of information.

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?

Capurro (1996) states that through the data administration capabilities of Information Technology (storage, distribution and manipulation) and its abilities for mass communication the hierarchical concept of knowledge is distorted and weakened. Information and knowledge is no longer seen as providing truths and reliable foundations but rather has become viewed as something to manipulate, a commodity to be traded, with relationships being geared to 'maximize the generation, manipulation, dissemination and commercialization of information' (Eischen, 2000).

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).

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 expression, and enable the ultimate definition of our individual and collective humanity'. However, this effect has a flip-side. 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. The individual's lifeworld becomes increasingly relative and permeable.

The saturation of society with information has the potential to create 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'.

The primacy of representation over reality

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 use of symbols and representations of reality are playing an increasingly central role.

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. 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 processes 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'.

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.

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.

The facilitation of consumerism

Information Technology plays a pivotal role in the socio-economic dynamics of society. It is the authors' opinion that Information Technology acts as the primary enabler and motivator for consumerism and its rapid spread. 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. 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 has also become 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 authors' 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.

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.

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'.

The redefinition of traditional societal forms

The pluralistic and fragmentary impacts of Information Technology are compounded by the strong socio-economic influences that accompany its implementation.
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 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. 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. 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 Information Society is a society 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.

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 pacemakers 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 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 authors' 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.

The inadequacies of traditional values and ethics

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 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. This is compounded by the fact Information Technology also brings to the user a mass of additional information and potentially contradictory views. This further casts into doubt upon the veracity of previous claims to morals and ethics.

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.

The redefinition or loss of identity

These compounding and interwoven influences of Information Technology all ultimately 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. Information Technology, as has been demonstrated, renders reality increasingly flexible and open to interpretation. All of these factors should be taken into consideration when considering Information Technology's influence on the identity. 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.

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 authors' 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.

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.

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. This is supported by Rosenberg (2004: 624) who states that the virtual worlds of Internet seem to be predominantly populated by individuals intent on self-discovery and understanding.

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 (Rosenberg, 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'. 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 authors' opinion, depends largely on the strength of character of each individual.

Findings of the study

Taking into account the multiple functionalities and influences of Information Technology identified above, do the societal influences of Information Technology act to promote the various facets of Post-Modernism? 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.

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 authors' opinion, is the ultimate symptom of Post-Modernism, it can thus be said that Information Technology definitely acts as an agent of Post-Modernism.

Conclusion

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.

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 authors are unable to answer or even attempt.

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