

Social Change in Our Technology-Based World

Proceedings of the 19th Annual
Working Conference of the IIDE

Editors: Mark Rathbone, Fabian von Schéele, Sytse Strijbos

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(Editors)

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CONTENTS

Preface and Acknowledgements	4
<i>Sytse Strijbos</i> Introduction: Social Change in our Technology-Based World	5
<i>Michael Heyns</i> A Transcendental Inquiry into ‘Academic Capitalism in the New Economy’	11
<i>Mark Rathbone</i> Corporate Social Responsibility, Deconstruction and Justice: A Response to Campbell Jones and Richard T De George	29
<i>Attie van Niekerk</i> The Cultural Basis for a Sustainable Community in a South African Township	50
<i>Lindile L. Ndabeni</i> The Informal Sector and Local Economic Developments in South Africa: An Evaluation of Some Critical Factors	64
<i>Natallia Pashkevich, Darek M. Haftor</i> About IT Unemployment: Reflecting on Normative Aspects of the ‘Broken Link’	74
<i>Darek M. Haftor, Erdelina Kurti</i> Toward Post Systems Thinking in the Conception of Whole-Part Relations	93
<i>Fabian von Schéele, Darek M. Haftor</i> Cognitive Time Distortion as a Source of Risk in Economic Organizations: Conceptual Foundations	112
<i>Anita Mirijamdotter, Mary Sommerville</i> Information -The ‘I’ in 21 st Century Organizational IT Systems: An Informed Systems Methodology	125
<i>Andrew Basden</i> A Dooyeweerdian Understanding of Affordance in Information Systems and Ecological Psychology	137
<i>Maarten J. Verkerk</i> The Triple I model: A Translation of Dooyeweerdian Philosophical Concepts for Engineers	155
<i>Darek M. Haftor</i> Dealing with Complexity: Some Critical Reflections upon Verkerk’s ‘Triple I Model’	169
Information about the International Institute for Development and Ethics	181
Information about the Annual Working Conferences	182

Preface and Acknowledgements

In 1995 an international and interdisciplinary research cooperation started, initially between researchers from some universities and institutions in Sweden and the Netherlands. In later years this initiative quickly expanded into a network of interested colleagues from the UK and South Africa. To summarize a long story in short: a stable core group with converging research interests was born that since then has operated fruitfully. The annual working conferences (AWC's) have served as an international platform for researchers with a common interest for the use of Dooyeweerdian thinking in the interdisciplinary study for a broad range of issues regarding 'technology and society'.

Looking back on the AWC 2014 we feel this international collaboration has again proven to be successful format. We take pride in hereby to present the final result of a wonderful conference with inspiring discussions and constructive input in each other's research paper. All selected papers after the conference went through an intensive process of rewriting, based on the reports of the reviewers, and the instructions of the editors. While each chapter has been written as an independent piece of scholarly work, we hope that an introductory chapter authored by one of the editors is helpful for the reader to see the unity in diversity.

Finally, the editors wish to express their thanks to the authors, to each other for the collegial cooperation, and, last but not least, to Dr. Christine Boshuijzen - van Burken for her skilful management of the conference and the production process of these Proceedings.

The Editors

Introduction: Social Change in our Technology-Based World

*Sytse Strijbos*¹

1. Introduction

This book contains the research papers presented and thoroughly discussed at the 19th Annual Working Conference of the IIDE held in May 2014. These conferences are a collaborative effort of senior researchers and PhD students from different universities in different countries with a shared interest in normative aspects of the ongoing development and social change of our technology-based world. An integrative framework has emerged in previous research collaboration that enables us to map the contributions from the various disciplines – such as philosophy, engineering, information systems, management science, systems thinking, and development studies – in a coherent vision. Therefore it is useful to introduce first this integrative framework before we present an overview of the papers.

2. Integrative framework

With slight exaggeration, one can say that change is the only constant factor in today's society where everything is in flux – continuing change seems to be a basic condition for living in modern times. This extreme dynamics and even fluidity of society (Bauman 2000) is directly related to the complex of Science, Technology and Economy since the Industrial revolution of the 19th century in Europe. In the past decades the study of this complex has become a vast field of interdisciplinary research with many ramifications and approaches (see e.g., the *Encyclopedia of Science, Technology and Ethics*.)

To understand social change in a technology-based society requires first of all a conceptualization of the main terms “technology” and “society”. One should realize however that in fact both terms are container concepts or collective names and do not refer to a specific object. Furthermore one has to be aware that by distinguishing between such a thing as “technology” on the one hand and “society” on the other, one might already start from a false view on technology, namely as something that is separate from society. Aiming for an integrative vision of technology and society one should take into account that technology is about people and thus part of society and not like a meteorite that impinges from outside on our human lives and society. “We know that technology does not determine society: it *is* society. Society shapes technology according to the needs, values, and interests of people who use the technology.” (Castells and Cardoso 2005: 3)

The following Figure 1 provides a schematic representation of an integrative vision, in which the lower part of the diagram represents “technology” and the upper part “society”. In our everyday language technology usually refers to material artefacts such as a cell phone, car, laptop, etc. Usually we are not aware that each of these artefacts is for its functioning dependent of a comprehensive system: e.g. for the use of a car we need a system of roads, petrol stations, legal regulations, and numerous other amenities. Characteristic of modern science-based technology is that a fundamental transition has taken place in the relation between technology and society, namely from technology that consists of separate artefacts in the hands of individuals to technology as a total environment in which we live. This new relationship between technology and society concerns the “how” or foundation of the various

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human and social practices in which our daily life unfolds. These practices have become dependent for their realization on organized "socio-technical systems", such as transport from the mobility system, medical support from the health care system, schooling and training from the educational system. The transition from a traditional to a modern society thus goes along with a fundamental and irreversible change of our living environment. Technology has become a new habitat for people, a technotope.

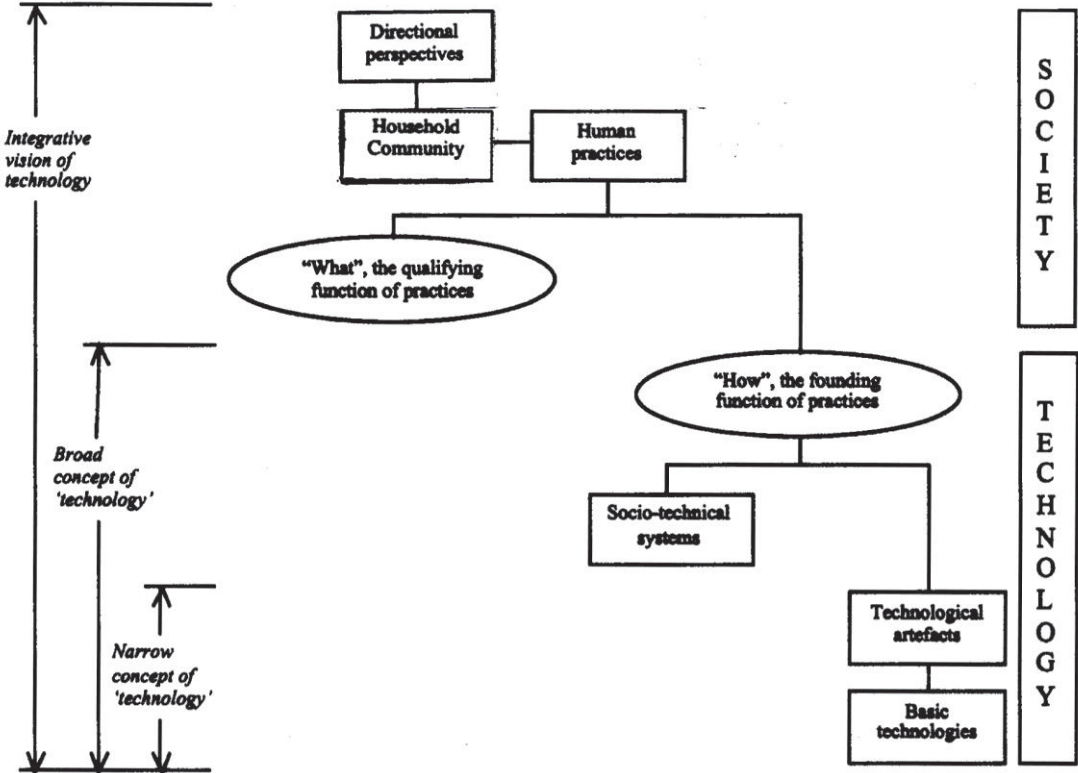


FIGURE 1 Schematic representation of technology as the founding of society

This fundamental transition to a modern technological world has also profound implications for the economic sphere of society and for politics. Referring to Figure 1 one could say that the socio-technical systems that provide the foundation for societal life in its variety of practices also include the economic and political dimension. By way of example let me mention here the health care system. Since about the nineteen eighties the economy of health care has become a recurring matter of public debate. The point I want to make here is that traditionally the ethical relationship of medical practice between physician and patient has been dyadic. This situation has changed profoundly since this relationship is intertwined within a broader nexus in which several other parties are involved. This means amongst other things for the physician that his obligations to each patient have to be balanced in a network of competing obligations and conflicting interests (see e.g. Haavi Morreim 1991).

Let us now turn our attention to "society" at large, the upper part of the diagram. Through the centuries, the household has been the fundamental building stone of human society - in the household and the family the exchange between the generations and the care for each other takes place. The fabric of society around the household has fundamentally changed since the rise of the industrial revolution. While the household as the fundamental unit of society

persists, a broad range of human practices has differentiated itself gradually from the household, a process that began with the organization of labour and the technical production in the factory. The challenge for social change in a modernizing society can now be understood as the dual task to preserve the household as the ethical core of society and at the same time to open up the household and the potential of the various human practices for the benefit of society. This means that shaping of the “how”, the technical-organizational founding of society, should enable concretisation of the specific “what” of each domain of human life along with the sustenance of healthy households in society.

It is hard to ignore that people's behaviour pattern varies between different regions and with distinct cultural backgrounds. The role of culture and religion is therefore a hotly debated issue, in particular related to economic development of a society. In recent years the debate has been triggered by the study *Culture matters: How values shape human progress* (2000) edited by Harrison and Huntington and some later publications. In the scheme of Figure 1 the role of culture and religion for the development of our technology-based societies is accounted by “directional perspectives”. Traditionally the household and the local community play a key role in the transfer of basic cultural values and a directional perspective on human life and world from one generation to the next. In a differentiated society the human practices have to play a complementary role in the transfer of specific values, or echoing MacIntyre (1981: 178), in developing and maintaining the so-called ‘internal goods’ of these practices.

3. Overview

The research papers in the following chapters of these Proceedings cover a variety of issues that can be mapped in the here discussed relationship between “society” and “technology”. It makes sense to introduce each paper briefly by looking at them through the lens of Figure 1. The first five can be assigned to the upper part of this figure, while the following six primarily have to do with the bottom part.

The papers of two South African colleagues from NorthWest University, *Michael Heyns* and *Mark Rathbone*, focus on two important human practices and institutions of modern society, namely the university and the commercial enterprise. Rathbone contributes to the issue of corporate social responsibility (CSR) of the business venture, while Heyns gives in his paper a critique on ‘academic capitalism in the new economy’, a valuable input to a topical debate about the entrepreneurial university. One can say that both papers struggle with the “what”, the qualifying function of the respective practices of business and academic life. It is interesting to note that the topic of these articles share a general concern of today about the relation between “economy” and “society”, however the public debate about business life and the academy seems to point in opposite directions. While CSR stresses the social dimension of the business enterprise, ‘academic capitalism’ pulls the university as a societal actor more into the economic sphere. These opposite tendencies can be understood as a symptom that our societies are struggling with the compass for its future.

The papers of *Attie van Niekerk* and *Lindile Ndabeni* have to do with the complex interactions between the modern technology-based world and more traditional part of society in South Africa. Referring to Figure 1 one could position their research in the upper part, in particular the linkages between the two blocks at the left side, “household, community” and “human practices”. The work of *Attie van Niekerk* and the Nova Institute is a search for practical answers for the sustainability of endangered communities in South African townships. The paper published here is the result of contract research executed in some South African

townships. The purpose of this research is to determine the overall quality of life of households in order to establish a base line for future interventions and social change that aim to improve the situation in these communities. *Lindile Ndabeni* from Tswane University of Technology discusses in his paper the role of the informal sector in South African society and focuses on an evaluation of some critical factors for an inclusive economic development.

The area of systems thinking, management science, and information systems has been a focus at previous AWC's. The papers by Darek Haftor and his graduate students, Natallia Pashkevich and Erdelina Kurti, provide a fresh input in these Proceedings.

Natallia Pashkevich and *Darek Haftor* analyze the current debate about the effects of digitization on society, especially the future of labor in economic production. They discuss how the introduction and use of contemporary Information and Communication Technologies (ICT), may give rise to automation of a large variety of work-tasks, and as a consequence induce unemployment. As new kinds of jobs are created simultaneously when old jobs disappear, the key question is whether there will be a net positive of new jobs created or not. After exposing us to the various theoretical considerations of this question, the authors move on with the discussion to a higher level of consideration and ask whether we should aspire for providing everyone with a job at all, or if we should reset our perspective to regard ICT as a tool of liberation of humans from their jobs and thus enabling for societies where humans do not need to work for a living.

Darek Haftor and *Erdelina Kurti* present an investigation into some central aspects of the nature, or ontology, of the social, particularly with regard to social relations. They argue that the frequently assumed conception of the social, such as companies, families and even countries, is often based upon a view of the social as a 'system', where the model of a system is derived from the biological world. To remedy the limitations of this systemic conception, the authors experiment with two alternative conceptualizations of the social. Firstly is the notion of 'assemblage relations' and then comes the notion of 'encaptic relations'. While the latter two clearly overcome some of the limitations of the systemic conception, and thereby do more justice to our empirical experiences of the social, they still need further conceptual elaboration.

The two successive papers contain results of the latest research of senior researchers from Sweden and North America.

Fabian von Scheéle and *Darek Haftor* focus in their paper *Cognitive time distortion as a source of risk in economic organization* upon human experiences of temporality, or time, and their relations to economic risks in organizations. They firstly establish a clear distinction between psychological time and physical time, which gives rise to their notion of cognitive time distortion. This distortion is then related to the conventional economic calculus of revenues, costs and profits of an economic organization. In the latter, two kinds of risks are identified as sources of economic inefficiencies. By addressing these risks the manager may now reduce these inefficiencies and thereby increase output quality, employee wellbeing, and economic performance.

Anita Mirijamdotter and *Mary Sommerville* present in their paper an interesting application of Informed Systems Methodology (ISM) to North American academic libraries. With an explicit emphasis on using information to learn, 'soft' systems design tools aid co-creation of communication systems and professional practices that enable information sharing and

knowledge creation processes. When contextualized by local values, experiences, and purposes, the ISM fosters organizational transformation and creative innovation

The final three papers make an explicit connection with Dooyeweerdian philosophy that often has served at the AWCs as a common ground in the interdisciplinary excursions and the thinking through of normative questions concerning technology and society.

Andrew Basden argues that affordance is attracting considerable interest but poses significant philosophical challenges that have to be addressed. The paper discusses how Dooyeweerd's philosophy can very readily address these challenges. According to Basden affordance can be related to Dooyeweerd's 'oceanic' idea of meaningfulness. This provides a workable definition of affordance as the relationship between two ways of being meaningful (two aspects). Besides general theoretical considerations about the notion of affordance, Basden's paper also discusses some practical applications.

Maarten Verkerk's paper is an interesting attempt to bridge the gap between philosophical concepts and the thinking of engineers. It is the outcome of intensive dialogues between a Dooyeweerdian philosopher and engineers about concrete design problems. It seems that a necessary condition for success is that both parties are really interested in each other and are willing to take a step into "the other world". Referring to Figure 1 one could say that concepts from the upper level of Figure 1 trickle down into the world of engineers. In this process these concepts are repacked into the language of engineers. Similar to Triple P in management (People, Profit, Planet), the Triple-I model is launched: the 'I' of 'intrinsic' refers to the inherent normativity of the user practice, the 'I' of 'inclusive' to the presence of justified interests of different stakeholders, and the 'I' of 'idealistic' to the values or dreams that play a role.

Darek Haftor provides a critical assessment of the Triple-I model as proposed by Verkerk. He argues that while that effort is much needed and welcome, it manifests some fundamental flaws that need remedy. He suggests avenues for further development of the Triple-I model by drawing on several decades of experience from systems thinking. In all this, Haftor identifies one feature of the model as particularly important and promising, namely its attempt to operationalise Dooyeweerd's theory of individuality structures and the concept of qualifying function. The latter concept is of help to think through important issues of normativity in the design process of complex systems.

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A Transcendental Inquiry into ‘Academic Capitalism in the New Economy’

*Michael Heyns*¹

The aim of this essay is to investigate and evaluate the ideas transcendental to the notion of ‘academic capitalism in the new economy’. Ideas that will get attention are firstly structure and direction, which broadly indicate the nature that the analysis and evaluation of ‘academic capitalism in the new economy’ will take. A second and narrower focus on ‘academic capitalism in the new economy’ is to label this phenomenon as an idea-framework that moulds the universities of our times. A third distinction is to identify in the core of this framework the constitutive goods that particularly give structure and direction to the idea of the university. In the case of ‘academic capitalism in the new economy’, the concepts of ‘profit’ and ‘economic growth’ are identified as constitutive goods. It will be argued that this idea-anatomy prepares the arena for the deformation that sets in when the constitutive good of an entity like a university is not internal to that entity but instead a totalitarian constitutive good is imposed from outside.

1. Introduction

Lynch (2006:4-5) takes note of the phenomenon of ‘academic capitalism in the new economy’² when she observes that “there is an ongoing movement to define education as a tradable service”, an undertaking which is very much part of the “ideology of the World Trade Organisation”. The reason for this, she says, is “quite simple”: It is estimated that in the year 2000 already, “education was a \$2 trillion global industry” with the perspective that it has the potential for profitable returns among those who can afford to pay for it. More than six hundred “for-profit” higher education institutions were operating at that time, which should give a clear indication that for-profit trading in higher education is making huge strides forward. Rhoades and Slaughter (2004:37-38) report about the American situation that the profit motive is not only part of private ‘for-profit’ universities but that “the ascendance of neo-liberal and neo-conservative politics and policies” caused a shift in “government investment in higher education to emphasize education’s economic role and cost efficiency”. This leads to what they call “academic capitalism in the new economy”, which is the tendency where non-profit public universities also “develop, market and sell a wide range of products commercially in the private sector as *a basic source of income*”.

The justifiers of the neoliberal academic capitalism are disposed to link with the anti-ivory tower sentiment about universities. Charles Taylor points out that already in early modernism, Francis Bacon argued that science which is not in the service of bettering the plight of humanity, is without value. Bacon’s argument can be seen as the cradle of a “model of science whose criterion of truth would be instrumental efficacy” in the service of “the production of life in ever-greater abundance and the relief of suffering on an ever-wider scale” (Taylor 2003:104-105). According to this anti-ivory tower sentiment universities should link with the main concerns of society and not withdraw in practicing science for its own sake. A foremost issue of this nature for current society is the neoliberal emphasis on

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² ‘Academic capitalism in the new economy’ is a phrase borrowed from Rhoades and Slaughter (2004). It captures the common denominator, namely an obsession with the motives of ‘profit’ and ‘economic growth’, of a number of related recent models for the university (‘for-profit universities’, ‘mode 2 universities’ and the so-called ‘entrepreneurial university’ – the latter is referred to and briefly defined in the last paragraphs of section 2). This obsession is also the hallmark of the cultural motive (the economism of neoliberalism) from which these models originate.

economic growth and profit and the application of the latter obsession, justified by the good-sounding notion of innovation in universities.

Some, however, object to this emphasis inherent to ‘academic capitalism’. By also referring to the instrumentalist revolution that Bacon initiated, Goosen (2011:491,496), for example, emphasises that modernity and eventually postmodernism reduced life to a purely instrumentalist, utilitarian and pragmatic affair. For universities it means emphasis on practical issues such as profitability with a simultaneously marginalisation of the old *telos* of the academic world, namely the cultivation of a theoretical life. In this process, knowledge became exclusively a human means to yield power and thus to subject reality to human control.

The encroachment of academic capitalism put us before a dilemma: It seems, on the one hand, that this new emphasis is here to stay because it gives the instrumental promise of financial security and even wealth to universities. On the other hand, it can be asked whether this development is acceptable if it means that the historically developed academic identity, which emphasises education and scholarship, will be the casualty when the university becomes yet another manifestation of the market. The first dubious horn of this dilemma will be explored in more detail as the economic motive that conditions the academic capitalist identity and practice. The last section of the essay will nevertheless give some attention to a truly academic motive for universities as well.

The two fundamental questions of this chapter/paper are the following: What is the anatomy or structure suggested by the transcendental ideas underlying the notion of ‘academic capitalism in the new economy’? A closely related question will concern the direction of the ideas underlying ‘academic capitalism in the new economy, and thus the way that these ideas should be evaluated.

The three main objectives of this paper will therefore be to firstly develop the conceptual tools, which include the concepts ‘strong evaluation’, ‘frameworks’, ‘structure’, ‘direction’ and ‘constitutive goods’ (sections 2 and 4), which secondly, can be used to analyse and criticise the structure inherent to ‘academic capitalism in the new economy’ (sections 3 & 5), with the third objective to briefly suggest an alternative to the latter notion (section 6).

This inquiry will elaborate on concepts developed by Canadian philosopher Charles Taylor. It will be argued that Taylor’s ‘tools’ make a transcendental inquiry³ possible of the ideas behind academic capitalism (i.e. an inquiry into the anatomy of the ideas of academic capitalism). Taylor develops a vocabulary whereby questions are posed about the historically developed ideas that condition our being human. In this paper these concepts and questions will be applied to the search for identity by the university in the context of the ‘new economy’. It is nevertheless important to point out that Taylor’s concepts will be used insofar as it fits the non-reductionist approach that will ultimately be the paradigm of the inquiry below⁴.

³ ‘Transcendental inquiry’ implies here an investigation into the historically developed ideas behind a university, and which conditions current notions and practices of being a university.

⁴ This non-reductionist approach is something that I first encountered in Reformational Philosophy. Reformational Philosophy is still the benchmark for my use of the concepts and ideas of Taylor.

2. 'Strong Evaluation' and Frameworks'

As is indicated above, the first investigative step is to develop the conceptual tools that can be used to analyse the foundational ideas behind academic capitalism. Since the concept 'structure and direction' will take a pivotal position in the investigation below, it needs to be explained briefly. Firstly, the concept 'structure and direction' represents the broad ontological distinction we need to analyse and evaluate what happens to the universities of our age.

The sense that will be attached to the concept is widely used in the non-reductionist approach of Reformational Philosophy. Wolters (1988:49) explains that 'structure' indicates "the constant creational constitution of any thing, what makes it the thing or entity that it is". He adds that 'structure' is an alternative attempt to give a name to the "reality that the philosophical tradition of the West has often referred to by such words as substance, essence, and nature". 'Direction', on the other hand, indicates the "distortion or perversion" as well as the "restoration" of this 'structure'. When entities live up to and are transformed in the direction of their normative structures, a positive direction is realised. It is nevertheless also possible to indicate and criticise a "misdirected, abnormal, distorted" direction that an entity like the university can take. Therefore, to articulate the 'structure' of the entity called the university, represents an attempt to indicate what is constant, unifying, normative as well as identity- and function-conferring to this institution. This structural dimension has a direct influence on the direction of universities: The structure sets the aim for the direction that universities should strive for in their functioning. As will be argued below, a proper direction will only ensue when the structure relied upon is truly that of being a university. If the structure is projected from another identity and thus external to the university, it will probably lead universities on the road to deformation.

A link can be made between the concept 'structure and direction' and Charles Taylor's notion of morality. Taylor (1989:3-4) firstly distinguishes what he calls the "narrow focus" of morality. This narrow focus is about "our obligations to other people" and includes issues like "justice and the respect of other people's life". This narrow focus is for Taylor only one of "three axes" of "moral thinking". The other two axes are about "our sense of what underlies our own dignity", and "questions about what make our lives meaningful or fulfilling", that is about "the nature of the good life". It is especially the latter idea that indicates for Taylor the broad understanding of moral ontology and which he (Taylor 1989:92) uses in "a highly general sense, designating anything considered valuable, worthy, admirable, of whatever kind or category". Taylor's 'narrow' concept of morality coincides with the juridical and ethical aspects of reality, while his broader concept could be expressed with more comprehensive concepts that attribute a structure and direction to reality. For the purposes of this study the potential of this ontology to describe and evaluate the structure and direction of the idea of academic capitalism will be explored.

With these distinctions as a background, a concept that Taylor (1989:4) sees as central to both his narrow and broad senses of morality, namely "strong evaluation", can be considered. Strong evaluations involve human "discriminations of right or wrong, better or worse, higher or lower", with the understanding that these discriminations are to some degree independent of subjective evaluations (desires, inclinations or choices) and in fact give standards by which subjective evaluations can be judged. Taylor seems to be sensitive to the idea of a given structural and normative dimension of reality because he sees these evaluations as not being subjective, which suggests they set given standards. What is abundantly clear is that strong

evaluations have for Taylor a directional function because they help us to discriminate between right or wrong, etc. In fact, it can be argued that the concept of strong evaluation harbours within itself the relationship between the concepts of structure and direction because a strong evaluation can be seen as the structural standard that human beings articulate (positivise) and employ to distinguish between a good direction and deformation of an entity like the university. Taylor's identification of standards can, however, not be seen as overtly confessing a divine structure – it also leaves the door open for a human constructionist project. He nevertheless suggests that interpretations about the structure of an entity like the university will follow a pattern that is not the result of pure fiat.

In light of these distinctions it can be noted that universities are increasingly under pressure to function according to a set of strong evaluations prescribed by current culture that gives a particular structure and direction to the university as an institution. It has already been mentioned that Goosen (2013:491) observes that the classical *telos* (strong evaluation) for universities, namely a 'theoretical life', is marginalised in favour of so-called practical values. With regard to the latter he mentions 'access', 'international reputation', 'public image', 'the establishment of networks', 'outcomes', 'strategic management', 'competitiveness', and 'profitability'. It will indeed be argued below that among these values, 'competitiveness' and 'profitability' in particular set the tone in a culture dominated by an economic framework.

The concept 'framework' that was mentioned in the previous sentence, suggests that dominating strong evaluations do not operate in isolation. Strong evaluations that portray a kinship to each other in many instances become a seemingly internally coherent idea-framework which is difficult to resist. It is therefore significant that Taylor (1989:27-29,30) points to the embeddedness of strong evaluations in such a framework. He reiterates the function- and identity-conferring (structure) but also the very strong directional nature of such a framework. Frameworks, like the strong evaluations that populate these frameworks, are not fully inventions of ours but our "answers to questions which inescapably pre-exist for us, independent of our answer or inability to answer". Human beings, and one can add universities, give their "framework-definitions" as answers to these questions and thus structure life and reality with these idea-frameworks. The emphasis on the question-character underlines for Taylor the directional nature of frameworks. One can say that humans are challenged by these questions to give direction to their lives because a framework is "the horizon within which I am capable of taking a stand" on questions about "what is good or bad, worth doing and what not, what has meaning and importance ... and what is trivial and secondary". Negatively formulated: If people or universities lose this horizon "they would be at sea". They would experience an "identity crisis, an acute form of disorientation".

The saliency of the values of competition and profitability is mentioned above. Indeed, Jochen Röpke gives a horizon or framework of strong evaluations seemingly valid for the so-called entrepreneurial university that links with this set of evaluations. Röpke (1998:1-2) claims that the "future of high-wage economies ... depends critically on ... freedom to innovate: to create new markets". With this he indicates two strong evaluations of proponents of academic capitalism, namely 'free markets' (i.e. the 'competition' dictum) and 'innovation'. He emphasises the relevance of these evaluations for universities by saying that the "new quality of international competition changes the role and function of universities and research systems dramatically" and that "innovation itself depends on the creation ... of new knowledge". In addition to these two evaluations, he argues that "the practical application of this new knowledge ... is the foundation of growth in mature economies". 'Economic growth' and the creation of 'applicable knowledge' at universities are furthermore combined with the

former two strong evaluations in the following quote from Röpke: “Since a technologically advanced and open economy can only compete by creating new product and technology cycles, the creation and diffusion of the knowledge on which these recombinations are based, has become a factor of utmost importance.”

To summarise: Röpke gives ‘strong’ value to the concepts ‘free markets’ (or ‘competition’), ‘innovation’, ‘practical and applicable knowledge’, as well as ‘economic growth’. Set in a framework or horizon of strong evaluations they are nothing less than the content of his vision of the structure and direction for the university demanded by the framework of ‘academic capitalism in the new economy’.

3. A ‘Framework’ for Academic Capitalists

One of the aims identified in the introduction of this essay, is to get clarity about the for-profit identity (structure) and orientation (direction) that our culture prescribes by means of the framework of ‘academic capitalism in the new economy’ to universities. It is therefore necessary to briefly describe the neoliberal framework (i.e. the idea of the ‘new economy’) in which universities most likely find themselves.

Steger and Roy summarise the history of this framework as follows: Neoliberals accused Keynesian egalitarian liberalism or controlled capitalism which reigned globally from 1945 to the middle 1970s of “crippling government regulation, exorbitant public spending, and high tariff barriers to international trade” and that these conditions “led to high inflation and poor economic growth”. The neo-liberal accusations and proposed reforms gained dominance in the 1990s. This dominance drew an amount of criticism since the global economic crisis of 2008-9 (Steger and Roy, 2010: location 490,497-499).

Steger and Roy (2010: location 506-510) describe neoliberalism as an ideological system (i.e. structure- and direction-giving framework) of “widely shared ideas and patterned beliefs” that function as a conceptual map which guides people by offering them “a more or less coherent picture of the world as it is, but also as it ought to be”. This kind of framework especially has a strong directional role since it “encourage[s] people to act in certain ways”, “legitimize[s] certain political interests” and “defend[s] or challenge[s] dominant power structures”. In the case of neoliberalism the directional power entities are primarily “executives of large transnational corporations” which “saturate the public discourse with idealized images of a consumerist free-market world”, which supposedly will bring about “a better world”.

What are the strong evaluations that populate this neoliberal framework? A foremost evaluation is the kind of human being that is desired. According to Steger and Roy, Adam Smith set the tone for not only classical *laissez-faire* economics but also for neoliberalism, by operating with the “image of *homo economicus* – the outlook that people are isolated individuals whose actions reflect mostly their material self-interests”, as well as the “economic model” of “the self-regulating market” (Steger and Roy 2010: location 403-406,501-504). Steger and Roy (2010: location 530-535) describe this human being, when active as a state official, as “the transformation of bureaucratic mentalities into entrepreneurial identities where government workers see themselves no longer as public servants and guardians of a qualitatively defined ‘public good’ but as self-interested actors responsible to the market and contributing to the monetary success of slimmed-down state ‘enterprises’”. Goosen (2011:491) quotes a senior South African professor who prescribes a similar transformation for academics: “The old goal of the academic world, namely to cultivate a

theoretical life, should be substituted for the need to develop networks aimed at the self-centred interests of the now fully privatised academic”.

In order to achieve this aim, a specific mode of governance is needed for all social institutions. According to Steger and Roy (2010: location 522-530) the entrepreneurial mode of governance valid for the state, for instance, subscribes to the values of “competitiveness, self-interest and decentralization” which should manifest in practices of “individual empowerment and the devolution of central state power to smaller localized units”. Embracing neoliberal management values for the state entails that the public good should not necessarily be pursued by “enhancing civil society and social justice”. The strategy emphasis is rather on the employment of “governmental technologies that are taken from the world of business” such as “strategic plans”, “risk-management schemes” that will create “surpluses” as well as “cost-benefit analyses and other efficiency calculations”. This way of governance emphasises “the shrinking of political governance” (Steger and Roy 2010: location 522-530).

For Rhoades and Slaughter (2004:53) the new economy prescribes something similar for universities, namely decentralisation that should lead to “a model of reduced complexity of academic work”. This implies “breaking down the interconnected activities of professors and the discretion that they exercise in enacting their craft into discrete, delimited parts”. This model of governance demands from universities to “prioritize budgetary, economic and strategic issues in the processes that surround building, investing in, restructuring and de-investing in academic programs”. This implies, Rhoades and Slaughter (2004:38) say, an “increasingly corporatized, top-down style of decision making and management”, which means that “managers exercising greater strategic control over the direction of colleges and universities” and that staff members “increasingly become ‘managed professionals’”. This corporate way of managing, they conclude (2004:53), means that “to simply play by the well-established capitalistic rules of the game is to cede academic control over the curricula”.

In summary, it can be said that the strongly evaluated neoliberal idea of the self-interested individual prescribes for universities an entrepreneurial mode that manifests itself especially in the way that these institutions are governed. In this new mode of governance, competitiveness and decentralisation (fragmentation?) are employed to probably enhance economic growth and profitability, which implies nevertheless the breaking down of the collegial way of interaction between academics and putting the authority for academic matters in the hands of managers who govern academia increasingly according to economic targets.

4. Structure and Direction and ‘Constitutive Goods’

The framework or ideology of neoliberalism ostensibly leads to a practice in universities where management have a determining directional role and increasingly relies on the self-centred behaviour of ordinary academics. Management justifies this approach with the notion of an entrepreneurial ethos/direction aimed at values like competitiveness and profitability. The impression is that this ethos results in less control by academics over academic affairs⁵. In order to get clarity about this direction, the influence of the strong evaluations (competitiveness, profitability etc.) behind this direction needs to be explored.

The strong evaluations that structure and direct an entity like a university are usually hierarchised in the framework in which they are embedded. According to Taylor (1989:62,92-

⁵ A thorough inquiry into these impressions will have to stand over until another paper.

93) people tend to be moved by a variety of “life goods” (strong evaluations) but usually identify one of them as “the most important and serious one”. This supreme good can be any “action, or motive, or style of life”, or “feeling” or “mode of life”, which can be described as “qualitatively superior”. People strongly evaluate, for instance, “the value of self-expression, of justice, of family life, or the worship of God, of ordinary decency, of sensitivity” and so on; “but they consider one of these – perhaps their relation to God, or justice – as of overriding importance”.

Such a supreme good clearly plays a directional role. Taylor (1989:42) therefore describes his notion of a supreme good with the image of spatial orientation. The “need to be connected” with what we “see as good, or of crucial importance, or of fundamental value”, is “one of the most basic aspirations of human beings”. Taylor (1989:45) argues that this need to be in contact with the good can be more or less satisfied in our lives. However, the orientation metaphor makes it especially an issue of yes or no; not how near or far we are from what we see as the good, but rather the direction of our lives, towards or away from it. Taylor (1989:63) explains that although all the goods a person subscribes to, give direction to one’s life, it is the “yes/no” commitment to some highest good that is “utterly decisive for what I am as a person”. This kind of supreme good clearly plays a strong directional role in the lives of people and the existence of entities like the university. It is nevertheless also important that Taylor foresees that this supreme good also has a structural function. Taylor (1989:93) uses the role that Plato gives to rationality to explain the structural function he has in mind: For Plato to “be rational is to have a vision of rational order”. This is to refer to “a cosmic reality, the order of things” and “the key to this order is the Idea of the Good itself”. Taylor calls this supreme good a “constitutive good” or a “moral source” because it “constitutes the goodness of some action or motive”. In other words, lower-ranked life goods depend on “some feature of the way things are, in virtue of which these life goods are goods”.

It is important to point to and underline the close connection between the two functions of supreme sources here: A constitutive good will not command directional authority if it is not also seen as thoroughly conferring identity (structure) to the entities under its influence. Taylor’s concept of “constitutive good” therefore has both directional and identity-giving functions⁶. It is nevertheless very important to make a distinction between structuring and directing functions, as Wolters (1988:50-51) and Hart (1984:312-313) do. This distinction is important to avoid the trap of labelling some aspect, dimension or good of reality as the source of evil. It should be noted that a hierarchical dualism usually originates when evil is projected on some aspect of life (i.e. the lower part of a dualism) and the other part is deified. When this happens, evil and goodness are reified and not seen as the direction that some entity or structure is taking. This is, of course, to deny the fundamental goodness and thus equal value of all aspects of life or goods as well as the equal potential of all aspects to be corrupted or deformed.

Taylor (1989:218,516) points to naturalism which argues that in rejecting religion it gives nature its due and thus subscribes to the idea of the equal goodness of all aspects of reality. However, according to Taylor, this affirmation of nature is historically dependent on the notion of a primordial divine affirmation of creation, which is given in the repeated phrase in Genesis 1: “and God saw that it was good”. Taylor (1989:13-14) even argues that this affirmation of creation and an eventual affirmation of ordinary life “has become one of the

⁶ According to the *Reader’s Digest Universal Dictionary* “constitutive” can be defined as that which makes “a thing what it is”; what is “essential” to an entity; but to be constitutive is also to have the “power to institute, establish, or enact” – that is, to give direction to this entity.

most powerful ideas in modern civilization". Taylor (1989:13-14,23,81,83,211-213,215,218,235) points out that a hierarchical distinction (dualism) was made in antiquity between ordinary life (i.e. especially the life of production and reproduction, of work and the family) and the elitist, aristocratic values of contemplation and citizenship. The dualism between ordinary life and the aristocratic ethos was vindicated in antiquity by a hierarchical ontology. The Reformation changed this by sanctifying ordinary life, by asking whether a person's life before God is "worshipfully and in the fear of God or not". This implied a rejection of the elitist morality that excluded ordinary life from a higher moral position. Although Taylor agrees that this was a step forward, he also points out that the "affirmation of ordinary life" gradually became secularised and that the fully naturalist version "denounce all qualitative distinctions" for being "blind to the dignity and worth of ordinary human desire and fulfilment". Life "according to nature" meant that the satisfaction of biological needs became a moral obligation in itself. The ironical implication was that especially Christianity, which was the originator of the "affirmation of ordinary life", is attacked by naturalism for having moral ideals that lay "a crushing burden on those in whom it inculcates a sense of sin".

The implication of Taylor's observation is that naturalism is in danger of subscribing again to the hierarchical dualism of antiquity, but now turned upside down: Ordinary life becomes a moral project of a much higher order than activities associated with the aristocratic ethos or Christian morality. Once again some part of life is seen as higher and more important than the rest, with the rest even suspected of being the source of wickedness. The important point we have to take note of is that a constitutive good has very strong directional and identity-conferring functions. If this is combined with the deformational notion of locating the good only in some parts of reality, a constitutive good has the potential to be a good that creates a fixed hierarchical ontology and insists to be the totalitarian source for reality – with the implication that all of reality has to be reduced to this single good. This should not be the role of a constitutive good. Taylor (1989:62) significantly remarks that not all persons give some constitutive good "unflinching priority in their deliberations and decisions". The implication of his remark is that other goods should also be recognised as deserving their proper place. Taylor nevertheless thinks that constitutive goods still have "an incomparable place in their lives" because it "above all other provides the landmarks for what they judge to be the direction of their lives" – landmarks are then that which give structure to life.

How can we reconcile this seemingly paradoxical expectation that all goods are equal and that they all should be strongly valued, with the idea of a constitutive good that has a leading role? A promising way to articulate this double condition (while indicating an application for our topic) is embedded in Maarten Verkerk's interpretation of the concept of 'social entrepreneurship' that is valid for organisations where 'profit' seems to be the totalitarian constitutive good. Verkerk (2013:9) concludes his argument for 'social entrepreneurship' by explaining that social entrepreneurs regard "profit" merely as "a 'tool' to realize the mission of an organization". With this he implies that the constitutive good of even business organisations cannot be a totalitarian profit motive. Social entrepreneurs are therefore prepared to "accept a below market rate when social or environmental goals have to be met". How does Verkerk get to this conclusion? In his review of the recent financial crisis, Verkerk (2013:3-4) identifies motives like "the absence of rules and supervision", "power and ... greed" as causes for the crisis. He therefore remarks "that better rules and supervision are required to prevent next crises and new scandals", but adds that this emphasis "easily can lead away the conversation from another problem – maybe *the* problem". Verkerk (2013:3) diagnoses the important cause of recent crises as the fact that business enterprises abandoned their "origins". In the terms used thus far, one can say business people deserted the

constitutive good for financial businesses of “serving society with good financial services”, for example.

Verkerk (2013:4), using a concept which he claims to get from Alasdair McIntyre (although one suspects the Reformational notion of sphere sovereignty in the background), remarks that “practices are about ‘internal goods’”. These ‘internal goods’ refer to the values that are realized specifically by that practice. With this, Verkerk identifies a characteristic that seems critical to the nature of constitutive goods, namely that these goods should be *internal* if they want to evade an absolutising and reductionist deformation. Being ‘external’ is deformative because a good that is appropriate for some other practice, ‘y’, becomes the constitutive good to which entity or practice ‘x’ is being reduced. If the constitutive good, on the other hand, is internal to entity or practice ‘x’, it will be intent on realising what the identity of ‘x’ is all about. The latter is the core of the idea of sphere sovereignty. Verkerk (2013:4) gives two telling examples of appropriate internal goods, namely that the “internal goods of health care are cure and care for patients and the internal goods of banking are financial services for citizens and enterprises”. Reductionist/absolutised constitutive goods in these instances would be “goods that are external to the values realized by the practice, e.g. prestige, status, and money”. It is at this point “where business institutions failed”, and which led to financial crises, because the “focus was shifted from ‘internal goods’ to ‘external goods’, from excellent services to profits, and from virtues to targets”.

5. Academic Capitalists as Absolutisers and Reductionists

Is a non-absolutising and non-reductionist approach possible in the neoliberal framework?

The assessment of this issue by culture critics is not positive: Bartholomew (2009:93,105) identifies “an overemphasis on the economic dimension of life” in current culture and refers to consumerism and globalism as examples, which he describes as a culture in which “everything becomes a product that can be bought and sold”. Bartholomew (2009:92,103-104) therefore labels economics a modernist grand narrative, which postmodernism tries to decrease into “disconnected fragments and icebergs”. This effort, however, does not mean that “modernity has vanished”. The economic grand narrative, as it manifests in “consumerist individualism and free-market globalization” moved to the centre of current culture. Steger and Roy (2010: location 519) also indicate this totalitarian role of the neoliberal framework: “... it makes sense to think of neoliberalism as a rather economic ideology, which, not unlike its archrival Marxism, puts the production and exchange of material goods at the heart of the human experience.” Harvard philosopher Michael Sandel (2012:10-11) more recently made a very similar observation, that “we drifted from having a market economy to being a market society”. This distinction implies that a market economy is a “valuable and effective tool” to effectuate “productive activity”, whereas a “market society is a way of life in which market values seep into every aspect of human endeavor”.

Is this absolutising and reductionism also applicable to academic capitalism? In his description of the situation in which universities find themselves, Vale (2011:31) remarks about this context that money is “the only goal in global society”. This implies that “economics, not state politics nor the morality that the church had preached in earlier ages, would chart the course of human events”. Vale’s remark implies that an economic view of the university is not the first instance of deformation of the university. Indeed, statism was

also practiced in an earlier dispensation by the state, and is still part of the agenda of the South African state⁷.

Proponents of academic capitalism also confirm the ‘seeping of market values’ into universities:

Etzkowitz (2004:65), for instance, is convinced that the “capitalization of knowledge” will be “the heart of a new mission for the university, linking universities more tightly to users of knowledge and establishing the university as an economic actor in its own right”. To realise this, Etzkowitz (2004:65,76) sees the so-called entrepreneurial university as “the latest step in an academic progression”. In his interpretation of the history of the university he identifies a first revolution, namely the adding of research as academic task. This, he says, “disturbed the taken for granted assumption of the university as a single purpose educational institution”. Research-oriented innovators reacted to traditionalists’ objection in the late nineteenth century that the main task of the university is teaching, by saying that with new knowledge we can “raise the training of the students to a higher level”. This higher level is explained by Etzkowitz as a higher level of productivity in which students also do research in the learning process. He anticipates that the second revolution (that is, the adoption of a “mission of economic and social development”) will be objected to because it implies that researchers should be involved in “translating the research into a technology and product”. Etzkowitz’s counterargument is that it is more productive for universities to do the commercialisation themselves than to leave it to independent business enterprises. Already during the 1960s Kerr (2001:xii) predicted that economistic redefinitions will change the nature and functioning of universities: “Old concepts of faculty-student relations, of research, of faculty-administration roles are being changed at a rate without parallel.” In fact, Kerr (2001:68) claimed that the “university and segments of industry are becoming more alike” where, for instance, the “professor – at least in the natural and some of the social sciences – takes on the characteristics of an entrepreneur”⁸.

What would the strong evaluation be of overriding importance (i.e. constitutive good) for current universities?

With the broader framework in mind, it can be said that the profit and economic growth motives are probably constitutive goods with a major absolutising and reductionist push in our culture. Almost two decades ago, Hungarian-American capitalist George Soros (1998) formulated it as follows: “So the hallmark of the current form of global capitalism, the feature that sets it apart from earlier versions, is its pervasive success: the intensification of the profit motive.” He furthermore refers to the “penetration [of the profit motive] into areas ... previously governed by other considerations”.

There are indications that this constitutive good assumes even more layers of aspiring constitutive goods beyond itself. Middleton and Walsh (1995:22) point to the modern belief that “a rising standard of living (defined largely in economic terms) is the ultimate goal in human life and the only route to personal happiness and social harmony”. More recently but

⁷ Strauss (1989:118) describes a longstanding practice in South Africa of viewing the university as a “legal entity which is a complete state creation”. The demand to universities to see themselves as constituted by some other societal institution with constitutive goods foreign to the university is thus not unknown in the history of the idea of the university.

⁸ The instrumentalist logic behind this transformation into entrepreneurs and clients/customers seems simple enough: “If private enterprises must nurture innovation and enhance productivity in order to survive in the competitive marketplace, why shouldn’t government workers [or academics] embrace neoliberal ideals to improve the public [or university] sector?” (Steger and Roy 2010: location 537).

in more or less the same terms and critical mood, Nussbaum (2010:10, 2011:ix) says that the goal of nations has become economic growth. The objective of many a nation is to “increase its gross national product per capita” as if this measure is “a good stand-in for a nation’s overall quality of life”. It would be possible to probe into a layer of meaning even beyond that of economic growth. The obsession with economic growth and profit is a manifestation of a general modernist preoccupation with progress. And then it is possible to argue, like Goudzwaard *et al.* (2007:90-91) do, that the belief in “endless progress” is the result of a “dynamistic worldview” which elevated especially economic growth to the status of the “measure of everyone and everything”. However, for the purpose of understanding the strong evaluations of the neoliberal idea of academic capitalism, it will suffice for now to concentrate on our civilisation’s obsession with profit and economic growth.

With some idea of the constitutive good of current culture as a background, we can now turn our attention to the constitutive good(s) that academic capitalism specifically singles out. Some exponents of the entrepreneurial university do have ‘economic growth’ in mind as its supreme source: Clark Kerr (2001:xi-xii) already sensed a crucial link between knowledge and economic growth in the 1960s, when he observed that the “basic reality for the university, is the widespread recognition that new knowledge is the most important factor in economic and social growth”. Kerr explains that this growth is important because if the ideal of economic growth is not pursued, we are heading for the “fall of professions and even of social classes, of regions and even of nations”. More recently, Michael Crow (2008), president of Arizona State University and protagonist of the entrepreneurial university, agrees that “continued economic growth must remain an overarching objective because if we stop growing economically the social outcomes will be dire ... our collective standard of living will decline, our way of life will be threatened”. Yusuf (2007:21) explains and emphasises the relevance of this sentiment when he argues that if making a profit and innovation are the main drivers of economic growth, “universities could emerge as the most dynamic transnational entities and a commercial force in their own right”. Yusuf (2007:4-6) argues that the lifecycle of consumer products “from introduction to maturity, obsolescence, and withdrawal” is getting shorter and shorter and that therefore “ceaseless innovation” is needed because only then will companies be able to renew their products. But these companies will not attain this innovation on their own. Universities will have to be conscripted to help.

As can be discerned from these remarks, according to the neoliberal framework the constitutive good for universities can be found amongst the related ideas of ‘profit’, ‘economic growth’, and ‘innovation’. This is also the observation of critics. With reference to the priority in higher education, Rhoades and Slaughter (2004:38) for instance point to the instrumentalist implication of ‘profit’ when they claim that “revenue generation comes to be prioritized over the core educational activities of the academy”. Nussbaum (2010:10) describes the current ideal for universities as “education for economic growth”, implying that economic growth should outrank the academic goals of universities. The underlying motivation for this good to be supreme, she argues, is the instrumentalist argument that universities have a fundamental and public responsibility in the general attempt of nations to attain the blissful state of salvation by economics. The effect of this instrumentalism is that the core ingredient of universities has become the view that making a profit from innovative applied science should inescapably become the major rationale for their teaching and research tasks⁹.

⁹ This is also the conclusion (and critical remark) of the *Consensus study on state of the Humanities in South Africa: Status, prospects and strategies* (2011:38-42,56). Lynch (2006:6) reports that the same thing happens in policy documents in Ireland,

Indeed, propagators of academic capitalism see economic growth not only as a good that universities should in general contribute to the economy but also as an ultimate ideal to which universities themselves should conform. Such an interpretation of history and a prescription for the road ahead is for instance given by Crow (2008:3-6), who argues that the “ancient Greek academies developed the capacity to understand nature and society ... but they were tiny in scale and exclusively ‘conservative’”. The “medieval European universities were slightly larger in scale” and it was only with industrialisation in Europe that the transformation of the “socioeconomic and cultural landscape” in the direction of “industrial competition and the emergence of the notion of efficient technology-driven competitiveness” started. He nevertheless thinks that at this stage “entrepreneurship was still little in evidence” at universities. He therefore thinks the “societal mission of colleges and universities” should “make more of an effort to ... educate greater numbers of individuals” to service the “economic dimension”. This is because “higher education is the means by which a skilled workforce is produced and the source of new *knowledge capital* and thus *economic growth*”.

The constitutive good for the framework that can be labelled ‘academic capitalism’ will be found amongst or will be a combination of the closely related concepts of ‘progress’, ‘innovation’, ‘economic growth’, and ‘profit’. The prediction by proponents of academic capitalism is that an increasing pursuance of these goods will unavoidably change the nature and role of universities. They predict and even prescribe the appearance of mass production universities, which primarily prepare a quantitatively large and growing labour force for a growing industry.

6. Intimations of a non-absolutising and non-reductionist constitutive good for universities

It should be noted that the drift of my argument is not to simply discredit ‘profit’, ‘economic growth’ and ‘innovation’. In fact, a good case could probably be made for the responsible use of these goods in modern culture. However, if these goods become the *constitutive* goods for our civilization and more particularly for twenty first century universities, we are dealing with an obsession that might deform life and social institutions like universities in many ways. Critics agree that academic capitalism is the direction that universities are taking but remind us that we should look critically at this development.

Rhoades and Slaughter (2004:55-56), for instance, argue that ordinary academics sense that the totalitarian and reductionist penetration of the profit and growth motives in academic affairs will bring about a deformative change that could lead to an identity crisis for universities. They quote an anonymous academic on the increasing commercialisation of education: “Our first priority is our students, not to compete in markets ... The minute you get into making a profit, to competing in the market, then you almost change yourself into something you are not.” For Rhoades and Slaughter an alternative to ‘academic capitalism’ is therefore “to simply say that we will not commercialize the curriculum – period”. They express a dual focus in “commitment to both educational interests and to the broad public interest”. The idea of the “broad public interest” can be dubious: If it is simply seen as the interest of the state, a step backwards is given to a constitutive good prescribed by statism and thus a good outside the university as institution. However, if the “broad public interest” is the

where “the development of society is equated with economic development and the latter is focused primarily on science and technology”.

interest society has in good education, a step in the direction of an internal constitutive good is given.

Collini (2012: location 61&177) agrees with Rhoades and Slaughter that the appropriate internal constitutive good for universities is in the first place “intellectual, educational, scientific”. He elaborates on the description “educational” and adds that it “signals something more than professional training”; and furthermore he says of “scientific” that it “is not wholly dictated by the [instrumentalist anti-ivory tower] need to solve immediate practical problems”. Collini (2012: location 51-53, 58-61) observes that “any discussion of the place of universities in contemporary society will inevitably be driven to articulate, in however rudimentary terms, some sense of human purposes beyond that of accumulating wealth”. He agrees that one should not “underestimate the expense of these institutions or presume that there is some God-given right for them to be lavishly funded”. He nevertheless emphasises that if one tries to make the case for the value and importance of universities, it should be made in terms that “are not chiefly, and certainly not exclusively economic”. Strauss expresses the same intuition about the relationship between the constitutive good for universities and the economy of these institutions: It can be the case that universities embark on “entrepreneurial activities” but this should merely be “geared towards the ideal of making the university financially independent – such that the typical task of the university as an academic institution may flourish”. However, if the entrepreneurial activities, which are atypical, are “mistakenly understood to be a typifying characteristic, it would be impossible to identify the difference between the university and a firm” (Strauss 2009:595). According to the first part of Strauss’s remark, entrepreneurial activities should be seen as an external good that can nevertheless add something to the proper functioning of universities. In other words, the profit and growth idea can be normal and important if it is in a supportive role to the internal constitutive good of the university. The second part of Strauss’s remark therefore suggests that if the entrepreneurial good assumes the position of an internal constitutive good, it will disfigure the identity and functioning of the university. It is therefore significant that Rhoades and Slaughter (2004:41) claim that even “policymakers and businesspersons” think that the “academy does not necessarily best serve its purpose by taking on a short-term, profit-maximizing mentality” but rather that they demand from “higher education to produce well-rounded graduates who have learned how to think and have sharpened a wide range of communication and writing abilities”.

Elaborating on the notion of the typifying task (constitutive good) for universities, Strauss (1998:113-114,117) remarks that “the modern university has emerged as an institution in which structural continuity exists with the origin of the first university of the Middle Ages around the year 1200”. This structural continuity indicates for Strauss “a common and underlying constant structural principle”. For Strauss the full constitutive ‘principle’ comprises “the simultaneous presence of two particular facts”: The first is the “organization of the university into a specific societal institution”, which can be described as the “bringing together of teachers and students”. Secondly, the aim of this union is to transfer from teacher to student “scientific knowledge by way of scientific teaching”. The combination of these two activities was initially expressed with the term “universitas” but later substituted with the word “academia”. Academic activities therefore harbour the constitutive good for the university, which “determines the unique way in which the university as life form functions”. According to Strauss (1998:117-118), it is important for the constitutive good for universities that this “qualifying theoretical-analytical function of the university”¹⁰ is as an internal good,

¹⁰ Since the concept ‘scientific’ plays a crucial role in the description of ‘academia’, Strauss (1998:115) elaborates on the distinction between “science/theory formation” and “non-scientific (non-theoretical) activities”. He describes science/theory

and interweaved with aspects external to the university. It is important to identify the existence but also to underline the secondary status of this interweavement with external goods. Interweavement with the faith aspect can, for instance, be seen in the “academic mission (task and credo formulation) of the university”. This “peculiar academic confession of faith” should, however, not transform the university into a church.

What then should the result be of an academic mission statement? Strauss’s response to this question is that it should clearly be stated that the “theoretical-logical qualification” demands that a university “should express itself in its typical teaching and research activities”. Negatively, this entails that “inherent ... limits of competence ... exist for the academic activities of the university”. For instance, “the university cannot act as an economic institution, political action or religious grouping”.

How do universities live up to this ideal? An overview¹¹ of the vision (in most cases primary) and mission (in most cases secondary) statements of some South African universities do not yield a very optimistic result: None of these universities put the union between students and teachers or the transfer of science and scholarship from lecturers to students in a very prominent constitutive position. In most cases education is valued in a secondary position, and some universities do not even recognise this identity-function on a secondary level. The second activity that identifies a university – namely science, scholarship and research – is recognised by most of these universities in their primary vision, but mostly in vague references to “knowledge” or with a very strong emphasis only on research. It is disheartening that the foremost academic capitalist strong evaluations, ‘excellence’ and ‘innovation’, have some popularity for a position in the constitutive good of universities. Other constitutive goods with an academic capitalist background that also make appearances are ‘progress’ and ‘globalisation’. In some cases, social engagement also receives a prominent place in the constitutive good of their universities – with the implication that the anti-ivory tower argument should get primary attention, which leaves these constitutive goods open for academic capitalism or statist interference with academia.

formation with the concept “abstraction” but then specifically “aspect abstraction” or “modal abstraction”. The latter distinction will take much more space to explain than what is possible here. It is nevertheless important to distinguish scientific abstraction from ‘everyday’ abstraction where “certain universal characteristics” are also elevated and combined to form concepts like “human being, tree, horse, motorcar, etc.”. The characteristic of “theoretical thought”, in distinction is when certain aspects of reality are focused on, for instance its spatial, kinematic and physical way of being.

¹¹ The following is an overview of the content of the vision (in most cases primary) and mission (in most cases secondary) statements of various South African universities, as they appear on the websites of the respective universities (information about websites can be found in the section on ‘References’): The North-West University emphasises the pursuit of excellence, innovation and knowledge in its vision, while a balance between teaching and research, sound management, transformation, local engagement, and being internationally recognised gets secondary attention in a mission statement. The University of the Witwatersrand identifies as its foremost objective that it wants to be a research-intensive university. The university intends to achieve this goal (on a secondary level) by pursuing intellectual excellence, international competitiveness and local relevance. This secondary level also creates room for competitive education and high academic standards, public engagement and global partnerships. Stellenbosch University gives pre-eminence to inclusivity of all individuals, with innovation being future-focussed. Issues like social justice, the development of Africa, learning and teaching, innovation and creativity, diversity, and synergistic networks get secondary place in its mission statement. Pretoria University wants to be a leading research-intensive university in Africa that is recognised internationally for its quality, relevance and impact, and also for developing people, creating knowledge and making a difference locally and globally. In its secondary mission statement it gives attention to what the university sees as their core functions of research, namely teaching and learning. On this secondary level the university also states that it wants to engage with society and communities. The University of Kwazulu-Natal pursues a vision of being the “premier University of African Scholarship”. The secondary mission statement emphasises excellence and innovation in research, as well as societal engagement and transformation. In its mission statement the University of Cape Town gives priority to having global networks and connections. With these connections as vantage point the university wants to give attention to research and scholarship in key issues of the natural and social worlds, delivering internationally recognised and locally relevant qualifications and pursuing social issues like engaged citizenship, social justice, diversity and transformation.

7. Conclusion

The argument in this essay can be summarised as follows:

‘Academic capitalism in the new economy’ (which manifests inter alia in the ideas of for-profit universities and the so-called entrepreneurial university) is becoming very prominent. Proponents of this construct link it with the anti-ivory tower argument about the university. However, the objection by critics is that this argument leads to an instrumentalism that marginalises the historically developed identity of the university as an institution where science and scholarship should be cultivated and educated. The aim of the paper was to map and evaluate the transcendental anatomy of the idea of academic capitalism in the new economy.

This was done firstly by developing the conceptual tool ‘structure and direction’. ‘Structure’ can be seen as that which prescribes the relatively constant identity of an entity like the university. ‘Direction’ is the realisation or lack of realisation of this structure in actual universities. A second step was to point out that Charles Taylor’s concept of ‘strong evaluation’ especially captures the close interplay between structure and direction: A strong evaluation can be seen as the relatively constant standard that humans employ to distinguish between a good direction and the deformation of some entity like the university. A third conceptual tool that was developed, is that the strong evaluations that give direction to some entity tend to form (coherently populate) a framework or horizon.

In the terms of these concepts, it can be said that our civilization increasingly operates with a neoliberal framework for universities that is dominated by the strong evaluations of ‘economic growth’ and ‘profitability’ and increasingly marginalises the ideas of ‘education’, ‘theory’, ‘science’ and ‘scholarship’. It is possible to give even more transcendental steps backward and point out that neoliberalism strongly evaluates the idea of *homo economicus*, which aims to transform all social roles (including that of being an academic) according to the pattern of a self-interested individual who is responsible primarily to the market. This prescribes for institutions an entrepreneurial mode of operation and governance, where competitiveness and decentralisation (fragmentation) are employed, ostensibly to create a less complex environment that will enhance profitability. In the academic world this implies nevertheless the breaking down of the collegial way of interaction between academics and putting the authority over academic matters in the hands of managers who increasingly govern academia according to economic values.

A fourth conceptual tool that is borrowed from the work of Charles Taylor suggests that the neoliberal framework has a core of ostensibly preferred strong evaluations. In fact, Taylor suggests that usually one strong evaluation, which can be called a constitutive good, with a prominent structural and directional function, is usually in the centre of a framework.

Although this constitutive good harbours in itself both the functions of structure and direction, it is also necessary to emphasise that in non-reductionist framework the two functions should not be confused with each other. This distinction is important because the directional act of valuing strongly some good should not develop into a totalitarian good valid for all of reality. If the latter directional move is made, it usually leads to all kinds of deformations of reality. A hierarchised dualism is usually the first result: this is where one good forms the higher and more strongly valued part for all of reality. All other goods are then seen as being of a lesser value or even as the source of evil. In other words: The result of dualisms is usually the

deification of and thus totalitarian role of one good, which immediately implies that all other goods should be reduced to this absolutised good.

How then can the idea of the equality of all goods be reconciled with the notion of a constitutive good? The idea of sphere sovereignty, developed by Reformational Philosophy, suggests that a constitutive good is that which gives a very distinctive structure and direction to some entity, but that this does not mean that this good is valid for all of reality. Another way of expressing the same idea is that a first test for a constitutive good is that it should be inherent to and valid for only the nature of a particular entity and not a good from outside that tries to give structure and direction not only to that entity, but to all of reality.

In light of this consideration the neoliberal concept of academic capitalism, with its overemphasis of economic matters, cannot be seen as a non-absolutising and non-reductionist approach in the spirit of sphere sovereignty. Furthermore, profit and economic growth seem to be the totalitarian constitutive goods for our civilization and indeed also for universities. It is expected from universities not only that their research should in the first place produce innovations that could lead to economic growth, but also that they should contribute a large labour force that can yield economic growth. Universities should therefore constantly aspire to become quantitatively bigger in order to produce this labour force and technological innovations.

This paper therefore concurs with critics who reject the notion that the constitutive good for universities should be that of 'profit' and 'economic growth'. As an alternative, a constitutive good that focuses on 'education', 'science' and 'scholarship' should be promoted. It can be conceded that concern with external goods like that of the economy will play a role in the functioning of universities. This role, however, cannot and should not be that of the primary structuring and directional constitutive good.

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Corporate Social Responsibility, Deconstruction and Justice: A Response to Campbell Jones and Richard T De George

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The purpose of this article is to develop an experimental model of deconstruction in CSR in order to attempt to bridge the aporia between the CSR of Jones and De George. Jones advocates the importance of deconstruction in CSR, while De George is suspicious of the perceived relativism and undecidability of deconstruction. It will be argued that this perceived aporia between Jones and De George develops, because it is overlooked by both, that the normative foundation of deconstruction is rooted in the appearance of the other as a function of justice. The appearance of the other decentres business and challenges modernism's fragmentation and reduction of reality. This is highlighted in Derrida's deconstruction of the gift in which business is not only a commercial function, but linked to society as a whole and therefore has a responsibility as an agent of social transformation. Deconstruction in CSR will be illustrated in the case study of Royal Bafokeng Platinum.

1. Introduction

The debt crisis of 2008, corporate scandals and environmental disasters related to business activities have emphasised the importance of corporate social responsibility (CSR) as a means to encourage good corporate citizenship. Good corporate citizenship assumes that business has a responsibility in society. This means that business will not harm society or the environment and assist in transforming society. This can be done by business by means of using their wealth and expertise to improve the lives and circumstances of people and by addressing injustices like socio-economic inequality. Corporate citizenship affirms the complex nature of corporate responsibility that encompasses a wide range of stakeholders in the local and global context e.g. Stakeholder theory² (Freeman 1984). In this context, some scholars have argued that deconstruction, and specifically the work of Jacques Derrida in terms of the ethics of irreducibility, responsibility and justice, may be insightful to CSR in the global business context of cultural and religious diversity by challenging the limits of traditional CSR (Rendtorff³ 2008, Jones 2007, Woermann⁴ 2013). Limits refer to the focus of deconstruction on the inability of language to articulate the full complexity of reality (Melchert 2011:700). The optimism that articulation is possible, is a legacy of the reductionist trend of modernism and science that is evident in traditional CSR (Woermann 2013:98). Traditional CSR is rooted in the assumption that profit is the main agenda of business and the focus of social responsibility and ethical decision-making. Therefore, universal normative foundations are required to provide homogenous and predictable outcomes that sustain the status quo. According to this view, business only has a commercial function in society and the interaction of a business with employees, clients, producers, shareholders and communities is ultimately to increase profits and has very little to do with justice and social transformation, except indirectly through compliance to legal and other demands of society. Thus, traditional CSR is a phenomenon of modern culture that

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² The stakeholder CSR of Freeman (1984) must be distinguished from the shareholder CSR of Friedman (1992). Shareholder CSR highlights profitability as the main social responsibility of business. Stakeholder CSR identifies various stakeholders with which business need to interact like local communities, employees, environment, etc. In this regard, shareholders are just one of the stakeholders.

³ The paper of Rendtorff is an attempt to deconstruct the tension between business as profit-making endeavour and business as philanthropy with the help of the philosophy of responsibility of Derrida (2008:1).

⁴ Woermann (2013) is of the opinion that deconstruction helps CSR to become more honest by moving beyond reductionism associated with traditional ethics and CSR.

perpetuates a reductionist and fragmented view of reality and society in which business mostly focusses on profit and compliance, as if business is not linked to all other aspects of society (Taylor 2003:1-12). This fragmentation does not imply that traditional CSR is redundant and irrelevant, or, that deconstruction is against traditional CSR. Deconstruction reveals that business is more intertwined with society and cannot be limited to profit-making alone, or that transformation is only the responsibility of government. Deconstruction uncovers the tensions within traditional CSR between business as commercial function and agent in social transformation. This tension is due to the fragmented view of reality of traditional CSR that limits business to profit-making, while excluding the possibility of other functions. This is highlighted by Derrida's deconstruction of the gift that views business as a commercial enterprise and social institution for the benefit and transformation of society. Thus, deconstruction acknowledges the complex and socially connected status of business in society and that business is an agent of social transformation, amongst others.

The problem is that the role of deconstruction in CSR is aporetic⁵ and under negotiation because of the criticism, from traditional CSR theorists, who claim that deconstruction undermines the integrity of CSR because of the perception, amongst others, that deconstruction is relativist and lacks a normative foundation for business decision-making. Therefore, some scholars embrace deconstruction and explore the possibilities it has to offer CSR; while others are sceptical and view aspects like irreducibility as a danger to responsible business practices. In this study, the focus will be limited to the research of Campbell Jones that explores the opportunities that deconstruction has to offer CSR to become an honest practice that reveals the aporetic nature of CSR; and Richard T. De George's traditional⁶ CSR, that responds with extreme suspicion of deconstruction because of its perceived inherent undecidability and relativism that undermine the commercial function of business. The conflicting views on deconstruction of Jones and De George highlight the (im)possibility of normative foundations in CSR. In other words, the problem is that, according to Jones, the suspension of normative foundations of traditional CSR and the elusiveness of decision-making are important contributions of deconstruction; while De George rejects deconstruction because it undermines the possibility of universal normative foundations and decision-making in CSR. Thus, the question remains whether deconstruction has a normative foundation that can contribute to justice and transformation.

The hypothesis of this study is that the appearance of the other as a function of justice and transformation is the normative foundation of deconstruction that is imbedded in the practice of CSR. In other words, deconstruction in CSR can decentre traditional CSR, thus, opening the possibility that business can be a function of justice and social transformation. This outcome is possible if business is viewed as an integral part of society and important agent, amongst others, in social transformation. Although Jones's aporetic position has a more holistic view of business in society, he unfortunately does not explore the constructive dimension of deconstruction as a function of justice and social transformation in his article. It will be argued that a key strength and normative aspect of deconstruction comprise the possibility of transformation with the appearance of the other. However, for business to

⁵ The word *aporia* was developed from the Greek *aporia* that means impasse, difficulty of passing, lack of resources, puzzlement. In the Platonic sense it is associated with the dialogues of Socrates that ends in puzzlement. For Aristotle it rather refers to a problem to be solved. In contemporary literature, it is closely linked to post-structuralism and Jacques Derrida who refers to the binary oppositions and paradoxes that are present in writing. These *aporia* need to be revealed in writing to discover the voice of the other or those aspects that are not central to the strategy of the text.

⁶ Woermann (2013:98) notes that "De George's position is indicative of traditional conceptions of CSR, and what is lacking in these conceptions is a critical reflection on (as opposed to merely a comparative account of) how our theories and embedded practices shape our views of morality and responsibility (as enacted in CSR)".

contribute to social transformation, the normative dimension is located on the margin, the other, beyond the centre of society. If the other is merely an aspect of society, it leaves little room for transformation. The other then becomes one among many other stakeholders. Social transformation is far more inclusive and affects society as a whole and business as an aspect of society when the other appears. This is the strength and normative aspect of deconstruction. Recognition of the other creates the possibility of justice and change. This hypothesis is presented with the full awareness that the reference to normative foundations is already under the sway of deconstruction itself. However, it will be argued that the sway of deconstruction is rooted in the possibility of justice that is beyond the finality of the law. Deconstruction highlights that CSR is an immanent event and that the normative foundations of CSR are embedded in this event through the appearance of the other that transforms society. Thus, deconstruction resists stakeholder engagement that attempts to manage CSR by means of erasing stakeholders who appear and challenge the status quo. The inconsistencies that result from the appearance of the other is the basis of justice that challenges the law and results in the possibility of social transformation and CSR that is practiced with philosophical integrity (Rossouw 2008). Thus, deconstruction has a constructive dimension that will highlight that CSR is an immanent phenomenon that is able to critically manage the inconsistencies and peculiarities of real situations by engaging the other without regressing into the safety of universalism and reductive rationality. In other words, deconstruction highlights that CSR is an act of hospitality that welcomes the other as a function of justice and critically manages the complexity of stakeholder engagement. In order to develop this constructive view of deconstruction in CSR, a clear heuristic definition of justice in CSR is necessary to assist practical implementation and decision-making. In other words, the appearance of the other as a function of justice is the normative dimension in CSR. However, this notion of justice must be clearly articulated to assist business to be conducted in a transformative manner. Thus, the following heuristic definition will be proposed that will form the basis of an experimental model of deconstruction in CSR: CSR is a critical immanent event that has the possibility of social transformation through the engagement with stakeholders in order to challenge the traditional functioning and decisions of business. In other words, CSR can be a function of justice and social transformation.

In section one of this study, is a discussion of the article of Jones entitled *Friedman with Derrida* (2007) that highlights the positive contribution of deconstruction. Secondly, follows a discussion of De George's criticism of Jones and deconstruction in the article, *An American perspective on corporate social responsibility and the tenuous relevance of Jacques Derrida* (2008). The third section consists of a reflection on the appearance of the other as a function of justice as the normative foundation of deconstruction with special reference to the gift and hospitality; and the implications of deconstruction in CSR for business and society. In section four an experimental model of deconstruction in CSR will be proposed, unpacked and illustrated by a case study of Royal Bafokeng Platinum (RBP).

2. Campbell Jones

In the article *Friedman with Derrida* (2007), Jones highlights the contribution of deconstruction to CSR by deconstructing Friedman's shareholder approach to CSR. The shareholder approach of Friedman is usually criticised by stakeholder theorists for reducing corporate responsibility to profit-making and compliance to laws and regulations (Stone 1992:442-443). Friedman is synonymous with the following quote that appeared in a 1970 *New York Times Magazine* that describes CSR in a "free society": "There is one and only one social responsibility of business – to use its resources and engage in activities designed to

increase profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud” (Friedman 1962:133; 1970:126). This highlights the role of compliance in the law of shareholder CSR. However, according to Jones (2007:514), this quote is often misused by representatives of the stakeholder theory to construct a shareholder/stakeholder dichotomy. The problem is that this opposition between shareholder/stakeholder perspectives forms the basis of a binary opposition in which one view is prioritised over the other (Jones 2007:514). Friedman’s view of CSR, according to Jones, is thus reduced to the title of his 1970 article that appeared in the *New York Times Magazine*. However, in Friedman’s 1962 work entitled *Capitalism and Freedom* (1962), the same quote appears with a different context in mind. In *Capitalism and Freedom* (1962) the quote refers to “a free economy”, and the 1970 *New York Times Magazine* article uses the quote to describe “a free society” (Jones 2007:515). In other words, Friedman refers to two different things in the two texts but uses the same quote. Further, in *Capitalism and Freedom* (1962) the quote is followed by the following: “Similarly, the ‘social responsibility’ of labour leaders is to serve the interests of the members of their unions” (Friedman 1962:133). Thus, in the context of “a free economy” responsibility is divided and represented by two parties, namely: “corporate officials” on the one hand; and “labor leaders”, on the other (Jones 2007:517). Therefore, *Capitalism and Freedom* (1962), does not contain a unified view of CSR, as is suggested by Friedman in the *New York Times Magazine* article. CSR involves at least two sets of responsibilities that are in tension with each other. In other words, to reduce Friedman as representative of a shareholder view of CSR based on this popular 1970 article is misguided, because there is something “subversive” in Friedman’s understanding of CSR, as is reflected in *Capitalism and Freedom* (1962).

The point that Jones attempts to make is that there is a deconstructive movement in Friedman’s texts that destabilises the neat reductionist boundaries that are erected by the binary strategy of stakeholder theorists. Jones (2007:521-522) concludes: “The point, rather, is that whether we like it or not, Friedman is in deconstruction. Friedman’s text struggles with a set of claims and counter-claims that are inconsistent and at odds with themselves” (Jones 2007:521-522). In other words, Friedman is demonised by stakeholder theorists in order to emphasise the importance of their positions. This is the crucial contribution of deconstruction according to Jones: “Deconstruction involves not avoiding such tensions or seeking to make them manageable...” (Jones 2007:522). Thus, deconstruction emphasises the fact that decisions are “difficult and not reassuring” because they always remain under negotiation and are at most preliminary (Jones 2007:522). This important aspect of deconstruction, according to Jones (2007:518), has been widely used in management and organisational studies. However, in business ethics⁷ and CSR, little attention has been paid to the possible contribution of deconstruction (Jones 2007:519). According to Jones, this is an oversight because deconstruction can be helpful when “negotiating with contamination” by “showing, documenting, and demonstrating the instability of specific boundaries” (Jones 2003:520). Deconstruction has the ability to reveal the complexity of reality without ending with reductive methodologies. Deconstruction deals with the dynamic and temporal nature of reality. Jones (2007:520) highlights that “deconstruction is not a ‘method’ that could be ‘applied’ to another object”. Deconstruction “*is* applied; it is always ‘at work’” (Jones 2007:520). Deconstruction is radically located in time and space. It is radically immanent. It is something that happens when theories, models and applications are created. The moment we write an idea, deconstruction is at work in the negotiation between the inside and outside of the boundaries we need in order to articulate our thoughts. Thus, deconstruction is not an

⁷ The limited focus on deconstruction in business ethics is discussed by Jones (2003:223-248) in the article “As if Business Ethics Were...Possible, ‘Within Such Limits...’”.

instrument of modernity with methods to provide clear calculations to problems faced by business. It rather prepares business for the transformational process involved in CSR because “deconstruction is always already at work” (Jones 2007:521). Jones (2007:523) notes that deconstruction is at work in the “already contested and aporetic space of CSR”.

The active presence of deconstruction in CSR is an honest acknowledgement that the universal foundations of traditional CSR implodes under the strain of reality brought about by the appearance of the other. Deconstruction is an honest acknowledgement of the tension already at work in CSR (Jones 2007:524). Jones (2007:524) notes that the question of the other, is related to the work of Levinas⁸ and his critique of Heidegger’s understanding of responsibility from the perspective of the subject. Responsibility, according to Levinas, is relational⁹. Jones (2003:227) stated in an earlier study that it “...involves a recognition and openness to the face of the Other, which entails as Derrida puts it, ‘a total question, a distress and denuding, a supplication, a demanding prayer’” (Jones 2003:227). Deconstruction exceeds “calculation of advantage, of expectation of reciprocity and of reasons...” (Jones 2003:228). Deconstruction “proceeds not from an autonomous subject, but at the point at which the autonomy of the subject collapses”. Responsibility, according to Jones (2007:524), “involves a response to a call from the other person and that justice involves the impossibility of negotiating the demands of more than one Other, Derrida poses the questions of responsibility in terms of ‘whom to give to’”. Openness to the other is the basis of honest CSR practices because deconstruction is the emergence of “undecidability” as a characteristic of ethics, politics and justice (Jones 2007:524-526). Jones (2007:516) states that in the work of Derrida, responsibility is not positioned in the space of certitude but undecidability. “One is only responsible when one is not sure if one has been responsible” (Jones 2007:526). Thus, CSR is not to “get on with the business of responsibility”, rather, responsibility is when “impossibility, radical undecidability and the lack of coherence at the heart of CSR become a priority”, according to Jones (2007:526-528). In other words, the other continuously appears as part of society (e.g. stakeholder) by challenging business without reaching a point of finality.

Jones (2007:514) is very optimistic about the contribution of deconstruction as a means, amongst others, to engage aporia present in CSR (e.g. the tension between shareholder and stakeholder CSR); and, as a means to understand the limitations of CSR. Jones embraces deconstruction as a means to maintain the philosophical integrity of CSR by arguing that deconstruction expands the limits of responsible business practice. This is done by the appearance of the other that requires further ethical reflection which goes beyond the traditional limits of CSR like the avoidance of risk, amongst others. In other words, deconstruction is critical of the reducibility of traditional CSR. Deconstruction challenges traditional CSR and its universal foundations that focus on increasing profitability and limiting the risk of corporate scandals. Jones tests the limits of CSR, which may seem to reach a point of implosion by decentring the notion of responsibility by the proliferation of stakeholder engagement beyond traditional boundaries. However, the crucial aspect of deconstruction is the assumption that the appearance of the other is already happening and destabilising tradition CSR. Deconstruction through engagement with the other is already transforming business. Thus, the challenge of deconstruction is unavoidable, according to

⁸ Jones (2003:226-228) explores the implications of Levinas’ thought in the work of Derrida more fully in the article “As if Business Ethics Were Possible, ‘Within Such Limits’... (Jones 2003). “Levinas argues that, ‘before’ Being, one is always in a social world, always in relation with other people. So for Levinas the relation to the Other comes before Being, and hence Levinas posits the primacy of ethics over ontology, ethics being not simply a branch of philosophy but first philosophy”(Jones 2003:226)

⁹ See Derrida’s discussion of Levinas in the *The Gift of Death* (1995)

Jones, to honestly acknowledge the aporia already present in CSR and to refrain from reductions and calculations that support the short-term goals of business. This reference to honesty is important because it is reminiscent of the virtue ethics of Aristotle, but this aspect is not developed as a foundation for CSR. For Jones, foundations remain elusive and therefore CSR is aporetic. Unfortunately, Jones does not develop a normative aspect or stipulate how responsibility and the other can provide a normative foundation for justice and transformation in the practice in his aporetic CSR (See Fig. 1). For Jones, the other appears as stakeholders who challenge business to move beyond a commercial function. The radical aspect of the other as a change to society as a whole and business specific, as a function of justice and transformation remains undeveloped. In Jones's article the face of the other becomes an abstract concept that destabilises business activity and may result in the spectre of relativism. These aspects of undecidability and relativism take centre stage in De George's criticism of Jones.

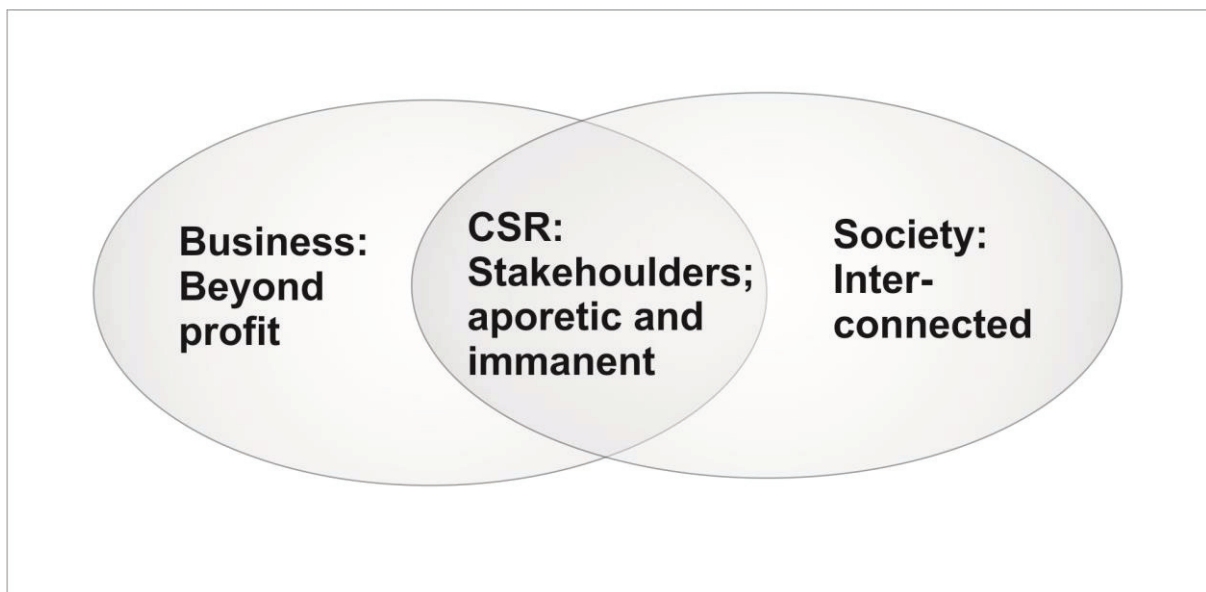


Figure1: CSR as aporetic

3. Richard T. De George

De George, in the article *An American perspective on corporate social responsibility and the tenuous relevance of Jacques Derrida* (2008), is critical of Jones's optimism of the usefulness of deconstruction for CSR. De George's critique of Jones starts by focussing on the contextual differences between business ethics and CSR in the United States of America and Europe. He argues that the social dimension of European business may be more open to the role of deconstruction. Next, De George contextualises Friedman's shareholder CSR in an attempt to highlight the inconsistencies of Jones's deconstruction of Friedman that ends in undecidability and relativism.

In the United States, according to De George (2008:74), the focus of business ethics is on individual morality and ethical theories like those of Kant, Mill, Aristotle, Rawls, pragmatism, feminism, theories of rights and justice. In Europe, corporations are integrated into the social fabric of society and employees receive more social benefits (De George 2008:74). The difference between CSR in the United States of America and Europe, according to De George (2008:80), has to do with the structure of society. De George (2008:80) notes that in the United States of America the focus is on the individual and "the actions of individual corporations or business executives" (De George 2008:80). This differs from Europe that has

a stronger social focus reflected in the structure of society and “the business-government relation” (De George 2008:80). In other words, the focus of deconstruction on social issues and justice is probably more adapted to the European context. According to De George (2008:80), the task of deconstruction of looking for “hidden contradictions” in foundational structures, characteristic of Western thought since the Hellenistic times, is an attempt to undermine accepted beliefs and presuppositions of business in the United States of America. De George (2008:80) notes that this demonises deconstruction as the antagonist of what is acceptable. Therefore, the agenda of deconstruction is foreign to the context and seems like an attempt to undermine the value of business in the United States of America. The negative effect that deconstruction may have on business highlights De George’s traditional view of CSR that is rooted in individualism and free-market capitalism.

De George (2008:75) argues that the 1970 article of Friedman is a response to ideas related to the development of CSR in the United States of America that goes beyond a reductive focus on profit. Rather, it was influenced by contextual events like World War II, environmentalism and the Vietnam War. Friedman responds to these events in his 1970 article in order to give a “...voice to a number of business people who felt an incompatibility between their business responsibilities and the new demands that were being thrust upon them” (De George 2008:76). Friedman, according to De George (2008:76), therefore argued that economic, legal, social, environmental and other expectations that are demanded by society go beyond the purpose of business. The strategy of De George is to undermine the argument of Jones in terms of its subjectivity and failure to deal with the historical situation to which Friedman responds. From this, De George’s focuses on globalisation and diverse social expectations and the opportunism of interest groups that may use CSR for political gain.

De George (2008:76) notes that although moral and ethical responsibility always remains the same no matter what culture or context the business operates in, globalisation changed the way CSR functions. The reason for this is that CSR is context specific and reflects the “expectations and demands of the societies in which the corporations are found and/or where they operate” (De George 2008:76). CSR is influenced by the demands that society places on business as a result of “conventional morality” that goes beyond the law (De George 2008:77). Thus, stakeholder engagement has to deal with societal differences that may be the result of history, culture, gender, geography and other factors. According to De George (2008:77), the difficulty that corporations face is to make a distinction between societal expectations and what is written into law. CSR is complicated by the role of interest groups who use sophisticated rhetorical mechanisms that manipulate businesses to support their particular agendas, although it may not seem to be in the general interest of business or society to do so. The expectations that business has to deal with may be those of minorities who because of their influence, force business to adhere. Thus, societal expectations may be opportunistic and in many cases beyond the expectations of law. Deconstruction and the role of the other support the opportunism of minorities (De George 2008:77). This, according to De George (2008:77), is clear from the example of pharmaceutical companies that refuse to provide anti-retroviral drugs to Africa while they publish glossy magazines promoting CSR¹⁰. The problem, according to De George (2008:77), is that it is unfair to make these companies solely responsible for the burden of HIV/AIDS (De George 2008:77). De George is correct that opportunism and the politics of interest groups may detract from CSR. However, it is an open question whether deconstruction and the other can simply be reduced to opportunism.

The universalism of traditional CSR becomes more apparent in De George’s criticism of the lack of normative foundations of deconstruction and the danger of undecidability present in Jones’s deconstruction of Friedman’s shareholder CSR (De George 2008:81). De George

¹⁰ This example is used by Jones, Parker and Ten Bos in *For Business Ethics* (2005) as case study of deconstruction in CSR (De George 2008:77).

(2008:81) states that the deconstruction of Friedman by Jones evokes and provokes. It evokes Hegel's master/slave dialectic and Marx by claiming that Friedman presents two responsibilities in *Capitalism and Freedom* (1962) namely, corporates and labour unions that emphasise the socialist context of European CSR. The article also provokes by claiming that "Friedman does not know what he is talking about" when referring to a "free economy" and "free society" (De George 2008:81). However, according to De George (2008:81), this provocation is a subjective and inaccurate interpretation of Friedman because the reference to a "free economy" and "a free society" in terms of shareholder responsibility, is the "same whether one speaks of a free economy or of a free society, which for him requires a free economy" (De George 2008:81). Thus, it is misleading, according to De George (2008:81), to refer to a slippage or lapse in Friedman's use of the quote that refers to shareholder responsibility.

Positively, De George (2008:81) acknowledges that the binary strategy between labour and capital used by stakeholder theorists is exposed by Jones. However, this is as far as he is prepared to go because according to him, the notion of the other and social change is beyond the purpose of CSR. De George (2010:200) states that "...although corporations are created to serve the common good, it does not follow that an appropriate end of every corporation is the improvement of general welfare, except by its appropriate business-related activity" (De George 2010:200). Thus, direct social change is beyond the responsibility of corporations. Justice and transformation is the responsibility of individuals and governments. CSR focuses on containment, according to De George (2010:201). CSR is a mechanism to limit the harm that corporations may cause society and the environment in their business activities. Corporations are mainly indirect agents of change by complying with the legal and policy demands of a society (e.g. Broad-Based Black Economic Empowerment (B-BBEE) in South Africa). In other words, corporations mainly have a commercial function in society. Corporations are separate entities with the purpose of profit-making, and CSR is a way of enhancing the business objectives of corporations with the least harm to society. This reflects the modern tendency of traditional CSR that fragments society and CSR. Traditional CSR has to do with corporations and not justice or social transformation because corporations are not viewed as agents of transformation in society.

The traditional CSR of De George follows the fragmentary view of society that consists of various components of which business is a part. This traditional perspective of De George is emphasised by his criticism of deconstructions, perceived relativism and undecidability. De George (2008:83) is unnerved by the fact that Derrida does not have an ethical theory in line with classical modern ethicist (e.g Kant, Mill, etc.). De George (2008:83) opines of Derrida, "His aim is not to explain and justify any existing morality, conventional or otherwise, or to propose an alternative morality". According to De George (2008:83), Derrida disrupts traditional ethics (Aristotle, Kant, Mill, Marx and Rawls), because he questions foundationalism that results in the absence of "rules to follow or duties prescribed" (De George 2008:82). In other words, for De George, deconstruction is a disruptive philosophy that undermines the normative foundations of ethics and CSR because it does not offer universal answers to ethical problems. The consequence is that CSR and business are left with more questions than answers. However, this inclination to provide answers is an attempt to stabilise and re-assure business of the corporate agenda of CSR. This re-assurance highlights that business aspirations are the central agenda of CSR. Thus, the relativism of deconstruction has practical implications for business because it is not clear that "...Derrida recognizes any objectively right action, and hence one is always unsure because there is nothing to be sure about" (De George 2008:82). It seems that, according to De George

(2008:81-82), deconstruction may lead to CSR that succumbs to “undecidability”. De George (2008:82) states, “The unsettling aspect of the act of deconstructing, however, is that we seem never to get an answer, and that whenever we arrive at an answer we are assured that it must be wrong. This makes informed action difficult, if not impossible, and reduces those in business who have to make decisions, or their critics, to the position of an undecided Hamlet”. In other words, deconstruction embraces undecidability at the expense of decisions, action and conclusions.

However, according to De George (2008:82), the “task of CSR is a different task, namely influencing those in business to act in a way that is more positive in its effects on human beings, on the environment, on the common good than is often the case...”. The aim of CSR is “tampering the destructive and rapacious tendencies of unregulated big business, and has had some success in curtailing some practices harmful to people. To the extent that if it has had any success in improving the lot of human beings, CSR is a positive force in the business arena, even if poorly understood by its practitioners, even if rife with irresolvable conflicts, and even if it is in the process of deconstructing itself” (De George 2008:83). Therefore, the challenge that CSR must be open to the other makes little sense because businesses are “...engaged in production and exchange. For profit organizations are by definition self-interested entities. They are not formed to give away what they produce as gifts. They do not open themselves up hospitably and risk being taken advantage of by anyone who chooses to do so” (De George 2008:84). According to De George, the other is the antagonist of business and CSR. Business has a commercial function in society and therefore the other only interferes with this function.

To conclude, De George (2008:85) states that Jones “wants to change business practices with respect to exploitation, pollution and other areas”. However, “his adherence to Derrida’s approach does not permit such wholesale condemnations or judgements about what is right and wrong” (De George 2008:85). Jones is “against business ethics”, according to De George (2008:85). The undecidability and relativism of deconstruction are major problems for De George (Woermann 2013:103). The reason for this is that it lacks clear normative guidelines for application and is more orientated to social issues like in the case of business in Europe. Another aspect that De George raises is that, although deconstruction contributes to philosophy and literary theory, it is in conflict with liberal ideas of business practices e.g. self-interest and profit. In other words, De George’s fragmented view of society, the yearning for universal values, and decidability reflect a traditional view of CSR. CSR contributes to the function of business to make profit and compliance to legal directives (See Fig. 2). In the next section, it will be argued that the normative foundation of deconstruction is the appearance of the other as a function of justice and social transformation. This will become clear in the deconstruction of the gift and hospitality as key concepts that Derrida uses to discuss the economy, thus addressing the criticism of De George.

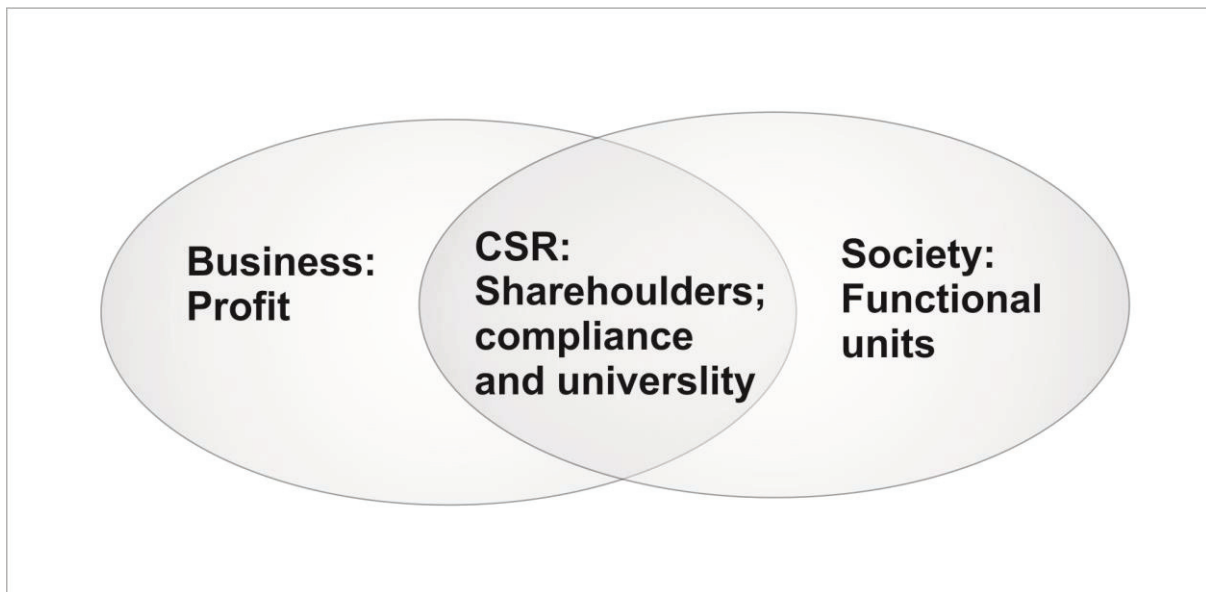


Figure 2: CSR as compliance to the law

4. Deconstruction in CSR and Justice

The conflicting views on deconstruction of Jones and De George highlight the (im)possibility of normative foundations in CSR (See fig. 3). On the one hand, Jones is critical of the universal normative foundations of traditional CSR that fails to respond to the other, and on the other hand, De George attempts to selvage traditional CSR because of its usefulness for business. The absence of universal foundations in deconstruction is his major criticism of deconstructions in CSR. Thus, the question is whether deconstruction has a normative foundation that can contribute to justice and transformation.

Jones focuses on the ability of deconstruction to expand traditional notions of responsibility that reduce stakeholder interaction to universal categories. Thus, deconstruction assists CSR to be practised with honesty. Honesty refers to the acknowledgement that reality is complex and cannot be reduced to universal categories. Honesty requires ethical reflection within the situation and the ability to manage inconsistencies and tensions. In other words, for Jones the level of honesty is what separates traditional CSR from deconstruction because universalism and rationalism are tools to reduce the complexity of stakeholder interaction. However, Jones does not delve into the philosophical challenge of deconstruction that deconstructs traditional CSR, society and business. This challenge is rooted in the normative foundation of deconstruction that focuses on the transformation of business and society beyond the fragmented¹¹ view of reality and society that forms the foundation of traditional CSR. Thus, the perception remains that deconstruction can be viewed as an antagonist of business, rather than an inspirational moment of change and justice.

¹¹ It is clear that the focus of deconstruction provides an alternative to the malaise associated with modernism. Taylor (2003:1-12), for example, identifies three dimensions of this malaise – individualism, instrumental reason and political apathy. Many regard individualism as the finest achievement of modern civilisation (Taylor 2003:2), but the right to choose and freedom from the “great chain of Being”, has a flip-side. It also leads to “disenchantment”, lack of purpose and lack of passion – “...the dark side of individualism is a centring on the self, which both flattens and narrows our lives, makes them poorer in meaning, and less concerned with others or society” (Taylor 2003:4). The fragmentation of individualism severs the organic interconnectedness of society and business. The part has to fulfil a function and is not able to contribute beyond that function in social transformation and justice. This has the negative effect of political apathy and business that can become narcissistic.

	Campbell Jones	Richard T. De George
Business	Beyond profit	Profit
Society	Interconnected	Functional units
CSR normative foundation	Aporetic	Law and compliance to universal principles
CSR practice	Undecidability, changeability	Calculation, predictability
CSR agent	Stakeholders	Shareholders

Figure 3. Comparison of the CSR of Campbell Jones and Richard T. De George

De George is suspicious of the possible lack of normative foundations of deconstruction because it may undermine the usefulness of CSR for business¹². De George associates responsibility with individuality, rationality and universalism as the basis for stakeholder interaction. However, at a philosophical level this perspective is rooted in modernism and a fragmented view of reality that separates business and society¹³. Thus, responsibility is bracketed in terms of the rational engagement that has the potential of positively affecting the moral behaviour of business because business is part of society in general, and is more than a profit-making machine with no possible role in social transformation.

At this point it is crucial that Derrida's view of responsibility is explored in order to ascertain whether deconstruction does provide normative foundations for change. It will be argued that deconstruction highlights the fact that justice as a function of the appearance of the other is the normative foundation for social transformation that is imbedded in the practice of CSR. Although Jones develops the role of deconstruction as an honest CSR practice, he fails to develop the role of deconstruction as a means to transform fragmentation the fragmented view of society that reduces business to a commercial function. Thus, the normative foundation of deconstruction that decentres business and the fragmentation of modernity are not explored. This process of decentring views business as an integrated part of society with the ability to participate in social transformation and justice. The discussion of deconstruction, its view of the economy and justice in the next section will reveal that deconstruction in CSR is a critical immanent event that has the possibility of social transformation through the engagement with stakeholders that challenges the functioning and decisions of businesses.

4.1 Deconstruction, justice and social transformation

Deconstruction is mainly associated with the work of Jacques Derrida and post-structuralism (Melchert 2011:700-703). Deconstruction developed as a linguistic theory that aims to reveal the limits of metaphysics¹⁴, associated in Western culture with logocentrism¹⁵ - the presence

¹² Woermann (2013:114) notes that, according to De George, "Derrida's ethical relation is incompatible with the logic of organisations, defined as profit-making entities".

¹³ Traditional CSR like the model of Schwartz and Carroll functions with clearly defined categories of economic, legal, ethical and philanthropic responsibilities that can reduce the importance of ethics as a "nice to have" (Woermann 2013:134).

¹⁴ Derrida (1982:213) states: "Metaphysics - the white mythology which resembles and reflects the culture of the West: the white man takes his own mythology, Indo-European mythology, his own logos, that is, the mythos of his idiom, for the universal form of what he must still wish to call Reason".

¹⁵ The notion of Heidegger of *dasein* ("being here") is the foundation for reflection and meaning that is explored by structuralism (Melchert 2011:700-703). In other words, understanding is not linked to authorial intent or interests. Rather, understanding is dependent on the text that is present. This emphasises the linguistic and grammatical reality that is contained in the text. According to Derrida, this fixation on presence is part of the Western philosophical tradition going as far back as Plato - "...from Plato to Hegel (even including Leibniz) but also...from the pre-Socratic to Heidegger, always

of the spoken word. The priority placed on presence in Western culture is also highlighted by the notion of *dasein* or “being here” of Heidegger. Derrida highlights that presence is only constructed on the basis of the absence of the other. In other words, any text is an ideological construction with a central thrust or strategy that marginalises the other. The aim of deconstruction is to reveal this hierarchical construction of reality that is reflected in linguistic reality. For example, the patriarchal gender role of male/female is built on the priority given to the male side of the dichotomy. Deconstruction interrupts this construction by emphasising the presence of the female or other. Thus, deconstruction is a moment of justice that exposes patriarchal gender stereotypes. This has important implications for applied ethics, because there is a critical moment that incorporates justice as a means of transformation in the process of ethical decision-making. In other words, applied ethics is not merely understood as the practical implementation of good moral practices. It actually goes a step further by revealing and transforming unjust moral practices, thus expanding applied ethics and its philosophical integrity. In this regard, the entry of the other is the normative foundation for justice and the constructive basis for transformation.

Derrida (1972:xiv) highlights the constructive dimension of deconstruction by stating that it “...is not a form of textual vandalism designed to prove that meaning is impossible. In fact, the word ‘de-construction’ is closely related not to the word ‘destruction’, but to the word ‘analysis’, which etymologically means ‘to undo’-a virtual synonym for ‘to de-construct’. The deconstruction of a text does not proceed by random doubt or generalised scepticism, but by the careful teasing out of warring forces of significance within the text itself. If anything is destroyed in a deconstructive reading, it is not meaning but the claim to an unequivocal domination of one mode of signifying over another” (Derrida, 1972:xiv). Deconstruction is not rooted in abstraction but the singularity of a contextual event. In terms of the example of patriarchy, deconstruction is activated in the event of patriarchal gender stereotyping by the male/female dichotomy. The aim of deconstruction is to reveal the marginalised other in the construction process. Thus, deconstruction is immersed in the singularity of a particular situation.

The situational aspect of deconstruction highlights the complexity of reality as its starting point. This reality cannot be reduced to ethical calculation, because it is a human reality that is continually challenged by the face of the other. It is immanent, involved in the here and now of the situation, and the faces of all involved. It does not succumb to generalisation or universality. However, it is in the moment that the face of the other appears as critical intervention in the ideological strategies of the centre. Justice acknowledges that the hierarchical engagement between centre and margin can only be transformed when the other appears. Thus, justice resides in the “disjuncture of the ethical relation with the Other” (Woermann 2013:113). The appearance of the other requires a decision to respond or refrain from responding. Woermann (2013:116) states that justice is the “moment of decision”. Thus, De George’s criticism regarding the danger of undecidability and relativism of deconstruction is undermined. Woermann (2013:107) states that deconstruction is “not a relativist stance, but a modest stance geared towards openness for otherness”. This notion of justice has the constructive potential to bring about transformation in society. Deconstruction

assigned the origin of truth in general to the logos: the history of truth, of the truth of truth, has always been...the debasement of writing, and its repression outside ‘full’ speech” (Derrida 1976:3). Derrida refers to this fixation as logocentrism or the immediate rational presence of truth in consciousness that is articulated in spoken words (Derrida 1972:xiv, 1976:11). In other words, writing is secondary because it is less trustworthy and more likely to be open to distorted interpretations. This is a fallacy because all reality is structured by language or texts. According to Derrida (1976:11), the priority given to speech is misleading because of the interdependence of speech and writing – speech is writing in oral form and vice versa. In other words, logocentrism disguises the violence of construction and reduction of reality. It serves power and ideology in the name of justice and liberty.

does not succumb to relativism, as may be inferred from Jones's aporetic CSR. It has a constructive moment of justice that results in social transformation. This transformational aspect is clearly introduced in the deconstruction of the gift.

4.2 The gift and hospitality

The gift is important because it reflects Derrida's view of the economy. The gift, according to Derrida (1991:18), consists of a binary relationship between giving as an act that perpetuates the economic cycle, and giving as an act of intervention without re-appropriation in the economic cycle – a moment of justice. The former refers to giving that pre-empts a response from the receiver. This response stimulates the economic cycle. It is a gift that is not a true gift in the Kantian sense (Goosen 2007:179). The true gift is transcendent. A gift is a sacrificial act that is beyond self-interest (Goosen 2007:179). Goosen (2007:180) notes that this perspective denies all forms of reciprocity and interdependence. The gift is a sublime-unilateral event in which the subject becomes a passive recipient (Goosen 2007:181). In other words, it is giving without expectation of a response. Derrida (1991:18) states that "the gift is precisely, and this is what it has in common with justice, something which cannot be reappropriated". In other words the gift is an act of justice. Thus, the "...idea of justice' seems to be irreducible in its affirmative character, in its demand of gift without exchange, without circulation, without recognition of gratitude, without economic circularity, without calculation and without rules, without reason and without rationality" (Derrida 1991:55-56). However, this gift is not the result of duty. It happens with the appearance of the other. The presence of the other triggers the gift and the possibility of justice. Caputo (1997:149) notes that "justice is the welcome given to the other in which I do not, as far as I know, have anything up my sleeve; it is hospitality...". Thus, the narcissism of the economic cycle is interrupted by the appearance of the other that requires hospitality.

Hospitality transcends the boundaries of communities by opening up traditional ideas of inside and outside – it is when the other is recognised. Recognition makes intervention and hospitality possible. It emphasises that the arrival of the other results in transformation and the re-evaluation of limits – inside and outside. It transforms the inside. Derrida (1995:199) refers to this as hospitable narcissism. Derrida (1995:199) states that there are various degrees of self-love or various economies of narcissism - "There is not narcissism and non-narcissism; there are narcissisms that are more or less comprehensive, generous, open, extended...". The more "comprehensive narcissism" is hospitable narcissism, thus, "...one that is much more open to the experience of the other as other" (Derrida 1995:199). Caputo (1997:149) refers to "hospitable narcissism" as "interrupted and ruptured narcissism". The appearance of the other interrupts "uninterrupted narcissism" or contemptible crude self-interest. The point is that all love starts from self-love. It makes love of God and the other possible – "a movement of narcissistic reappropriation" (Derrida 1995:199). Without this reappropriation, the relation to the other will be destroyed. What is necessary is "a movement of reappropriation in the image of oneself for love to be possible...love is narcissistic" (Derrida 1995:199). Therefore, for the gift to remain a gift, the narcissism of the cycle must be broken by what is absent – giving without self-interest, a moment of madness or sacrifice when the other enters the cycle and disrupts the narcissism. It is the moment when the gift is given without reappropriation – forgetting that a gift was ever given. The economic cycle and hospitality is crucial for a gift to be a gift. The one cannot exist without the other because the economic cycle without intervention becomes narcissistic and self-destructive. The implication is that the gift annuls itself because the moment the gift is a function of a reciprocal cycle, it is no longer a gift (Derrida 1991:11-12). Then the gift turns to poison –

die *Gift vergiftet* (Caputo 1997:141). In the same way giving without response destroys the gift. When everything is a gift, the gift disappears and the gift is annulled. However, the appearance of the other is bound to time and space – it is an immanent or contextual event. It also contains a transcendent aspect reflected in the sacrificial act of giving that happens when the other appears. Stoker and Van der Merwe (2012) refer to this paradoxical character of deconstruction as immanent transcendence. The appearance of the other as a function of justice is a normative aspect that requires a decision - hospitality. This is beyond the stakeholder engagement of Jones that results in undecidability. It is a transformational moment. Thus, deconstruction highlights the possibility that business is not limited to the economic cycle and profit-making because business without hospitality, will destroy the aims of business. Business is part of society and has a role to play in justice and transformation. The role of justice and transformation with the appearance of the other has important implications for CSR as a vehicle for change.

4.3 Deconstruction in CSR

Contemporary CSR theory emphasises the role of stakeholder engagement. In other words, it highlights engagement with the other. The problem is that rationalism and universalism result in CSR that does not invoke change and justice. It affirms business as usual. In other words, CSR and stakeholder engagement can become a self-serving programme that does not bring about transformation. This may be the unfortunate implication of Jones's aporetic CSR that results in no transformation because of undecidability or strategic stakeholder engagement (Porter & Kramer 2006). Paine (2003:327) warns that this approach conceals a dangerous undertow. "On the surface, ethics appears to be gaining importance as a basis for reasoning and justification. At a deeper level, however, it is being undermined. For implicit in the appeal to economics as a justification for ethics, is acceptance of economics as the more authoritative rationale. Rather than being a domain of rationality capable of challenging economics, ethics is conceived only as a tool of economics". CSR becomes an institutional tool that affirms institutional values. The gift that transforms nothing is a clear departure from the economics of Adam Smith that highlights that both sympathy and self-interest are the basis of a moral society (Sen 1999:27-28).

Moriceau (2005:97) states that institutionalising CSR into a series of measures, standards and ratings is turning investors and directors away from the faces of stakeholders. CSR is emptied of its quality of commitment, and of a certain kind of responsibility towards issues in society. This is exacerbated by the sway of modernism that passes social responsibility on to specialised entities. In other word, standardisation and specialisation are increasing the distance between companies, investors and other stakeholders. The problem, according to Moriceau (2005:97), is that the construction of stakeholder types is already alienating because it constructs a common type. However, responsibility is singular, facing someone. "It is something eminently singular, a proper noun rather than a common noun" (Moriceau 2005:97-98). Traditional CSR constructs universal types of stakeholders that may result in depersonalisation and the error of omission of stakeholders that fall outside the constructed categories. The face of the other is erased and constructed into a controllable essence. Thus, responsibility becomes abstract, sterile, predictable and decidable. Traditional CSR can reduce reality, humanity and life to matters of mechanical processes, complying with a tick-list and prescribed functions of responsibility without changing anything. However, undecidability, as is the case with Jones, may lead to malaise without transformation. Facing the other challenges business; it requires interruption and the gift as a hospitable response to the chaos of injustice. The appearance of the other requires a decision that has the ability to

transform society and the lives of people. It does not remain in a space of undecidability. It requires reflection, balancing goals and guidance. This decision does not involve calculation according to modern rules, but rather engagement and hospitality. The decision “remains to be invented, to be brought into existence. Deciding means producing a possibility” (Moriceau 2005:100). Deciding is ethical and deals with the complexity and impasses of reality. Thus, CSR and the contribution of deconstruction fail if they are not located in the present, singularity of the situation in which transformation happens.

However, according to Derrida (1995:199), the other is already present in the situation. Hospitable narcissism is what makes the economy possible and at the same time interrupts it as an act of justice. Deconstruction in CSR decentres business and transforms society as a continuous act. It is not about CSR that advances the programme of the corporate business or a space of malaise. It is CSR that has the possibility to expand the scope of business beyond self-interest (Rendtorff 2008, Paine 2003). In other words, the other appears and interrupts the narcissism of traditional CSR. According to Derrida, this is an act of madness, because it interrupts the economic cycle or the strategic goal of business with a gift - the Kantian transcendental moment. The interruption implies that business is an important aspect of society and agent of social transformation. However, the moment of interruption does not arrive out of guilt. It arrives as a consequence of the interconnectedness of society and the singularity of the event. The tension between the economic cycle and hospitality erupts. The economic cycle deconstructs under the fragility of its narcissism. In this way, CSR has the potential to bring about social transformation. The traditional CSR of De George is from the centre that limits transformation, because business must act in favour of the common good of society that is universally prescribed and ends in the good of business - profit. On the other hand, Jones's aporetic CSR may end in a sterile acceptance of the status quo. The problem with these perspectives is that they ignore the fact that change does not occur because of agreement about the common good of society or the complexity of the present. Change is the result of the appearance of the other from the margin that challenges society as a whole. Thus, CSR is an act of justice because deconstruction does not lead to undecidability and relativism. Woermann (2013:109) states that “Derrida's project – which focuses on different (better) ways of being – is at odds with the traditional way of doing business ethics (as exemplified by De George's position), which is essentially a way of downplaying differences in the name of a common ethical experience, a common moral foundation”. Deconstruction contains a normative moment when the other appears as a function of justice. Thus, CSR is a critical immanent event that has the possibility of social transformation through the engagement with stakeholders who challenge the functioning and decisions of an organisation. The implication is that the subject and in the case of CSR, the corporation, is decentred, because society is decentred by the other. The corporation is organically part of society and an agent of justice when it recognises the face of the other. In other words, justice and social transformation are the centre of deconstruction in CSR. The practical implications of the deconstruction in CSR will be unpacked in the next section with reference to Royal Bafokeng Platinum.

5. Unpacking Deconstruction in CSR

The definition of CSR proposed in section four highlights four salient aspects, namely: immanence, criticism, engagement and transformation

5.1 Immanence of CSR

CSR is immanent and focuses on concrete situations and the complex social relations between different contexts. Deconstruction in CSR is suspicious of general models of CSR that focus on calculation and abstraction which bracket the impact of business on society. It deals with the complexity of the situation and the presence of outliers, randomness and the unexpected. However, it is also not consumed by complexity that can lead to undecidability. Thus, it suggests that not only is historical data relevant in stakeholder engagement, but that current information and events need to be added to make decisions (Woermann 2013:146-147). The focus shifts from accuracy and predictability to understanding stakeholder relations and society. It involves the ability to recognise stakeholders and the power relations that are present. The mistake to reduce an ethical dilemma to ordinary business is often made without realising that it is a problem with serious risks that cannot simply be rationally calculated. Traditionally, business will only engage certain more powerful stakeholders directly, while underestimating others like wage earning workers. Business may view some stakeholders as dispensable. Moriceau (2005:97) views this failure of recognition as the root cause of institutional CSR. However, it also does not engage to the point of malaise. It rather identifies social hierarchies and then acts constructively to transform oppressive situations. Therefore, deconstruction in CSR implies that this model has to be adjusted in terms of the circumstances that arise because power relations continually shift. In other words, stakeholder relations are dynamic because of the interrelationship between stakeholders and the appearance of the other.

5.2 CSR is critical

CSR is critical because the event is the point of departure. It does not negate the complexity of the situation with a general notion of the common good of society. It acknowledges that the interests of minority groups in society are crucial for social change and that laws need to be engaged and evaluated. Woermann (2013:108) notes that "...the task of deconstruction is to challenge law in the name of justice and ethics". Thus, justice is also linked to the moment because the law is never permanent, it is always a "partial and incomplete model of justice" (Woermann 2013:111). In other words, CSR is a critical practice that functions contextually and deals with particular situations, histories and social relations. This has the potential to challenge and change business as a function of social transformation (Paine 2000). It does not accept that the status quo is the only possible way for business and social responsibility to function. It accepts that any discourse or corporate structure is constructed with a particular aim and agenda. These aims and agendas of CSR need to be constantly re-evaluated because of social transformation from the margin.

5.3 Engagement in CSR

CSR is about engagement with stakeholders and the other. Engagement with the other is not directed at only the self-interest of business as a short-term project for maximising profit, it acknowledges the impact of business on society. In other words, engagement means that CSR cannot be reduced to abstract calculations to determine the benefits for business or malaise. On the contrary, CSR is a transformational activity that envisions the long-term sustainability of business in society through face-to-face engagement. Thus, engagement reflects an openness to the other that may transform the functioning and decisions of business and society because business is an integrated part of society. Irresponsible functioning and decisions of business relate to practices that exclude stakeholders and the other through

oversight or business strategies that aim to exclude *disruptive* elements in society. This includes stakeholders who challenge the status quo e.g. societal interest groups. In other words, engagement highlights openness and the possibility of change. These are stakeholder not usually focussed on by CSR because of their low probability risk. However, they can have a high impact on social transformation and justice. Engagement is active and immanent and requires the patience to listen to the story of the other. It is not about calculation. It is personal and concerns human interaction, dignity and respect. Thus, engagement is about respect for the history, motivations, interests, emotions, fears and expectations of society.

5.4 CSR is transformational.

It affirms that the agents of change are not only individuals and governments. Business as a part of society can also be an agent of change. However, change does not come about through ideas related to the common good and laws. Change is a function of engagement with the other. Thus, change through engagement is transformational. It is a process that takes place over time. It requires continuous engagement. It is about the awareness of the preliminary nature of decision-making and the need for evaluation. The process is open-ended because life is open-ended. It affirms that mistakes can be made. Thus, even mistakes become part of the narrative of engagement with the opportunity to learn from the process.

5.5 A possible model of deconstruction in CSR

Although Jones refers to the fact that CSR is a perpetual state of deconstruction, this aspect is not developed as a means to highlight the role of the other as normative foundation for CSR. A closer reading of the deconstruction of the gift and the role of hospitality is helpful to develop a model of CSR and the role of deconstruction that goes beyond a mere state of aporia and undecidability. In the case of De George, the engagement of business and society remains limited to the function of business to employ members of society and make profit. CSR in this case can then be reduced to compliance to universal principles instituted in laws that govern society and protects citizens from abuse. Any business practice that makes profit through illegal means is irresponsible and unethical. Jones argues that this view of CSR does not take the aporetic nature of CSR into consideration. Laws are never final and universal principles remain under negotiation due to the challenges of contextual differences and the presence of stakeholders not being considered. The responsibility of business cannot be limited to profit and compliance to the law because interaction with stakeholders is always under negotiation and goes beyond the limitations of laws and regulations. In other words, society does not merely consist of functional units, but is dynamic because of the appearance of the other that is the nature of CSR. The problem is that this can be perceived as undecidable and lead to malaise with no transformation. However, according to Derrida, business has to be inherently hospitable to sustain the economic cycle. This expands the role of the other beyond a societal function. The other appears and transforms society and business. The other is not merely an aspect of society, according to Jones. The other is a function of justice and a normative aspect of the engagement of business and society.



Figure 4: Deconstruction in CSR

5.6 Royal Bafokeng Platinum

The platinum industry and the formation of Royal Bafokeng Platinum¹⁶ are a good examples of deconstruction in CSR:

In the 1924's, Hans Merensky discovered the Merensky Reef in the Bushveld Igneous Complex – the world's largest known deposit of platinum group metals (PGMs). Historically, this was a significant time in South Africa between the Natives Land Act of 1910 and the formation of the Republic of South Africa. The Natives Land Act led to ownership of land being transferred from the British to Afrikaners. This had direct implications for the Royal Bafokeng Nation (RBN), a community of approximately 300 000 Setswana-speaking people, whose land is situated on the Western Limb of the Bushveld Igneous Complex. The 'platinum rush' that ensued with Merensky's discovery resulted in major mining companies stripping the RBN of their mineral wealth through the 20th century. The disempowerment of the RBN was within the legal parameter of apartheid policies and favoured mining companies. Legally, these companies functioned within the parameters of the law and the common good of society.

However, legal responsibility was based on a limited understanding of responsibility that excluded marginalised stakeholders or the other who were disposed of their land. These excluded voices became an increasing disruptive element in South Africa society and business. Although CSR was a foreign concept in the early parts of the 20th century, the deconstructive social forces were already present. Resistance to apartheid led to the transformation of South African society and business. This had a major impact on the mining

¹⁶ The information was obtained from the website of Royal Bafokeng Platinum <http://www.bafokengplatinum.co.za/a/history.php>.

activities of Anglo Platinum that mined the platinum that belonged to the RBN. The RBN laid claim to the wealth produced by these mines. This resulted in negotiations between Anglo Platinum and the RBN. The result was that in 2002, the Royal Bafokeng Resources (RBR) was set up to manage the community's mining interests. In 2004, Royal Bafokeng Finance (RBF) was established to develop a diversified non-mining asset base for the RBN. In this year, a 50/50 joint venture was entered into with Anglo Platinum with respect to the Bafokeng Rasimone Platinum Mine (BRPM). In 2006, RBR and RBF were merged to form the community-based investment company, Royal Bafokeng Holding (RBH). Continued stakeholder engagement between Anglo Platinum and RBH, that represented the financial interests of the community, led to the restructuring of 50/50 joint venture with Anglo Platinum in order to transfer control of BRPM to RBR. NewCo Platinum was established and incorporated as a subsidiary of RBH. NewCo was renamed RBPlat in June 2010. The BRPM JV restructuring transaction involved a change in the participation interests of the JV from that of joint control (50% RBR and 50% Rustenburg Platinum Mines, a wholly-owned subsidiary of Anglo Platinum) with Anglo Platinum as the operator, to RBR holding the majority interest (67% RBR and 33% RPM) and operating the JV operations. This transaction became effective on 7 December 2009.

The significance of this example is that the history of the RBPlat has led to a view of CSR that embraces social transformation to address colonial and apartheid injustices. Today in 2014, the significance of this process of deconstruction in CSR is bearing fruit. Since nearly the beginning 2014 workers of the three major platinum companies Anglo Platinum, Lonmin and Impala Platinum are striking for higher wages. This is one of the worst and most protracted strikes in the history of the platinum industry and many in the industry argue that it is the result of legacy issues linked to colonialism, apartheid and inequality in South Africa. Interestingly, since 2014 there has been no strike at RBPlat. What is clear is that the transformational engagement between AngloPlat and the RBN that went beyond traditional stakeholder engagement, led to a hospitable response to the legacy of colonialism and apartheid. Engagement with the RBN (the other) was therefore a response to the need for social transformation in the South African society. The implication is that this is transforming the community and is beneficial to the stability and profitability of RBPlat – the gift.

6. Conclusion

In this study it was argued that the CSR of Jones and De Georges represents an impasse in CSR because of the (im)possibility of foundations for CSR. This (im)possibility is addressed by the appearance of the other as a function of justice that highlights business as an agent of justice and transformation. Thus, deconstruction has a constructive dimension that transforms traditional CSR. This constructive dimension is the basis of an experimental model of deconstruction in CSR. Deconstruction in CSR is an interconnected and inclusive model that changes and adapts with the appearance of the other. Aspects of this model are clear in the case study of Royal Bafokeng Platinum in which case social transformation due to the legacy of colonialism and apartheid, resulted in a hospitable response from business.

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The Cultural Basis for a Sustainable Community in a South African Township

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The article reflects on the cultural basis for building sustainable communities, based on research the writer carried out with the Nova Institute in four South African townships. Changes in personhood and the sense of community are discussed, with the focus on two aspects of traditional African culture: enjoying communication with others for its own sake, as described by Steve Biko, and becoming a person by fulfilling your duties to the community, as described by Polycarp Ikuenobe.

1. Introduction

Towards the end of June 2014, after five months, the strike of more than 70 000 workers at the platinum mines in the Rustenburg area came to an end. It was the longest labour strike in the country's history. During these five months workers did not receive salaries, which resulted in hardship for them, their families and the businesses that depended on them. One of the mines is the Lonmin platinum mine at Marikana, where 34 miners were killed by the police during a strike in August 2012.

The communities around the mines represent a typical picture: in many parts of Africa people flood to cities, towns and huge industries and mines in search of work, and end up in sprawling informal settlements, or as it is popularly called, squatter camps. There is not enough work for all who come. In Africa urban populations have almost trebled in the past 50 years, with informal settlements or slums as the dominant form of urban growth (Sapa 2013).

A problem that has to be faced is that countless efforts to improve the quality of life in Africa have not been very successful. Martin Meredith, in his book *The state of Africa*, wrote that, since political independence, "...more than USD 500 billion of Western aid has been sunk into Africa, but with little discernible result". To this figure must be added the income from resources such as oil and mines that did not benefit the vast majority of the population (Meredith 2005: 683).

In August 2014, Zimbabwean President Robert Mugabe became chairperson of the 15-member Southern African Development Community (SADC), where he is a popular figure. Mugabe has a policy of rejecting foreign aid from the West, and in his opening speech at the SADC he urged southern Africa to reduce its dependence on foreign aid (Munyaka 2014).

The question is: what resources, both material and immaterial, are available within Africa itself to improve the quality of life, especially of the poor? And how should we understand the popularity of Mugabe in the region's official development institution, given the fact that he severely damaged the modern economy of his own country? Is there an understanding of what development should be that is different from the understanding of development in the West?

Not only politicians, but also academics plead for an approach that makes use of Africa's own resources. In 1976 Wole Soyinka of Nigeria, who later won the Nobel Prize, pleaded for "the apprehension of a culture whose reference points are taken from within the culture itself...African academia has created a deified aura around... intellectualism (knowledge and

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exposition of the reference points of colonial cultures). To the truly self-apprehending entity within the African world reality, this amounts to intellectual bondage and self-betrayal.” (Soyinka 1976: viii). And more recently Barry Hallen objected to the extension of a Western philosophical tradition into the African context: “Africa still waits to be discovered, to speak, to be understood” (cf Hallen 2009: 61, 62).

In this article, attention is given to the cultural and mental basis that is available in four townships in 2013, with which dignified, healthy and sustainable communities can be built. Do we find in the poor communities themselves the reference points for a form of development that is not experienced as alienating? Is the Western philosophical tradition sufficient to understand this African context, or do we need an African point of view? Do people find ways to be happy, to support each other and find meaning in their relationships, in the absence of material affluence? Where they manage, with a low ecologic footprint, to live dignified and healthy lifestyles?²

This paper does not measure the happiness or the human development levels of the communities involved. It is an investigation of cultural patterns in comparatively recently urbanised communities.

First, information is given on the research on which this paper is based, and on the communities in which the research was done. This is followed by a discussion of what had become of two aspects of Traditional African Culture in the process of urbanisation. The first aspect is enjoying communication with other community members for its own sake, as described by Steve Biko, an influential Black Consciousness Movement leader who was killed in detention in 1977. The second aspect is the idea that one becomes a person by fulfilling your duties to the community, as described by the philosopher Polycarp A. Ikuenobe. The results of the interviews give a completely different picture of person and community from the traditional picture described by African writers. The discussion of these two aspects is followed by some reflection on the question to what extent the reference points of Western culture are adequate to understand an African community, and what resources are available in the community for authentic development.

2. The Research on which the paper is based

This paper is based on research that Nova did in 2013 in four South African townships (eMbalenhle, Lebohang, eMzinoni, KwaDela) in the Highveld of the Mpumalanga province in South Africa. The purpose of the survey was to determine the overall quality of life of households residing in these townships, in order to establish a base line for future projects to improve ambient air pollution and also other aspects of community life.

These townships are located in an area that was occupied by small towns and commercial farms until coal mines, big industries and power stations started to move in during the 1970s, to make use of the coal and water available in the area.

All four townships have experienced rapid growth over the past decades. The biggest of them, eMbalenhle, which means “pretty flower”, had a population of 118,889 people in the 2011 Census (Frith 2011) and forms part of the town area of the Govan Mbeki Local Municipality. The first town area of this municipality, Secunda, was proclaimed in 1976. It was a completely new town that was built with the purpose to house workers of the second

² The WWF Living Planet Report, 2012, p 60 asks the question: “Is a high level of consumption necessary for a high level of development?” and answers in the negative, cf Fig 39. The Happy Planet Index, which is a project of the New Economics Foundation comes to the same conclusion, for example, Costa Rica's has a high life expectancy, high levels of experienced well-being, and a moderate ecological footprint.

extraction refinery producing oil from coal, after Sasolburg. The town Secunda has approximately 20,400 inhabitants. All of this has been built where there were only farms before.

The other towns where the research was done have also experienced rapid population growth. In 1960 the town of Bethal, that was proclaimed in 1880, had 4 018 White, 214 Coloured, 310 Asiatic and 7 446 Black residents (SESA 2:295); in the 2011 Census, the township eMzinoni, which is part of Bethal, had 31 283 residents and the whole of Bethal had 60,779 residents; in 1960 Leslie, that was proclaimed in 1919, had 320 White, 99 Asiatic and 2344 Black residents in 1960 (SESA 6:590); in the 2011 Census, the township Lebohang, which is part of Leslie, had 31,553 residents (Frith 2011).

The research made use of a combination of research methodologies. Extensive questionnaires were conducted with the primary care giver, or the person as close to the primary caregiver as possible, if 1,149 households (eMbalenhle 559; Lebohang 198; eMzinoni 185 and KwaDela 207), who were selected on random basis from the whole population. From this group, 47 were selected, also on a random basis, for in-depth interviews. The number of interviews makes it possible in some cases to conclude statistically that a majority or minority of the whole population adheres to a certain opinion.

The survey of households is based on the premise that quality of life is determined by the interaction between standard of living, perceived well-being and bodily functioning. It is an instrument that Nova developed by applying the needs theory of Manfred Max-Neef to 25 elements of a household, as defined by Nova, to make it possible to measure quality of life in a very comprehensive way, and also to measure the impact of a particular intervention on the quality of life of households. Qualitative methodologies and semi-structured interviews were used in an effort to hear residents' views on a variety of aspects of everyday life as they experience it.

3. The Idea of Sustainable Communities

Why would we want to build sustainable communities? Sustainability is important both in the ecological and economic sense. Communities use products that are produced by industries and mines. All of these pollute the water and air and damage the ecosystems and agricultural land, which could make present patterns of living unsustainable in the future. In an economic sense, the residents of informal housing and townships remain vulnerable. Many depend on government grants. These grants have increased from 3 million in 2000 to 15 million by 2011. Close to 60% of government spending is allocated to the so-called social wage package, which has more than doubled in real terms over the past decade. This package includes free primary health care; no-fee paying schools; social grants (most notably old-age pensions and child support grants); free houses for the poor and the provision of basic services to households, namely water, electricity and sanitation. Many who have, in a money metric sense, moved out of poverty have accumulated huge debts. These measures have reduced poverty, if measured in financial terms: poverty levels remain very high but have dropped from 57,2% in 2006 to 45,5% in 2011 when applying the so-called upper-bound poverty line. The numbers of those living below the food poverty line have dropped from almost 30% in 2002 to 20,2 % or 10,2 million people in 2011 (Statistics South Africa, 2014).

The improvements in income are not sufficiently based on the efforts from within low income communities, but on what people receive from the government and on debt. They may not be sustainable in the case of facing macro-economic pressures.

It is also important to talk not only about society but about *communities*. Community is important from a Christian perspective. Almost 80% of South Africans regard themselves as Christians, and Christ preached loving one's neighbour. It has been argued that the essence of sin in Christian theology is to withdraw from relations, to be curved into yourself (see for example Matt Jenson, 2006: *The gravity of sin. Augustine, Luther and Barth on homo incurvatus in se*). This implies that the Christian should tend to build relations, which would contribute to community building. That is not, however, always the case in modern societies, where people tend to "be yourself" in an individualistic way, rather than seeing themselves as belonging to some or other group (e.g. the essay by Rob Wijnberg 2011: *Hoe erbij horen vervangen werd door jezelf zijn*). In South Africa the withdrawal from relationships with those staying around you is clearly visible. In the suburb where I stay many people have lived for years next to their neighbours without having any idea who they are. While writing this article, the father of a fairly high-income family in a modern South African suburb was arrested for keeping his wife and five children captive at home for more than twenty years, mistreating them violently. Many neighbours and family were aware of what was going on, but did nothing about it. In response to this trend, many churches in the West have rediscovered the importance of the community. In 2005, for example, the Christian Reformed World Relief Committee in the USA launched a series of publications called "Communities First" (Van Groningen 2005).

African tradition is often said to be communal in nature. Steve Biko, one of the heroes and martyrs of the struggle against apartheid, and still today a strong influence in the search for an authentic African identity, maintained that African society has always been a "Man-centred society" (sic). People would talk to each other, "not for the sake of arriving at a particular conclusion but merely to enjoy the communication for its own sake". Intimacy between friends did not occur, because "in the traditional African culture, there is no such thing as two friends": a whole group of people, who find themselves together, for example because they stay in the same area, are friends. The following quotation is important in the light of the results of research that will be discussed below: "House visitation was always a feature of the elderly folk's way of life. No reason was needed as a basis for visits. It was all part of our deep concern for each other" (Biko1978: 41-42, from a paper that was originally given in 1971).

Many other authors agree. G-C M Mutiso of Kenya wrote: "The community, in African literature, dominates all aspects of African thought. Dances are communal and worship is communal. Property was held communally before the colonial era and there are attempts today to reinstate that practice. This inbuilt bias toward the community means that individualism is always seen as a deviance...." (Mutiso 1974: 83).

From Botswana Gabriël M Setiloane (1986) questions the idea of individualism: "The primary centre of being is the community Africans have a tremendous difficulty with the concept individual. Does such a thing exist?"

Biko's view was not a new idea. In his book *Facing Mount Kenya*, that was first published in 1938, Jomo Kenyatta, who was a leader of the struggle against British colonialism and became independent Kenya's first president, wrote that individualism was associated with black magic. An individual is "one who works only for himself and is likely to end up as a wizard. .. there is no really individual affair, for everything has a moral and social reference corporate effort is the other side of corporate ownership; and corporate responsibility is illustrated in corporate work no less than in corporate sacrifice and prayer"(1985:119).

In his thorough discussion of African conception of personhood and community, Ikuenobe writes: "...it is clear that there is a difference between the Western rational, liberal, and individualistic view of a person, and the African collective, communalistic, and normative

view of the person.” He argues that the group or community “...is not simply the aggregated sum of individuals comprising the community. Instead, the ‘we’ as used here in African culture refers to ‘a thoroughly fused collective ‘we’”. Somebody becomes a person by fulfilling his or her duties to the community. This would explain the “...relative absence of grief when a child dies. But when an old person dies, there is elaborate grief...” (Ikuenobe 2006: 54,56,58).

This sense of community is still regarded widely as part of contemporary African philosophy of life (Hallen 2009: 137, 138, referring to well-known writers such as Ramose, Wiredu and Gyekye).

4. The Impact of Urbanisation on Personhood and Community: Two Voices from South Africa

The erosion of traditional values was observed already in the 1960’s by a Dutch sociologist, Mia Brandel-Syrier, who befriended a number of better-off black residents in a township near Johannesburg. Her research was published in two books: *Reeftown Elite* (1971) and *Coming through. In search of a new cultural identity* (1978).

“*Coming through*” refers to a successful entry into the modern world, or “civilisation”, as the “reeftown elite” called modern Western culture. Western civilisation represented the identity people were striving for. “This civilization was for them mainly three things: church, school and town.” Those who had entered the modern world did so by successfully coming through these three processes: Christianisation (“where it all started”), education and urbanisation. Those who had done so became the elite, they had arrived at the destination that the others were still striving for (Brandel-Syrier 1978: 8,13).

Reflecting on what she had experienced, Brandel-Syrier argued that education and modernisation had weakened traditional communal awareness “which had given sense and direction to man’s life and which had determined man’s values and patterned his behaviour. Nothing has come to replace it, and now there’s just nothing.” For an older generation, Christianity still provided something to hold onto, but “(F)or the modern educated and well-to-do Black the emphasis is now on the external appearance....For him there is nothing but buyable externality...” To fill this gap, some embrace an “extreme individualism” which leads to competition, strife and rivalry. Others want to revive the “dwindling communal consciousness”. But basically, they are available for any strong leader who tells them “what to do, to think, to feel, to like....they are in fact ready to do and think and feel *anything*....Inwardly they are not committed to any particular place, job or education, sentiment or attitude, opinion or preference, affection or conviction. There is no necessary connection between their words and their actions. There is no role consistency, no ego continuity....they are an easy prey for anyone who wants to use them for his own ends.” Similar results of rapid modernisation are found worldwide (Brandel-Syrier 1978: 182 -184). The former president of South Africa, Thabo Mbeki, came to conclusions that are very similar to that of Brandel-Syrier: the weakening of traditional culture left a gap, Christianity failed to fill the gap and it is now filled by nothing. Mbeki went one step further and tried to present a solution.

Both grandfathers of Thabo Mbeki “built the first schools and churches in their communities, both were devout converted Christians and evangelists, severe in their faith; both were prosperous, hard-working farmers” (Gevisser 2007:4). Mbeki’s father, Govan, did not accept either Christianity or his traditional culture: he was a communist, and when he died he wanted to be buried in the dilapidated litter-strewn cemetery at Zwive among the graves of ordinary working folk in Port Elizabeth, and not in his traditional Transkei where his wife still lived.

“The iconoclasm of this final wish was profound, a disavowal not only of his marriage but of the traditions of clan and kinship too. It was an active and final assertion that he belonged more to the urban proletariat of Port Elizabeth than to the amaZizi of Mpukane or the Mbeki household of Idutywa” (Gevisser 2007: 768).

Initially, Mbeki followed his father. He accepted communism. In 1976, in Swaziland, he played an active role in converting student refugees from Steve Biko’s Black Consciousness thinking to the ANC ideologies (Gevisser 2007: 314; 351). He did not, however, reject Black Consciousness thinking completely, but fused it with the ANC’s understanding of international solidarity, making culture a vehicle for the mobilisation of international solidarity (Gevisser 2007: 383). When he returned to South Africa from exile in 1990 he initially made a decision not to go back to his rural roots in the Transkei, but in 1992 he did go “to his father’s birthplace for the first time to participate in his uncle’s funeral, where he realized how little he knew about the place where he came from, because of the ideology of his parents and the exigencies of struggle and exile” (Gevisser 2007: 590). A few years later he began to talk the language of Black Consciousness. His biographer remarks that Mbeki first started to talk about an African Renaissance at about the same time that he was “called back home” by the elders of the clan. Going to his home made him realise that something had been lost that can be revived. Later on, after 2004, his mother hinted that it was like being “born anew” or “born again” (Gevisser 2007: 16, 781).

In an interview with his biographer Mbeki talked about the lack of a strong value framework that could give direction to all and keep this divided nation together. After the interview Gevisser (2007: 324) explained it as follows, interpreting and quoting Mbeki, who in turn quoted “the Zambian”: “The bleak picture he painted of a decultured South African society was one not only of dislocation but of amorality too. Urban Africans had had their ‘cultural base’ destroyed, ‘and there was no value system which in fact replaced it, except Christianity. But Christianity unfortunately was understood as [no more than] going to church on Sunday. So whereas the Zambian would say, ‘You know, the culture of my people does not allow that I do this or that’, here that connection to the culture is gone.’ And nothing has been put into place to replace it. ‘There is no alternative value system, except to the extent that the priest might object or the police might arrest you.’ Nothing emanating from within.”

It is a vacuum that has economic consequences: Mbeki complained that the people asked for help, but that he can’t help them if they don’t want to help themselves, and that no growth rate would solve the problem of unemployment because some people are unemployable (Gevisser 2007: 30, 690).

As president, Mbeki often warned against a culture of acquisition. The dream of true liberation is in danger of being replaced by the nightmare of the quest for personal wealth, the “orgy of victory...filling the loneliness with morbid addictions to prostitution and gambling, with the wilful smashing of the fruits of their victory...” He talked of the “demons” that advised us every second: “Get rich! Get rich! Get rich!” In a speech he said: “The meaning of freedom has come to be defined not by the seemingly ethereal and therefore intangible gift of liberty, but by the designer labels on the clothes we wear, the cars we drive, the spaciousness of our homes and yards, their geographic location...” (Gevisser 2007: 694, 695, 764, 765). That is the “buyable externality” that Brandel-Syrier had observed previously, but now in a more advanced and serious stage.

For many of those who flourished in post-apartheid South Africa, the lack of values that Mbeki observed was not filled with the notion of the African Renaissance, but by the

consumer culture of a modern global economy. Some combined traditional culture and the consumer culture, as can be seen in Nkandla, the traditional home of president Zuma, where his four wives live, which was upgraded at a cost of R246m, as Public Protector Thuli Madonsela "conservatively estimated" (Vecchiatto and Marrian 2014)

To sum up: from literature we can draw the following picture: traditionally, people delighted in the relationship with each other as a group, according to many African writers. If we allow for an element of idealising the past, we can still conclude that the traditional African community is or was structured in a communal rather than an individualistic way, and that the moral person in the African view was formed by the normative attitudes, structures and principles of his/her community and became a (valuable) person through serving the community. Second, traditional culture has been strongly eroded during urbanisation. Christianity has not filled the gap completely, so that the gap that remains is sometimes described in strong terms, such as "nothing coming from within" and "now there's just nothing". If that happens, there is a tendency to define one's identity by externalities.

5. Personhood and Community: Voices from within the Communities

The interviews that Nova did with 47 residents from 4 townships that are near huge industries and mines present a "view from within" on personhood and community.

The general impression one gets when reading the interviews is that respondents are fairly happy and content with their lives, even when conditions are not that good. Joblessness is high. The townships are dirty: the air is polluted, the dustbins are often not collected on time and the waste lays around in the streets, sewage often leaks from the broken pipes into the streets. Many people bathe three times a day, some even four times. And yet interviewees manage to be content in different ways: many have decided that they cannot change things, and that they have to accept things as they are and live with it. Many accept their situation but find strength and consolation in the Bible and in the church, and a positive approach and hope that goes beyond resignation. Others are encouraged by friends or family members.

On the other hand, a significantly large group exhibits the vacuum that Brandel-Syrier and Mbeki spoke about. We now give attention to this group.

5.1 *A person is strongly related to the community?*

The sense of community, as described by Biko and others, can hardly be seen in the responses.

There are the normal problems one can expect, with neighbours who are noisy, their goats that are a nuisance, etc.

Some relate to their neighbours on a polite distance: "I have no problem with my neighbours. When I greet them they greet me back". Another: "I don't have any problem with my neighbours, but it happens. Sometimes when you speak to your neighbour, she/he has changed for you that day. You greet, no response, so you tell yourself that it is the way the person is and even tomorrow I will wake up and greet my neighbour. I am like that."

Many say that they keep to themselves: "No, I don't talk to people, I just sit here at home alone because even when I look at them I get angry at them....When they look at me they think this man doesn't have anything." Another: "There is nothing I can tell you about my neighbours. I stay in my house and they stay in theirs."

For one respondent all is well on the surface or the outside, but behind that it is uncertain: "My neighbours are fine, they don't have a problem.... I will say that they don't have a problem I only see them here outside. I don't know how they are inside their houses, I don't go to their houses."

Gossiping was mentioned several times: "...my neighbours are the ones that gossip a lot... they do gossip and...the whole town has got criminals." Another: "...they will gossip about you, saying you are teaching your children things which are not good."

When asked about the people they trust, many gave similar answers: "...Ai, I don't trust anyone, you mean the person that I trust, no, I don't have anyone that I trust. Except for the granny that I live with, I sometimes tell her about my issues. My brothers and sisters, no." Another: "A person I trust? I do not trust anyone." Q: "You do not trust anyone at all?" A: "Yes I don't" [laughing]. Q: [Also laughing] "How is that so?" A: "I rather trust my shoe." A: "Your shoe? Rather than trusting another person?" A: "Yes, a person is not to be trusted."

The following response gives a good summary of what many have said. There is neither a good nor a visibly bad relationship, people merely stay a distance from each other: "The time that we get to talk, we talk about good things....There is no one that I trust except for my child, because she is the one I tell all my problems....most of the time I don't have a problem with people. I don't spend time with them, I sit in my yard. Even if the people talk badly about me I don't pay much attention, as long as I know I don't speak badly about another person."

There are also those that differentiate between neighbours: "My neighbours are good people, but not all of them, you can count the good ones. There is one that I trust, I can rely on her even if my house burns down, I know that she is the first one that will start putting out the fire... she is a person that makes me happy, she makes me very happy."

5.2 *Service to the community?*

The phenomenon described by Ikuenobe (2006: 56,58, see above), that somebody becomes a person by fulfilling his or her duties to the community, has also disappeared almost completely in significant parts of these townships. When asked to describe their daily routine, many described a day filled with the daily chores in the house, even sleeping during the day to make the time pass. A few examples:

"When I wake up I bath, I wash my face, then I make up the bed, then I clean, then I cook, then if there is laundry I wash it. I clean, then I cook, then I wash the laundry if there is any laundry." Q: "Is that all you do every day?" A: "Yes."

"I wake up and clean and wash the laundry and feed my kids, then from there I would sit with my children and watch TV". Q: "Alright, is there something else that you normally do?" A: "No."

"I am a person who loves TV, who doesn't like walking around, who stays in the house most of the time plus I am not the kind of person with many friends. I prefer sitting alone in the house and watch TV and solve problems because my younger siblings are looking to me...there is no one else they depend on except me."

A pensioner: "When I wake up in the morning, I take a bath. When I finish I would sit down and get some tea, I would drink the tea. If I have to eat then I eat." Q: "Alright, is that all?" A: "Yes." Q: "So, daddy just sits around?" A: "Yes, I sit around, what else can I do?"

"Oh! - [laughter] I just sit and stay at home." Q: "You just sit?" A: "I don't know what to tell you. I just sit alright." Q: "You just sit?" A: "Yes, if I don't have work." Q: "There's nothing you do when you are here at home?" A: "Huh! I clean and cook, and wash clothes." Q: "Is there anything else apart from that?" A: "Mhm-mhm!" (No)

S: "I do spend my day just sitting because I am not working, sometimes to make the day go quicker I sleep and wake up and sleep and wake up in the morning, then I will see the sun set again."

Within the same context, however, it is possible not to be so turned into yourself: "Firstly I wake up and thank for the day – I pray, thank for myself, for sleeping and waking up. When I

wake up I first clean then I cook for the school children. Ok, maybe I then during the day when there are no customers I sleep.” Q: “Ok, I hear you like netball maybe you can tell me maybe when you train at the netball.” A: “We did train early July then we left it as we are restarting again this month.” (She does hairdressing at home for an income, which means she has customers.)

6. Reflection: What have we observed?

Working and resting can together be a significant part of a full and satisfying life. About half, however, have described a daily routine that involves little more than doing the daily chores in and around the house, sitting around, sleeping and watching TV. This is not exactly rest from hard and satisfying work, it is often a description of something different: a certain emptiness, a lack of vision for the future. There is little of the capacity for talking to others, little of merely enjoying their communication for its own sake, no evidence of the intimacy with a whole group of people or house visitation or the deep concern for each other that Biko (1978: 41-42) observed in traditional culture.

Churches in townships are often full, and there one finds the communal dances and worship that Mutiso (1974: 83, see above) talked about. For a large group the church does not play a role in shaping daily life, but we also found that the churches do play an important role in the lives of quite a number of residents, and cannot just be written off, as Brandel-Syrier (1978: 182) and Mbeki (Gevisser 2007: 324) had done.

Mbeki wanted to fill the gap in values that he observed with the African Renaissance, the rebirth of traditional culture and values, which did not succeed - but this culture can also not just be written off. African Traditional culture has proved to be very resilient, but there was no sign that property is held communally (Mutiso 1974: 83 and Kenyatta 1985:119, see above). For this group, everything does not have a moral and social reference, nor do they show any sign of corporate effort, corporate responsibility or corporate work (Kenyatta 1985:119). They do not evidence Ikuenobe’s moral person “that has been sufficiently equipped by the normative attitudes, structures, and principles of his community...‘a thoroughly fused collective ‘we’ ’... (where) the self is indeed the community” and where one becomes a person by fulfilling her/his duties to the community (Ikuenobe 2006: 54, 56, 58, see above).

In the interviews unhappiness about poor service delivery was mentioned. This has led to numerous protest actions across the country over the last years. These protest actions were often accompanied by burning and looting.

Violence, however, is only one response. The most common and enduring response is to survive by keeping quiet, even ignoring the most pressing problems. Silence is an important coping mechanism. According to the Mpumalanga Department of Health and Social Development spokesperson Mpho Gabashane, the Gert Sibande district, in which these respondents reside, has the fourth-highest HIV prevalence rate in the country, at 40.5% (ZIWAPHI 2010) – but during the interviews and group discussions nobody mentioned HIV or AIDS. They cope better with it if they do not talk about something against which they may feel powerless.

A report by Statistics South Africa (2012), *Social profile of vulnerable groups in South Africa 2002–2010* finds that household structures are “severely disrupted” and that children are disproportionately affected. However, nobody reported any significant tensions or problems between household members.

What we have seen is a condition that is often the result of modernisation. Peter L Berger (1974) called it the “homeless mind”, a product of the impact of modernisation on traditional identity.

Can we say that Brandel-Syrier (1978: 182) and Mbeki (Gevisser 2007: 324) are right, that there is nothing left, nothing coming from within? Have these people lost hope?

In his classic book *The nature of mass poverty* the economist John Kenneth Galbraith (1980: 56) describes the phenomenon of *accommodation* of poverty. After a prolonged experience of being poor, perhaps for generations, people accept their condition. “Poverty is cruel. A continuing struggle to escape that is continuously frustrated is more cruel. It is more civilized, more intelligent, as well as more plausible, that people, out of the experience of centuries, should reconcile themselves to what has for so long been the inevitable”.

This statement may be closer to the group of respondents that we discuss here, than stating that there is *nothing* left. They do send their children to school. They do wash and clean and cook. But understanding the passivity described by some residents as reconciling themselves to poverty, also called accommodation by Galbraith, may be the extension of a Western insight into the African context, that Hallen (2009: 61, 62) objected against. The continuing struggle to escape poverty that leads to accommodation may suggest a modern context rather than a traditional context. If we try to explain the results of the research with reference points that are taken from within African culture itself we can refer to the African writers, quoted above, who insist that individualism is foreign to African culture. That means that, when the community falls away during urbanisation, what emerges is not the type of individualism that has developed in modern Western culture, where the individual has a strong sense of identity, a strong will and a strong sense of being the master of his or her own fate. Neither has the fragmented but highly energetic individualism of postmodern culture developed. Modern and postmodern individualism have developed over centuries in Western culture, and will not just appear when traditional African communalism is eroded.

For example: the fact that children go to school does not mean that there is a culture of learning. There is a general lack of interest in good education amongst large sectors of the population: “...the system has failed to reverse unacceptably low exam results or to improve the standard of teaching. The quality of education remains very poor, and the output rate has not improved... challenges include: poor teacher training; unskilled teachers; lack of commitment to teach by teachers; poor support for learners at home; and a shortage of resources in education despite the large budgetary commitments by government” (Matshidiso: 2012).

The absence of a culture of learning is related to the absence of modern individualism. In the 1980’s I was teaching at the University of the North, a “black” university under the apartheid policy of the time. The university was a centre of the struggle against apartheid. There was a lot of political protest, but also cultural protest, specifically against the fact that individual success and failure played such an important role in the university. There were numerous strikes with the slogan “Pass one, pass all!” and “An injury to one is an injury to all!” – where *injury* referred to the fact that a certain student had failed a certain test or exam.

In his comments on Biko’s view of community in African culture, Andries Oliphant (2008: 219) says that the European city, with its large concentration of people, became “mammoth agglomerations (that) pushed small-scale rural communities and the close association between people that they made possible, to the periphery of society”. In these urban areas people are alienated from each other.

Ikuenobe (2006, 60) sees similar developments in other African cultures. Community and personhood are interdependent. Ikuenobe notes that the absence of community would leave a void in the development of the person (quoting Kwasi Wiredu): “Bereft of the traditional underpinnings of this sense of responsibility, city dwellers are left with nothing but their basic sense of human sympathy in their moral dealings with the great number of strangers encountered in and out of the work environment.” Ikuenobe comments that this city dweller “has acquired the Western individualistic and atomistic ethos that is engendered by urbanization and modernization”.

This last statement needs some clarification. The sense of community was very often not replaced by Western individualism, as has been argued above. What we do see is a significantly large group that exhibits what Ikuenobe (2006: 54, 56, 60) describes as a solipsistic and atomistic self.

The social construct that presents the most life-giving alternative for the present context will most probably have to be constructed with a combination of traditional African and modern Western elements of personhood and community.

In the 1990’s Nova did research on coal use in townships. The picture that emerged showed the importance of the coal stove. One mother said: “My coal stove is my life, without it my life would be meaningless because I won’t be able to make a warm house, cook, heat water for my children or iron for them.” (Hoets 1995). Nova’s own research found similar attitudes. One woman said: “Even if there is no food, but there is fire, I am still happy, because the stove brings the family together” (Van Niekerk 1998). In the urban context, where the family is disintegrating, it is very important that they come together around the stove in the evening, where the mother is providing food and family members can tell about the events of the day. This seemed to be a good combination of elements of traditional and modern cultures.

The image that emerges from the present research, nearly 20 years later, is of the mother and children watching TV. The stove, where stories were traditions were passed on and people communicated with each other, has been replaced by the TV. The impact that this will have on family relations, values, and way of thinking still has to be researched.

But the picture we have seen above is not as severe as the picture of life in a trailer park in the USA, as described by Geert Mak. Without exception the residents of this trailer park live inside their trailers, with a TV as their only pastime. A man whose job it is to disconnect and reconnect the cable TV’s in these households says that, every day, he finds there people who are dirty, who cannot read, who do not talk to each other and who have few family and friends. Cable TV is a priority, often even more so than food for the children. There is a new class of silent people for whom TV is their complete existence (Mak 2012: 141-142). In the townships discussed in this article people are not dirty, many bath three times a day. Many in the household do talk to each other and take care of their children.

The question is how the wider community, such as government, the industry and the churches, should respond.

7. How should entities outside these communities respond?

For the authorities, the private sector and civil society the question is how to respond to such conditions. Should an effort be made to restore the traditional community? Is individualism the answer? Is there an ideal combination of the two? Are there other possibilities?

If there are plans to improve the quality of life in these communities, the way in which that is done must be considered carefully. Soyinka’s statement (1976: viii) that African culture must be understood by using reference points that are taken from within the culture itself also

applies to development: it must come from within the community itself. And Hallen's objection against the extension of a Western philosophical tradition into the African context, also applies to the mere extension of a Western developmental tradition into communities such as these: like Africa, these communities still wait "to be discovered, to speak, to be understood" (cf Hallen 2009: 61, 62).

It means that outsiders should not do things for the community that they can do for themselves; that will only increase the passivity and emptiness. Experience teaches that people often do not take ownership of whatever services, projects or products that are provided for them, if they are made into passive receivers.

Before the community can develop towards a better quality of life, it must first understand itself, and speak, and be understood. That requires mutual communication between those inside and those outside the community, until we understand things the same way. Academics, both from within the African communities and context, and those outside of it, must play a role in this process of learning to discover, speak and understand.

8. Conclusion

We can conclude that there has been a significant erosion of the traditional communal sense in the townships. This has left a certain void that has been filled by the Christian faith for some, but also by the consumer culture, while many respond with a passive withdrawal into themselves. These responses are found in many combinations. This mixture carries the risk of social unrest that may lead to violence and destruction, and the passive withdrawal is in itself damaging to the quality of life of the whole community. But all is not lost. Some family relations, especially the relation between mother and child, still serves as an important inspiration to maintain a dignified life.

The wider community, such as government, the industry and the churches, should respond to the needs of the people represented by our respondents. But before doing anything, it is essential to understand the community by using reference points that are taken from within the community itself, not excluding the insights of those who present a view from the outside. The same applies to development: it must come from within the community itself, making use of and strengthening what is there, even if somewhat damaged, such as: the contribution of that part of the community that has managed to overcome or escape the culture of poverty; the Christian faith of many; some elements of traditional culture; the relations between household members that are still providing inspiration; positive relations between some neighbours; the community activities that are going on and the general mood, not of despondence and bitterness, but of happiness and the feeling that life is, after all, good.

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The Informal Sector and Local Economic Developments in South Africa: An Evaluation of Some Critical Factors

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The importance of achieving the goals of a better life for all highlights a critical need to expand our economic development policy levers. Accordingly, the objective in this paper is to examine the critical link between informal sector and the challenges of development in South Africa. Given the heterogeneous nature of the sector, policy instruments aimed at developing the sector cannot be one size fits all. Finally, this paper reveals a number of concerns which can be addressed in future research including policy guidance and methodologies that can be used to incorporate gender into the overall planning of local economies.

1. Introduction

South Africa continues to face key development challenges of poverty, unemployment and inequality. Given the importance of achieving the goals of a better life for all South African citizens, there is a need to explore development alternatives which can lead to a more inclusive form of economic development and economic growth. More specifically, one of the economic sectors that has often been overlooked in economic policy analyses is the informal sector. The increased focus on informal sector is based on the observation that it employs a large number of people and therefore can contribute to poverty reduction. Again, the increased interest in the informal sector is partly driven by an observed increase in the size of the sector. For example, statistics highlight that between 1997 and 2005, about 1.1 million jobs were created in the informal sector (Altman, 2007). Typically, in 2007 it was estimated that there were 3,65 million people in non-agricultural informal employment in South Africa (Wills, 2009). Within the informal sector, street vending remains a dominant form of economic activity. It makes up 15 percent of non-agricultural informal employment, with over 500 000 street vendors in informal employment of whom about 360 000 were women (Wills, 2009). Consequently, the informal sector can be recognised for its role particularly in addressing the development challenges of poverty and unemployment. However, what needs to be recognised is that the informal sector remains largely neglected within the conventional policy making processes. Indeed, an improved understanding of the nature, workings and potential contribution of the informal sector is critical if we want to ensure a more inclusive form of economic development.

The objective in this paper is to examine the link between informal sector and the challenges of development in South Africa. Likewise, the contention in this paper is that improving the performance of informal sector may contribute to a more inclusive form of economic development. Therefore, the emphasis in this paper is to highlight the importance of expanding opportunities for those that continue to be marginalised within the national economic policy development. Overall, the efforts to improve the performance of informal sector should be seen in light of the potential contribution of the sector in increasing the overall performance of the national economy.

This paper is based on the examination of available material in the form of both published and unpublished sources. In analysing the issues affecting the informal sector, this paper acknowledges that the informal economy cannot be viewed purely in economic terms.

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Accordingly, the analysis of informal economy in this paper includes history, political, social and economic issues. More importantly, this analysis recognises the interplay between politics and economy as these factors can enhance or constrain development. In terms of its conceptual framework, the paper is located within the systems of innovation which recognises informal sector as an equally important area of economic policy development. Finally, this paper is organised into four strands of material. The first section examines the importance of incorporating informal sector into the overall planning of local economic development (LED). The second section explores the notion of including the informal sector in the national plans that seek to address skills and human resource development. The third strand of material incorporates a gender perspective in the analysis of informal sector. The last section highlights key conclusions which are derived from the analysis of issues in this paper.

2. The Importance of Incorporating Informal Sector in Local Economic

Development Planning

The analysis in this section contends that the informal sector remains an important actor in the national systems of innovation and can be a critical instrument of local economic development in South Africa. However, it is worth noting that in the past, local governments in South Africa did not play a significant role in local economic development. They mainly existed as administrative instruments of government. Nevertheless, since 1994 there has been a remarkable transformation in local governance from one which focused primarily on the local provision of services and facilities, to one which stresses the deployment of resources and their mobilization to promote local economic development (Rogerson, 1996). This transformation has been accompanied by other transformational processes, such as globalization, decentralization and democratization of local government. These processes have increased the importance of local governments in economic development. Indeed, local governments are increasingly performing a pivotal role in tackling economic and social problems and in managing processes of economic transformation. Likewise, in many areas of South Africa, local economic development is increasingly linked to economic regeneration especially in the context of economic crises evident in many local economies. For example, the crises in mining have added pressure to already struggling local economies. Typically, this discussion highlights that the path to a more successful LED requires specialized capacity in the form of unique competencies on the part of local governments. Indeed, this specialized capacity can contribute to finding a balance between the objectives and a pro-growth and pro-poor local economic development.

Economic development planning has not been inclusive. Therefore, the need for a more inclusive form of economic development highlights the importance of incorporating the informal sector into the overall planning of local economies. This can ensure that the informal sector becomes a critical actor and beneficiary of a growing national economy. Again, this is particularly important to local economic development particularly due to the employment and income opportunities that are generated through the informal sector. What can be recognized is that the incorporation of informal sector into the broader national economic planning is part of an emerging thinking about development alternatives which seek to expand the number of actors in the national economy.

Since local government is not directly responsible for creating jobs, it can take active steps to ensure that the overall economic and social conditions within the locality are conducive to the creation of employment opportunities (South Africa, 2006). The promotion of legal measures that recognises the informal sector as a critical actor in local economic development will serve

to commit local governments to support and facilitate an enabling environment in which informal sector participants can earn a living. More specifically, South African Local Government Association (SALGA) encourages municipalities to be more innovative and to view informal economy as part of local governments' strategies to address unemployment, support livelihood creation, and reduce vulnerability. Consequently, this emerging thinking encourages municipalities to view informal sector development as a key service delivery function. In this emerging context, municipalities need to balance their regulatory function of the informal sector with the need to support livelihoods and employment creation in ways that reflect the agenda of a developmental state (SALGA, 2012).

Informal sector is increasingly being recognised for its contribution local development particularly poverty reduction and employment creation (eThekweni Unicity Municipality, 2001). Focusing on the informal sector is increasingly becoming a crucial element in the success of local economic development (LED) strategies. Indeed, LED provides a major opportunity for localities to improve the local economic growth and the performance of the informal sector. Typically, LED strategies and assessments of local economies should also incorporate the needs of the informal sector. Indeed, it is at the local level that the specific constraints affecting specific activities of informal sector can be better understood and effectively addressed. Bottlenecks facing the performance of the sector can be identified and addressed in order to improve its ability to contribute to improved local productive systems which can generate more employment opportunities. Indeed, the informal sector is glaringly visible throughout the Sub-Saharan Africa. It includes home businesses, domestic workers, street vendors, small-scale artisans, shoe shiners, car repairs, bakeries, and livestock traders and the sector makes a huge contribution to the local economies of Sub-Saharan African countries. Likewise, Table 2-1 reveals that in Africa informal work is often a dominant economic activity alongside the formal economy (Hobson, 2011). This observation is particularly important where neither the public sector nor the private sector is able to provide enough jobs for the expanding labour force.

Table 2-1: Percentage of Informal Activity in Selected Cities

Country	City	Percentage
Benin	Cotonou	61.8 %
Burkina Faso	Ouagadougou	19.9 %
Cameron	Doula	93.2 %
Chad	N'Djamena	57.3 %
Congo	Brazzaville	61.4 %
Cote d'Ivoire	Abidjan	52.3 %
Ethiopia	Addis Ababa	17.4 %
Ghana	Accra	35.8 %
Kenya	Nairobi	2.8 %
Madagascar	Antananarivo	48.8 %
Mali	Bamako	51.0 %
Mozambique	Maputo	3.7 %
Namibia	Windhoek	39.7 %
Niger	Niamey	54.7 %
Nigeria	Abuja	25.0 %
Nigeria	Lagos	11.7 %
Rwanda	Kigali	17.5 %
Senegal	Dakar	16.9 %
Uganda	Kampala	18.9 %

Zambia	Lusaka	6.9 %
Zimbabwe	Harare	84.6 %

Source: UN Habitat, 2008 cited in Hobson, 2011

In sum, it is becoming more clearer than before that self-employment particularly in the informal sector is increasingly becoming a recognised alternative to growing unemployment, particularly among the youth and the poor (Hobson, 2011). Indeed, the contribution of informal sector to LED will become more glaring as local governments push harder to address poverty, unemployment, and inequality. These local government efforts need to be accompanied by specific policy measures such as skills development.

3. Human Resources and Skills Development

The informal sector especially in Africa tends to be characterised by low levels of education amongst the owners and operators of informal enterprises. This situation tends to impact negatively on the training potential of these participants. Therefore, the efforts to strengthen the skills base of informal sector entrepreneurs can be an important intervention in the development of the informal economy. That is to say, the development of human resources in the sector should be viewed as an attempt to help those who are struggling to create productive employment (Grierson, 1997) and as part of broad national skills development policies.

Training can be used to increase the share of new start-up enterprises in economic activities that can yield higher returns rather than simply flooding product lines with activities that may already have large numbers of participants selling in saturated markets (Liedholm and Mead, 1999). That is to say, there is a need to highlight the importance of using skills development to expand economic opportunities for those that continue to be marginalised in the national economy. Indeed, these efforts should also be seen as part of initiatives that seek to increase the overall performance of the national economy and build a more inclusive and coherent skills development system. In this context, skills development in the informal sector can be used to improve the productivity of informal enterprises.

An important initiative relates to increasing access to vocational training especially for those who work in the informal sector. The vocational training colleges can provide a theoretical content and advanced production techniques for those who are already practically engaged on the job in order to improve their knowledge and learning capacity. This intervention can lead to more improvements in the sector as a whole. At the same time, this can contribute to improving the value and quality of the goods and services that can yield higher profits for the informal entrepreneurs.

The technical college sector can become more aligned to both formal and informal sectors of the economy in ways that improve the quality and outcomes of a broader apprenticeship system. More importantly, an improved access to vocational training can bring the world of training closer to the informal enterprise sector. This can create unique opportunities for those who have dropped out of formal schooling as well as adult workers who often have limited access to training opportunities. Therefore, skilling those in the informal sector can contribute to national objectives of social inclusion and poverty reduction. This is particularly important as vocational training enables individuals to acquire skills or a trade in order to pursue a livelihood. However, the history of many vocational training institutions has been intimately associated with employment in the modern sector or in the government's technical ministries

(Pedersen, 1998). Typically, the training for self-employment is often offered outside the formal training systems. Therefore, some weaknesses in the training systems will have to be addressed if vocational training is to benefit the informal sector. More specifically, productive training for self-employment requires hands-on practical skills combined with business skills, which are weak in many training programmes. With inadequate formal training available for the informal sector entrepreneurs, most entrepreneurs learn the necessary skills on-the-job, often from family members or through informal apprenticeship. The problem with traditional practices of training is that they are weak on theoretical content and offer little opportunities for advanced transfer of technology and merely tend to recycle the practical skills already available in local markets (Sverrisson and Pieter van Dijk, 2000; Li and Ye, 2011).

What is emerging from the above analysis is that the subject of technical skills development is central to informal sector development. Developing skills among those who participate in the sector can be one of the significant ways of helping people move away from subsistence activities and gradually progress towards growth and value add activities without which there can be no real inclusion in the formal economy or value addition in the informal sector (Walther, 2011). That is to say, the efforts that seek to develop the informal sector through skills development should be seen within the context of making the national economy works for all particularly by expanding opportunities for the marginalised groups. Growing economic sectors can be identified where under-skilled people find it hard to find employment.

Informal sector should also be targeted as a significant beneficiary of training programmes that seek to develop skills for the economically active population. This is especially because a high proportion of those working in the sector are often trained by the sector itself without any training subsidies (Walther, 2011). Indeed, in Morocco, where the informal sector accounts for 40% of the jobs in urban areas, about 80.4% of employers or employees engaged in production or services sector did not receive any formal training. Again in Ethiopia where the informal sector accounts for 90% of all labour market activities and jobs, 67.86% of employees in the sector acquired their skills through self-training, 26.88% within the family and 3.54% through apprenticeship or on-the-job training, and only 0.09% received any formal training. Again, a survey of 110 leaders of youth associations from Central Africa showed that 60% of the young people who had Bachelor's or Master's degree enter the labour market by acquiring on-the-job experience or doing an apprenticeship in the informal sector (Walther, 2011). For many higher education graduates for whom it can often take up to three years to enter the world of work, the informal sector constitutes an important avenue through which to find work (Walther, 2011). It must also be highlighted that modern enterprises often have difficulty finding the skills they need from those who are looking for jobs. The reason is that in the majority of African countries, training provided by universities and schools is generally not suitable enough to the needs of productive enterprises. By contrast, training provided by informal sector is context specific and readily applicable to the job. Therefore, linkages between the formal economy and informal sector need to be strengthened for the benefit of the economy as a whole. However, it must also be emphasised that generally, the image that is too frequently conveyed by those outside the informal sector is that this economy constitutes a world of inflexible traditions, repetitive actions and technologies that are generally out of date (Walther, 2011). Consequently, this creates an impression that the informal sector is totally out of touch with changes in the modern economy. This is in contrast with the real situation in the sector which has entered the digital era of mobile telephones and internet. For example, in Benin some owners of informal workshops, in order to identify the reasons why cars with

high-technology have broken down, download control software from the internet for the most recent types of cars and use the information to fix these cars (Walther, 2011).

Generic training that is designed as one size fits all may not be helpful in the informal sector as the training needs of the informal sector tend to be context specific. For example, those who had received least education often want to improve their literacy skills so that they can read the technical instructions of the machines they are asked to install and thus be able to repair them. Again, technical and vocational skills development remains a central concern for those who run production and service units in the informal sector. By contrast, those who are more educated often require access to continuing training which barely features in national training, skills strategies and action plans. These observations highlight that skills development in the informal sector has therefore become an issue which needs to be incorporated into the overall national education and training strategies. Indeed, providing skills for people who run the informal production and service units can generate growth in the local, regional and national economies.

Incorporating the informal sector to the countries' training and skills policies requires a paradigm shift in national training systems. Indeed, the public technical training systems cannot continue to ignore the informal sector. The focus of skills development should extend their scope to include the informal sector as part of efforts that seek to skill a greater number of people. Overall, building capabilities in the informal sector needs to be treated as an integral part of inclusive innovation. That is to say, skills development in the informal sector should be viewed as an innovative effort that seeks to expand opportunities especially those who remain marginalized in the formal economy. More importantly, skills development should increasingly enable informal sector participants to develop their often survival activities into more productive value-add economic activities that enable them to participate in the mainstream economy or enable a transition into a formal employment. More importantly, training those who make their living in the informal sector should be accompanied by additional policy instruments such as improved access to markets and provision of credit (African Economic Outlook, 2012). However, these policy objectives and policy levers should not be treated as though they are gender neutral.

4. The Importance of Gender Mainstreaming in Informal Sector Development

Given the importance and relevance of informal sector to the challenges of development and transformation process in South Africa, the issue of gender cannot be ignored in the analysis of the informal economy. Indeed, the issue of gender in the informal sector has often been overlooked with a tendency to treat the informal sector as though it is gender neutral. In light of the disadvantaged position of women in society, this omission is surprising. Therefore, the rationale for gender mainstreaming is to bring a gender perspective into the broader analyses of informal sector development. Typically, the objective in this section is to raise the level of gender awareness and present the rationales for incorporating gender into informal sector economic development planning. The discussion first part of this discussion provides a descriptive analysis of the participation of women in the sector. Accordingly, the second part of the discussion provides a more analytical approach on the subject of gender and informal sector.

The majority of workers in the informal economy tend to be women (Maseko, Undated; Sofisa, 1991; Wills, 2009). More specifically, it is estimated that about 60 percent of female workers are employed in the informal sector. This observation reveals that female workers tend to be over represented in the informal sector (Blunch et al, 2001). Again, there is a

horizontal division of men and women engagements in the sector. For example, very few women are employers in the sector and tend to be involved in small-scale operations. By contrast, men tend to be overrepresented in the top segment of this economy while women remain overpopulated in the bottom segment of the sector. In terms of sub-sectors, women are more likely to be employed in manufacturing, trade, and services than in construction and transport. Again, while women tend to dominate the garment manufacturing and leather sub-sectors, men tend to dominate metal and wood working (Blunch et al, 2001).

Women tend to be in non-wage employment. When in wage employment and irrespective of occupational category or economic activity in the informal sector, they tend to be disproportionately at the bottom of the earnings distribution (Blunch et al, 2001). Indeed, women and girls tend to form the poorest group of workers in the sector. They are more often employed as wage workers for someone else and have to balance the triple responsibilities of bread-winning, domestic chores, and taking care of children. Furthermore, it has often been observed that while women operate the majority of informal sector businesses, their involvement is often confined to low return activities (Liedholm and Mead, 1999). Again, informal sector enterprises that are run by women tend to exhibit lower rates of growth than those run by men because women dominate the lowest end of the enterprise spectrum which is least profitable. This discussion highlights that the marginalisation of women in society tends to be reproduced in the horizontal division of the world of work between men and women.

As a result of the traditional domestic roles of women as mothers and housekeepers, they lack opportunities to accumulate start-up capital, which is normally acquired through personal savings. Again, women lack a personal asset base which prevents them from meeting the required collateral requirements which are demanded for credit financing by commercial banks. This situation further prevents their meaningful participation in the economy. Taken together, these observations point to the need to incorporate gender into the social and economic policy frameworks that seek to create a more inclusive economy.

A gender perspective on the analysis of informal sector enables us to include both the processes which make women invisible in the economic development discourse as well as the factors which produce and reproduce unequal relations and unequal access to economic and innovation benefits. For example, a gender gap exists between men and women entering and advancing in science and technology. Therefore, there is under-representation of women in the fields that constantly produce innovations and this gap leads to a gender gap in high-tech business creation and innovation activity. Indeed, the exclusion of gender in the analysis of innovation policies prevents many ideas from developing. Consequently, some growth opportunities remain overlooked. Therefore, the inclusion of gender in analysis of informal sector is based on innovation, social, and economic arguments.

On the one hand, there are social justice and human rights arguments that are seek to achieve equality between men and women, and those that seek to promote and facilitate development on the other hand (Hannan, 2000). Indeed, sustainable development can only be achieved if the interests and needs of all groups in society are taken into account and the potential of all groups are released (Hannan, 2000, p. 1). The marginalisation of women implies that we fail to reap the demographic dividend from this marginalised workforce. Therefore, there is link between gender mainstreaming and effective development (Hannan, 2000). What needs to be emphasized is that the debate should shift from individuals to the system which reproduces these inequalities. Such a focus can make both men and women more visible in the system with their various competencies.

Gender mainstreaming should be recognised and pursued in specific contexts. In the case of LED, obtaining the full participation of women will require overcoming deeply entrenched discriminatory attitudes and challenging of existing power relations between men and women (International Labour Organization, 2010). Since gender roles and their unequal structures are socially constructed, they can be socially deconstructed. Gender mainstreaming in LED implies going beyond increasing women's participation but bringing their experiences, knowledge and their interests into LED planning (International Labour Organization, 2010). Indeed, promoting a gender perspective in employment creation can boost local productivity and enhance demand for goods and services in the local economy (International Labour Organization, 2010).

What is still lacking, however, are methodologies that explicitly incorporate gender perspectives into the development planning of informal sector. Such methodologies can support the achievement of economic policy goals and assist economists in utilizing this form of knowledge in their policy development work. The second challenge remains that of translating research and existing knowledge on gender perspectives into policy, planning and development decisions (Hannan, 2000). Such knowledge can be gleaned from how local projects have contributed to social and economic change. Indeed, the knowledge of gender diversity can be used to improve the performance and outcomes that can be derived from the informal sector.

5. Conclusion

Incorporating the informal sector into the countries' economic policies and LED strategies requires a paradigm shift in national economic development planning systems. Indeed, there has been a revival of interest in the informal economy largely due to its increased size and its contribution to efforts that seek to address the challenges of development in South Africa such as poverty reduction, unemployment and economic development. However, the heterogeneous nature of informal sector suggests that policy instruments aimed at the development of the sector cannot be one size fits all. First, this is because the needs of informal sector participants tend to be context specific. For example, informal sector occurs across various sectors, viz, primary, secondary, tertiary sectors. Second, some informal sector activities are often driven by necessity rather than opportunity motives (GEM, 2011). Thus many survivalist economic activities should be recognised for the role they play in reducing vulnerability particularly amongst the poor. Therefore, single policy prescriptions cannot be successful in the sector as they often disregard specific circumstances of individual establishments and their sectoral variations. Indeed, the heterogeneity of informal sector remains a real challenge for policy makers particularly where they need to balance the need for generalisable policies and those which address spatial and sectoral variations.

The formalization of informal sector activities has been recognized as one of the policy responses to the development of informal sector. However, policy proposals that seek to formalise informal sector activities should be voluntary as some informal sector participants may prefer to remain informal. Consequently, recognizing informal sector in its own right needs to be recognized as a development alternative. What needs to be emphasised is that policy interventions should explicitly seek to transform what are often marginal and survivalist activities into decent work. Therefore, innovation policies should be aimed at improving the performance of informal sector and to enable those who work in the sector make a smooth transition to the formal economy.

Finally, this paper reveals a number of concerns which can be addressed in future research. First, it demonstrates a clear need for empirical studies that can improve our knowledge of the informal economy particularly its contribution to GDP and economic growth. Second, it highlights the paucity of empirical evidence and the need to collect more high quality data on the informal sector in order to enhance evidence base policy development. Third, it discloses that there is still not enough policy guidance particularly at local level on how to promote local systems of innovation that recognizes informal sector as an important area of economic policy development. Fourth, what is still lacking are methodologies that explicitly incorporate gender perspectives into the development planning of informal sector. Fifth, it is the challenge of translating research and existing knowledge on gender perspectives into policy, planning and development decisions (Hannan, 2000). Such knowledge can be gleaned from how local projects have contributed to social and economic change. Finally, there is lack of research studies that examine the interplay between gender, entrepreneurship and innovation.

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About IT Unemployment: Reflecting on Normative Aspects of the 'Broken Link'

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The widespread use of information and communication technologies has given rise to some moral challenges that deserve particular attention. One such is the discrepancy between productivity growth and technological unemployment. This paper argues that if subsequent undesirable consequences of technological unemployment are to be avoided, there is a need for additional research to embed normative considerations into a scientific context, by linking technological progress with the 'Ought to Be' of the economic and societal order.

1. Introduction

Since the emergence of modernity and industrialism, humans have developed and introduced advanced machines to facilitate their work in various manners. Firstly, machines were created to replace human physical labor and "mechanization" became an integral element of our life. Secondly, "automatization" of human mental capabilities became an objective need to process and manipulate the vast amount of information. The introduction of various sophisticated information communication technologies (ICT) into human, social, business and industrial affairs created several kinds of effects with different degrees of predictability and desirability. For example, among positive ICT opportunities for human development, Sartor (2012) highlights economic development, reduction of administrative costs, access to education and knowledge for everyone, elimination of distance, and moral progress. At the same time, technological development brings the risk of undesired consequences of technology use. Examples of the risks arising from the use of ICT include reduced privacy and increased control over individuals, discrimination and exclusion, ignorance and indifference, separation and loss of communication, class division, war and human distraction, and the undesired replacement of humans with ICT. Although these ICT risks can be seen as nightmares, some of them may soon become reality.

A key risk listed is when ICT replaces human labor which may potentially give rise to unwanted unemployment. Brynjolfsson and McAfee (2011; 2014) elaborate this extensively and raise an informative and provocative discussion by providing recent statistics on the effect of information technology on the level of employment, income distribution inequality, skills, wages and the economy. They identified that even if job creation in the US were to be doubled per month, it would take a few decades to fill the gap in employment opened by the last Great Recession. Moreover, although companies experience profit growth and continually invest in new technologies, the level of hiring people remains unchanged (ibid.).

Several decades ago, economic scholarship established a causal link between *IT deployment* contributing to *productivity gains* which in turn increase *market demand* and therefore *decrease unemployment* (Cesaratto et al., 2003). However, according to recent economic investigations, we are now experiencing, for the first time, early signals of a split of that correlation between productivity growth and the level of unemployment, due to technological

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advancement (Brynjolfsson and McAfee, 2011). It is projected that the increased use of IT and widespread automation will increase productivity and long-term structural unemployment at the same time (Brynjolfsson and McAfee, 2014). In accordance with the economic forecasts, spending on ICT will reach 5 trillion dollars by 2020 (Barnard, 2013). This is 1.7 trillion dollars more than it is today. At the same time, it is expected that GDP per capita will grow enormously in developed and developing countries. Yet, the effect of technological progress on the level of unemployment generation is anticipated to be tremendous for both developed and developing countries (The Economist, 2014, p. 7).

Although economic theories offer a set of different perspectives on the relationship between productivity growth and technological unemployment (e.g. Postel-Vinay, 2002; Carré and Drouot, 2004; Vivarelli, 2007), it is still difficult to predict more exactly whether IT will give rise to massive unemployment or not, and in such a case how much. We know for sure that more and more job tasks previously conducted by humans are now conducted by machines. Example of such include self-checkout machines at the stores, online banking and mobile applications, automated telephone operators, self-service machines at the airports and terminals, data-driven healthcare, and software that substitutes various job tasks performed by lawyers, journalists and physicians (Autor and Dorn, 2013; Frey and Osborne, 2013). While we can clearly see that such automation reduces the number of workers needed to perform those tasks, we can also see new kind of job tasks and job profiles emerging – for example, someone is needed to design, construct and maintain the listed automations. A critical evaluation of current investigations into the risk of occupations disappearing due to technological progress reveals some challenges and questions; these in turn require more research to understand the phenomenon of IT-induced unemployment, its causes and its effects.

Besides, in a situation when a broken link between productivity growth and technological unemployment will be consistent, we may expect a long-term structural unemployment. In these conditions, economic, political and social systems will need to adapt to the new reality. “*If handled poorly, the widespread displacement of workers by technology could result in rapidly expanding economic divergence between rich and poor, economic poverty and social unrest for growing numbers of dislocated workers, backlashes against technology and social institutions, and economic and social decline.*” (Marchant et al., 2014, p. 27). Most of the debates regarding ICT-induced unemployment focus on whether that mechanism is really establishing itself now or not, and if so what the exact consequences will be and what the exact substitution mechanism is, e.g. which job task will be substituted and which not. There is much less debate, however, as to whether IT-generated job-elimination and a resulting massive unemployment is wanted or not? In this text, some suggestions will be developed to address this question.³

The paper is organized as follows. The next section reviews economic theory on the link between productivity growth and technological displacement. This will be followed by a review of current empirical studies on technological displacement. The conclusion made there is that IT has indeed brought a fundamental new feature to the relationship between technological development and social change. The next section reviews moral theories and

³ This elaboration explicitly assumes a relationship between science, ethics and society, as justified by Nowotny et al. (2001), who noticed an increasing orientation of science systems towards the production of knowledge that is socially distributed and highly interactive. It is acknowledged by scientists that contemporary scientific practice has to be oriented towards research which satisfies the requirements, needs and goals of society (Hessels and Van Lente, 2008). As technology development strongly depends on science (Munoz, 2004), we assume that both have to serve the well-being of humankind.

then discusses contemporary challenges of computer ethics to align technological features and employment opportunities. This paper ends with a discussion where we advocate for taking into account ethical considerations in a scientific context as a necessary requirement to meet future consequences of technological unemployment.

2. Technological Unemployment: Theoretical Prerequisites and Empirical

Evidence

This section deals with the economic theories which explore the link between productivity growth and technological unemployment. The purpose of this section is, by synthesizing and evaluating the existing body of research in the domain of the relationship between productivity growth and technological unemployment, to provide the reader with a broad theoretical framework, demonstrate theoretical pluralism and difficulties in reaching one conclusive message on the “broken” link. Further, in this section, an analysis of current investigations on the probability that jobs will disappear is conducted to show a potential risk of technological substitution. A critical evaluation of these studies lays a foundation for the investigation of the normative aspects of the current information society.

2.1 Is Economic Theory Good Enough to explain the “Broken Link” and resolve its consequences?

Since the economic community was the first to detect the threatening tendency of technological unemployment, its opinion deserves our attention in the first place. Since the late 18th century, the concept of “technological unemployment” has been widely deliberated among economic theorists and policymakers to understand the underlying reasons and predict the effect of technological change on the level of unemployment (Postel-Vinay, 2002). According to recent statistics, an increasing level of technological unemployment is a macroeconomic problem worldwide, especially in technologically advanced countries (The Economist, 2014). Social and economic consequences of those tendencies became a reason for a number of studies and calls for conferences, congresses and discussions at global level. Therefore, this section is based on the systematic review of papers that analyze changes in the level of unemployment due to technological advancement from several leading economic journals.

Review of literature demonstrates that the current theoretical regime has a set of different conceptions; yet, two polar perspectives such as equilibrium and disequilibrium have been formulated in economic literature (Appendix 1). Both controversial standpoints can be explained by the differences in views on the nature of the relationships between technological progress and level of employment. For example, neoclassical economists believe that IT progress is always beneficial to employment as markets can work freely and competitively. Supporters of the Ricardian view argue that since automatic compensating factors are generally absent, innovations and IT progress are harmful for employment, and are possible causes of long-term unemployment. Proponents of the Neo-Schumpeterian approach believe that technological unemployment is a transitory phenomenon and a compensation mechanism for employment through effective demand will eventually stabilize the level of employment. Finally, followers of the Keynesian tradition claim that high growth rates of output can, in principle, compensate decreasing labor requirements in the long-run.

In more detail, proponents of the equilibrium perspective believe that while technological progress destroys jobs, new occupations emerge that can employ the released labor force (e.g.

Kreickemeier and Nelson, 2006; Michelacci and Lopez-Salido, 2007; Barnichon, 2010). Different arguments have been provided to support the equilibrium perspective. For example, Stadler and Wapler (2004) believe that a general-equilibrium model of endogenous skilled-biased technological change provides a reduction in high-skilled unemployment through reduction of wages and the creation of new positions. The relationship between technological progress, productivity growth and technological unemployment was challenged by Barnichon (2010) and Canova et al. (2013) who emphasize that the conventional way of modeling the technological effect on unemployment does not work, because the market responds differently to neutral and investment-specific shocks. However, eventually, technological and non-technological shocks balance the link between productivity and unemployment.

Despite the seemingly simple explanation of the relationships between productivity growth and the level of employment, the economy of individual countries is more complex and depends on various macroeconomic and microeconomic adjustment mechanisms. Supporters of the disequilibrium perspective refer to statistics and emphasize that it is difficult to predict innovations, extrapolate technology from other macroeconomic effects and that IT progress can lead to a jobless world (e.g. Vivarelli, 2007; Baddeley, 2008; Shahkooh et al., 2008; Pavisou et al., 2011). Although economic theorists develop and test different theoretical hypotheses on the relationships between technological progress, productivity growth and technological unemployment, Brynjolfsson and McAfee (2011) claim that technological innovation sped up too fast and left a lot of workers behind. By searching the reason for the high level of technological unemployment, beside cyclical and stagnation of the economy, they highlight the threat of the “end of work”. According to the study, technological displacement due to technological progress is observed in all sectors of the economy. The core implication of this displacement is the fact that fewer and fewer workers will be required to produce goods and services which will lead to “near-workerless” world.

Given the above, empirical proof of the link between technological progress and unemployment remains an open question for debate. Some researchers claim that technological progress mostly leads to restructuring of job markets (e.g. Peláez and Kyriakou, 2008; Ott, 2012). Proponents of the technological revolution believe that technological progress stimulates consumer demand through cheaper products. As a consequence, new markets will be created and people will be able to find highly-paid working places in other spheres of employment. So-called fatalists of technological advancement emphasize that while productivity growth is increasing, more and more people become jobless and their leisure is not provided as expected (Aronowitz and DeFazio, 2010; Brynjolfsson and McAfee, 2011). Given these points at the present time, and by applying different theoretical prerequisites, researchers are not able to present a single answer as to whether IT will give rise to massive unemployment or not. Therefore, there is a need to look into empirical data of technological displacement. Below, studies on how technological advancement can transform the structure of employment are reviewed and through critical analysis a set of research questions that require further clarification in order to understand the phenomenon of IT induced unemployment are identified.

2.2 Empirical Evidence on Technological Unemployment and a Need for Further Research

The desire of humans to create some powerful engine, an inexhaustible source of energy or labor-saving machine is understandable. Hard physical or dangerous jobs and repetitive mental work have forced humans to carry out an enormous number of studies of technological

development. As computers have extensive machine memory and perform some tasks much faster than humans; engineering, finance, insurance and accounting activities are no longer possible without electronic machines. From the point of view of any company owner, it is reasonable to spend some assets on technologies, rather than employ costly personnel. This can be explained by the fact that: “...*machines require no wages or benefits, take no sick days or vacations, provide a consistent, highly reliable quality of work for up to twenty-four hours a day, seven days a week if needed, and incur no injuries...*” (Marchant et al., 2014, p. 28). Yet, new technologies are costly and require essential expenditures on their purchase and maintenance. Employees from their side prefer to be competitive on the labor market to ensure long-term employment. Therefore, both sides need knowledge to predict which changes can bring technological progress to the labor market and which professions will be able to survive.

At this time, human society is at a new stage in world history where computer technologies change the specificity of labor and the economy in general (Autor et al., 2003; Goos and Manning, 2007; Frey and Osborne, 2013). Computers become not only complements but also fully substitute some jobs. This fact would not deserve so much attention if computers could only substitute the manual workforce. New computers become more competitive with the human brain in such areas as law, financial and banking services, wholesale, medicine and education (Rotman, 2013). Driverless cars developed by Google (Frey and Osborne, 2013), hospital robots (Bloss, 2011), powerful, intelligent robots with a learning capability and which behave in a manner similar to human beings (Peláez and Kyriakou, 2008) are only a few examples of current technological achievements we are likely to see before too long.

In his book, Nye (2006) reflects upon current changes in the labor market, caused by technology implementation and their consequences on working conditions, technological efficiency and production system. Drawing the line from factor production through Taylorism, Ford's assembly line, lean and just-in-time production, the author summarizes some principal characteristics of widespread computerization which are similar to the industrialization effect. Among these are unemployment of skilled artisans, monotonous low-wage work for others, high wages for a few mechanics, some new jobs in the hierarchy and the shift to white-collar work. Among those changes due to technology implementation a high level of job elimination is observed. Thus, the question: “...*will all the jobs disappear due to computer substitution?*” (p. 118), as pointed out by Nye, sounds quite rational.

There is a growing concern among the research community on how the structure of employment will be changed due to computerization. For example, (Goos and Manning, 2007) noticed that there is a growing labor market polarization between high-income cognitive jobs and low-income manual professions. Frey and Osborne (2013) reached a conclusion that among 702 occupations in the US, 47% of current occupations are at risk of disappearing. It is projected that occupations such as transportation and logistics, office and administrative work, production occupations are at great risk of vanishing. By studying the structural shift in the labor market, Autor and Dorn (2013) noticed that by 2050, 80% of activities in the automotive sector, 70% in oil, chemicals, coal, rubber, metal and plastic products, shoe and textile sectors, 60% in security, surveillance and defense sector, 45% in the health care sector and 30% in tourism will be substituted by computers. Brussels European and Global Economic Laboratory identified that over the coming decades, almost 50% of occupations in Sweden, the UK, the Netherlands, France and Denmark will be fully automated. Under the highest risk are such countries as Romania, Portugal, Croatia and

Bulgaria, where almost 60% of occupations are expected to be substituted by new technologies.

The statistics on technological displacement developed by current studies are frightening. However, what we have today is only an occupation's probability of computerization. What we are experiencing now is a lack of knowledge on the dynamics of killing and creating jobs. A set of questions is still unanswered. Namely, we lack precise knowledge about:

- What kinds of jobs have been killed by technological advancement?
- What is the rationale and dynamics of killing jobs?
- What kinds of jobs currently exist?
- What kinds of jobs are subject to being fully or partly substituted by computers and why?
- What kinds of jobs are most probably not subject to substitution by automation in the near future and why?
- What kinds of jobs are created and what are the conditions for their creation?
- Will there be sufficient work opportunities on the labor market for all citizens in the future?

What is clear is that technological progress leads to vast changes in the nature of work, leisure time and the way we consider social issues (Aronowitz and DeFazio, 2010). Therefore, there is a need for an increased understanding of the ongoing trend and underlying mechanisms of technological displacement.

All the above-mentioned studies support the idea that occupations which require involvement of creative and social intelligence, have a chance of surviving on the labor market. Currently, companies more and more seek inventors and creative employees, rather than simple technicians. One of the core ideas widely discussed among policymakers is to equip the next generation of employees with special knowledge and skills to fill in a skill gap in non-routine task performance. Yet, little attention is paid to that fact that humans have different mental abilities. New educational programs exclude some humans from workplaces where high creativity and education are preliminary requirements. Moreover, there are no recommendations where those people can be employed to at least provide their basic needs. Hence, the problem of the effect of technological advancement on the level of employment is complex and requires comprehensive insights. It is not enough to conduct economic and operational research, we also need to include social, political and ethical characteristics into our investigations.

It is well known that the economy cannot function effectively when social tension increases. Undoubtedly, it is impossible to reduce social tension without solving economic problems, especially unemployment. Nowadays, it is widely applicable to introduce employment protection reforms and active labor market programs (Sianesi, 2008). However, these attempts demonstrate that although economists and politicians are aware of the problem they are not well-prepared to respond in a timely fashion to current complex problems of technological unemployment (The Economist, 2014).

The technological paradise has not brought the joy and relief of work as expected, but instead a lot of troubles and worries. When we consider research into technological development, increasing investments in new technologies, efficient use of those technologies, we unconsciously expect higher living standards. However, access to the benefits of

technological progress is limited and people are faced with the negative consequences of technological unemployment (Nilsson and Agell, 2003; De Witte, 2005; Eliason and Storrie, 2009). Job instability and wage inequality are constant companions in our life. Some researchers emphasize that the race between technological progress and employment is a never-ending challenge (Pianta, 2005), yet must be acknowledged and addressed as one of the most important factors of social stability. Hence, the question of what recent technological advancement has brought to the labor market, humans and society as a whole is under investigation and requires detailed consideration by different research communities if they are to be able to react to turbulent changes in a timely manner.

3. Questioning Traditional Moral Principles towards the Alignment of New Features and Employment Opportunities of Technological Advancement

The existence of human labor can simply be explained by the provision of basic needs such as food, clothes and accommodation. With the development of living standards and satisfaction of basic needs new motivators such as self-realization and self-actualization have come into play. After some point, the idea that everyone has to be employed became an axiom and is still valid today. New features of the information age, such as easy access to information, the Internet, the digitization of working places, cheap storage, processing and transmission capacity of modern ICT (Schienstock et al., 1999) made their own impact on the nature of labor in general and on the employment structure in particular. Although these features brought new opportunities, they also created challenges to rely on traditional moral concepts (Johnson, 2001). While the shift to the information society has already occurred, social and ethical implications of ICT are still not well established (Bynum and Rogerson, 2004). Therefore, we will discuss in this section theoretical prerequisites of moral principles on human beings and labor, how technological advancement has challenged them and possible ways to modify and re-interpret them in relation to the current situation of technological unemployment.

Have computers brought special moral issues that require development of a new and independent branch of moral philosophy? This question has been addressed by many scientists of both computer science and philosophy. For example Tavani (2001, 2002), taking a middle ground position, mentioned the spectrum of opinions regarding computer ethics. On one side of this spectrum are the so-called traditionalists who believe that the shift to the information age did not bring any new issues about moral norms and rules, and that traditional ethical principles are quite applicable (Adam, 2001). On the other side we find the scientists who claim that computers have brought special and unique aspects that require a new field of research in philosophy (Johnson, 2001; Bynum and Rogerson, 2004; Gorniak-Kocikowska, 2007). Unlike those polar standpoints, Floridi and Sanders (2002) came to the conclusion that although computer ethics issues are not incredibly unique, they challenge standard macro-ethics. Eventually, Bynum (2001) highlights that when computer technologies are widely implemented in our life, computer ethics will be dissolved into ordinary ethics.

Yet, the intention of this paper is not to discuss whether computer ethics have the right to be an independent field of moral philosophy. Its aim is to challenge general moral attitudes in relation to an increasing rate of technological unemployment. Although for some social classes computerization has brought new opportunities and increased income, for others the effect of computerization is the opposite. Which ethics will help us avoid policy and economic vacuums and formulate new social policies in responsible ways to new technological features? It becomes more accepted that new features of technological

advancement and new opportunities cannot be supported by a common moral system (Bynum and Rogerson, 2004). Therefore, current moral landscape and the broken link between productivity growth and technological unemployment is exactly an issue that deserves particular attention from the economic, philosophical and IS communities.

The Association of Computing Machinery, the Information Technology Association of America, the Data Processing Management Association, and International Federation on Information Processing are organizations that develop and reconsider codes on computer ethics. Privacy, accuracy, security, reliability, intellectual property are core issues which form the basis of codes of computer ethics with regard to the micro level (Johnson, 2001). The main postulate of these codes from a macro-perspective is that computer technologies are not supposed to produce side effects that harm humans and society. However, current data demonstrates that widespread use of computers has led to technological unemployment. Job insecurity has a set of negative effects on health and well-being (De Witte, 2005). Job losses increase the rate of suicide, alcohol-related mortality (Eliason and Storrie, 2009) and crime (Nilsson and Agell, 2003). Thus, the most negative effect of unemployment is on psychological well-being of humans when people cannot meet their financial obligations; their social position becomes worse, people are insecure in their future. Hence, the question arises: why should people experience such emotional traumas in a society where productivity is growing and living standards are improving?

The EU's core principles of sustainable peace, social freedom, consensual democracy, associative human rights, and supranational rule of law, inclusive equality, social solidarity, sustainable development and good governance are all based on the pluralist approach of normative moral principles (Manners, 2008). All those traditional norms and laws had been functioning for a long time before the emergence of computers. The computer age brought new entities, features and ways of doing things. The high speed of development and the implementation of new technologies led to a situation where society cannot appropriately react to changing conditions. Moreover, it became difficult to draw on traditional moral systems to avoid policy and economic vacuums.

In a situation of potential risk for the destruction of workplaces by automation and generation of mass unemployment, policymakers have a number of alternatives. One of the unrealistic scenarios could be based on the limitation of automation and keeping available working places. In a more realistic scenario, policymakers can facilitate creation of new kinds of jobs while the older ones are being eliminated. Yet, another scenario can be assumed, such as a new societal order, where citizens are supported with the basic needs by the state. This scenario is presented in more detail below.

New changes in the level of employment and its structure introduced by IT gave rise to questions on the norm and right as to whether everyone needs to work for a living. Although the notion of everyone being employed is rather a new invention of western societies, in general, our society has a predominant market orientation and uses functionalist and instrumental views on humans (O'Donnell and Henriksen, 2002). People are mostly evaluated by their input to society and methods of distribution became unfair (Johnson, 2001, p. 36). *"We are now in the middle of a paradigmatic struggle. Challenged is the enriched utilitarian, rationalistic-individualistic and neoclassical paradigm which is applied not merely to the economy, but also, increasingly, to the full array of social relations"* (Etzioni, 2010, p. ix). New situations where forthcoming IT may eliminate jobs, create unfamiliar ethical issues. When we are faced with unfamiliar ethical problems we apply analogies known from the past

and if that is not possible there is a call to reconsider and discover new moral and ethical values (Manners, 2008). Moreover, when people discuss ethical issues they have very little knowledge about the underlying reasons of why specific behavior is wrong or unfair Johnson (2001). Thus, we have to come to a common understanding on what we actually want from technological progress.

An assumption that the effective economic system may lead to global prosperity and equality failed during the last Great Depression in 2008. Global inequality becomes a real problem. Therefore, global ICT ethics have to focus on the relationships “... *between the weak and the strong, the rich and the poor, the healthy and the sick worldwide – and it should explore the ethical problems from the point of view of both parties involved*” (Gorniak-Kocikowska 2007, p. 56). We have to accept that human life has the highest value despite its contribution to society. One of the potential practical solutions to the problem of technological unemployment could be the widespread introduction of basic security income as a basic human right (Van Parijs, 2004; Standig, 2005), so people can feel equally secure and still have purchase capability. Of course, this requires some knowledge of how to introduce this system and not destroy the intrinsic motivation of people to express their creativity in a socially useful form. Yet, some empirical evidence demonstrates that people want to contribute in a positive way to increase their minimal income. Surely, the process of reconsideration, modification and re-interpretation of moral principles is long and requires active participation of the whole global community (Bynum and Rogerson, 2004). Yet, while we will not challenge them, the global economy will continue to deteriorate, people will suffer from the lack of working places and tension in society will grow.

It is presumed that technological advancement will further transform the structure of employment and, most probably, the downward tendency of available working places will be checked. However, this seemingly horrifying tendency may be approached from a recognition that decreasing employment level is not only a matter of what IT is capable of doing or not. It is rather a matter of what society wants to happen. Do we want to keep people busy working, or do we want to free them up from the need to work and let them enjoy improved living standards due to technological advancement? More and more academics emphasize the need to take into account a human position as the basic and the most valuable unit of analysis to align technological features and new technological possibilities. These new ethical and social issues caused by IT development force us to search for new solutions from the core normative ethical premises on what is “right” and “wrong” for humans in the information society.

4. Concluding Remarks and Some Thoughts about the Near Future

Despite the destructive potential and risks of technological unemployment such as social tension and differentiation, physical and mental illness and the growing level of crime, we cannot neglect some positive consequences such as totally new occupations, competition, and reconsidered value of labor and leisure. When we refer to technological advancement, we have to take into account the value of technologies which substituted people in heavy, dirty and dangerous work (Carro Fernandez et al., 2012). Many lives were saved through health information technologies. Telecommuting became one of the main factors of lower work-family conflicts and higher job satisfaction through flexible work arrangements (Severin and Glaser, 2009). Increased speed of communication allowed us to take place over distances and make decisions much faster. In relation to this, we can already admire some positive effects of computerization. Yet, according to the economic forecast, the number of workplaces will decrease enormously for both routine and non-routine work, and new workplaces will not be

able to absorb all the unemployed. Therefore, the questions arise: what changes do we expect in the level of employment in the near future and how can we cope with them? Some key thoughts in favor of current changes brought about by technological advancement in the sphere of employment will be found below. The text ends with suggestions for further research about the interplay between computerization, productivity growth, technological unemployment and the societal consequences.

Firstly, we can suppose that Brynjolfsson and McAfee (2011) cannot support their prediction that productivity growth and the level of employment do not have correlation anymore. This prediction is mostly based on historical patterns. Yet, it is quite difficult, if not impossible, to predict technological development and the consequences of its use (Soete, 2001; Nye, 2006). Moreover, as we can observe from previous studies, it is extremely difficult to predict the precise effect of technological advancement on the structural and occupational composition of employment. One of the reasons for this challenge is much higher speed of technological development in comparison to knowledge development. The second reason for this is a challenge to extract the impact of technologies from other economic effects. Yet, there is still a consensus among policymakers, economists and academics that new ICT is important for both productivity growth and employment.

Secondly, although technological unemployment is empirically observed, and as such a fact, it does not imply that all humanly conducted activities may or will be automated, indeed there still are many humanly conducted activities that cannot be automated at this time, such as the generation of new hypotheses or the transfer of tacit knowledge. In this line, Levy and Murnane, (2004) point out that though new technological paradigm change, the structure of employment and the demand for managerial, professional and technical occupations will grow. Computers are only complements of skills extension in the context of such non-routine work tasks (Autor, 2003). Another important issue to discuss is the automation of tasks in nursing and healthcare. Although a wide implementation of technologies in health care was expected, a considerable share of projects failed (Murray et al., 2011). That happened partly due to patients' mistrust of physicians using a computer-assisted diagnostic aid (Arkes et al., 2007), hence it does not matter if ICT automates a job task, if we do not accept it. Some occupations, such as dentists or recreational therapists cannot be replaced as their work requires hand-eye coordination and dexterity. In addition to the above-mentioned, we have to acknowledge that the implementation and maintenance of modern technologies are quite costly and labor-demanding (Carro Fernandez et al., 2012). In conclusion, the forces that hinder or slow down automation include the current impossibility of automating certain work-tasks, and even if they can be automated, we may not wish to automate all of them, and then the significant costs inherent in automation and its maintenance. Therefore, we can predict that some human jobs will exist, at least for some time, despite a broader use of advanced technologies. Yet, from that we cannot derive that the initiated structural transformation of occupations will not continue, more likely the opposite.

Thirdly, as human nature is characterized by a high level of adaptation and entrepreneurship, it is expected that the market of the digital workforce will expand. This will create new working places where the workforce can be re-deployed. Emerged information-service industries such as the software industry and the microelectronic industry will provide new opportunities for employing people. For example, it is projected that by 2018 the US labor market will have a shortage of 1.5 million data-savvy managers (Manyika et al, 2011). Many government unemployment diminishing policies and programs are devoted to the creation of new workplaces, education update and re-qualifying. For example, an electronic industrial

strategy for growth of the micro- and nano-electronics components and systems industry in Europe to boost productivity, growth and jobs was adopted by the European Commission in 2013. The main purpose of this strategy is not only to facilitate investments in the industry, but also to create 250.000 jobs by 2020. Furthermore, Nye (2006) prescribes that a lack of jobs is a temporary situation while economists and politicians learn how to use advanced technologies in the best way.

Fourthly, a few attempts have been made towards stabilizing the level of unemployment in advanced economies. For example, some countries such as France and Switzerland decreased working hours and, thus, tried to share the work among employees, yet keeping the same income as before (Van den Besselaar, 1997). Interestingly, the results of this practice were neither good nor bad. (Rifkin, 2001). Another promising attempt is the introduction of a basic secure income. This practice is intended to provide a reasonable income for everyone to satisfy basic needs. Eventually, it is expected that this practice will enforce humans to develop their capabilities and competencies in a society of rising prosperity. Yet, this will require reconsideration of other policies. Will human society be able to create a stable global society where man and machine can coexist with each other, to provide everyone with beneficial results? Undoubtedly, different scenarios of the future can be conceived and discussed. The stake here is no less if we wish to establish societies where social inequality grows and brings social unrest or if we seek societies where the highest value is human life and equal rights and opportunities to everyone.

Fifthly, and finally, technology is a part of social evolution (Nye, 2006), yet it forces us to “...reconstruct our environment and to reconsider the ethical foundations of techno-economic decisions...” (Peláez and Kyriakou, 2008, p. 1192). Both blandness of human thinking and desire for profit from individuals who have access to technological advancement make the process of moral principles re-consideration difficult. Instead of competing with machines, we have to accept a future of prolonged education, early retirement and free time. Yet, it will take time to establish acceptance for a desire for an integrative and harmonious society, where humans and machines can complement each other. Probably, together with a search for the reasons for technological unemployment and what the underlying economic theory is, we should focus on the human position in socioeconomic relationships and challenge normative assumptions of our expectations of technological progress. Brynjolfsson and McAfee (2014) claim that digitization of society will force us to reinvent social and economic life. Furthermore, a new information age will change our consciousness about technological, societal and economic issues.

Given the above, we have to recognize that if we do not act now, but wait for years to see what the actual outcome of the present technology induced transformation will lead to, we may find us in societal and economic conditions that are highly undesirable; and it may be too late to address it then. Therefore, in order for the policymakers to make informed decisions there is a need to conduct investigations aimed to provide us with additional understanding of the underlying mechanism of the ongoing tendency. At the same time, we have to recognize that economic and societal mechanisms of technology adoption, productivity gains and unemployment are not governed by isolated deterministic laws, which implies that it is not enough to understand the ongoing tendency. It is also necessary to acknowledge what kind of economic and societal features are desirable with regard to moral considerations. Based on this knowledge, we may be able to develop future scenarios to bridge the current situation to what we desire from technological progress.

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Table 1. An overview of current positions on the relationships between IT advancement, productivity growth and technological unemployment

Study, year	Data	Analysis	Reasoning	Conclusion
Equilibrium perspective				
Sarget, 2000	The Canadian data	The static supply and demand framework and the dynamic search/matching approach.	The negative impact of technological change on less educated workers can be explained by other factors than an increase in supply of skilled workers. Aggregate data may hide some regional effects of technological change on the level of unemployment.	Technological change did not have significant negative effect on the level of unemployment over 1990s.
Postel-Vinay, 2002	The OECD data 1970-1990	A Schumpeterian model of frictional unemployment	The equilibrium level of employment depends on short-and long-run effects (rates) of technological progress.	Fast technological changes lead to job obsolescence in the long-run perspective, yet have positive effects on the level of unemployment in the short-run.
Alexopoulos, 2003	n/a	A general equilibrium shirking efficiency wage model	Due to technological growth families invest more in the economy. This will increase what workers receive over time, i.e. firms will consequently increase wage rates. This will prevent workers from shirking on the job. Thus, the rate of unemployment will not increase over time.	Technological growth is associated with a stationary, natural rate of unemployment.
Stadler and Wapler, 2004	n/a	A general-equilibrium model of endogenous skill-biased technological change	The impact of technological changes on unemployment is skill-biased.	Although technological change leads to growing unemployment among low-skilled workers, supply of high-skilled workers induces a reduction in high-skilled unemployment through reduction of wages and creation of new positions.
Fernandez-de-Cordoba and Moreno-Garcia, 2006	n/a	The Nash equilibria and the Walrasian equilibrium	Unemployment depends on synergistic effects between technological change and the structure of unions.	A complementarity effect between technological changes and awareness of unions about the impact on prices of undercutting factor supplies determines the level of unemployment.
Kreickemeier and Nelson, 2006	The US and Europe	Dixit and Norman's Integrated	Economy-wide technological unemployment equilibrium	There is a need to consider a set of sources of equilibrium

	data	Equilibrium approach	is affected by wage inequality.	unemployment.
Michelacci and Lopez-Salido, 2007	The US data 1972-1993	The Solow growth model	The relationships between technological progress and the level of unemployment depends whether investments in IT are specific or neutral.	Neutral technological advances decrease aggregate employment. Investment specific technological advances reduce job distraction.
Riley and Young, 2007	The UK data 1976-2003	Standard production function	Skill-biased shifts in labor demand affect aggregate unemployment.	Labor market institution changes and skill mix can provide a general employment equilibrium
Barnichon, 2010	The US data 1984-2008	A New-Keynesian model	Technological and non-technological shocks balance the link between productivity and unemployment.	Technological shocks create positive correlation between productivity and unemployment. Non-technological (aggregate demand) shocks lead to the opposite tendency.
Canova et al., 2013	The USECON database	Neoclassical growth model	The causal link between IT progress and the level of unemployment is moderated by types of technological shocks	Neutral shocks increase unemployment, investment specific shocks expand employment and number of working hours.
Disequilibrium perspective				
Cesaratto et al., 2003	n/a	Keynes's theory of effective demand	Market mechanism cannot provide full unemployment due to technological change	The impact of technological change has to be considered through its effect on consumption patterns and the material input requirements.
Pierard and Sneessen, 2003	Belgian data	A dynamic general equilibrium model	Skill-biased technological change together with crowding-out phenomenon lead to increase of the level of unemployment of list skilled workers.	Technological bias and labor job composition two major factors which affect unemployment.
Carré and Drouot, 2004	n/a	The canonical Mortensen and Pissarides model	Speed of emergence of innovation and learning process makes impact on job instability. Capitalization and creative destruction effects of technological progress can be influenced by strategies firms chose to follow.	Fast technological progress and slow learning process reinforce each other and lead to growing unemployment.
Bauer and Bender, 2004	A German employer-employee matched panel data	The model of <u>Mortensen and Pissarides</u>	The level of unemployment due to organization change increases for unskilled and medium-skilled workers. For skilled workers, unemployment rate is not affected significantly by	Technological change increases churning rates for skilled and highly skilled workers.

			organization change.	
Moore and Ranjan, 2005	The US and Europe data since 1980	A model of search unemployment and trade theory	Skill-biased technological change is not consistent with unemployment evidence. Labor market institutions may determine the size of technological shocks. Labor market rigidity may have different effects on the level of unemployment.	While skill-biased technological shocks reduce unemployment for both skill classes, globalization decreases unemployment only in the skilled sector.
Prat, 2007	n/a	A standard search-matching model	The impact of technological progress on the level of unemployment depends on the extent to which innovations are embodied in new jobs.	Correlation between technological change and unemployment depends on the degree of idiosyncratic uncertainty. An increase in growth intensifies workers' outside option which outweighs the capitalization effect.
Vivarelli, 2007.	An analysis of empirical data from other studies	A critical approach to compensation theory	Different product and process innovation can make a different impact on the level of unemployment. Different compensation mechanisms can occur in various sectors and, therefore, make it difficult to predict their impact on unemployment.	Compensation approach does not hold to balance employed and unemployed labor. Partial equilibrium models cannot be applied to complex relationships between technological advancement and the level of unemployment.
Baddeley, 2008	The UK data 1979-2005	A vector error correction model	Structural brakes in unemployment are associated with financial deregulation and computerization.	Financial deregulation and computerization both have a negative impact on employment
Shahkooh et al., 2008	Data from 61 countries	Correlation between e-readiness scores and unemployment rate.	E-learning facilities are an important factor of technological progress.	IT improvement in terms of e-readiness score indeed leads to the unemployment growth.
Merlino, 2010	The US quarterly data till 2005	A model of a frictional labor market	Skill biased technological change affect the level of unemployment	Technological progress increases unemployment in the low technology sector and reduce its size
Pavisou et al., 2011	The G7 group data	Dynamic approach to the labor process	Structural unemployment is not a temporary and self-regulating phenomenon as pressure of higher productivity forces entrepreneurs to substitute labor force by machines.	In G 7 group, indeed, degradation of work is observed.

Brynjolfsson and McAfee, 2011	The US data	Cyclical, stagnation and the “end of work”	The pace of technological innovation is extremely high and leaves people behind.	IT advancement leads to Great Restructuring and indeed to unemployment growth. Compensation mechanisms cannot compete anymore with machines.
Weiss and Garloff, 2011	The US and Europe data	A model of differential dynamics of unemployment and wage inequality	Skill-biased technological change increases productivity of skilled workers faster than unskilled but the wage of unskilled workers increases faster than their productivity All this leads to the increase of unemployment of unskilled labor.	Skill-biased technological change, indeed, increases the level of unemployment of unskilled labor force.

Toward Post Systems Thinking in the Conception of Whole-Part Relations

Darek M. Haftor¹, Erdelina Kurti²

Systems thinking represent a diverse intellectual body that aims to support conception of phenomena. Systems thinking may be regarded as a reaction against the micro-reductionism inherent within the modernist scientific approach; more specifically in the latter's conception of *whole-part relations*. While the propositions offered by systems thinking overcome that reductionism, we show that due to its biotic root-metaphor it instead imposes macro-reductionism. We proceed then by drawing on two alternative approaches that facilitate our conceptions of relations between a whole and its parts, in terms of *encaptic relations* and *assemblage relations*. A key conclusion advanced is that any utilization of analytical thinking and systems thinking must be conducted carefully and self-critically, due to their inherent limitations. As a consequence, this suggests an initiative for intellectual development of a post systems thinking approach, with regard to the conception of whole-part relations.

1. Introduction

We start this essay with an exposition of the micro-reductionism of modernist scientific thinking, called here analytical thinking. We then expose both the remedy offered by systems thinking and the macro-reductionism it imposes. We continue with our suggestion for a post systems thinking approach, where the whole-part relation is re-conceptualized to eliminate both micro-reductionism and macro-reductionism.³ This is done with the support of two rather different bodies of social ontology: Dooyeweerdian *encaptic* relations and DeLanda's notion of *assemblage* relations. Our overall aim is to direct a further development of the conception of the whole-part relations so that more justice can be done to our experiences of the complexities of social affairs. The content of the paper follows the structure of the argument outlined; however it also includes an illustrative case of the dramatic and tragic event of the Soviet submarine K-19, which we present in the remaining part of this Introduction.

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³ To be sure, systems thinking can be charged with several other kinds of reductionism not addressed here. One is manifested by the famous debate between J. Habermas and N. Luhmann during the 1970's (e.g. Habermas & Luhmann, 1971). In this, Habermas charged Luhmann, among others, with the inability of systems theory to properly account for central social characteristics: the life world (*Lebenswelt*), understanding (*Verstehen*) and trust (*Vertrauen*), thereby reducing the *social* to the *biological*. Another critique is delivered by Strijbos (1995, 2010) who observed that system thinking is unable to address human and social normativity, rather it continues with a technical worldview. In his ground-breaking attempt to deal with questions of systems normativity, W. Ulrich uncovered another kind of reductionism, the so-called *open system fallacy*, for example systems thinking may ignore a system's victims, or those affected by it yet not affecting it, or as he puts it: "open," in contrast to 'closed' systems models consider the social environment of the system; but as long as the system's effectiveness remains the only point of reference, the consideration of environmental factors does nothing to increase the social rationality of a systems design. In fact, if the normative orientation of the system in question is socially irrational, open systems planning will merely add to the socially irrational effects of closed systems planning. For instance, when applied to the planning of private enterprise, the open systems perspective only increases the private (capital-oriented) rationality of the enterprise by expanding its control over the environmental, societal determinants of its economic success, without regard for the social costs that such control may impose upon third parties." (Ulrich, 1988, p. 156, orig. italics; with reference to Ulrich, 1983, p. 299).

1.1. K-19

As the end of World War II had produced major tension between western countries and the Soviet sphere states, the cold war was established. Both sides raced to produce the most sophisticated and threatening weapons with the aim of demotivating the other from any aggressive actions targeted at the other side. Perhaps the most sophisticated weapon developed during the cold war was the nuclear submarine. Such a sub utilizes nuclear technology in two ways; one is that it is capable of launching ballistic missiles from the ship, which is equipped with nuclear bombs. The second means that the ship is powered by its nuclear power station and is thus independent of re-fueling operations for years, which makes it much harder to detect and strike against. USA was the first country to develop and introduce nuclear submarines in its weaponry arsenal, which in turn created an imbalance, where Soviet perceived a major threat. This motivated Soviet to develop and launch its own nuclear submarine, the so-called 658 class of which K-19 was the first submarine introduced (Huchthausen, 2002).

On June 4th, 1961, while K-19 was on its maiden voyage conducting exercises outside southern Greenland, it developed a major leak in the reactor coolant system, causing the temperature to rise uncontrollably and putting the whole ship in a very dangerous situation – with no chance of external assistance ... Faced with the choice of either abandoning ship or attempting its repair, the Captain First Rank *Nikolai Vladimirovich Zateyev* put together a team of eight crew members with the objective to implement a new cooling system and thereby prevent a disaster; this effort succeeded. Yet, the eight crewmen died of radiation exposure within a month and fifteen more died within two years (ibid.).

The recent release by Russian authorities (ibid.) of classified information about K-19 and its accident, has led to the 2002 film dramatization, entitled “*K-19: The Widomaker*”. In the early part of that film, we can see young men boarding K-19; some of them have to leave their fiancées and family members behind, and they promise to be back soon... One of these men is later chosen to participate in the special taskforce to repair the cooling system. We can follow this man’s anxiety, desperation, refusal to cooperate and his finally being forced to do ‘*his duty for his mother country*’ – the men died onboard.

Among many questions raised by this story, one concerns the man who did not want to die and therefore initially refused to join the special taskforce. Should we regard this man as a soldier and as such under obligation to obey military rules, or should we regard him as being part of a family and as such entitled to refuse to be a part of the armed forces? Or should we regard this situation in another way?⁴

2. Analytical Thinking Versus Systems Thinking

In this section we will expose so-called *analytical thinking*, including its key points, a brief application to the K-19 case, and reflections on its strengths and limitations. A similar account will then be given to the anti-pole of analytical thinking, so-called *systems thinking*.

⁴ Methodological note: the case study of K-19 presented here is used throughout this essay in a rudimentary manner, more sophisticated elaborations would require more space; the presented illustrations fulfill their function as an illustration of the pursued argument.

2.1. Analytical Thinking: the whole as an aggregate

We expose *analytical thinking* to provide a *raison d'être* for the subsequent exposition of *systems thinking*, which is the subject of critical diagnosis in this essay. The concept called here *analytical thinking*, as suggested by Le Moigne (1999), may also be called *modernist science thinking* (Checkland 1981: Ch.2).

Following the origins of rational thinking and inquiry in ancient Greece and the medieval period, the scientific revolution of the 17th century has provided us with one of the greatest inventions of the Western Civilization: Science. Copernicus and Kepler established the heliocentric model of the solar system, Galileo developed much of its mechanics and Newton put together terrestrial and celestial dynamics. In all this, Whitehead (1925: 77) characterized *science* as: “...educated men searching for the general principles which the scientists believe underpin the natural order”. While there is no final characterization of what science is or is not, and there do exist a number of excellent characterizations (Jeans, 1947; Singer, 1941), science is often associated with such terms as: invariance and general principles, scientific method and controlled observation, hypothesis, isolation, reduction, designed experiments, laboratory, documentation and reporting of tests, and repeatability. One of the key hallmarks of science was the establishment of the scientific method that specifies what needs to be done to produce and reproduce scientific knowledge, as distinct from ordinary knowledge. Several thinkers may be associated with this establishment, including Bacon, Galileo, Descartes and Newton. In this context, we shall focus briefly on Descartes (1596 – 1650) who wrote the *Discourse on Method* (Descartes, 1960 / 1637) which has been called “one of the really important books in our intellectual history” (Butterfield, 1949). This small book offers four general rules for “properly conducting one’s reason” and has influenced thinkers and scientists since (ibid.). It is the second rule provided that is most central as it articulates a key characteristic of science and the scientific method, as it has been practiced since (Checkland, 1981: 46). This second principle for the conduct of good reasoning stipulates *to divide each of the difficulties that are examined into as many parts as might be possible and necessary in order to best solve it* (Descartes, 1960 / 1637). The assumption here is that when one is faced with some kind of complexity, i.e. most non-trivial everyday situations, one should attempt to decompose (analyze, take apart) it into as simple components as possible, so that these components may be understood; and then put that knowledge of the separated parts together thereby producing comprehensive knowledge of the whole situation initially faced – hence: first *analyze* the phenomenon and then *synthesize* available knowledge of the parts of that phenomenon. This approach of breaking down, or reducing, the phenomenon in question has dominated and continues to dominate most scientific thinking to this day (Franklin, 2009). We choose here to quote a contemporary analytical philosopher J.R. Searle (2007) who very clearly expresses this reductionist method of reasoning and understanding:

“...in order to make any progress, we have to divide the huge problem /.../ into sets of smaller problems, and those into even smaller problems so that we can answer them in a piecemeal fashion. Our strategy is to divide and conquer: divide these questions into questions of a more manageable form, and then work on them one at a time. That at least is the method that I have followed all my life...” (Searle, 2007, p.18)

He then continues with disclosing his underlying ontological assumption that motivates the reductionist method:

“Just as human biology is an expression of the underlying physics and chemistry, so human culture, in all of its manifestations, is an expression of our underlying biological capacity for language, rationality, etc.” (Searle, 2007. p.22)

Clearly, Searle articulates the underlying assumption that when faced with complexities (*here human culture*) that hinder straightforward understanding, one should break down the phenomenon into simpler components where some understanding is already available (*here language*). While this approach to reasoning and knowledge constitution is appealing and certainly may follow intuition, we shall soon see that it has at least one crucial shortcoming: it presupposes that comprehensive knowledge of a whole is equal to knowledge of each part as such, where the latter are understood to be isolated from the whole’s context. Before detailing this shortcoming, however, we shall make a brief conception of the K-19 situation by employing the analytical approach to understanding.⁵

2.2. *K-19 conceived as an assembly*

When conceiving K-19 as an assembly or a set, we may understand it in terms of (a) its set of individual men serving onboard, conducting their pre-specified tasks, and (b) the submarine ship, made up of a number of mechanical and electric parts; all these components are put together into what was regarded as K-19. Conceiving K-19 as an aggregate (a collection, a set) informs us of the fact that K-19 includes two kinds of parts, human and non-human components, where each of these perform one or more specified functions. In this sense, the function of each crew member is to conduct well pre-defined activities that serve the ship in a purposeful manner. For example, a *Sonar Technician* operates sonar gear (*‘sonar’* stands for *‘sound navigation and ranging’*). Thus the function of a Sonar Technician in the submarine is to operate sonar equipment in order to locate, identify and track submarines and surface ships – without this a submarine is blind. This specification of each component of the K-19 may go on until all components are understood. The analytical approach to reasoning and knowledge constitution assumes thus that once all components are understood, the knowledge of each component as such may be put together to make up knowledge of the whole: of K-19 as such.

2.3. *Assessment of analytical thinking*

It is now time to make a brief assessment of this analytical approach to comprehension and reasoning, as provided by modern science. The analytical approach regards any whole as an aggregate, that is to say as a set of parts that are put together to serve some end. Therefore, one of its key strengths is that it follows man’s intuition: to isolate a whole from its context, decompose it into its parts until each part may be understood, put that knowledge of the separated parts together and thereby obtain knowledge of the whole. Secondly, this approach has clearly been successful in a number of situations. Since the time of the scientific revolution and Enlightenment, our societies have produced a never before experienced advancement in knowledge production and also the development of virtually every part of human life. To illustrate this, we can conceive of modern pharmaceuticals: scientists analyze a key recurring human illness, they identify its cause by means of isolation, experiments and observation, thereafter a solution is formulated in terms of a drug, and that drug is tested for

⁵ Analytical thinking has attracted a significant amount of criticism, not least from systems thinking, for some central criticism see Checkland (1981), Klir (1991), Flood and Jackson (1991), Le Moigne (1990). However a review of that critique is outside the scope of the argument advanced here.

its effects; if it fails a redesign of that drug is conducted and tested again. As a result, the pharmaceutical revolution has saved millions of lives.

As mentioned earlier, a limitation of the analytical approach is its key underlying onto-epistemological assumptions. It regards all wholes as mere aggregates, and therefore also assumes that knowledge of each part of a whole, obtained in isolation from its whole, is good enough for us to understand the whole after it has been synthesized with the knowledge of other parts of the given whole. The shortcoming comes from the common observation that a whole manifests characteristics that cannot be identified in any of its parts alone. This is so as these whole-properties emerge from a certain kind of interactions with the whole's parts and also the whole's environment (e.g. Checkland 1981, Klir, 1991). To continue with the pharmaceutical example, the pharma research industry has learned that it is not enough to test a new drug in isolation only. It is now a common practice that more and more drugs are tested for their potential interactions with other medications, with life styles, with food and other factors. This is so as a certain drug may manifest a certain kind of properties on its own, and rather different properties when it operates, intentionally or unintentionally, in interaction with other drugs or conditions (for example, both aspirin and blood-thinners like warfarin Coumadin – used to prevent heart attacks – help to prevent blood clots from forming; using these medications together, however, may cause excessive bleeding). Returning to the K-19 case study, we can see that the submarine as a whole manifests various characteristics that cannot be derived from any of its parts on its own, such as sailing, submerging and surfacing, striking against other ships, conducting rescue operations not programmed in advance. Just as flight is a key emergent characteristic of an airplane – none of an airplane's parts, such as the wings or the engine, can fly on its own – the submarine has its emergent properties. Therefore, it does not matter how much analysis is conducted on the K-19, providing us with detailed knowledge of its various parts – e.g. torpedoes or navigation functions – this will not provide us with knowledge of how the sub can submerge or surface, as these functions are emergent characteristics of the sub's parts interacting with each other in a certain manner. Further, no analysis, however sophisticated, may inform us why K-19 came into existence nor why it is equipped with a nuclear power-station or nuclear missiles, as the reasons for all these and other properties of K-19 are to be found outside it, within its environment. Clearly, when a phenomenon is decomposed into its parts, its emergent properties are dissolved and cannot be accounted for when any part on its own is investigated. This key limitation constitutes the key *raison d'être* for *systems thinking*, detailed below.

2.4. *Systems Thinking: the whole as a system*

This section comprises a description of *Systems thinking*, as a reaction to analytical thinking as discussed above; the following account includes an exposure of its key message, an illustration of its working with the K-19 case, and then a reflection upon some of its strengths and limitations.

Just after WWII, Warren Weaver (1948) published an important message that the conventional methods of science are not good enough for the comprehension of the complexity perceived in non-trivial everyday phenomena. Weaver introduced a three-level classification of phenomena – problems of *simplicity*, problems of *disorganized complexity* and then problems of *organized complexity*. In this, phenomena of *simplicity* are represented by the engine, telephone, and radio, automobile or hydroelectric plant, etc. Its scientific methods come from classical mechanics dealing with a handful of variables with some kind of one-way deterministic relation. This implies that these methods of few-variables cannot help

us much with the comprehension of phenomena that are complex in terms of many variables that interact, for example comprehension of living processes, cultural and political structures and dynamics.

Toward the end of the 18th Century, new methods were established for dealing with what Weaver calls disorganized complexity, where a very large amount of variables, say, one million, are addressed. Probability theory and statistical methods were developed to support our conception and reasoning with such phenomena as gases where a huge amount of molecules interact and whose behavior is averaged rather than exactly specified. More specifically, Weaver (ibid.) explains “It is a problem in which the number of variables is very large, and one in which each of the many variables has a behavior which is individually erratic, or perhaps totally unknown. However, in spite of this helter-skelter, or unknown, behavior of all individual variables, the system as a whole possesses certain orderly and analyzable average properties.” (ibid. p.227), and “the motion of the atoms which form all matter. As well as the motions of the stars which form the universe, come under the range of these new techniques”. (ibid. 228).

Weaver then continues with the question: “Why can one particular genetic strain of micro-organisms synthesize within its minute body certain organic compounds that another strain of the same organism cannot manufacture?” (ibid., p.230). “These problems – and a wide range of similar problems in the biological, medical, psychological and political sciences – are just too complicated to yield to the old nineteenth-century techniques which were so dramatically successful in two-, three- or four-variable problems of simplicity, these new problems, moreover, cannot be handled with the statistical techniques so effective in describing average behavior in problems of disorganized complexity.” (ibid. p.230) These challenges represent situations where neither classical mechanics nor thermodynamics (i.e. statistical methods) can help us much, according to Weaver (ibid), as such problems are of organized complexity, that is: “...problems which involve dealing simultaneously with a sizeable number of factors which are interrelated into an organic whole” (ibid. p.231). Therefore, Weaver calls for a new advancement of scientific methods, to develop approaches that can support our conception and reasoning with organized complexity. Furthermore he suggests that there are early signs that such methods are being advanced, which includes sophisticated computation methods and mixed-team operations analysis practices. In this, he referred to the development of that which became known as cybernetics and control theory, information and communication theories, a heterogeneous body of thinking known as systems science, and also chaos theories, and complexity theories. While all these bodies, and other not mentioned here, have their own peculiarities, they all seemed to have at least one common denominator: they regard any whole as a system (Checkland, 1981, Ch:2).

Ludwig von Bertalanffy (1968), a thinker contemporary with Weaver and sometimes called the father of Systems Sciences (Hammond, 2003), offers us some further motives for the emergence of systems thinking, that is for our conception of something as a system rather than as mere aggregate or set. Hence: “One formulation of /.../ cosmic order was the Aristotelian world view with its holistic and teleological notions. Aristotle's statement, “*The whole is more than the sum of its parts*” is a definition of the basic system problem which is still valid”. (von Bertalanffy, 1972, p. 407 – italics original). He continues with: “We must strongly emphasize that order or organization of a whole or system, transcending its parts when these are considered in isolation, is nothing metaphysical, not an anthropomorphic superstition or a philosophical speculation; it is a fact of observation encountered.” (LvB: 408). He then concludes with: “The properties and modes of action of higher levels are not

explicable by the summation of the properties and modes of action of their components taken in isolation. If, however, we know the ensemble of the components and the relations existing between them, then the higher levels are derivable from the components.” (ibid. p.411)

J. Klir (1991: Ch.1), following R. Rosen (1986), suggests that any system manifests two fundamental yet very different kind of properties. *Thing-hoods* are properties belonging to the individual parts of a system, whether they are regarded being part of the whole or isolated. On the other hand, *Systems-hoods* are properties manifested by the whole only, and not manifested by any of the parts as such. For example, the ability to fly may be manifested by an airplane as a whole. Its engine or wings cannot fly on their own. Systems-hoods are in a sense independent of any particular part, in the sense that a system-hood may be produced by other different wholes, for example some birds can also fly.

P. Checkland states then that “The idea of emergent properties is the single most fundamental systems idea and to use this (and other) systems ideas in a conscious organized way is to do some ‘systems thinking’.” (Checkland, 1981: 667). He then continues with: “Throughout systems literature the core image upon which systems thinking is based is that of the adaptive whole. The concept of some whole entity (which may be seen as a whole because it has emergent properties) existing in an environment which may change and so deliver shocks to it. The adaptive whole may then survive in the changing environment if it can adapt to the changes.” (Checkland, 1981: 668; our emphasis). Produced by his extensive review of systems literature, Checkland has identified four fundamental characteristics of an adaptive whole, as follows (bid: 678):

- Emergence: “..the whole will be seen as a system (rather than simply as an aggregate) if the observer can identify some emergent properties of it as an entity”
- Hierarchy: “..the whole system may contain parts which are themselves smaller wholes (or ‘sub-systems’). Thus, the human body can be regarded as a system but sub-systems such as the respiratory system or the blood-circulation system can also be identified within it. This means that systems thinking postulate a *layered or hierarchical* structure in which systems, part of wider systems, may themselves contain sub-systems, which may contain sub-sub-systems, and so on.”
- Communication & Control: “...if a system is to survive in a changing environment it must have available to it processes of communication and processes of control. It must be able to sense the change in the environment and adopt a suitable response in the form of some so-called ‘control action’.”

Checkland continues therefore: “With the four concepts of emergent properties, a layered structure and processes of communication and control a very wide range of wholes may be described as systems capable (within limits) of surviving in a changing environment, systems thinking applies these ideas to a wide range of observed features of the world, the purpose being, in general, either to understand the world better or to intervene to improve some part of it.” (ibid. 678).

In parallel with, yet independently of, Checkland’s work, J.L. Le Moigne (1990) formulated similar terms in Francophone literature. In his conception, any system is regarded as a set of components that give rise to functionality and transform, all within an environment and in relation to some intentions (Le Moigne 1990: Chap. 3). Furthermore, an adaptive whole is

understood as a hierarchy of three key sub-systems: operations, information and communication, and decision-making; all aimed at a successful survival (Le Moigne 1990: Chap. 4).

To be clear here, while von Bertalanffy's (1968, 1972) and his colleagues' contributions focused on theories of systems, the interest of Checkland and some followers was to assume selected parts of theory of systems and to employ them as intellectual guidelines for conception and planning of changes in social affairs; the interest there is thus not 'systems theory' but 'systems technology', or more specifically, its subset: 'systems methodology' (Checkland 1981, Ch: 2).

Before moving our attention to how systems thinking can help us conceive the situation of K-19, we wish to articulate a central implication of systems thinking regarding the constitution of knowledge of some selected phenomenon. This is that no amount of *analysis* of any phenomenon can provide us with comprehensive understanding of it. This is because when a phenomenon is taken apart, systems-hoods (i.e. emergent properties) disappear and thus cannot be perceived and understood e.g. when a child takes a radio apart to find the voice the radio emits. As a consequence, a key methodological implication is that *synthesis* should (also) be utilized when conceiving a non-trivial phenomenon. This implies that a phenomenon under consideration needs to be regarded as a whole, and within its context, so that its role and functionality may be comprehended.⁶

2.5. K-19 conceived as a system

It is now time to conceive the K-19 situation as a system. To start with, K-19 may be regarded as a system in itself, constituted by a set of sub-systems and at the same time being part of a larger system. Examples of sub-systems include its engine department, made up of the ship's engines, engine staff, working procedures, tools etc. There also is the missiles department with the missiles themselves, its crew and also standard operating procedures, and there are a number of other sub-systems such as navigation, food, health, and the command function that directs and controls the behavior of K-19 as a whole, as a response to the command signals received from the Navy headquarters. The above and other sub-systems of K-19 may in turn be further decomposed into sub-sub-systems, such a missile or an engine, with further decomposition being possible until it ceases to make sense; all this analysis is aimed at generating knowledge of the phenomenon at hand, here K-19. All these K-19 sub-systems and their various sub-systems, are organized in a particular hierarchy, to give rise to the emergent behavior of K-19, including its ability to sail from one place to another place, to submerge and surface, to conduct a torpedo strike against another ship, and to fire off a missile whether submerged or not. These behavioral patterns are a result of the interaction of the various sub-systems, hence the ship's engine cannot sail on its own, nor can any other part of the ship do so; a torpedo as such cannot fire off by itself, it requires the assistance of the other sub-systems, such as navigation and command. Further on, we understand that K-19 regarded as a system is part of a larger system, firstly the Soviet Navy's submarine division, which in turn is part of the Soviet military system, which in its turn is part of the Soviet country, which in turn is part of... From this kind of contextualization of K-19 we may understand why it was brought into existence, and also the role or function of its unique capability to sail submerged for very long period of time, due to its nuclear powered engines, namely, to present a threat to

⁶ Systems thinking has attracted some criticism, (e.g. Klir 1991), however review of that critique lies outside the scope of the argument pursued here.

the NATO countries. Without such a synthesis we may never produce the answer to the question of why does K-19 exist and whether it was designed to manifest some of its emergent characteristics, or systems-hoods in system language. If we advance this investigation further, we may recall that on 4 June 1961, when K-19 was conducting exercises outside southern Greenland, a major leak developed in the ship's reactor coolant system, causing the temperature to rise uncontrollably, and putting the whole ship in a very dangerous situation. The ship's command sub-system was not allowed to communicate with the Navy's command system, because of the radio silence it had imposed; this made it impossible for the ship's captain to request permission to abandon ship and rescue its crew, nor could any assistance be requested. Therefore, Captain *Nikolai Vladimirovich Zateyev* decided that a team of eight crew members would implement a new cooling system, and thereby make an attempt to prevent a disaster. This means that articulated in systems terms, K-19's decision sub-system initiated control actions, that by means of internal transformations could bring the systems into stability and thus ensure its survival, even though some of its internal components (crew and mechanical devices) ended their functionality and indeed their existence – however K-19 regarded as a system survived the adaptation process, and could thus be perceived as a viable system.

2.6. Assessment of Systems Thinking

A central strength and at the same time shortcoming of systems thinking is its central assumption of *functional alignment*. More specifically, the assumption implies that a system, such as K-19, is composed of a set of parts that are organized hierarchically so as to give rise to the emergent functions of the whole. In this, a second underlying assumption is that the parts of a system have only one role, which is to function in the context of its single whole: its system. The reason for this is that the root metaphor of systems thinking comes from studies of biological organisms. In these cases, a system's parts typically have one pre-determined specific functional area within its whole and have no meaning or identity outside its whole. For example, the heart or lungs of the human body have their own specific functions, both are needed by the human body to produce its systems-hoods, yet these sub-systems, or organs, have no meaning or independent identity outside the whole, and cannot survive there (other than by artificial means imitating the original context). While this biotic conception of a system certainly makes sense for the conception of biological phenomena, it presents a key limitation for the conception of social phenomena. This is so as parts of a social system, such as a human-being or a group of people operate differently: they are not limited to being fully aligned with one social whole only. For example, a body's organ, such as the lungs, cannot say: *'I am tired of working today so I will rest'*, or *'I wish to quit my job for the moment'*. These sub-systems do not manifest separate interests, multiple or conflicting interests or aims; however this is something that we do experience in the domain of social phenomena. Also, people tend to be part of a set of social wholes, sometimes under a limited period of time and they can switch their social contexts. Peoples' desire and capacity to participate within several social contexts may also generate conflicting interests between these contexts. Clearly, parts of social wholes are not fully aligned and limited to one function only.

In the case of K-19 we know that some of the crew members did not wish to board the ship prior its departure and that some of crew members did not want to participate in the special taskforce assigned to rescue the ship; this being so as they expected, or knew, that they would never rejoin their families. Here we can clearly perceive a conflict of loyalty: the loyalty to the mother country and particularly its navy versus loyalty to their families. The Soviet state, and its armed forces, assumed that it owned the lives of their soldiers and could sacrifice them

for the sake of the security of the country while some of these soldiers were not convinced about that commitment as their loyalty to their families proved to be stronger.

Empirical experience shows that humans, whether individually or group-wise, have various aims simultaneously in social contexts and that these aims or interests may change over time. In that way, the basic model of *a system* is too limited as intellectual spectacles to guide our conceptions of social phenomena, as the system genotype reduces or disregards key empirical features inherent in social phenomena, and thus limits our understanding of these phenomena.^{7,8} More specifically, systems thinking commits itself to a kind of macro-reductionism, where the behavior or function of a whole's parts is fully determined by and aligned with its whole. In a sense this is not so surprising, as this shortcoming represents an anti-pole to the limitation of analytical thinking's micro-reductionism, which caused a reaction and development of systems thinking.

3. Towards Post Systems Thinking

In the text above we have made an attempt to expose two key approaches to support our conception of and reasoning about complexities: analytical thinking with its taking-apart and system thinking with its holism. While each of the two approaches manifests various merits and limitations, we have exposed a key limitation in their conceptualization of a social phenomenon, respectively. A question that now emerges is: *Is there any alternative to the two?*

In the next section we shall expose two very different alternative approaches to comprehension, where each offers its own way to overcome the limitations of both analytical thinking and systems thinking. We start with the exposition of the *encaptic relations* and then follow this with an exposition of *assemblage relations*. We proceed by exposing each of these together with a brief illustration of the K-19 case, and will then conclude with a short assessment of the merits of the two approaches.

3.1. Encaptic relations

The late Dutch philosopher and professor of law, Herman Dooyeweerd (1894-1977), developed a highly original philosophical body sometimes called the *Philosophy of the Cosmonomic Idea*. This includes contributions regarding the nature of diversity and coherence of everyday experience (ontology), the transcendental conditions of theoretical thought (epistemology), and the relationship between philosophy and religion, among others – most comprehensively presented is his opus magnum: *A New Critique of Theoretical Thought* (Dooyeweerd, 1955).

⁷ We wish to make a brief mention of the fact that somewhat similar critical remarks have been delivered by some key systems thinkers, unfortunately without much recognition. For example Ackoff and Gharajedaghi (1996) proposed an ontology of systems that differentiates between mechanical systems, biological systems and social systems, in terms of their teleology. W. Ulrich (1983) makes us aware of the open system fallacy, which implies that the biological root of systems thinking makes us disregard the actors that are affected yet cannot affect the system, which he calls the victims. Also, E. Moring (1977) presented critical remarks against holistic thinking.

⁸ We also wish to highlight the fact that the systems thinking approach, or its holistic conception, is not limited to the domain of systems science or systems thinking. More implicitly, the idea of a whole, where its parts are infused and thus lack their own independent identity or multiple roles, is also inherent in central theoretical bodies of social thinking; one such notable idea is the structuration theory as put forward by A. Giddens (1984). However, investigation of these theoretical bodies lies outside the scope of this elaboration, and our intention is only to highlight that the message advanced here has a wider relevance.

In this context we have utilized Dooyeweerd's (1997) proposal for the notion of encaptic relations and the associated notion of aspects or modalities of reality. Dooyeweerd observes that things can be combined into a whole in at least two ways. One is the biotic notion of the *whole-part*, as summarized in the Aristotelian expression 'the whole is more than the sum of its parts' and as articulated in systems thinking above. In this a whole's parts cannot exist or function, nor be understood comprehensively, apart from the whole of which it is part, such as an organ being part of an organism. The second combination of things is what may be termed here as a whole-whole relation, where one whole is encapsulated with another whole, as a *sub-whole*, can thus not be subsumed as a part. This kind of encaptic relation attempts to do justice to our empirical experiences when a particular whole is encapsulated within another whole as sub-whole, however, where that sub-whole can exist and function and also be comprehended apart from the other whole into which it is encapsulated. An example illustrates this as follows: a small rock in a bird's gizzard may assume a function in the bird's digestive process. The rock is not a part of the bird, rather it assumes a kind of passive function and the rock can exist without the bird yet it cannot perform the same digestive function without the bird. Dooyeweerd notes that in such whole-whole relation, one whole is governed or obeys one kind of norms or laws while the other whole is governed or obeys another kind of norms or laws; this means that there is a significant difference in the nature of the two entities and therefore these should be conceived in terms of encaptic relations. Dooyeweerd says: "...an encaptic relation occurs between idionomies with an intrinsically different nature; these idionomies can never relate as part to a whole." (Dooyeweerd 1997: 66-67). In the example of the bird and its rock, the first mentioned is qualified biotically while the last mentioned is qualified physically. On the other hand, in a genuine whole-part relation both the whole and its part are governed by the same kind of norms or laws, such as is the case with human body and its heart or lungs that are all qualified biotically. We may thus define an encaptic, or whole-whole, relation as taking place when a sub-whole exists and acts within the internal organization of a 'larger' whole which has a different qualifying function from the sub-whole, while the qualifying function of the sub-whole is over-ridden by that of the larger whole. In all this, the notion of encaptic relations presupposes Dooyeweerd's notion of human reality manifesting a number of distinct characteristics, also called modalities or aspects (ibid.). More specifically, Dooyeweerd maintained that human thought is based upon and bound to our experience and that experience exhibits a number of distinct modalities (or aspects, or dimensions, or spheres) of normativity and laws. Dooyeweerd proposed fifteen modalities, in the following order: arithmetic, spatial, kinematic, physical, biotic, sensitive or psychic, logical, historical, lingual, social, economic, aesthetic, juridical, ethical and pistic; however, Dooyeweerd's intention was not to construct a final and exclusive map of human experiences, it is a proposition and he welcomed motivated suggestions for modifications.

The significance of this Dooyeweerdian encapsis is central for our investigation here. This is so as this encapsis clarifies why the nature of a whole cannot be explained or predicted from the knowledge of sub-wholes that are bound to it, namely sub-wholes are governed by other norms or laws than the larger whole, and therefore cannot be considered as causes of the larger whole in which they happen to be bound, at the moment. Indeed, these sub-wholes may be regarded as necessary for some specific functioning yet not as sufficient.⁹

⁹ Dooyeweerd's philosophical work has attracted some criticism (e.g. Wolterstorff, 1983; Friessen, 2009; Strauss, 2009; Chaplin, 2014), but a review of that critique lies outside the scope of the argument pursued here.

3.2. *K-19 as Encaptic relations*

We will now turn our attention again to the case of K-19 where we can regard an individual in her social roles of a crew member and of a family member. As crew member, a soldier on a submarine was part of the navy and the military defense establishment, and ultimately part of the Soviet country, where the latter is founded historically and qualified juridically. The individual versus the country manifest an encaptic relation, as she is transcendent to legal norms (ref), yet may submit herself to these. On the other hand, in the context of a family the same individual simultaneously assumes an encaptic relation to that other social whole: the family. In the context of the latter she is qualified ethically, with the kernel, or motivation, of love (the family maybe *founded* biotically, in the parent-child or sibling relations, yet is *qualified* ethically). We can now identify a conflict zone: a family may span across one or more countries – disregarding geographical and legal boundaries and their diversities. It is thus possible that two individuals who belong to the same family may be subordinated to two different countries, with two very different juridical standards that may or may not be in conflict with each other. Further on, Dooyeweerd postulates clearly that ethical norms surpass legal norms – the latter results from a social contract and seeks justice while the former from an individual's values and conviction, ultimately her love. This distinction can be illustrated by the following brief example: imagine a couple about to be married in Church. Legal standards may establish certain conditions of the two newlyweds, such as their belongings being shared equally. However, it would be nonsense to stipulate legally that the two ought to love each other, as that is a moral condition which cannot be enforced legally.

3.2.1 *Assessment of Encaptic relations*

The conception of the K-19 situation and its crew members described above articulates some hidden circumstances which cannot be accounted for by either analytical thinking or system thinking. One is that individuals should not be regarded as independent parts of the Soviet country (as the analytical approach implies) or as fully dependent parts of that country (as the system approach implies). An individual may assume a whole-whole relation with different social entities and thus submit herself to different normative standards at the same time, sometimes conflicting.

However, this gives rise to a key question: how can we understand a conflict between two social entities where each is qualified, by or operates upon, two different normative standards, such as in the case K-19 case? While Dooyeweerd (1997) does not provide a final solution to this kind of normative challenge (as we understand it) he does offer conceptual guidance for how to think about such situations. This includes an entity's sphere of sovereignty, the aspects of reality with its norms or laws guided by their respective kernels: all these modalities characterize entities. Our interpretation is here thus that the family as an entity is qualified by ethical norms which surpass a state's juridical normativity, and thus that the individual should be given the ability to make her own choice whether to join the military service or not. This suggests that is more appropriate that a crew member is loyal to, and prioritizes, her family rather than the state.

3.2.2. *Assemblage relations*

In this section we shall expose yet another approach to the conception of social relations: the *assemblage approach*. Similarly to the encaptic approach detailed above, the assemblage approach offers an alternative to both the analytical and the systems approaches, and potentially offers conceptual support that deals with some of the limitations of the two

mentioned approaches. We will start this exposition with a brief summary of the assemblage approach and then illustrate its working on the K-19 case; its assessment will follow.

Assemblage theory is a kind of social ontology that has been formulated by the contemporary philosopher Manuel DeLanda (2006). However, his effort is based on the novel work of two renowned French philosophers Gilles Deleuze (1925- 1995) and Pierre-Félix Guattari (1930 – 1992). DeLanda's contribution is to bring their work together into one coherent theoretical body and to expose it systematically, including clarifications and some additions. In this sense, DeLanda calls his work the '*neo theory of assemblage*', or '*assemblage theory 2.0*' (ibid.) –we will assume that version of the assemblage conception here.

Assemblage theory proposes that there are two kinds of relations in social phenomena; these are called *totalities* and *assemblages*. Totalities refer to a situation where relations between components of such a phenomenon are set in such a way that they have no independent identity, meaning independent existence from the phenomenon that they are a part of, from the relation in which they exist; this is also known as the relation of *interiority*. In such cases, parts are fused into a whole, as is the case of organs within the human body: the brain or kidneys have no meaning and function without the whole, the body (not to be confused with the situation when an organ is taken out of a body for transplantation and for a moment functions within an artificial context that imitates the original environment).

Assemblage relations, on the other hand, are said to be characterized by their relations of *exteriority*, meaning relations where components within a phenomenon may be detached from it and enter a relation within another phenomenon: changing its participation from one assemblage to another assemblage.

Totalities generate emergent properties from the interaction of their parts, and the relations between the parts are conceived in a similar fashion as within systems thinking. In contrast, assemblage is understood as another kind of a whole that also generates properties of its own, not reducible to its parts. However, parts within an assemblage are not assumed to be fused into its whole and fully aligned, integrated with, or absorbed by, it. Parts of an assemblage may exercise some capabilities or functions that are unique to its being part of a particular assemblage, however, its parts can be detached from that assemblage, followed by independent function and/or entering into a relation with another kind of assemblage, where such a part may assume some new functioning specific for that context. To provide a brief illustration of this, we can refer to our own way of functioning. When a part of our employer (assemblage), e.g. as an airline pilot, we can function in a certain manner, however when being part of another assemblage, e.g. a family, we function in very different way. Next, Assemblage Theory postulates that any assemblage operates with two kind of functional modes.

The first mode of functioning refers to the situation when a part of an assemblage functions *materially, expressively*, or both. Material-functioning refers to a part's materiality such as its physical location, structure, shape, or movements, for example a building, a machine and individuals and groups of people. Expressive-functioning refers to a part's expressiveness that gives rise to information that is communicated, in some manner. This includes both linguistic and non-linguistic expression; the latter may be signals sent by a building's shape or a human posture. For example, the headquarter building of the US Military is constructed in the form of a pentagon, and is officially known as the Pentagon; in this instance the building operates both materially and expressively.

The second mode of functioning refers to the situations when parts of an assemblage This first describes a situation where the components of an assemblage contribute to a stabilization of the whole assemblage. The second instance accounts for a situation when the components contribute to a destabilization or a change of the assemblage. For example: a building, such as the Pentagon, is built in such a manner that its components keep it fixed, both materially and expressively. Archeologists, on the other hand, have found certain cave paintings, which are exceptionally well-preserved after several thousand years, yet their intended expressivity has vanished, we can only guess what their message was. Likewise, a social organization such as the Roman-Catholic Church has been preserved, both materially and expressively, for two thousand years, while other organizations may emerge rapidly and then vanish. As an example of this, the company *Instagram* which provided functionality for sharing pictures via Internet was less than a year old when it was acquired by another company (Facebook) followed by a process where the first-mentioned organization was fused into the second, and thus ceased to exist as an independent entity.

The development of Assemblage Theory was initiated by a reaction to two kinds of reductionism (DeLanda, 2006). The first is what he calls *micro-reductionism*; it assumes that all phenomena may be decomposed into their very basic parts and thereby understood; this implies that individuals determine completely the behavior of its whole, and assume a similar position to that of analytical thinking as discussed above. The second kind of reductionism is labeled *macro-reductionism* by DeLanda. This assumes that only the function of a whole is of interest, as its parts are only there to serve it so that the interests of the whole are fulfilled; this implies that the whole determines the behavior of any individual that participates in the whole. This macro-reductionism assumes a position similar to systems thinking as discussed above. By offering a distinction between two kinds of wholes – *totalities* and *assemblages* – Assemblage Theory attempts to do more justice to empirical experiences, by accounting for two kinds of wholes, one where parts are fully absorbed and can only function and be meaningful within its whole and one where a part can be detached from its current whole and engage within another one.

3.2.3. K-19 as an assemblage

From the exercise conducted above, we may clearly conclude that K-19's actual behavior more meets the conditions of an assemblage than of a totality (i.e. a system). This is so as various parts of K-19 may be detached from it and can assume a function in the contexts of other assemblages; such was the case with the crew members who were part of their families, and at the same time part of K-19. Other parts, such as the ship's unique nuclear power station or its torpedoes, its navigation units and its food-providing arrangements, could all be detached and installed with some other context, such as a on a surface-ship or on land. This shows that conceiving K-19 as a totality eliminates the understanding of its parts' ability to change its contexts, thereby potential loyalty conflicts.

Next, the K-19, the ship as such, manifests a clearly material functionality, as do its various parts – torpedoes, nuclear power station, ballistic missiles, and various departments within the ship – and its context – such as the sea it navigates in and the other ships it relates to. K-19 also manifests expressivity in various manners; its physical shape signals that it is an entity for war, likewise the soldiers are organized into a strict hierarchical system that is communicated with various symbols, such as names for grades and symbols on the uniforms, the soldiers also assume various rituals, such as songs, sayings and stories, that function as community bonding and identity establishing. Furthermore, materially manifested acts, such

as punishment of a soldier who performed unwanted behavior, signal to other crew members what is expected of them.

Finally, moving on to the material aspect of the (de)territorialization functionalities, the whole ship was built to withstand material challenges such as weather, pressure of deep water and weapon strikes. Here, K-19's accident was the result of a faulty nuclear power station, when the cooling systems broke down. This put the whole ship into serious danger whereby the process of its de-territorialization was initiated. On the other hand, the crew's hierarchical organization and informal loyalty saved it from another kind of de-territorialization that was initiated yet held back, when some crew members' loyalty for their families made them refuse initial orders to repair the cooling systems and thus expose themselves to deadly radiation. This initiated de-territorialization was stopped by the soldiers' expression of belonging to a community and by the formal hierarchy.

In this case, we may conclude that K-19 as an assemblage was exposed to two kinds of *de-territorialization*: first a process of *de-territorialization* (i.e. cooling system) and secondly the crew members' simultaneous belonging to another assemblage (i.e. family) initiated the other process of de-territorialization, through an attempt at mutiny; in the second instance however, the specific formal hierarchy and its culture (with its code of conduct, songs, rituals, histories) contributed to maintaining organizational stability, or territorialization, where it also produced a recovery of the assemblage's cooling system, hence *de-territorialization* of its ship – this is shows the interplay between two kinds of *de-territorializations*: material and expressive.¹⁰

3.3. Assessment of Encaptic and Assemblage relations

It is now time to make an evaluation of the encaptic approach and the assemblage approach to the conception of a phenomenon, in relation to the limitations presented by the analytical and the systems approaches.

To start with, we can conclude that both encapsis and assemblage, as intellectual conceptions, offer us the ability to account for the empirical experience that a phenomenon may be conceived as a whole, with its emergent properties, and with parts of the whole that are either fused into that whole and lack their own identity, or that can maintain a certain level of autonomy, and therefore function within various wholes. This is something that neither analytical thinking nor systems thinking can offer us.

This means that both the encaptic conception and the assemblage conception are able to recognize that we experience two kinds of wholes. On the other hand, while encaptic conceptions rely on the notion of norms and laws as well as founding and qualifying modalities, assemblage conceptions utilize conceptions of materiality and expressivity as well as of territorialization and de-territorialization. The two approaches can thus be perceived as rather different from each other, yet can both be used to offer a plausible conception of complex phenomena's functioning.

To be sure, neither of these two approaches was intended as operational theory or methodology; they are rather philosophical bodies (social ontologies) aimed to guide a

¹⁰ Assemblage Theory has also attracted some critical remarks (Brown, 2010), however a review of that critique lies outside the scope of the argument pursued here.

conception of our experience and thus potentially inform development of empirical theories of our experiences.

4. Discussion and Conclusions

Modern systems thinking with its holistic message has emerged as a reaction to analytical thinking's atomism. In this essay, we have attempted to advance the argument that systems thinking, as an intellectual position while offering us some important conceptual features – the explicit recognition and accounting for emergent properties manifested by a phenomenon at hand – also imposes on us the macro-reductionism; this conceives parts of a whole fully aligned with its whole's aim and being devoted to it only, without the possibility of being part of another whole, whether simultaneously or at another point of time. This is unfortunate as such conception does not do justice to our empirical experiences, as we have shown with the case of the Soviet submarine K-19. We have recalled that others have pursued a similar argument, in one way or another, however, we have not only provided a critique of systems thinking and related it to analytical thinking; we have also presented two different theoretical bodies that may surpass both the macro-reductionism of systems thinking and the micro-reductionism of analytical thinking; these are the notions encaptic relations and assemblage relations.

At the moment, holistic or systems thinking often presents itself as a solution to the limitations of analytical thinking, their micro-reductionism (e.g. von Bertalanffy, 1968, 1972; Checkland 1981, Klir, 1991, Le Moigne, 1990; Flood & Jackson, 1991). While systems thinking may remedy the limitation of analytical thinking we should not become blind and assume that it does not impose on us its own shortcomings. From our elaboration of the situation of the submarine K-19, we can clearly see that *each* of the four intellectual devices reviewed here – *analytical*, *systemic*, *encaptic*, and *assemblage* – can offer us something in their function of intellectual guide for the conception and comprehension of a complex phenomenon at hand. As a consequence, we suggest that there is a need to further advance our conceptual apparatus, so that it can account for all identified features of a phenomenon rather than account for only some of them, as is the current tendency.

It was not the purpose of this elaboration to list all existing post-systems approaches; we have presented only two rather different approaches to support our conclusion here for a *complementary approach*, rather than the current more imperialistic where one approach surpasses another. After an identification of potential candidate approaches, there is a need for theoretical elaboration and practical tests with regard how to synchronize or even integrate the various approaches – with the clear aim of offering us an intellectual device that can guide a more comprehensive conception than otherwise.

Such advancement must not however be limited to theoretical bodies, as reviewed here. The various operationalizations of these theoretical bodies, often in the form of methods and methodologies, should also be addressed as these are utilized as intellectual tools for actual intervention in social affairs. To illustrate this point, we may consider one of the most sophisticated systems tools: Peter Checkland's *Soft System Methodology* (SSM), (Checkland, 1981; Checkland & Scholes, 1990). Among its various features, SSM mandates the utilization of the so-called conceptual modeling that is about the conception of a subsequent series of activities to be conducted by the phenomenon conceived. For example, painting a fence may require such activities as assessment of the current state of the fence, decision of desired

color, acquisition of paint and brush, etc. SSM links these activities to key features of the phenomenon at hand: customer, actors, transformation, world view and environment (e.g. Checkland & Scholes, 1990). While such an exercise is certainly suitable for understanding key features of the phenomenon at hand, it manifests the above-mentioned macro-reductionism as it disregards the involved actors' multi-functionality, that is their synchronic or a-synchronic participation in other contexts and thus the potential emergence of conflicts of interest; an example of such a conflict of interest could be the workman painting the fence in our illustration, who also owns a company that sells paint and brushes; this would motivate him to choose his company as the supplier for the paint and brushes whether these are the most appropriate or not; due to its systemic roots, SSM cannot recognize such an everyday tension of interests; to be sure Checkland (e.g. Checkland & Scholes, 1990) proposes later in the development of SSM the so-called 'Political Analysis', yet this is in practice limited only to the question: 'are there any power-tensions involved here?', without offering any direct linkage to the SSM's modeling tools, making it impossible to detect such conflicts of interest). Similar critique may be delivered to other operationalizations of both analytical and systems thinking, including R.L. Ackoff's sophisticated 'Interactive Management' approach (e.g. Ackoff et al 2006), S. Beer's 'Viable System Model' (e.g. Beer, 1985), or the 'System Dynamics' approach (e.g. Sterman, 2000).

Given the argument developed here, we would like to invite the reader to pursue a most necessary development of theoretical bodies and their operationalization, so as to do justice to our experiences, offering increased understanding and thus more informed decision-making about various interventions in human and social affairs.

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Cognitive Time Distortion as a Source of Risk in Economic Organizations: Conceptual Foundations

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This paper introduces two kinds of risks present in any economic organization: the risk of cognitive time distortion and the risk of economic distortion. These two kinds of risks are related in a complex and non-linear manner, so that the cognitive distortion risk gives rise to the economic distortion risk. By monitoring the cognitive distortion risk, managers may also control the economic distortion risk. Basic conceptual foundations for the conception of these two kinds of risks, originating in unconditional human cognitive time distortion, are elaborated in this paper.

“.. if economic organization is formidably complex, which it is, and if economic agents are subject to very real cognitive limits, which they are, then failures of alignment will occur routinely.”

O.E. Williamson, 1991: 79

1. Introduction

Whether we like it or not, our lives are highly dependent upon, and conditioned by, a large number of economic organizations, such as hospitals, schools, banks, pharmaceutical companies or governmental bodies. At the same time, today's economic organizations are exposed to a never before experienced amount of challenges of various kinds. To handle these challenges successfully, a manager's job includes the identification and management of various organizational risks. To this end we introduce here two kinds of risks present in any economic organization, yet not previously articulated. These are the *Cognitive Time Distortion Risk* and its consequence, the *Economic Distortion Risk*.

The first-mentioned risk constitutes a source of economic inefficiencies, output quality deficiencies, and human ill-being. The second-mentioned risk articulates the economic inefficiencies. Both risks may be identified and monitored, which constitutes an opportunity for their management. This paper provides the conceptual foundation for the conception of the two kinds of risk.

The approach of the concept *distortion of risk* is inspired by systems theory, though this paper is focused on elaborating the operationalization of distinct mathematical metrics. In this paper, the term “risk” is applied since it has a mathematical definition in economic and psychological science based on probability theory. In systems theory however, the term “risk” is not applied or defined, but we interpret the systems theoretical concept of “variety” as being a proper connotation of ‘variance’ or ‘standard deviation’. Therefore, we will conclude this paper with a more general discussion about risk, variety and system homeostasis.

We will start with a brief recapitulation of the notion of an economic organization and some of its central characteristics pertinent for this elaboration, including the temporality of an economic organization, and then introduce the central notion of cognitive time distortion,

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unconditionally inherent to all human activities. This cognitive time distortion is then introduced into the conventional profit equation and further transformed into a workload equation, which results in the expression of the risk of economic distortion introduced here. A brief illustration of the model introduced here is provided followed by a discussion where we put the risk distortion concept into a systems theoretic perspective. The paper ends with some key conclusions.

2. Economic Organizations and their Temporality

Before presenting the actual mechanism that gives rise to operational and economic risks due to cognitive time distortion, we would like to provide some of its background in terms of the conception of an economic organization, its relation to time and the crucial articulation of Cognitive Time Distortion.

2.1 Economic Organizations and their Temporality

Starting with the observation that our contemporary societies are inevitably populated by a large set of social organizations of various kinds (e.g. Pfeffer, 1997), one central subset of social organization is the *economic organization*, as manifested by a firm, a public organization, and an NGO (e.g. Foss & Loasby, 1998). Briefly, economic organizations are understood here as those legal entities where coordinated activities are conducted by human and non-human actors, and where these activities, together with their various resources, give rise to economic incomes and costs (ibid.). Further, and central here, is that the governance of an economic organization includes formal (and informal) contracts, with both factor and product markets (ibid). In the present context we wish to articulate the distinction between two ordinary kinds of contracts: *fixed-price contracts* and *current-account contracts*, applicable to both factor and product markets, and to both goods and services. Fixed-price contracts are understood as business agreements with a *predefined* time-volume, price per time unit and date for delivery, while current-account contracts are understood as business agreements with only a *predefined* price per time unit – we will return to the two contract forms later, and now turn our attention to *time*.

Central to this elaboration is the fact that all kinds of social organizations, hence also the economic organization; unconditionally operate *temporally* simply because of their constituting actors: human beings; these experience time (e.g. von Schéele, 2001). Further, it is now well established that organizations may operate simultaneously with *different kinds of time* (e.g. Orlikowski & Yates, 2002; Dooyeweerd, 1955). In the present context we wish to draw attention to the fact that for a long time studies in mental and medical sciences have reported that humans operate simultaneously with *physical (clock) time* and *cognitive (mental) time* (e.g. Block & Eisler, 1999; Levin & Zackay, 1989) – unfortunately and strangely these well-documented observations have largely been ignored by economic, organization and management studies, which this contribution will attempt to remedy. The complex relation between physical time and cognitive time is addressed below.

2.2 Cognitive Time Distortion and its Nature

From our everyday experience, we know that in relation to any event such as an organizational process, project, or even a single activity, *physical time* measures time in terms of what the clock measures, which in turn has an established relation to a particular physical

event (i.e. a *second* is conceived as *duration of a specified amount of periods* of the radiation of cesium atom in its ground state at a temperature of 0 (ISU, 1998)). On the other hand, *cognitive time* is what an individual human actor perceives in relation to the given event and the related clock-time measure. Cognitive time assessment made by an individual tends to move in jerks and jumps, while physical time passes smoothly and at an even pace (e.g. Levin & Zackay, 1989). For example, if a software consultant works for *three and a half hours* for a given client (measured in reference to a clock) however without consulting her watch, she may have perceived and also reported that she worked *three hours only*, meaning that half an hour has been ‘lost’. When individuals estimate time durations they nearly unconditionally, unintentionally and unknowingly, commit errors resulting in significant differences between the self-assessed cognitive time duration and the corresponding physical time duration, as measured by a clock (ibid.). A review of current research within cognitive time distortion suggests that the gap in correct assessment of one hour may vary between 1,02 – 2,14 hours, see Table 1 for an overview.

Table 1. The mean value of one psychic hour, obtained by an individual’s self-assessment versus a physical hour (from Block, 1990:5).

Source	Mean value of one psychic hour t_c as expressed in physical time t_p (hrs).
Mackleod & Roff (1936)	1,22
Vernon & McGill (1963)	1,08
Siffre (1964)	2,14
Webb & Ross (1975)	1,02 – 1,05
Lavie & Webb (1975)	1,12
Aschoff (1985)	1,47
Campbell (1990)	1,12

In general terms, cognitive time distortion (CTD) is understood here as being the ratio between cognitive time (t_c) and physical, or clock, time (t_p). In appraising time distortion, it is necessary that cognitive and physical time have the same *frame of reference*, and that they address the *same event* – e.g. an activity, a process, a project, or a service contract. Therefore, and more specifically, time distortion, denoted here with “ τ_i ”, is defined as the ratio between cognitive time, t_c , and physical time, t_p , of a certain event “ i ”, hence formally:

Cognitive Time Distortion; $\tau_i =$

$$\left(\frac{t_c}{t_p} \right)_i \quad \mathbf{1.}$$

One central implication from the empirical studies conducted is that CTD is unconditional to human nature (Aschoff, 1985); hence it is not a question of whether we commit a CTD or not, it is a question of how much distortion is produced.

2.2.1 The Probabilistic Nature of Cognitive Time Distortion

Cognitive time distortion exhibits a *stochastic pattern*, varying serendipitously during any one day. Empirical investigations show that CTD has a stochastic pattern *both* at the level of an *individual subject* and at the level of a *group of subjects*; however the deviations are more

pronounced when, for example, a service is performed by a group of individuals than by an individual actor, hence at the group level (von Schéele, 2001) – see Figure 1.

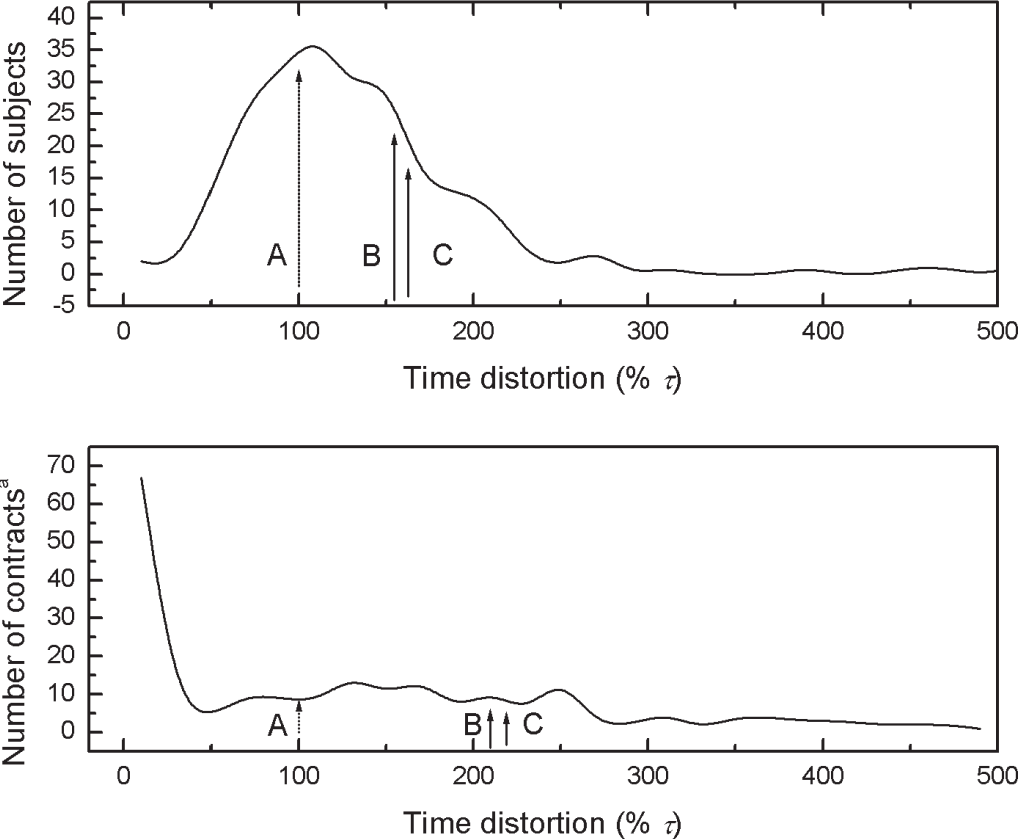


Figure 1. Shows the asymmetrical probability-distribution $P(\tau)$ of cognitive time-distortion. The Top Panel illustrates the distribution of cognitive time-distortion for individual time-assessments in a laboratory experiment ($N = 224$), while the Bottom Panel illustrates the distribution of cognitive time-distortion at the level of a group of individuals (here service contracts, where $N = 233$ in five service organizations). Arrow 'A' indicates the mean value, μ , of a Gaussian distribution, while arrow 'B' indicates the approximate mean value, μ , and arrow 'C' the approximate expectancy value, $E(\tau)$, of the probability distributions $P(\tau)$, (based on empirical data from laboratory experiments and a survey of service contracts; von Schéele; 1999, 2001).

2.2.2 The Statistic and Asymmetric Nature of Cognitive Time Distortion

To further elucidate the statistical nature of the time distortion τ , consider $P(\tau)$ as being the probability function of the stochastic time distortion variable τ . Let also $p(\tau)$ express the probability that a time distortion of magnitude τ occurs. The expectancy value $E(\tau)$ of the time distortion τ in a set consisting of “ i ” events, $[i = 1 \dots r]$, can then be defined as $E(\tau) = \sum p(\tau_i) \tau_i$. Provided that the individuals of a given population are unbiased or randomly biased, the time distortion will then exhibit a probability distribution $P(\tau)$ with the following properties:

- i.* $P(\tau)$ is not symmetrically distributed around $\tau = 1$, which implies that the arithmetical mean value $\mu_\tau \neq 1$ and the expectancy value $E(\tau) \neq 1$. There exist several

empirical evidences supporting this, showing that individuals assessing time exhibit a tendency to *overestimate* the passage of time (e.g. Aschoff, 1985; von Schéele, 2001).

ii. $P(\tau)$ is not Gaussian-distributed, but exhibits instead an asymmetric distribution with a long “tail” for values of $\tau > 1$ (von Schéele & Haftor, 2013). In such distributions it should not be expected that the arithmetical mean value μ_τ corresponds to the expectancy value $E(\tau)$. Serious errors will be committed if a Gaussian distribution of time distortion is assumed in economic calculus, as such an assumption, in turn, builds on presuppositions that both the arithmetical mean value μ_τ and the expectancy value $E(\tau)$ are equal to unity.

To illustrate this point, an investigation of five service organizations (von Schéele, 2001) showed that the arithmetical mean value μ_τ and the expectancy value $E(\tau)$ of $P(\tau)$ were greater than 2. Thus, the time estimations of the employees exceeded the actual contracted time, indicating a general *overestimation* of the passage of time. Furthermore, only 16% of the customers received a service-time that matched contractual time. The practical consequences of this were large deviations from budgeted economic outcome as well as poor profitability of the investigated service operations, ultimately resulting in the need to discharge employees (see von Schéele (2001) for further details).

3. The Dissimilar Effects of Cognitive Time Distortion due to Contractual Form

We would like to recall a central operating assumption of this elaboration: that an economic organization is made up of purposeful conduct by humans, whatever kind it may be, and of contracts between, on the one hand, the client or customer and the organization, and on the other hand, between the employee and the organization (e.g. Coase, 1937).

Given these assumptions, cognitive time distortion may cause an *economic distortion* in the manufacturing of products, in two alternative ways, both related to the nature of the *contract* between the supplier and the customer, and are specifically linked to the irreversible property of time. In general, the two different economic agreements applied on the market are:

i. Service delivery at a fixed price (fixed-price contract). The service provider and the customer have agreed upon the time-volume of the service (t_p), the price, and the date of delivery, after which the service delivery starts. The service delivery ends when the *predefined service* has been executed. The time distortion τ (alternatively δ) is considered here with reference to the predefined time t_p (alternatively predefined target capacity e_p) in the fixed price contract.

ii. Service delivery at current account. The service provider and the customer have agreed upon the price per time-unit for the service. The total time-volume (t_p), however, remains *unspecified*. This implies that the service also remains unspecified. For each additional performed hour of the service delivery, the service provider will charge the customer. For this economic agreement the time distortion τ is considered with reference to physical clock time (t_p).

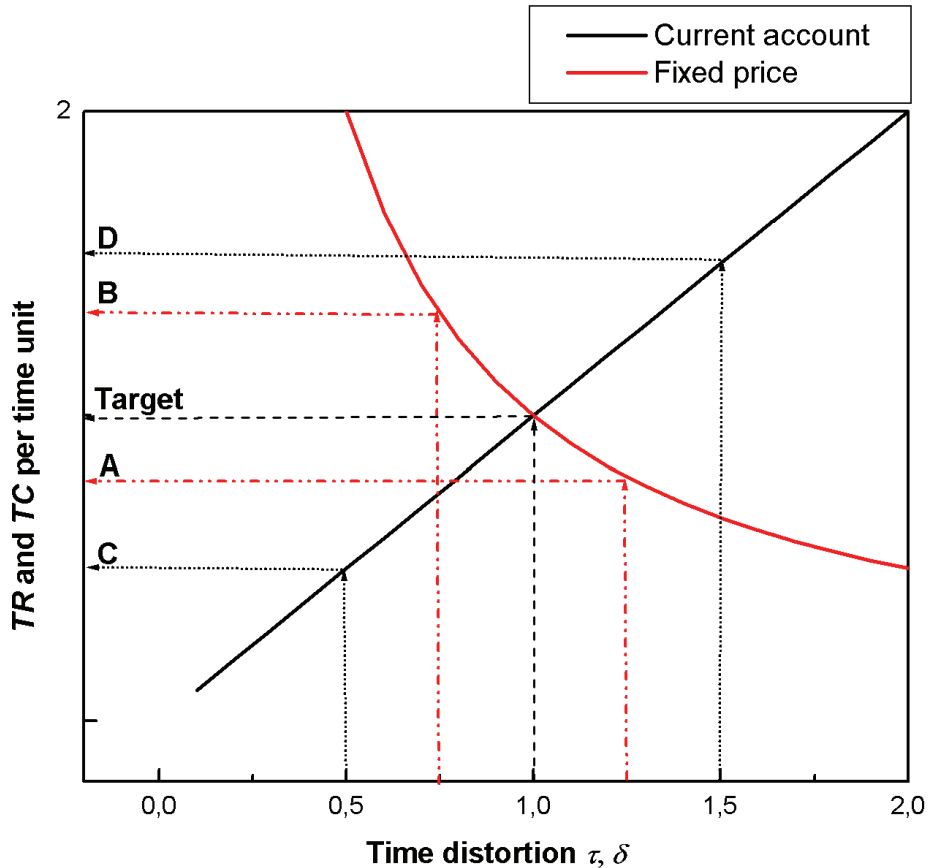


Figure 2. Shows that cognitive time distortion generates dissimilar effects and is determined by contractual category: current account vs. fixed price. There is a variation of Total Revenues, TR , and Total Costs, TC , per time unit due to contractual category, and as a function of the cognitive time distortion. Figure 1 illustrates the *lever-effect* between cognitive time distortion and *curve-linear* economic outcome with reference to the fixed price contract (von Schéele, 2001). The lever-effect is also relevant to the workload, see eq. 7 below.

The total revenues per time unit (income; TR), and the total costs per time unit (TC), are both influenced, however differently, by cognitive time distortion through the two distinct contractual means in Figure 2, as discussed below.

First, consider the *fixed-price contract*. If employees overestimate the time-volume delivered, resulting in cognitive time, t_c , exceeding contracted or physical time, t_p , the time distortion, τ will be larger than unity, thus decreasing TR per time unit (A in Figure 1). On the other hand, an underestimation of the time delivered affords a time distortion, τ , less than unity, and TR will increase (B in Figure 1). Thus, from this we are able to draw the conclusion that time distortion, τ , is *inversely proportional* to TR for the fixed-price contractual model.

Secondly, consider now the *current account* contract. Here, the customer is charged for the contractor's cognitive time assessment, t_c , regardless of whether it equals the actual clock, i.e. physical, time delivered, t_p , or not. Underestimation of the passage of time – leading to undercharging – causes a decrease in TR (C in Figure 1) and the time, t_c , reported to the customer will be less than the actual time delivered, t_p . The opposite will occur if time is overestimated (D in Figure 1). Therefore, the influence of time distortion, τ , on TR is *linear* for contracts on current account (von Schéele, 2001).

Before moving on to elaborate the consequences of these dissimilar effects of cognitive time distortion due to contractual form, we wish to make a brief observation. The key role of the mode of a commercial contract in relation to production time and for economic results of an organization, as we understand it, appears so far to have passed unnoticed in economic studies. Subsequently, the relation between cognitive time leakage and the economic outcome has traditionally been assumed to be *linear*.

4. Cognitive Time Distortion, Contracts and Risk

We can conclude now that the emergence of cognitive time distortion is an unconditional state of human affairs, both at the level of a single human and at the level of a group of humans. We also know that CTD is not symmetrically or normally distributed, which implies that there are no simple means for ignoring it. Next, CDT has a dissimilar effect on an economic organization due to the contract form assumed. Indeed, in a previous elaboration where CTD was embedded into the traditional profit equation, we showed that CTD may have a non-linear and somewhat dramatic impact on costs, revenues and thus profits of a firm (von Schéele & Haftor, 2014). It is also argued there that CDT has a negative impact on economic productivity, output quality and human worker well-being (ibid.).

As CDT emerges both in *prospective* (e.g. budgeting) and *retrospective* (e.g. reporting) worker assessments (e.g. von Schéele, 2001), and as formal contracts are bound to physical time only, i.e. do not account for cognitive time, CDT gives rise to an undesired behavior in the economic organization, when the latter deviates from the ideal of a perfect contract where no difference between the physical time and the cognitive time is present.

On the other hand, as CTD can be estimated empirically, both at the level of an individual and the level of a group of individuals, a probability distribution may be identified and constitute the *source of risk* assessment and management. For example, if measurements show that a given economic organization manifests a CTD of 1,12, this shows that each individual leaks on average 12% of its time, where *time leakage* may be understood here as an individual human worker consuming 12% time more than accounted for by the formal contracts. We denote this kind of risk here as “*CDT-risk*” (alternatively as *first order risk*). The key question here is *what magnitude* of CTD is present in a given economic organization (rather than if *it is present*). While this first order risk can be measured and identified quite straightforwardly, we also wish to introduce here another kind of risk that is related to the first order risk yet hidden in the economic set-up of an economic organization. We denote it here as “*CTD-economic risk*”, alternatively as *second order risk*. We will show later that this second order risk is related in a complex manner to the first order risk, and indeed caused by CDT-risk, and that it has important implications on the performance of an economic organization.

5. The Second Order Risk: CTD's Economic Risk

We will start the elaboration of the second order risk with the conventional notion of profit, as expressed in the following equation:

$$\pi = TR - TC \quad [U] \quad 2.$$

In Eq. 2, π signifies here profit per time unit, TR the total revenues per time unit, and TC the total costs per time unit. The parameters are expressed in monetary units (U), preferably defined for the time unit of one year. It is useful to consider the *total workload-time to customers*, t_{vol} , of an economic organization on a yearly basis, while the market price for each hour delivered, p , is considered on an hourly basis. Accordingly, the expression $TR = p t_{vol}$ denotes the total annual revenues of one economic organization, here a service provider, that charges its customer the price of p U/hour, for the total workload time-volume of t_{vol} hours in a year. The employee salary per time unit is related to the market price, p , by the weight v_p , where $[0 < v_p < 1]$, so that the salary cost per time unit of one employee becomes $v_p p$. Thus, we can write eq. 1 as follows:

$$\pi = p t_{vol}(1 - v_p) \quad (U) \quad 3.$$

The expression between the parenthesis in Eq. 3 is the expression that will be further elaborated into the distortion economic function $Q(\tau)$. Firstly, consider a modification of Eq. 3 to express *total workload-time* to customers:

$$t_{vol} = \frac{\pi}{p} \frac{1}{(1 - v_p)} \quad (\text{Hours}) \quad 4.$$

From Eq. 4 follows, that the more v_p approaches 1, the higher the workload becomes, as measured in hours. Since CTD affects economy differently, depending on mode of contract, the variable α , $[0 \leq \alpha \leq 1]$ is used, where a value of unity signifies 100% of fixed-price contracts (and a value of zero signifies contracts on current account). In the following equation, it is assumed that the TR may consist of a mix of fixed price contract and a contract on current account.

$$t_{vol} = \frac{\pi}{p} \frac{1}{(\alpha + (1 - \alpha) - v_p)} \quad (\text{Hours}) \quad 5.$$

Now we insert the CTD-variable τ from Eq. 1 to Eq. 4, paying attention to the *linear* or *inverse* effects of CTD due to contractual category (von Schéele, 2001; von Schéele & Haftor 2014). Observe that the fixed price contracts are multiplied by $\frac{1}{\tau}$ (or $\frac{1}{\delta}$), as discussed in Figure 1 above, while contracts on current account are simply multiplied with τ . In addition, CTD on Total Costs is here denoted by the symbol δ . For an organization with *one* customer contract

(partly fixed price and partly on current account) and *one* employee, the workload is consequently as follows:

$$t_{\text{vol}} = \frac{\pi}{p} \frac{1}{\left(\alpha \frac{1}{\tau} + (1 - \alpha) \tau - v_p \frac{1}{\delta}\right)} \quad \text{(Hours)} \quad 6.$$

Eq. 6 exhibits time distortion in workload, as expressed in the case of one customer contract and one employee contract. Should the economy consist of several customers and employees, eq. 6 becomes more elaborate, with summation signs for “i” customer contracts and “j” employee contracts. This, however, lies outside the scope of this paper. We have now arrived at an equation in the following form:

$$t_{\text{vol}}(\tau, \delta) = \frac{\pi}{p} \frac{1}{Q(\tau, \delta)} \quad \text{[hour]} \quad 7.$$

Eq. 7 articulates that the total workload is dependent on τ and δ , and that the distortion function, $\frac{1}{Q(\tau, \delta)}$, has an inverted influence on the total workload. Eq. 7 expresses the workload-time to customers, and signifies that the physical time values are dependent upon two kinds of risks:

- i) The *first order risk*, here mathematically defined by $P(\tau)$ alternatively $P(\delta)$, which is an expression of the concept of CTD. This risk expresses the probability that a time distortion of magnitude τ (alternatively δ) will occur.
- ii) The *second order risk*, here mathematically defined by the distortion function $P(1/Q(\tau))$, which expresses the probability that an error of magnitude $1/Q(\tau)$ will occur. This economic risk spells out the *lever effect* between the CTD and specifically the workload of an organization.

To demonstrate the relation between the first order risk and the second order risk – the lever effect – we consider a CTD with a magnitude of $\tau = 1,1$, which means that each subjective hour is 10% longer than the physical hour. In addition, we assume a service delivery on a fixed price contract ($\alpha = 1$) and the market price margin v_p corresponding to 0,6 (which means that salary level per hour is 60 % of market price per hour). A value of τ exceeding 1 automatically makes δ fall below the value of 1, so we insert $\delta = 0,9$.

Consider first Eq. 6 *without* any CTD:

$$t_{\text{vol}} = \frac{\pi}{p} \frac{1}{\left(1 \frac{1}{1} + (1 - 1) 1 - 0,6 \frac{1}{1}\right)} \quad \text{(Hours)}$$

$$t_{\text{vol}} = \frac{\pi}{p} \frac{1}{(1 - 0,6)} \quad \text{(Hours)}$$

$$t_{\text{vol}} = \frac{\pi}{p} 2,5 \quad (\text{Hours})$$

This shows that a workload of 2,5 times profit per market price corresponds to the budgeted time under present conditions.

Consider now Eq. 6 *with* CTD of 1,1:

$$t_{\text{vol}} = \frac{\pi}{p} \frac{1}{\left(1 \frac{1}{1,1} + (1 - 1) 1,1 - 0,6 \frac{1}{0,9}\right)} \quad (\text{Hours})$$

$$t_{\text{vol}} = \frac{\pi}{p} \frac{1}{(0,91 - 0,67)} \quad (\text{Hours})$$

$$t_{\text{vol}} = \frac{\pi}{p} 4,17 \quad (\text{Hours})$$

This shows that a CTD of 10 % has increased the workload by:

$$\Delta = \frac{4,17}{2,50} = 1,67$$

This represents an augmentation of 67 %. We can spell it out more formally by writing:

$$\tau = 1,1 \rightarrow 1/Q(1,1) = 1,67 \text{ under present conditions; (the arrows symbolizes 'bring about').}$$

This is the so called 'lever-effect'. It cannot be argued that first order risks, $P(\tau)$, occur with the same probability as second order risks, $P(1/Q(\tau))$. We do not have any support that there is any linear correlation between the first order risk (CTD) and the second order risk (economy). However, due to the lever effect, there is a mathematical-statistical support that the standard deviation of $1/Q(\tau)$ exceeds that of τ .

Indeed, Figure 1 above shows that the asymmetrical probability function $P(\tau)$ of CTD differs, depending on whether the CTD originates from a laboratory setting or a business setting. In a business setting, the compounded time distortion τ exhibits a larger standard deviation, and there is a lower probability that it corresponds to unity (100 %), compared to laboratory settings. One explanation of this phenomenon is that any compounded time distortion forms an addition of the stochastic variables τ_a and τ_b , and addition of stochastic variables also induces an addition of their mean values as well as their *standard deviations*. Thus, compounded time distortion, such as for instance the aggregated time records of employees in a project, always has a *larger variance* than that of a single individual.

With these facts in mind, we can therefore make the following proposition:

CTD Risk Proposition: *The CTD risk on the first level in a system always gives rise to greater risks in interrelated second order systems.*

Therefore, with due respect to the perilous mechanism between CTD and the distortion function, we need to investigate *how to control $Q(\tau)$, by means of controlling τ* . This however lies outside the scope of this paper.

6. Discussion

In a systems science perspective, this paper addresses several different kinds of systems. According to the General Living Systems Theory (GLS, Miller; 1978), the variation dealt with here occurs within and between the Organism, the Group and the Organization. While Miller points out that each of these living systems include many non-living components or *artefacts*, that are crucial for the living system, we argue that some of the artefacts (economic formulas) are *erroneous* or *wrong* and misinterpret the environment in which the living system is trying to survive. Our suggestion is subsequently, that living systems with erroneous artefacts are endangered.

Miller argues that each level in the GLS is dependent on 20 subsystems to be able to support the phenomenon of life. For instance, subsystem “Input transducer” (no 11), “Internal transducer” (no 12), “Timer” (no 14), “Decoder” (no 15), “Encoder” (no 19) and “Output transducer” (no 20) may be relevant for the future research of CTD. At the present, however, we have treated them as a black box, mainly focusing on the variation between the different levels of living systems; the Organism, the Group and the Organization. There does exist one important difference in our approach compared that discussed by Miller; we stress that the variation – the CTD – occurs *without the living systems being aware* of it. Regardless of whether it is an organism, a group or an organization, the CTD is an *unapprehensive variety*.

The Viable System Model (VSM, Beer, 1972) suggests a recursive model comprising of 5 different managerial subsystems. To handle the organization, the manager has to tame the mess according to some principles of the model, where the main concern is the *control function* and the concept of *variety*. The word “control function” should not be interpreted mathematically, since Beer does not suggest any particular mathematical approach. Instead, he focuses on the structure of the management system and defines the roles of each subsystem. In his VSM, Beer pronounces the importance of the terms variety, comparator, oscillation, attenuator, amplifier and transducer, to mention a few. However, little is said about *operationalization* of the terms with reference to individuals and economy. To this end, we present an operationalization of the variety (time-based variety) which may support measurement of amplification, transduction, oscillation and attenuation in systems as well.

Finally, the account for two kinds of temporal experience as offered here – the mechanical and the cognitive, echoes the antireductionist signals suggesting that humans operate with several kinds of temporal experiences, where the late Dutch philosopher Herman Dooyeweerd (1894-1977) proposed fifteen modalities of human experience, hence fifteen kinds of temporal experience, such as physical, biological, historic, economic, cognitive, social, and moral (Dooyeweerd, 1955). One of his key messages was not to reduce one kind of experience – here concerning time – to another one. In this sense, we offer one small step toward such an agenda, where we formalize two kinds of temporal experiences – the physical and the cognitive – and we also offer a formal relationship between the two, and a link between the described relation and the economic implications of an organization. In that manner our contribution validates Dooyeweerd’s argument of multiple temporal experiences, and probably also extends it somewhat by showing that the various modalities may manifest non-trivial intermodal relationships, due to the latter’s non-linear character.

7. Conclusions

In this paper we have presented two kinds of risks present in any economic organization, namely:

- The first order risk, understood as the magnitude of Cognitive Time Distortion, or the probability that the human cognitive system conceives a time assessment of level τ (or δ).
- The second order risk, understood as the probability that the distortion function, here defined by $1/Q(\tau,\delta)$, assumes a given value with respect to budgeted economic targets.

The two kinds of interrelated risks introduced here, present in any economic organizations, stem from the inevitable human fallacy of time assessment. In this, the second order risk may be conceived as a lever effect of the first order risk, implying that the second order risk may be controlled when the first order risk is monitored and influenced. This, in turn, suggests that there is a need to identify practical means for identifying and influencing cognitive time distortion in economic organizations, with the potential benefit of improving their economic productivity, output quality, and peoples' well-being.

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Information -The 'I' in 21st Century Organizational IT Systems: An Informed Systems Methodology

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In development for over a decade in three North American academic libraries, the Informed Systems Methodology offers transferable organizational development for fostering workplace learning empowered by catalytic relationships among information, technology, and people. With an explicit emphasis on using information to learn, 'soft' systems design tools aid co-creation of communication systems and professional practices that enable information sharing and knowledge creation processes. When contextualized by local values, experiences, and purposes, the ISM fosters organizational transformation and creative innovation.

1. Introduction

The development of information technology during the last decade or so has produced vast consequences and opportunities for many professionals. As an example in the academic environment, teachers in educational settings have had to adopt various Learning Management Systems and related pedagogy, and also to offer web based courses and programs. This radical departure in higher education from campus based teaching and face-to-face interaction with students necessarily requires significant re-thinking about how students learn within a virtual environment, and how teachers interact to engage students in learning experiences.

A second related example, which has been in our research focus for more than 10 years, concerns libraries and librarians' changing professional roles. This context has driven our long-term research efforts towards developing a methodology for designing and implementing new workplace processes, organizational structures, co-design tools, and conversation patterns by engaging library practitioners (Mirijamdotter & Somerville, 2008; Somerville & Mirijamdotter, 2014).

Before the development of web based technology, libraries and librarians were viewed as gatekeepers to information. Traditionally, library professionals described information objects through cataloguing metadata for indexing inventory, and manipulated information-finding tools through reference, research, and instruction services (Somerville et al, 2006). This mediation role originated as 'reader services' in the days of inadequate indexes (or no indexes) to published scholarly content. Then, in the early stages of computer-generated indexing, librarians were necessarily 'intermediaries' between the inhospitable 'native interfaces' to electronic databases of publisher(s) aggregated content. However, all this changed as searching algorithms for 'born digital' content permitted 'disintermediated' Google-like searching, without need of a librarian coach (Somerville et al, 2012). More recently, new researcher productivity tools (Somerville & Conrad, 2014a; 2014b) accentuate the possibilities for independent research unaided by library science expertise. At the same time, librarians are experiencing decreasing gate counts and diminishing consultation transactions, despite increased student enrolment (Mirijamdotter & Somerville, 2009). Even

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as libraries and librarians became increasingly marginalized in the academic environment, advanced information and communication technologies (ICT) and plentiful digital information resources encouraged heightened expectations from academic library users. These developments necessitated re-thinking within academic libraries about professional purposes, conventional processes, and traditional relationships.

Our research focuses on information and its connection to learning and is based on the assumption that changes in organizational patterns of behaviour need to build on inclusive workplace learning processes. For facilitating these processes, we both adopt and adapt Peter Checkland's Soft Systems Methodology (e.g., Checkland, 1981; 2000; 2011; Checkland & Holwell, 1998a; Checkland & Poulter, 2006), that focuses on collaborative design of communication, decision-making and planning systems, which are necessary for purposeful workplace activities that support change in understanding (i.e., learning) and, thereby, change in behaviour. Complementary theories, such as Christine Bruce's Informed Learning theory (e.g., Bruce, 2008; Bruce & Hughes, 2010; Bruce et al, 2012), emphasize experiences of using information to learn. Dialogue and reflection processes further activate information experiences through information transfer and knowledge creation. Together, these guiding philosophies, design tools, and theoretical insights enable and enliven re-thinking workplace systems and associated professional practices. Thus, the research efforts include challenging underlying assumptions that historically guided the library workplace and build on inclusive workplace learning processes by means of participatory action research. Such a unified approach that emphasizes information and its connection to learning, including initiating inquiring workplace culture encouraged by collaborative professional practices, was found to be absent in existing theories of organizational learning (Crossan et al, 2011; Somerville et al, 2014).

Information nowadays includes both electronic and physical forms, known as e- or p-resources. Therefore, organizational structure and workplace processes must ensure management of needed information, regardless of authoritative source, resource format, or delivery channel. This requirement is particularly relevant to libraries, which must select, organize, and manage information. To know what information to collect and then how to make it discoverable and accessible requires understanding how the library's role furthers the current mission and vision of the educational institution and, relatedly, the changing expectations and needs of campus constituencies. Findings in each academic library that we have studied showed that this was not initially the case. Therefore, we have explored participatory approaches in our research that build a holistic perspective to raise awareness of individual, group, and organizational contributions to the mission and purpose of the overall organization through conscious use of information to enable changes in organizational behaviour. Toward these ends, this paper presents essential elements of the Informed Systems Methodology (ISM) and infrastructure requirements for activating and sustaining informed learning and systems thinking in contemporary organizations, as represented in the ISM. The paper ends with some concluding remarks about the methodology's transferability, and further challenges to address.

2. Theoretical foundations

The Informed Systems Methodology (ISM) is the result of a decade of design and implementation activities related to library services, organizational systems, and library facilities (e.g., Somerville & Howard, 2008; Somerville, 2009; Mirijamdotter & Somerville, 2009; Somerville & Howard, 2010; Somerville & Farner, 2012; Somerville, 2013; Howard &

Somerville, 2014; Somerville, 2014). The theoretical foundations are based on Systems Thinking and Information Management as represented particularly by Soft Systems Methodology (e.g., Checkland, 1981; 2000; 2011; Checkland & Holwell, 1998a; Checkland & Poulter, 2006) and Informed Learning Theory (e.g., Bruce, 2008; Bruce & Hughes, 2010; Bruce et al, 2012) respectively.

Systems thinking recognizes that each individual and organizational unit is a part of a whole. Systems thinking acknowledge that any organization is also part of a larger enterprise, in other words, “an autonomous whole while at the same time being a functioning part in a larger whole” (Checkland, 2011, p. 490). Each part therefore needs to reflect the mission of the overall system and identify its contribution to the whole. Additionally, each part is related to other parts within the whole by information and communication flows and thus affects and is affected by information, whether deliberate or unintended.

Information Management (IM) entails organization and coordination of the structure, processing and delivery of information. The aim is to "provide data and information to users with the appropriate levels of accuracy, timeliness, reliability, security, confidentiality, connectivity, and access and ... tailor these in response to changing business needs and directions" (Mithas et al, 2011: 238). The area itself can be traced back a century and has gone through several stages, where organization and control were considered central regardless of whether information was on paper or online, records management through use of computers and other related technologies, or so called management information systems (MIS) elaborated for the purpose of supporting decision-making and prognostics (Dias, 2001). In the 1970s, strategies for managing all necessary information in an enterprise evolved and a new concept - knowledge management - appeared (Dias, 2001).

In more recent research, IM is associated with diverse applications, such as big data, data warehouse, and business intelligence (McKnight, 2014). It is also referred to in relation to a variety of purposes, such as development of multi-agent e-Government services (Teo & Koh, 2010) and internationalization of small and medium sized enterprises, so called SMEs (Dutot et al, 2014), in reviews on literature on Personal Information Management (Wiggins, 2014), and in bibliometric analysis and software tools (Gomez-Jauregui et al, 2014). IM also includes models of information flows (Durugbo et al, 2013), information technology capabilities and companies' information requirements (Dutot et al, 2014), and information systems management - "managerial and technical strategies and competencies that significantly improve or add value to the use of information systems within an organisation" (Booth & Philip, 2005: 287).

The commonality among all these approaches is related to managing information for the purpose of developing or operating the business more efficiently, and the focus is on digital technology and information systems. However, as stated on the *International Journal of Information Management* homepage, "The challenge for **Information management** is now less about managing activities that collect, store and disseminate information. Rather, there is greater focus on managing activities that make changes in patterns of behaviour of customers, people, and organizations, and information that leads to changes in the way people use information to engage in knowledge focussed activities"

(<http://www.journals.elsevier.com.proxy.lnu.se/international-journal-of-information-management>).

3. Assumptions

The Informed Systems Methodology (ISM) recognizes that all human practices and information experiences are social. They originate from interactions (and ultimately relationships) among community members and within communities-of-practice (Wenger, 2000), including formal and informal learning communities. Our approach reflects a holistic systems perspective, which acknowledges that any organization is part of a larger enterprise. However, while fulfilling a function in relation to the larger whole, the part in itself is an autonomous whole, which, in turn, includes parts that have a relation to each other. Thus, there is an interconnection between organizational parts and members.

ISM also assumes that:

"people can learn to create knowledge on the basis of their concrete experiences, through observing and reflecting on that experience, by forming abstract concepts and generalizations, and by testing the implications of these concepts in new situations, which lead to new concrete experience that initiates a new cycle. This assertion fortified our aspiration to develop reflective practitioners who learn through critical (and self-critical) collaborative inquiry processes that foster individual self-evaluation, collective problem-formulation, inclusive contextualized inquiry, and professional development" (Somerville & Mirijamdotter, 2014, p. 206).

A workplace organization is therefore operationally defined as a purposeful social interaction system in which collective information experiences and new knowledge develop through workplace socialization processes. From this standpoint, projects aim to establish and embed the sustainable social interactions which, through organizational systems animated by careful attention to information experiences, dialogue and reflection enable investigation and negotiation of the interests, judgements, and decisions by which people learn interdependently.

To animate workplace environments, participants inclusively design (and re-design) enabling information systems in which they advance understanding of topics under discussion as they simultaneously further improvements in organizational systems and information practices. Within this context, *culture* is understood as a shared basis of appreciation and action, developed through communication and maintained through relationships within an organization.

A final assumption is that the employment of inclusive design and evaluation practices furthers professional information practices and strengthens contextualized information experiences. Informed organizational learning is thereby promoted. Practical learning outcomes include collective alignment and shared understanding of the organization's purposes and priorities, which guide fiscal and human resource allocations, as well as day-to-day decision-making. In addition, pervasive "systems thinking" incorporates and values people's information experiences and encourages understanding self and others as part of a larger whole. In combination, these elements inform concerted action to ensure that organizations continue to foster informed learning through evolving organizational structures, services, processes, and roles.

We mention these factors as assumptions since we cannot empirically 'prove' that these are 'true' and because we base the methodological processes on these assumptions.

4. Methodological Principles

Informed Systems Methodology (ISM) is a framework that co-creates organizational learning and agile responsiveness through application of the principles of systems thinking and informed learning. Its focus is on managing activities that make changes in organizational behaviour, building both on information that leads to changes and the way people use that information. This is accomplished by establishing an appreciative setting for the co-design of workplace and inquiry activities. Thus, it incorporates notions of parts existing within a whole and varying information experiences as a vital part of using information to learn.

Situated real world initiatives are conducted according to Soft Systems Methodology (SSM) processes, which necessarily include multiple stakeholders and beneficiaries who share information and professional and positional perspectives during structured inquiries, discussion and debate. Processes involve using information to learn through engaging participants in a variety of information experiences that typically consists of these elements:

- Enter a situation deemed problematical and take part in improving it;
- Find out how the situation is understood and identify multiple world views;
- Make purposeful activity models based on declared pure world views;
- Use models to question the real world, structuring discussion and debate;
- Use the discussion/debate to find accommodations among conflicting world views, to allow action-to-improve which is both systemically desirable and culturally feasible;
- Take the action; and
- At a meta-level, continually iterate among the above to ensure sustained learning (adapted from Checkland, 2011).

In an iterative fashion, the preceding elements generate evidence from multiple perspectives, which inform intentional dialogue and reflection on both the research investigation content and process, and thereby also the enabling workplace systems and structures. Thus, the prevailing methodological perspective is based on participatory actions research in which concerned are part of the process and together reflect on its outcome in organised evaluative sessions. What will come out and what will be reflected on are not decided on before-hand through controlling models and parameters; being a learning process, the outcomes evolve through participatory reflections in which relevance and significance are jointly discussed and debated among the partakers, focusing the themes of the inquiring process, and reported on for the purpose of communicating to other stakeholders including own organization (Checkland, 2011; Checkland & Holwell, 1998b).

5. Experience

Bruce's informed learning conception (2008) purposefully advances participants' consideration and experience of the role of information in ever expanding professional contexts. Her research demonstrates the need for workplace learning to recognize that people experience information and use information to learn in differing ways. Therefore, the Informed Systems Methodology (ISM) places information in ever expanding professional contexts through purposefully varying individual and group information experiences.

For instance, a successful web-scale discovery service (Somerville et al, 2012) implementation originated with technical services leadership in 2010. Over the course of two years, various organisational task forces applied their collective professional expertise to advance the discovery service lifecycle from selection and procurement to implementation

and customization. Throughout, meeting minutes and e-mail updates, complemented by unit level conversations and enterprise level coordination, ensured organization wide awareness of progress and problems, as well as “forward thinking” anticipation of customizations and refinements (Somerville, 2013a). At the enterprise level, the Shared Leadership Team (SLT), which at that time consisted of 23 staff members from different organizational units (out of total 76 library staff), provided high level coordination of the human and fiscal resources and logistical support needed to implement this new service over twenty three months. The high percentage of staff directly involved ensured that, in this way, collective capacity for knowledge advancement and, ultimately, workplace reinvention, evolved.

Viewed through an information management lens, the discovery service task force participants, comprised of five staff members from different organizational units, collectively expanded the information horizons of their work environments. While engaging with new information types and communication processes, they established valuable information-sharing relationships that extended beyond the team boundaries of each organizational unit and continued beyond the twenty-three month life of the task force as members applied insights to on going evaluation and improvement of workplace decision-making and action taking systems, with coordination oversight by the SLT. This example demonstrates the inter-related elements of workplace information experience: its situatedness; its connection with informed learning and transformative outcomes; and its cognitive and social dimensions, through critical and creative information use and the generation and sharing of new knowledge.

In an iterative fashion, the ISM generates evidence from multiple perspectives and informs intentional dialogue and reflection on both the research content and process and also the enabling workplace systems and structures. This workplace information experience can be characterized as a cyclical spiral composed of planning, action and evaluation about the result of the action. Participants therefore enter into “a problematical situation and becomes a participant as well as a researcher, using reflections on the experience gained as his or her source of learning” (Checkland, 2011, p. 499).

6. Design and Implementation

A series of workshops conducted at the University of Colorado Denver in March 2009 enabled the creation of a technology-enabled systems infrastructure in an evidence-based organizational culture grounded in shared leadership principles.

Over three days, employing Soft Systems Methodology (SSM) philosophy and tools, Mirijamdotter (2009) delivered workshops in which 16 organizational participants analyzed communication channels, respective benefits, and current structures, as well as workplace processes and purposes of communicating, deciding, and planning. She guided participants from surfacing general observations about characteristics of various communications channels in the current environment to identifying design characteristics for ideal communications, decision making, and planning systems.

Since ideal systems must satisfy shared needs, she also elicited common concerns on the “problem situation”. These included: to inform oneself, inform others, practice collaborative evidence based decision making, avoid duplication of effort, ensure team accountability, solve technological problems, share “big picture” professional frameworks, and disseminate organizational policies and procedures (Mirijamdotter, 2009). In moving from needs finding to system designing, Mirijamdotter further exercised participants’ unexamined assumptions

about framing research questions, identifying authoritative sources, and applying interpretative frameworks.

Outcomes of Mirijamdotter's workshop for the Shared Leadership Team (SLT) illustrate the potential of this generalizable workplace learning approach. During the session, members expressed collective appreciation for the potential of shared leadership and common agreement on the role of this organizational oversight group. They understood that, given the breadth and depth of the SLT charge, members are recruited from across the organization to ensure rich representation of functional unit perspectives, both among formally designated leaders (on the organizational chart) and also informal thought leaders, knowledge enablers, and culture shapers throughout the organization. During the workshop, SLT members produced visual renderings ("rich pictures") illustrating various perspectives on ideal workplace systems, of which they were a part (Mirijamdotter & Somerville, 2011).

The SLT rich pictures represented a workplace environment of dialogue and reflection that provided sufficient time for fruitful discussion enabled by constructive "meaning making" behaviours. The renderings incorporated the inclusive inquiry processes introduced in the initial SSM needs finding workshops, preparatory to addressing issues in the perceived problem situation in the second phase. In this instance, focus of concern involved identifying ideal modes of communication for shared leadership through informed learning grounded in effective information experiences. Workshop participants evaluated the process and outcomes positively, as illustrated by the following appreciative observations: "It was a pleasure to collaboratively work together and experience commonalities, as well as different points of view." "The structured learning exercises offered rich communication opportunities, which enabled decision making and action taking." "It's possible to establish shared priorities" (Mirijamdotter, 2009). These intentional information experiences served to prepare staff members to continuously use information to learn within an enabling systems infrastructure, designed *with* and *for* them (Mirijamdotter, 2010).

7. Implications in practices

As a direct result of these workshops, the process, outcomes, and aspirations of the Shared Leadership Team (SLT) meetings continue to evolve, with the intention of creating more shared information experiences in which disciplinary (and transdisciplinary) questions inform information practices. Agendas are collectively constructed in advance of meetings. Time limits are allocated for agenda items with the aim of encouraging dialogue and reflection followed by decision making to inform action taking. Conference rooms have been equipped with laptops and monitors, permitting simultaneous note taking that support collective sense making. In addition, the experience of agenda building, meeting presentation, and minute taking offers valuable practice with wikis and other 2.0 technologies (Somerville & Howard, 2010).

These collaboration innovations recognize that the organization's communication system can "flourish like an eco-system, with the SLT as a primary source of energy radiating" (Mirijamdotter, 2009) through appropriate communication channels employing effective information practices within enabling organizational systems. To ensure organization wide benefit, SLT minutes are regularly discussed in various face-to-face meetings to ensure ample dialogue and reflection on organizational governance outcomes, of critical importance as employees re-invent themselves (Pan, 2012; Somerville & Farner, 2012) and their workplace.

Since these Informed Systems Methodology (ISM) workshops, SLT members continue to analyze and (re)design systems and practices. Meeting agendas explore such questions as how to build heightened awareness of information experiences through using information to learn, rather than merely acquiring specific skills. To further cross-functional teamwork, members consider how to advance social collaboration and inter professional interdependence, rather than emphasize individual capability.

Complementary activities cultivate organizational and team leaders, who further dialogue and reflection for sense making and knowledge creation. They encourage and resource robust partnerships among library employees, campus leaders, and academic beneficiaries, which extend collaborative, informed practices sustained through continuous campus wide learning relationships (Somerville, 2014). As a consequence, a pilot project aims to engage professors and librarians in co-creating learning partnerships that transfer ‘lessons learned’ from workplace inquiry, research, reflection, dialogue, and planning practices to co-design of robust classroom for information experiences (Hughes & Bruce, 2012).

Highlighting the informed learning experience, the ISM cultivates recognition that workplace learning requires heightened appreciation of information and improved understanding of information gathering, evaluating, interpreting, sharing, and using, given varying contexts. It also requires reflection followed by opportunities for participants to apply their new learning to novel contexts. In this way, ISM provides infrastructure for intentionally designed informed learning environments, which simultaneously develop learning processes and professional practices (Somerville, 2014; Somerville & Mirijamdotter, 2014; Somerville, Mirijamdotter, Bruce, & Farner, 2014).

8. Concluding Remarks

In order to amplify workplace learning and organizational development, and accelerate changes in organizational behaviour, formal organizational leaders and others designated as thought leaders, culture shapers, or knowledge enablers must understand how participants (inside and outside the organization) are experiencing both information content and use. Such insights permit design of optimal learning experiences through simultaneous cultivation of discipline and process learning, which also requires consideration of what constitutes knowledge from different points of view in various problem situations.

The Informed Systems Methodology (ISM) also encourages evolution of collaborative, socio-cultural practices – a constellation of skills, practices, and processes (Lloyd 2006) – within context specific environments. When supported by enabling face-to-face and technology enabled organizational systems that advance communication and sustain relationships, workers can learn to see the world in new or more complex ways as they progressively use information to engage in varied knowledge-focussed activities. Such heightened interaction with information in context transforms both workplace learning and organizational culture. In other words, ISM nurtures informed learning through the creation of new and more complex experience of using information for learning within systems infrastructure paired with negotiated professional information practices.

Characteristically, the ISM builds on systems thinking expressed as systems design enriched by informed learning theory. When integrated into workplace culture, this approach furthers co-workers’ shared visions and common values. The participatory nature of this approach, combining systems and experiential thinking, invites stakeholders to contribute their varied

knowledge and offers a framework for informed decision making and action taking. When staff members are invited and enabled to participate in decisions likely to affect their work, the resulting creativity and collectivity, people and perspectives, and cooperation and negotiation change the nature of both work and the workplace.

However, for the application of ISM to be efficient and sustainable, it needs to activate thought leaders, culture shapers, boundary spanners, and knowledge enablers throughout the organization who are willing to lead. Furthermore, enterprise level communication systems and shared focus on creating information experiences in work processes are essential to catalyse and sustain collective learning (Somerville, 2013b). Finally, successful practice of innovative Informed Systems leadership requires support from top management within an organization. These are lessons learnt through testing the applicability of the ISM approach in different organizations.

Other persistent implementation challenges relate to introducing new, dynamic expectations about traditional roles and cultural values, including decentralized and transformational leadership, within traditional hierarchical organizational structures and information flows fortified by legacy traditions and established conventions. - It's akin to building the plane while flying it, as re-invention necessarily occurs simultaneous with keeping the doors open for business. - Additionally, as the organization hires new employees who have not participated in the development of the 'new organization', how are they best oriented, invited, and enabled to build information experiences within continuously improved systems infrastructure? These are some of the issues we continue to explore as we gain further experience with methodology use, its transferability and its generalizability.

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A Dooyeweerdian Understanding of Affordance in Information Systems and Ecological Psychology

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Affordance is attracting considerable interest but it poses significant philosophical challenges, around meaningfulness and the subject-object relationship, as well as less fundamental methodological challenges, such as complexity and translation of idea from one field to another. At this point, the fields in which the notion of affordance is discussed, from ecological psychology to information systems, do not speak to each other and especially in the IS field the treatment of affordance is ad-hoc. This paper discusses how Dooyeweerd's philosophy can very readily address the philosophical challenges, and provide validation and guidance for the methodological challenges. Dooyeweerd would base affordance in his 'oceanic' idea of meaningfulness, and provide a workable definition of affordance as the relationship between two ways of being meaningful (two aspects). The usefulness of this is explored. The paper also discusses some practical applications of a Dooyeweerdian understanding of affordance.

1. Introduction

The idea of affordance has aroused interest in several fields of study of information and communication technology (ICT). Especially in the fields of human-computer interaction (HCI), which focuses on how individuals use ICT, and information systems (IS), which focuses on the benefits of using ICT, affordance was called upon to address issues that had long been found challenging.

In the field of HCI, it was noticed that some designs of the user interface (the screen etc. with which the user interacts in HCI) were easier to use than others - that is, they afforded greater or lesser ease of use. Though ergonomics, psychology, and the amount of skill the user has, affect ease of use, there also seemed to be something about the design and shape of the user interface objects themselves that affected ease (of difficulty) of use. The notion of affordance was harnessed by Norman (1988) and others (e.g. Hartson 2003) to explain this.

More recently, in the field of IS, affordance has been harnessed by several scholars to explain why ICT facilities make specific human activities easier or more difficult, and tend to bring certain benefits rather than others. For example, triggered attending to online conversations (Majczrak et al. 2013) reduces need to keep watch on conversations, but it can also reduce the depth of engagement. Networked ICT can assist speedy change to documents (Conole & Dyke 2004) but can also bring confusion. Attempts to account for these solely in terms of power relations, attitude or capability of users proved insufficient, because the actual design of the facilities 'affords' these activities or benefits.

Originally proposed by J.J. Gibson (1979) in the field of ecological psychology, the idea of affordance shows considerable promise in these fields. It also presents new challenges. Some challenges arise from complexity, some arise from translating the idea from psychology, and some arise from fundamental philosophical issues like the subject-object relation and understanding what affordance is.

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This paper discusses these challenges, and explores briefly whether the philosophy of Dooyeweerd can address them. The emphasis will be on affordance in the field of IS more than in HCI or psychology, because of its greater complexity. The idea of affordance and its roots in psychology are explained, with a discussion of how it has been translated across to HCI and IS. Four kinds of challenges are outlined. How these challenges may be addressed by Dooyeweerd's philosophy is explored, and a few practical examples are given.

2. Affordance

A rock (a flat, horizontal, extended, rigid surface up to knee-high) affords climbing to an animal and a hole in a hedge or wall affords going-through (Gibson 1979, 127): "The affordances of the environment are what it offers the animal, what it provides or furnishes." The word 'affordance' was coined by Gibson to denote a phenomenon that had not been adequately discussed and did not even have a name before, and his exploration of this notion stimulated the field of ecological psychology. The notion of affordance, at root, does not just deal with animals climbing rocks, but with any situation in which an agent interacts with things in its environment - or indeed with the environmental situation as a whole. It addresses issues of perception and what is perceived, of action and possibility, and how these are 'afforded' by properties of things in the environment. Gibson (1979, 129) characterizes affordance as "physical and psychical", in that the physical properties of the environment afford psychical properties like 'climbability', which are meaningful to the animal.

The relationship between agent and environment is very similar to that between subject and object. Yet Gibson and other ecological psychologists have found that current presuppositions about subject and object need to be questioned. "Gibson's concept of affordances was an attempt to undermine the traditional dualism of the objective and subjective" (Costall 2012). Shaw (2003, 93) praised Gibson's courage: "where most psychologists and philosophers are happy naming the divide the subjective-objective, Gibson would rather we repair the cut entirely by a kind of relational integration". With Gibson, "one gets subjectivity and objectivity wrapped up in a single package" (Shaw 2003, 97).

The idea of affordance as an attempt to understand the relationship between agent and environment is relevant across many fields. In the field of artefact design, for example, some door handles afford pulling (those that can be grabbed), while others (those that look like plates) afford pushing (Norman 1988). Though plate-like door handles can also be pulled if bent round, they do not invite pulling, and labels saying 'Pull' must be installed. What is it about such artefacts that does the affording? How much is social convention, and how much is psychological or even physical?

The field of human-computer interaction faces similar issues (Hartson 2003). The agent is the computer user, and the environment is what of the user interface is seen, heard and manipulated via mouse or finger. What is meaningful to the user is not just these sights, sounds and muscular controls, but the information they carry. For example, a bar chart (a set of long thin rectangles arranged side by side, as shown in Figure 1) is most naturally interpreted by the user as a set of quantities that can be compared. For example, if A-F are nations, then we would expect the numbers 0-5 to indicate population, size of GDP, proportion of land devoted to agriculture, for each nation. However, if the numbers 1-5 indicated religions, main language spoken, this would be possible, but not so natural. The naturalness can be explained by affordance: length of bar affords quantity, not relationship, and proximity of bar affords comparison.

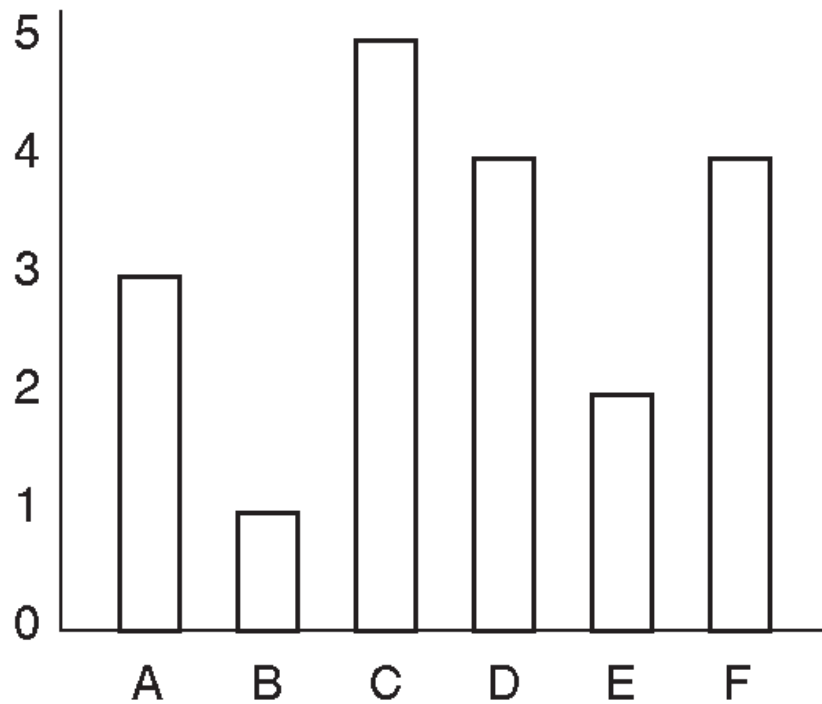


Figure 1. A typical bar chart

In the field of information systems (IS) the agent is the user and those with whom the user engages, while the environment is the ICT facilities they use - but it is not what the user sees or hears, as in HCI, but the information that is carried via the user interface. It is an informational environment, not physical nor sensory. What they afford is human activities that are meaningful in the life, work and roles of the user. The presence and the shape of ICT facilities available enable or constrain such activities, yielding benefits or problems.

Various kinds of IS affordance have been discussed. For example, Internet-connected ICT affords accessibility to information, speed of change of information, communication etc., but also monopolization and risk (Conole & Dyke 2004). It affords visibility of content, persistence of content, editability of content, and association (Treem & Leonardi 2012). Social media in organisations afford metavoicing (ability to comment on the presence rather than content, e.g. by voting 'Like'), triggered attending (setting emails or blogs to alert us to certain topics so we don't need to keep watching), etc. (Majczrak et al. 2013). ICT in businesses affords visualization of entire work processes, flexible product creation, virtual collaboration, etc. (Zammuto et al. 2007).

Just as in ecological psychology, so in the field of IS, affordance challenges traditional understandings of subject and object, possibility and action. It is hailed by Hutchby (2001) as enabling us, after an era dominated by social constructionist perspectives, to pose questions about the 'objective' reality of ICT without falling back into a technological deterministic perspective. However, there are challenges, which are discussed next.

3. Some Challenges

Affordance challenges us in at least four ways. Some arise from the complexity of the IS field itself, especially that of multiple levels of activity, benefit and problem. Some challenges arise from the translation from that field to those of HCI and IS, especially that of accounting for what is common to all fields. Two more fundamental challenges have been widely discussed in the field of ecological psychology, including what affordance actually is, and how agent and environment relate.

3.1 The Challenge of Complexity

If we compare the above affordances of accessibility of information (Conole & Dyke 2004), visibility of information (Treem & Leonardi 2012), triggered attending (Majchrzak et al. 2013) and ability to visualize the entire work process (Zammuto et al. 2007), it is clear that they are of different kinds or levels, leading to confusion or complexity. Is one kind 'right' and the others 'wrong'? Can they all pertain, and if so how do they relate to each other? Are there other kinds yet to be discovered? On what basis may we judge candidates for new kinds of affordance? Moreover, how do these kinds of IS affordance relate to those found in artefact design, HCI and ecological psychology? Such challenges, which arise from complexity, have not yet been discussed in the IS community and possibly not even recognised as issues.

In IS, for each kind of affordance, a list of individual affordances is offered. Such lists are valueless unless we can rely on the list being well-formed or reasonably complete. Most of the authors cited discuss neither completeness nor well-formedness. Yet Mansour et al. (2013) use Treem & Leonardi's (2012) four affordances of social media as though they are complete - and then come up with four more, but with little discussion of how they relate to each other. When completeness is sought, as by Hartson (2003), over 80 affordances are found, which becomes cumbersome in practice.

3.2 The Challenge of Translating Between Fields

There has been substantial discourse about the nature of affordance in the field of ecological psychology. May we capitalise on that discourse in the IS or HCI fields, by translating concepts and issues across to those fields? If so, how and on what basis? It would seem that the concepts of agent, environment, and a relationship between them that enables or invites activity, is common to all, but this raises further questions.

On what basis is it valid to translate issues or concept from one field to another, and how do we cope with the differences? In HCI and IS, the agent is human and the environment is no longer physical but sensory in HCI and informational in IS. What is the role of the agent's body, which is of primary importance in ecological psychology. Is there an equivalent of body-scale (e.g. leg length compared with rock height (Warren & Whang 1987; Alsmith 2012)) in IS? Also, issues arise in HCI and IS that are not present in ecological psychology. Rietveld (2008) argues that artefact affordances have a canonical and normative quality, and this carries across to IS, where Conole & Dyke (2004) and Majchrzak et al. (2013) discuss problems as well as benefits afforded by ICT.

3.3 The Challenge of Understanding What Affordance Is

What is affordance? Is it ontological, as Gibson believed, or epistemological, as Norman believed? If ontological several issues emerge in ecological psychology that are relevant to other fields.

Does affordance determine the agent's activity, or does it "offer" (Gibson 1979, 127), "enable" (Hartson 2003) or "invite" (Withagen et al. 2012) agent activity? What form does the agent's freedom take (Stoffregen 2000; Chemero 2003; Scarantino 2004)? Likewise, In IS, users of ICT are constrained by its features, yet they often innovatively reinvent use (Boudreau & Robey 2005; Leonardi 2011). Is affordance a property of a distinct object or a feature of a situation (Chemero 2003)? In IS, should we look at the ICT artefact alone, or the situation as a whole. Is affordance perceived, observed or acted on unreflectively? (Withagen et al. 2012; Rietveld 2008) In IS, what is the role of tacit and explicit knowledge in use of ICT facilities? In what terms should affordance be discussed, as entities, activities, relationships, etc.? Discussion in terms of the interaction of distinct entities (agent and object), like animals, rocks or door-handles, precludes Chemero's (2003) insight that affordance is of situations. Discussion in terms of activities, like climbing, perceiving, opening, scrolling, associating, editing, tends to place the emphasis back on the agent, and downplays the importance of the environment. Discussion in terms of a relationship between agent and environment leaves open the question of the conceptual terms in which both are to be related: either in terms meaningful to the agent (e.g. climber-climbed) or in terms meaningful to the environment (e.g. force of foot and equal and opposite reaction from rock), which dichotomy misses the point that (in Gibson's cases) the physical features of the environment relate to the psychical features of the agent.

We need a way of discussing affordance that encompasses all these and more. Behind all the discussion of entities, activities, properties and relationships is concealed a notion that pervades them all, is occasionally mentioned in passing, but is not discussed: meaning or *meaningfulness*. Schmidt (2007) call's Gibsons ideas "an ecological theory of meaning". According to Costall (2012, 87), Gibson had written "a remarkable, though largely forgotten, chapter on meaning, in his first book, *The perception of the visual world* (1950)", which "anticipated the concept (of affordance) in several important ways". Gibson (1950, 199) talked about "use-meanings or meanings for the satisfaction of needs ..." Gibson obviously had the idea in of meaning mind, but meaning is not a concept that 1950s psychologists liked to use, and many still resist doing so, so Gibson had to use terms that suggest meaning instead, such as in "what eyes are good for" (Gibson 1966, 155). Gibson (1979) again begins to speak of "the 'values' and 'meanings' of things in the environment" (p.127), and his "*relative to the animal*" (his italics) is a meaning concept. Later, Gibson (1982, 407) directly says "The meaning or value of a thing consists of what it affords".

Those who developed Gibson's ideas use the term 'meaning' often. For example, "an environment consisting of affordance is a meaningful environment" (Withagen & Chemero 2011, 4), "meaning-laden environment ... Affordances are meaningful to animals" (Chemero 2003, 182). Gibson "gave us affordances ... to account for meaning in the mutuality of the perceiver and environment" (Cutting 1986, 252). In addition, many use other words that imply 'meaning', such as: "significance" (Chemero 2003, 182), "animal referential or action referential ... refer to some animal, person or group" (Michaels 2003, 139), "relative to the animal ... without respect to the animal" (Stoffregen 2000, 9).

In each affordance there are two ways in which the environment is meaningful. In the rock's own terms, for example, properties like rigid, flat, extended, horizontal are meaningful. But in the animal's terms, properties like climbable or supportive are meaningful. So Gibson (1979, 129) speaks about such affordance as "both physical and psychical" - meaningful to both physical environment and to animal. "Affordances," says Chemero (2003, 184), "... are relations between particular aspects of animals and particular aspects of situations." (An aspect is a way of looking at something.) Affordance may thus be defined in terms of two ways of being meaningful, or a pair of aspects:

- an **agent aspect** that indicates a way in which the affordance is meaningful to agents,
- a **environment aspect** that indicates a way in which the affordance is meaningful to the environment that makes the actualization of the agent aspect possible.

How this translates across to other fields is discussed later.

(Note: The concept of 'agent aspect' reveals an important distinction between two ways in which the environment is meaningful to the agent: more general and more specific or contingent upon circumstances. In general, the rock is climbable, but the specific reason for climbing might be to flee an enemy, to pursue food, or just to gain a vantage point. "Agent aspect" always refers to the more general meaning, which speaks of the potential of the environment, rather than its specific use.)

Thus affordance may be seen as a pairing of ways of being meaningful. However, it raises the challenge of how the two meanings relate. Chemero (2003) argues that this coupling of non-physical with physical meaning requires a new ontology that "is at odds with today's physicalist reductionist consensus (in the field of psychology)". This brings us to the subject-object relationship.

3.4 The Challenge of the Subject-Object Relationship

Affordance as a relationship between agent and environment inherently bridges between subject and object. That affordance must be seen as "*relative to the animal*" (Gibson 1979, 127) suggests that affordance is subjective. However, "affordance is not bestowed upon an object by a need of the observer and his act of perceiving it; it is always there to be perceived," located in the environment (p.139), which suggests it is objective. Of this tension, Gibson wrote (p.129):

"an affordance is neither an objective property nor a subjective property, or it is both if you like. An affordance cuts across the dichotomy of subjective-objective and helps us to understand its inadequacy. It is equally a fact of the environment and a fact of behavior. It is both physical and psychical, and yet neither." (p.129)

A similar tension has been encountered in the IS field. The kinds of affordances discussed above are all, on the one hand, relative to (meaningful to) the user, while on the other hand being located in the environment, i.e. the ICT facilities themselves. Over the past few decades the IS field has increasingly emphasised the former, the subjectivity of IS use (Hartson 2003), including the flexibility with which users can resist use, adopt workarounds or use the facilities in innovative ways. Hutchby (2001) charts the dialectical reactions that have characterized perspectives in the IS field, between emphasis on objectivity with technological determinism, then on subjectivity with social construction of technology and social shaping of technology, and suggests that affordance might offer a next phase, which he calls "technological shaping of sociality", and which recognises the objectivity of technology

alongside the subjectivity of the user. Like Gibson, he wants a reconciliation, and the debate about subject-object in that field can be useful in IS. However, the milieu mitigates against integration of them.

This must be addressed philosophically. Apart from a few passing allusions to Polanyi, James, Wittgenstein etc., Gibson, a radical empiricist, did not attempt a philosophical underpinning. Some have suggested basing Gibson in Heidegger or Merleau-Ponty (Dotov et al. 2012), but the former dissolves rather than "repairs" the difference between subject and object, and the latter's focus on the body, make them less useful in the fields of ICT and IS. Moreover, neither offer a basis for addressing the diversity of kinds of affordance, nor the both-neither nature of affordance. Dooyeweerd (1955) provides a way to bridge the subject-object gulf without dissolving one into the other, and without undue emphasis on body, so it is useful in IS. This will be explored.

4. A Dooyeweerdian Understanding of Affordance

Dooyeweerd's philosophy shows promise in understanding affordance. This is because Dooyeweerd came from a different direction, which places meaning at the centre in a way that resonates with the needs of understanding the nature of affordance, and as a consequence can address complexity. Dooyeweerd understands the subject-object relationship in a radically different way that allows genuine integration of subject and object, and addresses the ontology of affordance in a way that can be translated over different fields.

Dooyeweerd argued that most Western philosophers, including both Descartes and Heidegger, have presupposed that the fundamental principle on which all may be explained is to be sought within the created order, and that doing so inevitably divorces meaning from reality and makes it very difficult to address complexity. It also results in philosophical movements of thought being governed by dualistic pre-theoretical presuppositions that lead to deep antinomies in philosophy. The dualism that governs the current era, to which both Descartes and Heidegger belong, is the opposition of (deterministic) nature and (human) freedom. The Cartesian subject-object relationship is an expression of this, presupposing an unbridgeable gulf between (freely-perceiving) subject and (perceived) object so, Dooyeweerd argued, much as philosophers might try to bridge the gulf they will ultimately always be unsuccessful because their opposition is presupposed (Dooyeweerd 1955,I,64-65).

Resolution requires adopting different presuppositions. By presupposing that the fundamental principle lies outwith created reality, meaning is re-integrated with reality, and his philosophy is not dualistic but recognises a pluralistic diversity that coheres. This opens the way for a radically different idea of subject and object, which provides what Gibson was reaching for.

4.1 Addressing the Challenge of What Affordance Is

Dooyeweerd held that meaningful law is the transcendental foundation of all being, becoming, activity, possibility, knowing and rationality. He wrote:

"Meaning is the being of all that has been created and the nature even of our selfhood."
(Dooyeweerd 1955,I,4, his italics)

Meaning, in this sense, must be differentiated from subjective or intersubjective attribution of meanings to things, and from linguistic semantics or pragmatics. It is akin to what is referred to in "the meaning of life" - something beyond us, and to which all refers. Meaning in Dooyeweerd's sense will be called '*meaningfulness*' here. Meaningfulness is like an ocean in which fish swim, and which at the same time enables their swimming and even enables them to be fish. It is this 'oceanic' view of meaningfulness that is helpful for understanding affordance. Meanings, in the sense of specific attributions or significations, are made possible by this 'ocean' of meaningfulness. (It may be argued that what Heidegger did for existence, Dooyeweerd did for meaningfulness. Meaningfulness is not something we stand apart from, control or generate, as a property of objects, but something we 'live within', and we actualize or 'discover' it by living or occurring within it.)

In everyday experience we encounter a rich diversity of meaningfulness - physical meaningfulness, biotic, psychical, purposeful, informational, social, economic, aesthetic meaningfulness, and so on. Most philosophy has divorced meaningfulness from reality (Dooyeweerd 1955,II,25-26) and thus has had little incentive to explore this diversity, so instead tries to reduce it to just a couple of aspects (ways of being meaningful). Dooyeweerd, by contrast, was motivated to do justice to our everyday experience and explore the diversity philosophically. In a discussion of over 400 pages in Dooyeweerd (1955, II), he delineated fifteen aspects or fundamental ways of being meaningful. These are shown in Table 1, below, each of which is irreducibly distinct from the others, and the laws of which cannot be reduced to the laws of others.

Dooyeweerd addresses the debate over whether affordance should be approached as entities, activities or relationships, by grounding all three in a deeper notion of aspectual meaningfulness. Genuine existence presupposes meaningfulness. For example, a rock exists *qua* rock by reference to the physical aspect, and becomes rock by responding to laws of the physical aspect (which govern forces, energy, etc.). A climbable-thing exists *qua* climbable-thing by reference to the psychic aspect. An ICT system has no existence *qua* ICT system, and does not become an ICT system, except by reference to the informational ('lingual') aspect and its laws. Reference solely to the physical silicon, copper and plastic from which its hardware is constructed does not account for the ICT system. For fuller discussion of this, see Chapter V of Basden (2008). Each thing is a thing by reference to at least one aspect.

To Dooyeweerd, aspectual existence accommodates, but does not presuppose, distinct entities. Physical, social and aesthetic existence especially are often beyond entities, and are more properly called situations. But biotic and analytical existence especially are often discrete.

Likewise, activity presupposes meaningful law that defines and enables functioning and repercussions of that functioning ('causality'). Climbing, *qua* climbing, as opposed to exerting-force-on-horizontal-flat-rigid-rock, presupposes the sphere of meaningfulness that is psychical. Likewise, editing text, *qua* editing text, presupposes the lingual, and collaboration, *qua* collaboration, presupposes the social. To Dooyeweerd, this is not just epistemological (in that we call such activity "climbing", "editing" and "collaboration"), but it is ontological, in that climbing, editing and collaboration actually occur, and are not ontologically reducible to physical functioning such as exerting forces. (Arguing that requires more space than is available here.) Relationships also presuppose such aspects, in that the kind of relationship that is meaningful depends on the aspect.

This implies that each thing, activity and relationship that we encounter in the pre-theoretical (everyday) attitude actually exhibits multiple aspects. So, for example, the rock is both rock by reference to the physical aspect, and also at the same time, climbable-thing by reference to the psychological aspect. An ICT system exhibits many more aspects, discussed in Chapter V of Basden (2008). This informs the debate over whether perception of the environment is reflective or unreflective. It would be addressed by Dooyeweerd as the agent and environment functioning together in response to aspectual law. In the analytical aspect perception can be reflective, but in the psychological, formative, lingual, social and other aspects, it is unreflective (c.f. Basden 2008, 93).

Repercussions of functioning in the quantitative to physical aspects are largely deterministic, but are increasing non-deterministic in the later aspects, instead taking on a normative quality. In the case of the climbing animal, the psychological activity of its climbing will not be deterministic, even though the physical activity of contact between foot and rock functions largely deterministically. That later aspects are even less determinative can inform the debate over whether affordance offers or invites, rather than determines, activity.

Conventionally, each discipline or science focuses its gaze on one way of being meaningful (one aspect) and studies that (Basden 2008, 100). The temptation is strong to ignore all but the one aspect or to try to reduce phenomena meaningful in other aspects to those meaningful in their main aspect. The temptation to reduce psychological activity like climbing to physical activity is strong, but Gibson wanted to resist it. Yet the intellectual milieu of the time made it difficult for him. It still does. Dooyeweerd can provide sound philosophical support for Gibson's resistance - and also equivalent resistance in the IS field.

4.2 Addressing the Challenge of Complexity

Dooyeweerd's notion of aspects as ways in which things are meaningful can address the complexity of kinds of affordance, and also affordances within each kind. Whereas meaningfulness has been problematic in psychology, it has long been recognised in the field of IS for some time, for example via the *Weltanschauung* of Soft Systems Methodology (Checkland 1981), the hermeneutic circle of interpretive IS research (Klein & Myers 1999) and the semantics and pragmatics of knowledge engineering (Basden & Klein 2008). However, meaningfulness has seldom been discussed as such, having been largely taken for granted.

Dooyeweerd's exploration of the diversity of meaningfulness offers a basis on which to address the complexity of IS (see, e.g., Bergvall-Kåreborn & Grahn 1996; Eriksson 2006). All situations exhibit all aspects, either actually or latently, and identifying how it is meaningful in each aspect helps to separate out issues, draws attention to issues that have been overlooked, and helps to prevent category errors. If each affordance is a pair of ways of being meaningful, then we might expect many possible pairs, each being characteristic of a different kind of affordance. In artefacts, the agent aspect is the formative (achievement of some task like opening a door), while the environment aspect is the physical. In HCI, the environment aspect is the psychological aspect, i.e. things that are seen, heard or controlled by muscular action, while the agent aspect is the informational, insofar as the user's seeing, hearing or manipulating is not for its own sake but always signifies something.

In the IS field as described earlier, the environment is informational, but the agent aspect is different in each case, and this provides a way to differentiate them. Zammuto et al. (2007) are primarily interested in how ICT affords benefits to the product-oriented organisation, such

as flexible product creation and mass collaboration to achieve some productive end. These focus largely on the economic aspect. They also discuss visualization (of the entire work process), which is analytical. Majczrak et al. (2013) are interested in how social media in organisations afford metavoicing, triggered attending, network-informed associating, etc. which are primarily meaningful in the social aspect. Treem & Leonardi (2012) are primarily interested in issues meaningful in the formative aspect of achievement, such as visibility, persistence, editability. Conole & Dyke (2004) are interested in general ICT-related possibilities, many of the meaningful in the lingual aspect.

Hutchby (2001) argues that affordance depends on a relationship between human activities and technological features, rather than on either separately, and that studying either informational or organisational aspects on their own is not helpful. However, these authors show that in the IS field the agent aspect varies, being respectively the economic, social, formative and informational. This increased complexity can be addressed by reference to Dooyeweerd's suite of aspects. Table 1 shows each aspect with its kernel meaning, and how each aspect might be an agent aspect or environment aspect for each kind of affordance in both IS and other fields.

Aspect	Kernel (To do with)	Meaningful in Affordance
1. Quantitative	Discrete amount	-
2. Spatial	Continuous extension	-
3. Kinematic	Movement	-
4. Physical	Fields, Energy, material	Environment aspect of Gibsonian affordance
5. Biotic / organic	Life functions, organism	-
6. Psychical	Sensing, feeling and emotion	Agent aspect of animal affordance (Gibson 1979); Environment aspect of HCI and artefact affordance
7. Analytical / logical	Distinction, concepts	Agent aspect of analysis affordance (Zammuto et al. 2007)
8. Formative / technical	Formative power: design, construction; achievement, goals, techniques, tools	Agent aspect of artefact affordance (Norman 1988)
9. Informational / lingual	Symbolic signification	Agent aspect of user interface affordance (Norman 1988); Environment aspect of various ICT and IS affordances; Agent aspect of informational affordance (Treem & Leonardi 2012)
10. Social	Relationships, organisations, roles	Agent aspect of organisational affordance (Majchrzak et al. 2013)
11. Economic	Frugality, resources, limitations, management	Agent aspect of affordance oriented to assisting production etc. (Zammuto et al. 2007)
12. Aesthetic	Harmony, delight, fun	
13. Juridical	'Due', appropriateness; rights, responsibilities	
14. Ethical / Moral	Attitude, self-giving love	

15. Pistic / Faith	Faith, commitment, belief; Vision of who we are	
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This shows several things. One is that each kind of affordance discussed above can be situated within such a scheme. This provides a more general way of understanding affordance in general across all fields. It also shows that there is room for other kinds to be discovered. This provides an incentive to seek others and a basis on which candidate kinds of affordance may be judged - see later examples in which the agent aspect is the aesthetic or ethical. The fact that some aspects are both agent aspect for one kind of affordance and environment aspect for another suggests a way of relating different kinds of affordance together. Specifically, one kind of affordance might 'serve' or 'enable' another and, conversely, one kind might depend on another. For example, HCI affordances can serve IS use affordances. This dependency has been discussed by Dooyeweerd as interdependency among aspects, where each aspect depends foundationally on earlier ones insofar as functioning in that aspect depends on good functioning in the earlier aspect (e.g. social functioning requires lingual functioning of communication).

Aspects have a normative quality, with each aspect defining a distinct kind of good and bad. For example, lingual good includes understandability, social good and bad include togetherness versus enmity, and economic good and bad include frugality versus waste (Basden 2011). This can be a basis for studying the normativity that Rietveld (2008) found in artefact affordances and which pervades IS affordances. Sometimes, IS affordance seems to exhibit more than two aspects. For example, visualization of entire work processes, though it might serve economic purposes, seems mainly meaningful in the analytical aspect (visualization) and also the aesthetic aspect of harmony ("entire"). By prompting a decision on which aspect is intended to be primary, with appropriate rewording, Dooyeweerd's aspects are useful in removing possible category errors. Dooyeweerd recognised that multiple aspects could be important, in his distinguishing between qualifying, founding, leading and internal-leading aspects. In most cases, the founding aspect aligns with the environment aspect, and the qualifying aspect with the agent aspect, but that does not always work, because Dooyeweerd assumed that the founding aspect is always earlier, whereas we have one case in which the agent aspect is analytical, earlier than the lingual environment aspect. Dooyeweerd's theory of roles of aspects seems underdeveloped (Basden 2008), and might benefit from study of a wide range of IS affordances.

4.3 Addressing the Challenge of Subject and Object

If we are to circumvent the problem of the Cartesian subject-object relationship, we need to understand what makes it problematic. Dooyeweerd (1955) located its root problem in pre-theoretical commitment to a dualism between nature and freedom, and this influenced the thought of both Descartes and Heidegger. Descartes' subject is presupposed to be free in its perceiving, thinking and acting, while his object is presupposed to be largely passive and unfree - of the nature pole. Heidegger could only remove the tension between subject and object by ignoring one of them, but this ultimately fails to fit everyday experience, in which subject and object both occur and neither can be ignored.

Dooyeweerd could overcome the tension while retaining both subject and object by recognising that, to be a subject (agent) is constituted in being subject to law (thus re-integrating the two English words 'subject'). Law does not refer to subjectively or socially constructed laws, rules or norms, whether spoken or unspoken, but to the deep law that

enables reality to Be and Occur, and by which Time itself is generated. Law often takes the form of promise, and is different for each aspect; for example, a law of the lingual aspect might be expressed as "If we make sense in terms of what the reader already assumes or believes, then the reader will understand better". What Dooyeweerd called the law side of reality includes the deep laws of all aspects together.

All functioning in temporal reality is governed and made meaningful by this aspectual law, but subjects and objects function differently. Things function as subject (agent) when they respond to law, and as objects when their functioning, though still governed by law, is as a result of some agent's subject-functioning. For example, as I write this I am responding to laws of the lingual aspect, and thus function as lingual subject, but the words and sentences I write are functioning as lingual objects. The expected reader is also a lingual subject; Dooyeweerd's view enables a subject-subject as well as subject-object relations. So, as ICT is used, the words and other symbols they read or write are lingual objects while they, as lingual subjects, actively respond to lingual law. Likewise, when considered from the psychical aspect, the animal functions as subject when they climb, and the rock functions as psychical object in being climbed.

Agent and environment are governed, and their functioning enabled, by the same law side. However, they function differently in different aspects. To Dooyeweerd, whether an entity is a subject or object does not depend on the entity itself, but on how it functions in each aspect. An entity can be subject in one aspect but object in another, as in the example of the animal climbing a rock:

- The climbing animal functions as subject in both psychical (seeing, hearing, responding as climbing) and physical (feet exert force) aspects. The human user of a computer functions as subject in all aspects.
- The climbable rock functions as object in the psychical aspect ('letting itself' be climbed) but as subject in the physical (exerting equal and opposite force). Likewise, a computer may be said to function as subject in the physical aspect of silicon etc., but as object in the lingual, social and economic aspect.

This provides philosophical grounding, which has so far been lacking, for the idea that agent-relative properties like climbability or editability are located in the environment, without having to reduce the agent aspect to the environment aspect, and without having to posit it as being solely in the intentions or constructions of the agent. Unlike the Heideggerian escape, of merely dissolving the difference between subject and object, Dooyeweerd retained the distinction, which is found in everyday life and is also important for affordance. Dooyeweerd's understanding of subject and object provides the foundations for the bridge that Gibson and others have so long sought. It also enables IS scholars to conceive of how the information ('technical') characteristics of the ICT facilities have a role to play in response to the 'free', innovative activity of the user, without fear of returning to a technological determinism in which only the technology plays a role.

4.4 Addressing the Challenge of Translation to Different Fields

This provides a sound basis for translating the insights from ecological psychology across to other fields - and vice versa. For translation to be valid there must be some common thread that can be made the basis for translation. Chemero's (2003) suggestion that affordance is a relationship between a pair of aspects, combined with Dooyeweerd's notion of aspects, helps

to generalise the idea of affordance across all fields, as a pairing of agent and environment aspects in each case. Dooyeweerd's suite of aspects provides a useful conceptual tool with which to think about the different pairings. Dooyeweerd's notion of multiple aspects of one activity means that when extra aspects are encountered they can be incorporated rather than ignored. Aspects are understood in the same way, as ways in which things can be meaningful, and meaningfulness is understood in the same way, as an 'ocean' that enables us to Be and Occur. This grounds entities, activities and relationships of affordance across all aspects, as explained above.

What differs through the aspects, and thus what influences the way issues encountered in one kind of affordance are translated to others, are three things: the precise meaningfulness that each offers, that the laws of earlier aspects are more deterministic than the more normative laws of later aspects, and that functioning in later aspects depends on that in earlier ones for its actualization. The following are issues discussed above:

- Activity. Each agent aspect enables a distinct kind of activity, but this is likely to be more varied and less predictable in IS than in ecological psychology.
- Normativity. This should be expected in all kinds of affordance, though in than psychical affordance normativity is minimal. That normativity differs for each aspect provides clarity.
- Enabling. Functioning in the environment aspect enables that in the agent aspect. This can often be understood in terms of Dooyeweerdian interdependency between aspects.
- Unreflective perception. The knowing in most aspects is unreflective, but takes a different form. Formative, lingual and social perception all differ, but are all present in IS use, so understanding the difference can help study.

In ecological psychology, the body is important, and body-scale is a key concept. How might this translate across to information systems? There have been two main ways, neither of which are ideal. One approach is to ask where 'bodies' are found in IS, such as in avatars in virtual reality or characters in computer games. This can lead to confusion, as in (Rambusch & Susi 2008) and is limited in application. Another is to seek analogies to the body, as Bloomfield et al. (2010) do, taking Scarry's (1985) view that made objects are projections of the human body (e.g. bandage replaces skin). Then "Such 'affordances', we might say, name the various ongoing exchanges of attributes between human bodies and the world made of objects" (Bloomfield et al. p.421). But they provide no precision, as the "we might say" indicates, and arguments cannot be based on analogies.

Seeing affordance as meaningfulness opens up a third, more satisfactory way. This involves we asking why body scale is important (meaningful) in ecological affordances: It is because of the physical and pre-physical properties of the animal - how the animal is meaningful in terms of the environment. That is, the environment aspect in which both agent and environment function are compared. Usually a subject-subject relationship is discovered in this aspect, which is the basis for genuine interaction. In the IS field, we can likewise compare the environment aspect of both user and ICT facility. Several affordances are founded in information (Dooyeweerd's lingual aspect), so the equivalence of body scale is: What are the lingual (informational) characteristics of the afforded human task, and how do they compare with those available in the ICT facility? One example might be language difference, which can hinder social affordance.

5. Practical Application

A few examples are now offered of how this might work in practice.

Aspectual normativity provides a way to separate out issues (Ahmad & Basden 2013) and locate more precisely where the problems might lie. For example, information overload (Conole & Dyke 2004) is problematic by reference to the lingual aspect but not the formative, while groupthink (Majchrzak et al. 2013) is problematic by reference to the social and pistic aspects, but possibly not directly problematic in the economic aspect. Dooyeweerd's aspects are intended to apply across all cultures, and to be intuitively grasped. This opens up the possibility of distinguishing affordances that are culturally specific from those which apply across all cultures. To understand affordances which apply across cultures is very important when considering ethical and beneficial development in which ICT plays its part.

Some extant lists of affordances are incomplete or not well formed, and aspects can help reveal and even correct these. In the ideal case, all affordances of a given kind should have the same agent and environment aspects, but may be differentiated from each other by a tertiary aspect. This can help prompt critique and refinement of lists, as in the following example, which critiques Zammuto et al.'s (2007) five affordances of: Visualizing entire work processes, Flexible product creation, Virtual collaboration, Mass collaboration, and Simulation and synthetic representation (what-iffing). For all these, the environment aspect is the lingual. From the way they are worded, each is meaningful in a different aspect, respectively: analytic/aesthetic, formative, social, social and analytic. If this is the agent aspect, then the list is not well-formed. However, examination of their explanation of each shows that each is related to the economic functioning of a product-oriented organisation, so these aspects might be the tertiary ones. The dual aspect in visualization suggests the affordance can be meaningfully split, one dealing with analysis of work processes, the other with harmonizing them. The two social aspects prompts a question of whether there is any important difference between virtual and mass collaboration. The text reveals that though both involve collaboraton, which is indeed social, the emphasis in the former is on communication and in the latter is on working together, suggesting lingual and social aspects respectively. The 'virtual' tag, though fashionable in IS circles, is not useful as a differentiator since most of their affordances involve virtuality. It might be useful to relabel both.

Dooyeweerd's suite of aspects can help direct search for new kinds of affordance. Table 1 contains aspects for which no IS affordance has yet been discussed - aesthetic to pistic - which suggests possible new kinds of affordance. The way to begin to consider these is to assume an environment aspect of lingual, but an agent aspect of each of these, and ask for each "What benefits or problems meaningful in this aspect would the user experience?" For the aesthetic aspect, such benefits might be fun or enjoyment. "How can ICT facilities afford fun?" is an IS question, to which Dooyeweerd can direct our attention. Computer games are a genre dedicated to this, so exploration of aesthetic-lingual affordances might begin there. Though Rambusch & Susi (2008) try to discuss affordances in computer games, but their treatment is confused, and can be an example of how a Dooyeweerdian approach can remove confusion. They mix together affordances that are meaningful to the avatar (opening a door in a virtual room) with those meaningful to the human player (keyboard buttons), and yet they miss the main point of computer gaming: fun. Using Dooyeweerd's aspects, Breems & Basden (2014) are able to distinguish these as: opening a virtual door in a virtual room is 'engaging with meaningful content'; hitting keyboard buttons is 'human-computer interaction',

and having fun is 'human living with computers', and all three involve all aspects, though in different ways.

Finally, aspectual affordance might provide insight into societal and developmental issues. Recognising that no affordance has been discussed in which the ethical is the agent aspect (Table 1), this directs our attention to the question, "How can ICT facilities afford self-giving attitudes such as generosity?" Attitude is not just individual but also pervades society in ways that are not obvious, but which become felt after a time. So this affordance needs to take a societal perspective. This is especially important in development ethics. Generosity is an attitude which pervades Sub-Saharan Africa, but which by comparison is lacking in the wealthy, European North. This directs us to the important question of the impact of ICT on African attitudes, whether it will afford a strengthening or weakening of such generosity, and how to strengthen rather than weaken. Given the individualized nature of mobile ICT, this is a serious challenge. Much will depend on whether the ICT available for use there is self-protective or tends to open up self. The tendency of application developers to self-protection of economic and legal interests is likely to afford a turn to selfishness and self-centredness, undermining traditional generosity. There is much other potential applicability, such as how the Dooyeweerdian idea of affordance can guide research agendas, and how it can be used to bring disparate kinds of affordance together into a wider picture. Those are still to be explored.

6. Conclusion

Affordance is a useful notion with which to think about and discuss the relationship between an agent and its environment across many fields - whether animals in a physical environment, or people using ICT facilities in an organisation. Several challenges have been mentioned: complexity and different kinds of affordance, the translation of concepts and findings about affordance from one field to others, and two more fundamental challenges, those of meaningfulness and of the subject-object relationship.

Dooyeweerd's philosophy is ideal for grounding an understanding of affordance, because the two main fundamental challenges that affordance presents are directly and centrally addressed by Dooyeweerd, and the other two challenges are addressed on the basis of those. To Dooyeweerd, meaningfulness is foundational to all, and his exploration of diversity of meaningfulness, which resulted in his famous suite of fifteen aspects, can be very helpful in understanding affordance as the relationship between pairs of aspects. Until now, though the discourse around affordance frequently mentioned meaning, there was little understanding of meaning as such. Dooyeweerd's reinterpretation of the subject-object relationship enables us to understand how agent-relative features like climability or editability can be located in the environment rather than solely in the agent. A number of issues that depend on these foundational ones have been also discussed, and some practical examples have been given for how Dooyeweerd might be useful when discussing affordance.

This might make a number of contributions. The field of ecological psychology might benefit from a philosophical grounding to the concepts that circulate in its discourse, as well as from a confidence that there is at least one philosophy that can support both Gibson's desire to bridge between subjective and objective and the growing importance of meaning. The field of IS can benefit from recognising distinct kinds of affordance as defined by different agent aspects. Dooyeweerd's suite of aspects can direct research into new kinds of affordance. The

generation of lists of affordances of each kind can benefit from reference to aspects. The idea that the environment aspect is the lingual rather than the physical provides a starting point for translating insights emerging from the field of ecological psychology into the field of IS. In these ways, IS research into IS use can be strengthened and given a firmer foundation.

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The Triple I model: A translation of Dooyeweerdian Philosophical Concepts for Engineers

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Inspired by Dooyeweerdian philosophy and in dialogue with different groups of engineers the Triple I model for design problems has been developed. It offers a vocabulary to deal and unravel the ‘complexity’ of modern technological systems, propose methods and techniques to understand the nature of an innovation. The ‘I’ of ‘intrinsic’ refers to the inherent normativity of the user practice, the ‘I’ of ‘inclusive’ to the presence of justified interests of different stakeholders, and the ‘I’ of ‘idealistic’ to the values or dreams that play a role.

1. Introduction

The time in which one single engineer could develop a whole product all alone is gone. Nowadays, engineers work in multidisciplinary teams and have to communicate with many stakeholders. They often lose the overview and do not understand anymore the ‘complexity’ of the functionalities of the integrated design. In practice, engineers work with simplified models resulting at best in inadequate solutions and at worst in big disasters. It is therefore of utmost importance that design tools are developed that do justice to the intricate relation between ‘man, technology, and society’.

In the last decade, the use of Dooyeweerdian philosophy for technology has been widely discussed (De Vries, 2006; Strijbos & Basden, 2006; Verkerk, Hoogland, Van der Stoep & De Vries, 2007; Basden, 2008; Van Burken & De Vries, 2012). These studies show a certain potency of this philosophical tradition for making a valuable contribution to the practice of engineers. It is generally agreed that in particular three elements are important for the field of engineering: a) the theory of modal aspects supports engineers to understand the multi-sidedness and intrinsic normativity of their designs, b) the idea of qualifying function is of utmost importance to do justice to the nature of a technological design, c) and cultural values or ground motives play an important role in designing technology. There is no doubt, however, that still a lot of work has to be done to realize this promise.

This paper aims to stimulate further discussions about how to make Dooyeweerdian philosophy available for engineers. It reports about the experiences of the author on his dialogues with engineers that resulted in the Triple I model. For a philosophical contribution to the mindset of engineers three challenges have to be met. First, the model has to be presented in an appealing way for engineers.³ Theoretical richness and engineering clarity have to be integrated in self-explaining drawings and heuristics. Second, the model has to guide engineers in dealing with and unraveling the complexity of technological designs, identifying normative moments in designing new products, and understanding how values guide their creative design processes. Third, the model has to focus on the organizational context in which technological innovations are used.

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³ Philosophers easily undervalue the importance of an appealing model. The main reason is that they concentrate on the content and forget that their ideas only will have impact when they are marketed well. Marketers, on the other hand, focus on selling ideas. They believe that good products need an appropriate imago and well-designed packaging.

This article has the following set-up. Section 2 tells the story of two groups of engineers that developed philosophy-based tools to design ‘complex’ systems. These stories describe the state of the art in the field, the problems to cope with complexity, and the catch ball process to translate philosophical Dooyeweerdian concepts in engineering tools. Section 3 integrates the results of these two groups and other groups in the so-called Triple I model. Section 4 presents some additional tools. The paper ends with some conclusions.

2. Exploring the Scene

This section tells the story of two groups of engineers in which a philosophy-based toolbox for engineers was developed. One group focused on tools to design the electrical system of the future and the other one on tools to design long-term housing for elderly with dementia. These groups worked parallel to each other and there was no interaction between these groups. Every group had its own problems and own dynamics. The only ‘linked pin’ was the author of this article.

2.1 Designing smart grids

In 2008, I met Dr. Paulo Ribeiro, an eminent electrical engineer, at the time professor at Calvin College (Grand Rapids, USA). Dr. Ribeiro’s main research topic is electrical energy infrastructure of the future. In the coming decades, our energy systems will change strongly. It is believed that large scale power plants will be complemented by a large number of small scale energy generation units; amongst others, individual households will generate solar or wind energy. It is also believed that intelligent systems will be used to more comprehensively communicate, control, protect and balance supply and demand of energy. The whole system of central and local energy generation, transmission and distribution, and enabling intelligent control and information systems is called a smart grid. Smart grids will be integrating micro grids (local systems) and super grids (high voltage transmission and bulk generation systems). Figure 1 illustrates the new concept of smart grids and the functional relationship among the different subsystems and technologies. The bulk generation, transmission, distribution and customers are directly and electrically connected and are themselves linked via communication systems with the Markets, Operations and Service Providers. The most important characteristics of smart grids are described by the European Commission (2010) and the European Electrical Grids Initiative (2010).

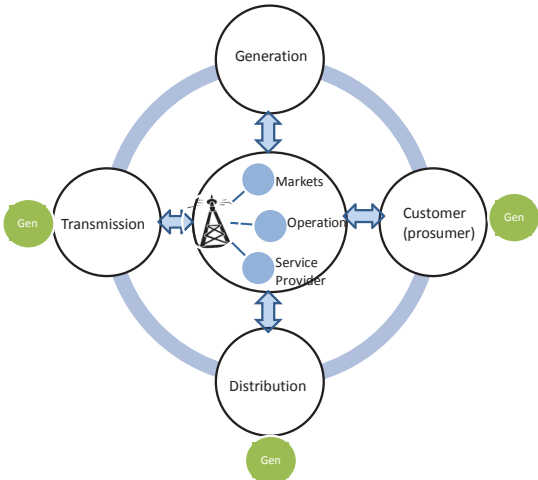


Figure 1: Concept of Smart grids. Schematic depicting the physical and communication interconnections

During an extensive discussion Ribeiro sighed: ‘It is impossible for an engineer to take the “full complexity” of these systems into account. I only have reduced models resulting in reduced designs that for their part result in sub-solutions and even wrong designs.’ He underlined his sight with reference to a report of the European Commission (2011) that concluded that it is very difficult to grasp technological and non-technological key characteristics of the electrical system of the future. Especially, this report showed ‘a lack of specific attention to the social implications of Smart Grids.’ This conclusion also has to be understood from the economic interests in this field. At this moment, grid project investments in Europe currently amount to over 5 billion Euros and are estimated to reach 56 billion by 2020 (Pike Research, 2011).

Dr. Ribeiro’s complaint about the reduced models resulted in a challenging question: ‘Can Dooyeweerdian philosophy support me to understand the “complexity of this type of systems” and to support me to design better systems?’ I should mention here that in our conversations Ribeiro honestly showed his disappointment about the value of this philosophy for his scholarly work. E.g. a study produced at Calvin College by Monsma et al. (1986), *Responsible Technology: A Christian Perspective*, has in his opinion not succeeded in bridging the gap between Dooyeweerdian philosophy and the daily practice of engineers. Anyhow, Ribeiro’s challenge marked the start of an intensive cooperation between two engineers (Ribeiro, Polinder) and one philosopher (Verkerk). On the one hand, it was believed that philosophy would offer theories that could cope with ‘the complexity of these systems’ and that also could guarantee (a certain degree of) completeness. On the other hand, it was believed that a catch ball process, in which ideas are thrown and caught back and forth between the participants, was necessary ‘to translate’ philosophical theories in engineering tools. This process resulted in the article ‘Planning and designing Smart Grids: Philosophical Considerations’ in the *IEEE* journal *Technology and Society*.

2.2 Designing long-term facilities for elderly with dementia

In 2010, I was one of the members of the committee that had to judge the quality of the thesis *Aging-in-place. The integrated design of housing facilities for people with dementia* of Joost van Hoof (2010). One of the challenges of this research was to develop an integral model to design housing for elderly with dementia. The doctoral student had solved this problem by combining two existing models: the International Classification of Functioning, Disability and Health (ICF-model) and the Model of Integrated Building Design (MIBD-model). Basically, the combination of these two models was already a breakthrough in thinking: it recognized the importance of insight in the medical background to design housing facilities for people with dementia.

Let’s first review the state of art in this field. The design of buildings is a complex and dynamic process. The overall complexity is strongly increased when the design process concerns buildings for specific user groups with non-standard requirements. For example, the design of long-term facility for older adults with dementia requires an interdisciplinary dialogue involving medical disciplines, care professionals, and patient associations. In addition, the design of the building should also take into account the standard requirements of an adequate operation and cost-effective maintenance. It is a challenge for the architects and consulting engineers to capture these needs in a single design.

Ideally, the design of buildings in which care or medical treatment and interventions take place, should also be in compliance with evidence-based practice (Ulrich et al., 2008,

Huisman et al., 2012). Various researchers have proposed theoretical or conceptual frameworks linking different built environment characteristics to health outcomes or to capture the current domain of evidence-based design in healthcare (Zimring and Bosch, 2008; Durmisevic et al., 2010; Ulrich et al., 2010). These models all capture a different part of the complexity and, thus, reflect a part of reality. Durmisevic and Ciftcioglu (2010, 101) acknowledge this complexity: '[N]ew knowledge in evidence-based design adds continuously to complexity (the 'information explosion'), and it becomes impossible to consider all aspects (design features) at the same time, much less their impact on final building performance.' They conclude that there is no adequate methodology to deal with different environmental aspects in a holistic way.

A couple of months after the ceremony I had an intensive discussion with Joost van Hoof about his model. I asked him two questions: 'How do you know that the combination of two models leads to an "integral model"?' and 'How exactly do you relate the medical concepts of the ICF-model to the building concepts of the MIBD-model?' His answer was as honest and as shocking: 'I don't know'. 'And', he added, 'nobody in this field has a more complete model than I have proposed.' These answers marked the start of a long term cooperation between an engineer (Van Hoof), a designer (De Koning), a geriatrician (Van der Plaats), and a philosopher (Verkerk). Also this cooperation was characterized by a catch ball process in which engineering models, neurological insights, and philosophical theories entered the arena to understand the complexity of this types of designs and to develop philosophical tools that were understandable for non-philosopher. The first fruit of this cooperation was the article 'Developing an integrated design model incorporating technology philosophy for the design of healthcare environments: A case analysis of facilities for psycho-geriatric and psychiatric care in The Netherlands' (Van Hoof & Verkerk 2013).

2.3. Conclusion

Both stories have a lot in common. At first, they show that technological systems have become so complicated that engineers cannot anymore grasp the 'complexity' of their designs.⁴ Secondly, in the engineering practice of these scientists – both where specialists in their field – philosophy-based tools appeared not to be used. Thirdly, they support the idea that philosophical ideas and concepts have to be 'translated' into schemes, drawings, design questions, moral standards and values, check off lists, and design heuristics, in order to serve the design practice of engineers. Finally, they suggest that intensive dialogues are required to become familiar with non-technological ideas and philosophical concepts. It goes without saying that this dialogue is a challenge for all participants. On the one hand philosophical richness and strictness has to be maintained as much as possible, and on the other hand the vocabulary has to be understandable by engineers and the tools have to fit into their way of working.

3. The Triple I Model

The Triple I model takes the user practice as a starting point. At the first glance, this starting point seems to speak for itself. However, on further consideration this starting point cannot be taken for granted. Firstly, despite all rhetoric about customer or user orientation, the

⁴ It has to be noted that engineers use the word 'complexity' in different ways. On the one hand, they use this word for existing knowledge in their own field, like the interaction of different components, modules, and technologies. On the other hand, they use this word for knowledge of other disciplines that is not (yet) available, like ethics and marketing.

engineering perspective has dominated the design process up till now.⁵ Secondly, this starting point invites engineers to understand the requirements of different types of users in their own organizational context.⁶ A part of this work has been presented elsewhere (Ribeiro et al., 2010; Hoof et al., 2013, Verkerk, 2014).

The Triple I model encourages engineers to investigate user practice from three different perspectives⁷ in order to understand its key characteristics, see figure 2:

- 1) *Identity*: identity or intrinsic values of the primary process.
- 2) *Interests*: inclusion of the justified interests of stakeholders.
- 3) *Ideals*: (hidden) ideals, dreams and values that co-shape the primary process.

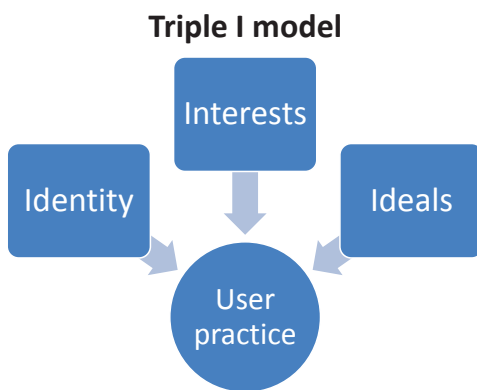


Figure 2: Graphical depiction of Triple I model

3.1 Identity of the primary process

The ‘I’ of ‘Identity’ or ‘Intrinsic values’ refers to the specific character of the primary process of the user practice. The specific character of this process is based on the idea of the qualifying function of the theory of individuality structures (Dooyeweerd 1969: vol. III). On the first sight, a ‘smart grid is a smart grid’. However, from the perspective of the user this statement is too simple. After all, smart grids are used in quite different contexts, e.g. households and industrial enterprises. The theory of individuality structures (see below) shows us that the context of the household is socially qualified and the context of an industrial enterprise economically. As a consequence, the smart grid in an household has to support the social relations in that household and the smart grid in an industrial enterprise the economic functioning of that enterprise. It has to be noted that these differences in context are not primarily differences in size or something like that, but differences in the identity or nature of the user practice. Inherently, the intrinsic values of these user practices differ. The household

⁵ In certain engineering quarters the perspective of the user has recently been (re)discovered as a key factor in the design process (Buxton, 2007; Abel et al., 2011; Dijk et al., 2011).

⁶ It has to be noted that the practice model focuses on the characteristics of professional practices and does not address explicitly the different types of users. In addition, it does not take into account the organisational context of these different users. For example, internet portals in health care are used by different kinds of users, e.g. patients, professional, and (administrative) staff. Each of these users have specific requirements and operate in different organisational contexts. Engineers that design internet health care portals have to cope with these specific requirements and different contexts. In systems thinking, ‘customers’ and ‘actors’ are explicitly identified (the ‘C’ and ‘A’ of ‘CATWOE’). Rightly, Strijbos (Strijbos & Basden, 2006, p252) points out that disclosure of new possibilities in developing technology is a multi-actor activity.

⁷ I prefer to use the word ‘perspective’ to indicate that a certain point of view is chosen to investigate the practice. Each perspective reveals a different type of ‘complexity’ that strongly determines or has to determine the design process.

is dominated by social values like mutual support and living as a community, and an enterprise by values like customer satisfaction, profit and sustainability. Consequently, the design of smart grids for households have to be disclosed by the values mutual support and living as a community, and the design of smart grids for industrial enterprises by an enterprise by values like customer satisfaction, profit and sustainability.

The identity of long-term homes for elderly with dementia is quite different from that of smart grids. The meaning kernel of moral aspect is ‘caring for’. Therefore, the qualifying function of health care facilities is the moral aspect (Jochemsen and Glas, 1997; Jochemsen, 2006; Verkerk et al., 2007). That means, the long-term home has to be designed in such a way that it supports the care for elderly with dementia – if possible: evidence-based designs! Again, it has to be noted that the user context of long-term homes differ qualitatively from the user context of smart grids for households: morally qualified versus socially qualified. As a result, the design of long-term homes has to be disclosed by values like love, respect and closeness.

The ‘I’ of ‘Identity’ or ‘Intrinsic values’ is comparable with the normative principle of ‘disclosure and intrinsic normativity’ as developed by Strijbos (Strijbos & Basden, 2006, p245-248), and the constitutive side as defined by the practice model (e.g. Jochemsen & Glas, 1997; Hoogland & Jochemsen, 2000; Jochemsen, 2006; Verkerk *et al.*, 2007). This ‘I’ is also strongly related to the ideas of ‘inner goods’ and ‘excellence’ of MacIntyre (1981).

In summary, the ideas of ‘identity’ and ‘intrinsic values’ urges the engineer to identify the specific nature of user practices. It invites the designer to make the intrinsic values explicit and to ‘translate’ these values in design specifications (or norms).

3.2 Inclusion of justified interests

The ‘I’ of ‘Inclusion of justified interests of stakeholders’ refers to an approach in which the interests of the different stakeholders are identified and included in the design process. This stakeholder approach is based on Freeman (2001) while the concept of justified interests follows from the concept of qualifying function of individuality structures (Dooyeweerd 1969:vol. III). For example, the most important stakeholders of smart grids are governments, local authorities, bulk producers of electricity, local producers of electricity, transmission companies, and so on. Each of these parties have justified interests. The justified interest of governments and local authorities are mainly legal or juridical: compliance with national and local legislation. Another justified interest is economical: the influence on the national (and local) economy and employment. The justified interest of bulk producers of electricity is that the smart grid can handle variations in demand so that they can produce at a stable and predictable way. The justified interests of local producers of electricity is that micro-grids will balance as much as possible production and consumption on a local level, and that excess of energy can be delivered to the network at a good price. The stakeholders configuration of smart grids appears to be very complex. Figure 3 presents a more detailed analysis showing that the stakeholders differ for different ‘components’ of smart grids and different sources of renewable energy. It goes without saying that managing of justified interests of stakeholders in large smart grid projects is extremely important and failures in managing these interests are very costly. For example, in Brasil problems arose in the construction of the transmission lines. As a result, the wind energy park was finalized but the connection to the national electrical network was not yet finalized!⁸

The most important stakeholders of long-term housing for elderly with dementia are family, nurses, doctors, neighbourhood, owners, banks, insurance companies, local and national authorities. Also in this case, every stakeholders has its own justified interests. The idea of

⁸ Personal communication Paulo Ribeiro.

justified interests can be illustrated clearly in discussing the aesthetic aspects of the building. Who's justified interests are at stake? Who decides? The architect? The owner? The patients? The family of the patients? The local neighbourhood? To answer this question I would like to return to the ideas of 'identity' and 'intrinsic values'. The qualifying function of a long-term facility for elderly with dementia is the moral one. It is about 'caring for'. That means, the aesthetic aspects has been designed in such a way that the care for the patients is supported as much as possible by the aesthetic design (disclosure). The building has to be – to use a buzz word – a healing environment. What about the owner? Isn't his or her money? The justified interest of the owners is the return on investment over the lifetime of building and not whether or not 'they like the building'. On top of that, when the aesthetic appearance strongly supports the way of living of elderly with dementia, the building will have a competitive advantage over other long-term facilities so that the risks of 'empty beds' and less income will be reduced. Finally, it is often claimed that one of the justified interests of an architect is the aesthetic appearance of the building. After all, it is an expression of his or her creativity. In addition, in architecture the judgments of peers about the design and the beauty of the building are considered to be very important. Based the idea of the identity of the facility and the intrinsic values I would argue that the justified interest of an architect is not in the beauty of the building but in designing a housing that supports elderly with dementia in their daily activities.

Strijbos (Strijbos & Basden, 2006, p252-254) has developed the idea of 'multi-actor activity'. It is not clear to me to what extent this idea corresponds with the proposed stakeholder approach that has an organisational background. In the early formulations of the practice model the idea of justified interests of stakeholders was not present (Jochemsen & Glas, 1997; Hoogland & Jochemsen, 2000; Jochemsen, 2006). Later on, Verkerk *et al.* (2007) tried to incorporate these ideas in this model.

In summary, the idea of 'inclusion of justified interests of stakeholders' opens the eyes of engineers for the diversity of stakeholders, makes them sensible for the their different interests, and offers arguments to judge their interests.

Positive Interest		Not Applicable / Concerned		Negative
Stakeholder		Wind	PV	Hydro Reference
		Smart Grids Context		
Bulk Generation	Owners			
	Investors			
	Vendors			
	Lawmakers			
	Government			
	Regulators			
	Employees			
	Banks			
	Courts			
	Special Interests			
	Contractors			
	Research			
	Equipment Manufactures			
	End-user			

Transmission (NTO)	Owners			
	Operators			
	Governments			
	Regulators			
	DTOs			
	Research			
Distribution (DTO)	Owners			
	Operators			
	Regulators			
	Distributed Generation			
	TNOs			
	Research			
Customer Premises Home, Buildings, Commercial, Industrial	Cost			
	Flexibility			
	Renewable Gen			
	Control			
	Research			
	ICT			

Figure 3: Detailed stakeholder analysis for smart grids

3.3. Ideals, dreams, and values

The ‘I’ of ‘Ideals, dreams and values’ expresses basic beliefs about the good life; this ‘I’ is inspired by the theory of ground motives (Dooyeweerd 1969:vol I). These basic beliefs are intricately present in every user practice and co-shape technological designs. Generally, engineers are not aware of the presence of ideals, dreams and values. In their view, designing complex systems is a *technological* challenge. In the field of smart grids and renewable energy different basic beliefs play a role. At first, there is the ideal of *freedom*. Unlimited access to energy makes people free to live their own life. Secondly, the dream of *control* is present. People want to control nature so that energy is available at every time and every place when they need it. Finally, the value of *sustainability* is promoted. This value can have an economic motivation (to guarantee the free market), an ethical motivation (responsibility to next generations) and a religious motivation (stewardship). These ideals, dreams and values are intricately present in developing renewable energy and designing smart grids. They *motivate* engineers to do their job and *influence* the design.

In the field of building long-term facilities for elderly with dementia values also play a very important role. The most important question is: What’s a good life for these patients? It goes without saying that an univocal answer on this question is not possible. It requires an in-depth insight in the perception of the environment of elderly with dementia. This perception is influenced by the phase of the illness, the personality of the patient and his or her religion or philosophy of life. Additionally, this ‘I’ also refers to ideals, dreams, and values that are brought in by different stakeholders. For example, health care institutions that commission a builder to build the housing, want to realize their mission and values also through the quality

of their facilities. Insurance companies also want to have a say in the construction of long-term facilities. They are driven by both economic values as well as care values.

This short analysis shows that there are different sources for ideals, dreams, and values, see figure 4. All these ideals, dreams, and values influence the design in one or another way. This analysis shows that values intricately present in practices; both interwoven with each other as well as layered.

The ‘I’ of ‘Ideals, dreams, and values’ is present in the systems approach, namely in the principle of the critical awareness of the socio-cultural context (Strijbos in Strijbos & Basden, 2006, p254-255). It is also present in the practice model, i.e. the directional component (Jochemsen & Glas, 1997; Hoogland & Jochemsen, 2000; Jochemsen, 2006; Verkerk *et al.*, 2007). The Triple I model explicitly takes the organization context as a starting point and distinguishes between different sources (individual, organisation, culture).

source	examples
individual	self development, meaningful life, changing the world, sustainable future
organisation	add value to society, serving the customer, develop ICT solutions for the industry, inventing the future
culture	Christian thinking: serving God, serving fellowman, stewardship
	Modern thinking: equality, freedom, free market, solidarity
	Postmodern thinking: self expression, authenticity, designing your own future, individual development
Note: stakeholders that are strongly involved in a user practice also will ‘bring in’ their own ideals, dreams, and values.	

Figure 4: Sources of ideals, dreams or values

4. Supporting Tools

The Triple I model is intrinsically related to and supported by a couple tools:

- 1) Theory of the many aspects.⁹ This theory reveals the different aspects of technological designs. It prevents engineers to reduce the user practice to technological categories and urges them to ask new questions.
- 2) Theory of individuality structures. This theory supports engineers in understanding the identity and intrinsic values of the user practice.
- 3) Additional tools. These tools support engineers in investigating specific aspects of the user practice, designing new products, and evaluating different designs.

4.1 Theory of many aspects

This theory offers another perspective to draw up the design specifications for complicated designs. Figure 5 shows how such an analysis can be done for building long-term facilities for elderly with dementia. The first step is to gain insight in the neurological processes of the

⁹ The Triple I model presupposed the theory of modal aspects (Dooyeweerd 1969:vol. II). In communication with engineers the word ‘modal’ raises too many questions, therefore the expression ‘theory of many aspects’ is used.

brains of older persons with dementia. After that, these insights have to be related to the experience and behaviour of older persons with dementia. Then, the question has to be asked how the different aspects of a building have to be developed in order to support the daily living of these patients. Finally, this results in a multi-aspectual design specification.

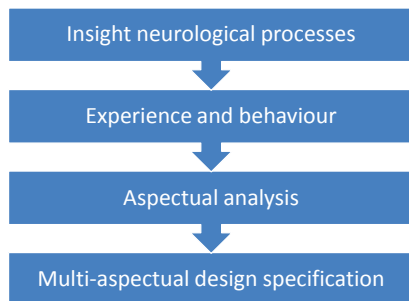


Figure 5: Application of the theory of many aspects to develop multi-aspectual design specifications

Information processing of older persons with dementia is quite different from healthy adults. The most important difference is that the capacity to process complex stimuli decreases in course of the disease. Schematically, the human brain consists out of an emotional and a cognitive layer. Neuroscience has shown that the cognitive layer is necessary to analyse complex situations and to evaluate behavioural alternatives. People with dementia, however, are mainly dependent on processing of the emotional brain. They cannot analyse complex situations and cannot evaluate behavioural alternatives. Therefore, the whole environment has to be designed in a such a way that complex situations do not arise and an evaluation of behavioural alternatives is not required. However, when these conditions are not met, the emotional brain cannot handle the larger number of stimuli and ‘orders’ the body to fight or to flight. These fight or flight reactions are interpreted by the environment as ‘problematic behaviour’. These types of insights influences every aspect of the building and its furnishing: from the arithmetic aspect up to the pistical aspect.

I would like to give one example. How to design a chapel for patients with dementia? How can the construction and its furnishing support spiritual experiences of elderly with dementia? Two insights from the neurosciences are very important. First, patients have to be brought in a relaxed state. At a low level of stress, it is possible to use the cognitive brain to support higher functions, e.g. spiritual experiences. A relaxed state only can be realized when the design of the chapel is simple and surveyable, and gives of a low level of stimuli. Note: a low level of stimuli is required to prevent fight of flight behaviour. Second, patients with dementia can only handle dynamic stimuli. Therefore, dynamic stimuli have to be introduced that stimulate spiritual experiences. Examples of dynamic stimuli are a moving cross, a flickering candle, or religious music. All these stimuli have to be given ‘one at a time’ to prevent overload of the emotional brain that results in fight of flight behaviour. Third, the memory ‘reverses’ to his or her youth and early adulthood. As a consequence, the choice of the design, attributes and music has to be in agreement with the religious culture of the youth and early adulthood of the patients.

In summary, the theory of the many aspects urges engineers to go beyond the technological aspects of their designs and to broaden their outlook to all (relevant) non-

technological aspects. Especially, this theory can be used as a ‘check off list’ to ask questions and to address all aspects in the specification of a new design. This idea many aspects and their normativity is also present in the systems approach in the principle of ‘simultaneous realization of norms led by a qualifying norm’(Strijbos in Strijbos & Basden, 2006, p248-252).

4.2 Theory of individuality structures

The Triple I model also presupposed the theory of individuality structures (Dooyeweerd 1969:vol. III). The theory of the modal aspects describe the different aspects in which things, wholes or concrete structures function. The theory of individuality structures describe the own nature or identity of these structures. Typical societal structures in which humans function and develop themselves are families, schools, labour, politics, entertainment, and churches. All these structures have an own identity or individuality as expressed by the so-called qualifying function: social, formative, economical, juridical, social, and pistical, respectively. In all these societal structures technology only will function adequately when is it disclosed under the guidance of the quality function of this structure. For example, smart grids have to be disclosed under guidance of the social qualifying function for households and the economic qualifying function for industrial enterprises. Long-term homes for elderly with dementia have to be disclosed under the guidance of the moral qualifying function. The theory of the individuality structures is required to understand the nature and character of the context in which technology is used. It is also required to understand that the identity of technology is not determined by technology itself but by the nature of the societal structure in which it functions. (Verkerk et al, 2007, p118-122).

4.3 Additional tools

In recent years, a number of general tools are developed that support designers. For example, User Driven Innovation presents theories and approaches to invite users as co-designers (Abel et al. 2011, Dijk et al. 2011), Social Return on Investment maps the societal business case of new innovations (www.socialevaluator.eu), and the Canvas model supports the development of new business models (Osterwalder & Peigner 2010). In addition, every discipline has its own methods and techniques for designing technology. All these methods and techniques can be used in close connection to the philosophical tools presented in this paper.

4.5. Use of toolbox

The toolbox presented in this paper is the result an organizational analysis of institutionalized practices and a number of dialogues with engineers in different fields: the electrical infrastructure of the future, long term homes for elderly with dementia, internet portals in health care, orthopaedics, and applied gaming for health care. These dialogues are continuing; so, the toolbox is ‘under construction’. What is the effect of the use of this box on engineers? I would like to present some experiences:

- 1) Engineers experience that the complexity of designs can be unravelled by using these tools.
- 2) Engineers learn that complex design never can be grasped in simple models. As a result, they have resigned themselves in the fact that it takes time to understand the tools and to learn how to apply them.

- 3) Engineers experience that the identity of technology is not determined by technology itself but by the nature of the user practice. For most of them, this experience is an eye-opener.
- 4) Engineers experience the idea of the many aspects as a breakthrough in thinking. Intuitively, they analyze some aspects but forget others.
- 5) Engineers experience the distinction between justified and not-justified interests as a revelation. In practice, they base their decisions on intuition and not on philosophical analysis.
- 6) Finally, engineers get the feeling that they get more grip on ideals, dreams, and values and their influence on designs.

To illustrate these findings I like to tell a short story. This model has been presented by Paulo Ribeiro to a committee of the European Union about smart grids. The leader of this committee complimented Ribeiro with the words: ‘Now I understand a bit more the implications of complexity of smart grids and why the design of these systems is such a challenging job’.

5. Conclusion

The paper started with the observation that nowadays engineers often cannot oversee the complexity of their designs. Better tools are needed to cope with this situation. The Triple I model presented in this article has demonstrated its value in different technological contexts: health care, internet portals, architecture, and smart grids. The model addresses the challenges formulated in the introduction. Firstly, the name ‘Triple I’ sounds right, expresses simplicity, and arouses curiosity. The model easily can be visualised in figures and tables. The next step is to make the visual representations perfect by professional designers. Secondly, it guides engineers through the complexity of design processes by distinguishing three different perspectives: Identity, Interests, and Ideals. Additionally, it proposes a number of tools to support the design process. Finally, it opens the eyes of engineers for the existence different user contexts and the influence on the design process. It also invites the engineer to pay attention to the organizational embedding of the user.

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Dealing with Complexity: Some Critical Reflections upon Verkerk's 'Triple I Model'

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The article provides critical reflections upon Dr. M. Verkerk's 'Triple I Model' which aims to guide engineers in their work designing complex systems. The model suggests including stakeholders in the design process, in order to search for inherent values of the designed situation, and to design in an ideal-seeking mode. I do applaud the effort made as such as I do the mentioned three features of the model. However, I have also identified a set of challenges and needs for further development of the model and suggest some avenues for seeking support from the domain of systems thinking.

1. Introduction

The *International Institute for Developmental Ethics* (IIDE) hosts an *Annual Working Conference*, where a number of younger and more senior scholars meet to debate issues at the intersection of science, technology ethics and religion as sources for normativity, all related to societal challenges and changes. In past years, H. Dooyeweerd's philosophical work has played a central role in inspiring and giving rise to many contributions and debates, yet by no means all. A recurring theme for dialogues and research cooperation has been the conceptions of systems thinking, in particular the use of systems methodologies in management.

At the 2014 Annual Working Conference (AWC) of IIDE, a special workshop entitled *Dooyeweerdian Thinking meets Systems Thinking* was organized, with the purpose of triggering new debate and opening up new avenues for future research. In view of this purpose Dr. Maarten Verkerk was invited to contribute. Dr Verkerk's profile well matches the theme, as he is affiliated with the Dooyeweerdian school of thought in the Netherlands and is well acquainted with the domain of technology and management. At the workshop he presented the "Triple I Model" (hereafter referred to as 3IM), which aims to offer generic guidance for the design of complex systems. As a follow-up of the discussions at the workshop, I was asked by the chairperson of IIDE to write down my critical reflections upon Verkerk's 3IM, which will be presented here.

The next section summarizes my understanding of the 3IM and my reflections will follow in section three. In brief, I sympathize with Dr. Verkerk's efforts, while at the same time noticing some challenges; I suggest some steps towards solving these. The paper ends with some key conclusions to that end. Before moving to my assessment, however, I shall provide an account of my intellectual profile in order to make the reader aware of the kind of spectacles that shaped my assessment of Verkerk's 3IM.

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1.1 My Profile – the reference point of assessment

In several senses my profile is well suited to act as a base for an assessment of 3IM, as I perceive it. Given that the latter aims to guide designers of complex systems, where technology and the social aspects coexist, my broad intellectual and practical profile may offer a relevant reference point, yet not the only one; there is of course a need for several assessments that utilize different reference points.

I have been educated in a number of disciplines, ranging from mathematics, statistics and computer science, through economics, business administration and industrial organization, as well as psychology and sociology, and ending with philosophy, all in a varying range and depth. I have studied postmodern philosophy in France, analytical philosophy in Sweden and have been a keen reader, yet by no means exhaustively, of Dooyeweerd's thought. I have also been a devoted student of systems science and its derivative systems thinking. I earned a doctorate in industrial organization and I have spent nearly fifteen years in managerial positions, ranging from those of operations analyst and management consultant to line manager and strategic development manager positions at a major international corporation. In all these contexts I have attempted to use my learnings, particularly systems thinking understood as guide to intervention into human, social, public, business and other affairs. As with Verkerk's 3MI, I have also made some minor attempts to operationalize parts of Dooyeweerd's thinking in terms of systems-oriented methodology for managerial practice, yet not very successfully.

When some years ago I was given an opportunity to return to the academic world as a full time scholar, I regarded it as a possibility to further extend my thinking but also to capitalize upon my experiences of management. Today I lead a small and young research group that focuses on an interdisciplinary exploration of digital businesses, understood as the use of information and communication technologies for the conduct of business activities.

2. The Triple I Model

A brief account of Verkerk's Triple I Model, hereafter 3IM, will be provided here. To obtain a more comprehensive understanding of the 3IM, the reader is referred to Verkerk's paper in the present conference proceedings, where it is summarized together with two illustrations of the model's working. We will recall here only some of the key messages that 3IM attempts to put forward, with the aim of preparing the reader for the forthcoming discussion of the model's key characteristics.

In the introduction to this paper, the reader is faced directly with the following challenge:

“Nowadays, engineers work in multidisciplinary teams and have to communicate with many stakeholders. They often lose the overview and do not understand anymore the ‘complexity’ of the functionalities of the integrated design. In practice, engineers work with simplified models resulting at best in inadequate solutions and at worst in big disasters. It is therefore of utmost importance that

design tools are developed that do justice to the intricate relation between ‘man, technology, and society’.”

Shortly after that, Verkerk refers to a dialogue with an engineering colleague, who has expressed the challenge in the following manner:

“It is impossible for an engineer to take the ‘full complexity’ of these systems into account. I only have reduced models resulting in reduced designs that for their part result in sub-solutions and even wrong designs.”

Verkerk’s mission seems thus to be to provide engineers with guidance for nothing less than understanding the complexity of our perceptions and conceptions, particularly those complexities where various contemporary technologies meet man, organizations and society. More specifically Verkerk articulates this aspiration in the following way:

“to guide engineers in dealing with and unraveling the complexity of technological designs, identifying normative moments in designing new products, and understanding how values guide their creative design processes.”

While the presentation of the 3IM is very brief, and does not allow us space to detail the process for developing and testing that model, Verkerk still mentions some key traits of the development process. One central part of that process is that the philosophical work of H. Dooyeweerd is assumed as an intellectual foundation, from which normative guidelines were derived for directing design processes for technologies and their use. In all this, Verkerk’s central methodological assumption is that *“philosophy would offer theories that could cope with ‘the complexity of these systems’ and that also could guarantee (a certain degree of) completeness.”* In the conclusions, Verkerk says that 3IM:

“guides engineers through the complexity of design processes by distinguishing three different perspectives: Identity, Interests, and Ideals.”

The 3IM offers a set of what is called *tools for design of complex systems*, where the central stipulation is that any such design process ought to investigate so-called ‘user practices’, i.e. the use of a specific technology, from three different perspectives:

- seeking the system’s *Identity* understood as its intrinsic value,
- seeking the system’s stakeholders and their *Inclusion* in the design process,
- seeking the system’s (hidden) *Ideals* that co-shape it.

In the discussion below, the focus is on the three I’s, as they dominate the presentation of 3IM offered by Verkerk.

3. Reflections

In this section I shall offer my critical reflections upon the proposed 3IM, as I have understood it. The reflections start with the actual challenge and aspirations assumed, then continue with an inspection of each of the three 'I's, respectively, and end with some minor methodological reflections.

3.1. The Aspiration

Clearly, the 3IM has assumed bold ambitions: to provide conceptual tools to enable the engineer to master complexity: human reality! A perusal of the brief exposé of 3IM provided brought to mind the early modernist thinkers who held similar ambitions by assuming that modern science constitutes the supreme tool to understand and control our reality. However, in the early 20th Century, K. Gödel (e.g. Gödel, 1992) showed that no formal statement, however simple or advanced, may ever be complete, rather it has to rest upon some basic beliefs, while Z. Freud (e.g. Mannoni, 1971) showed that man, by his very function, can never and will never be able to understand himself due to subconscious psyche operations (e.g. Ackoff, 1981). Paradoxically, advances made by science, that aspired to be man's supreme tool in his conquest and control of reality, showed that science as such cannot even understand itself and cannot help us to understand completely the complexities we face.

Now, 3IM assumes a similar position to the early modernist thinkers, while replacing their *scientific method* as the supreme tool with *philosophical conceptions*, here Dooyeweerdian philosophy, as such a tool. Continental post-modern and post-structuralist thinkers, typically French (e.g. J. Derrida, M. Foucault, J-L Lyotard) made it their duty and honor to surface the many, often banal and bizarre, assumptions that the modernist mastering-reality program rests upon. This is not the place to review those attacks and identify their relevance to the 3IM position. Rather, we will briefly summarize that debate with its underlying questions: is it possible to master human reality? And if so, is that desirable? Clearly, the first question is empirical while the second is normative.

Addressing the first question only, our experiences of both natural catastrophes (e.g. the thunderstorms, tsunamis, earthquakes, and volcanic eruptions) and technological disasters (e.g. airplane and train crashes or malfunctioning medical equipment and drugs) show clearly that we cannot master reality, even though we have more technology than ever before to help us do that. While these are surface observations, a central message made by Dooyeweerd (1997, Vol. I.), with regard to the notion of religious ground motives, shows that the aspiration for mastering human reality is impossible, and results in the modernist nature-freedom ground motive. More specifically, this aspiration is based upon an unresolved secular antinomy, most visible in Kant's heroic yet unsuccessful attempts, in his third critique, to bridge the abyss between theoretical and practical reasons. On the one hand it is assumed that our world is governed by natural laws, with underlying deterministic mechanisms, that give rise to regularities that scientific method can discover and that enable us to control reality (Kant's first critique). On the other hand it is assumed that man is free to do what he wants, which makes him a responsible being, as it is stated that without freedom there is no meaning

in responsibility (Kant's second critique). However, what neither Kant's third critique, nor any other attempts, is able to answer is this: how is it possible to be a free man in a fully deterministic world? Clearly, Dooyeweerd's answer is that only God can control reality as *He is Reality*, which makes the Biblical ground-motive supreme, where God's Law governs all reality.

In this sense, I think that the bold ambitions allocated to 3IM are neither possible nor compatible with its theoretical underpinnings in Dooyeweerdian philosophy. I would rather suggest here an adjustment to 3IM's aspiration. Indeed, secular thinkers have also realized the impossibility of the master-reality aspiration. Two of the most prominent systems thinkers – C.W. Churchman and H.A. Simon – starting from very different meta-theoretical positions, respectively, and disagreeing on most issues (Ulrich, 1980) both arrive at the same position: that optimal solutions are not possible. Churchman (1968, 1971, 1979) displaces the optimal or comprehensive with the process of continuous and inclusive unfolding while Simon (e.g. 1956) goes from optimal to satisfying solutions; also a key message from the more recent so-called *complexity science* (e.g. Holland, 1988) is that complexity cannot be fully comprehended or mastered, at best the behavior of a complex system may be intelligible, not explainable. In a vein of thinking similar to that of Churchman and Simon, and also based upon Dooyeweerdian thinking as Verkerk's 3MI, S. Strijbos (2006) has suggested the *process of disclosure* as a means for making our experiences intelligible, yet recognizing that we can never fully understand complexities nor control them. In this sense I interpret a Dooyeweerdian notion of disclosure as being part of reality, rather than its master, interacting with our contexts, learning and responding to their conditions rather than conquering them; in a modernist language it may be paralleled with 'experimental learning'. Dooyeweerdian disclosure implies, as Strijbos articulates it, that we unconditionally start with a normative position, we cannot escape that, and we cannot be neutral. These assumed norms necessarily guide us in whatever design we undertake: this applies also to Verkerk. Therefore it is crucial to be critically self-reflective upon our own presuppositions. In this manner, I suggest that 3IM be further developed in line with Strijbos' proposed approach, and the following reflections will further motivate this suggestion.

3.2. Inclusion

Now I move these reflections to the three main precepts of 3IM, starting with 'Inclusion'. Verkerk tells us that it refers "*to an approach in which the interests of the different stakeholders are identified and included in the design process*". This draws upon the contemporary notion of stakeholder management (ref), which assumes that by identifying all key actors that hold a stake, or an interest, in a given situation or system, we may address these stakes or interests and thereby reach a proper solution to the challenge at hand, as the aspiration is to make the identified stakeholders' stakes satisfied in some not predefined sense. In this, Verkerk assumes that stakeholders may hold justified interests that ought to be met.

To start with, the very notion of inclusion as such is very welcome, as I see it, yet probably more challenging than ever before. Verkerk seems to draw heavily upon on Freeman's

(Freeman, 1983, 1984; Evans & Freeman, 1987; Freeman et al 2004; Freeman et al 2010) stakeholder management approach, which in turn attempts to further operationalize the works of I.I. Mitroff and R. Mason (1982) and I.I. Mitroff (1983), all these based upon C.W. Churchman's (1968, 1979) ground breaking work in his notion of the 'systems approach'. Grounded in American pragmatism philosophy, particularly its epistemology, Churchman propagated for an inclusive process of seemingly never ending unfolding. He struggled particularly with the challenge of setting a system's boundaries, i.e. what and who should be included or not in the conception of a faced situation. In this, Churchman was careful to notice all the actors that are affected by a system. Unfortunately, the various operationalizations of Churchman's thinking, such as those within contemporary stakeholder management approaches, missed a central challenge, and committed the so-called *open system fallacy* (e.g. Ulrich, 1983: 299). The open systems fallacy refers to the mistake of regarding a social entity, such as a family or an organization, as a biological organism that has a system's border open for interactions with its environment. This means that the focus is set only on how a social system is influenced or affected by external conditions such as actors; this is so because biological systems do so. However all those actors not in a position to influence the situation of concern yet influenced by it, the so-called victims, are ignored in the contemporary stakeholder management approaches; this is so because an open biological system – such as a flower –also ignores those that it affects yet do not affect it. While the conventional stakeholder management approaches of the 1990's (Donaldson, 1995; Agle, et al, 1999) typically committed the open system fallacy (which well manifests their utilitarian moral) the more recent trend of the so-called *Corporate Social Responsibility* (CSR) programs makes an attempt to cover the gap of the *affected not affecting* (e.g. Freeman & Velamuri, 2006) – of course the critics are quick to remark that the whole business of CSR is just a more sophisticated marketing tool aimed at influencing those that affect (e.g. customers) by creating an image that the organization cares about the victims (e.g. Siegel 2009).

When including the victims, however, stakeholder management offers a promise. Another student of Churchman, later his close colleague, R.L. Ackoff (e.g. 1981), articulated the need for inclusion very clearly in two terms: epistemological and moral. Epistemologically, stakeholders must be included as they have knowledge of the situation addressed, as it is assumed that knowledge is necessary, yet not sufficient, to plan for a proper dealing with a complex situation. Morally, stakeholder inclusion is a must in contemporary democratic and liberal societies to secure approval and commitment by those that the plans affects those that are planned for – we should thus avoid planning for others in sensitive matters, and ask the affected to plan for themselves (ibid.). In addition, Checkland's (Checkland & Scholes, 1990) unique systems approach, much influenced by Churchman's work, the Soft Systems Methodology proclaims, yet loosely, an inclusive process. However, it is without doubt one of Churchman's last students, W. Ulrich who was most successful in making a breakthrough in terms of methodological support guiding a process of inclusion, with his '*Critical Systems Heuristics*' (Ulrich, 1983, 1987; Ulrich & Reynolds, 2010). In this he provides guidance for the kind of actors to be included in the planning process, and also the kinds of questions that each actor is to address. As far as we know, this is the state of the art of stakeholder management, and we recommend that Verkerk further inform his 3MI.

However, stakeholder inclusion is only one side of the underlying challenge for all planning or design; the other is about how we decide what is right or wrong, whether a proposed plan or design, in Verkerk's terms, is right. Even if we succeed in a situation where all stakeholders are included on even terms, and they succeed in reaching a consensus or at least an accommodation with regard to the content of a design: how do we know that that is right? To be sure, Ulrich's Critical Systems Heuristics, heavily based on Habermas' notion of ideal speech situation, submits the question of right and wrong, to the outcome of a communication process of the affected, which is declared as a democratic solution. This quest for inter-subjectivity is probably the position that holds the strongest explicit social contract in the western democracies, yet is by no means the only way of dealing with the moral question of right and wrong, as history shows – beside the fact that in challenging situations we often do not reach an accommodation, as shown by the Israel-Palestine conflict for example. Verkerk's probably most interesting contribution, in the context of 3IM, lies in how he suggests dealing with this question. He addressed it in terms of the '*Identity*' component in his model; it is thus now timely to move our attention to it.

3.3. *The Identity*

Verkerk states briefly that Identity of a system, or a situation where it is to be used, is about "*the specific character of the primary process of the user practice*". Clearly, this position does not submit itself to the now-popular inter-subjectivity or democratic notion where what-is-right-or-wrong equals the outcome of an ideal speech situation of those affected. Rather, 3MI holds that reality as such has some intrinsic norms that are beyond such a process of open communication of stakeholders, even though that process may be instrumental in identifying those inherent standards. Verkerk explains further that every entity has a qualifying function that expresses its inherent and dominating norms, which he bases upon Dooyeweerd's (1977, vol. III) notion of individuality structures, their aspects and the unique aspectual qualifying function of the entity. Verkerk illustrates this with the case of a smart grid for power supply, where he concludes that when designing such a system for supplying power to households it has to be qualified by social norms (i.e. social intercourse) as a household is qualified socially while when the smart grid is designed to supply companies with power it has to be qualified economically as a firm is qualified in such terms.

This proposal to assume the Dooyeweerdian notion of qualifying function as a guide for normativity of entities is clearly not without strong appeal, yet it has exposed several challenges. One is the fact that Dooyeweerdian philosophy is not necessarily accepted, even within philosophical contexts, being sometimes disregarded as obscure continental 'magic' (e.g. Chaplin, 2011; Friessen, 2009; Strauss, 2009; Wolterstorff, 1983); of course, this does not imply that Dooyeweerd's message is without relevance, rather that its message may be complicated or unacceptable. Secondly, the various debates about the clarity of the idea of aspects, what it is and is not, and the related ideas such as founding, leading and qualifying functions (e.g. Basden, 2007.) suggest that this proposal is either not well worked out conceptually or that it may address only part of the complexities of our reality. Several previous attempts at employing this kind of thinking have shown conceptual challenges, for

instance what if an artefact is designed for one kind of use and then is used successfully in a totally different manner (e.g. Bergvall-Kåreborn & Grahn, 1996).

While sympathizing with the issues mentioned above, and accepting this proposal of qualifying function as a representative for inherent norms, one may ask a number of challenging questions (e.g. Bergvall-Kåreborn & Grahn, 1996; Eriksson, 2001) such as: what is the nature of a planning or design process that can identify the qualifying function of an entity and its context? How can we be sure that we have identified the right function? Is the process of qualifying function identification not dependent upon the actors involved in the design? Does that mean that we always have to include all actor categories? And then, if we have succeeded in identifying a candidate for the right qualifying function, what does that mean for the design outcome, i.e. how should the designed entity be influenced by its qualifying function, if so, how and why? For instance, what is the qualifying function of a mobile phone? Is it communicative, social, analytical, or even historic?

Finally, the analytical philosopher would probably remark: if a home is defined in terms of a specific function, say a social function, there is no logical implication to makes us conclude that its smart grid should also follow these norms, as Verkerk proposes:

“Consequently, the design of smart grids for households have to be disclosed by the values mutual support and living as a community, and the design of smart grids for industrial enterprises by an enterprise by values like customer satisfaction, profit and sustainability. “

I regard the notion of inherent norms as the most interesting yet challenging part of Verkerk’s proposal. It potentially offers a third way in the dualism between the postmodern relativism (or constructivist) position and the modernist metaphysical contract imposed by those in power, typically aiming to preserve their power-positions. The challenge here is to manifest the practical feasibility of this approach.

3.4. Ideals

We have now arrived at the third and final component of the 3I-model, the stipulation that the design process with its participating stakeholders ought to idealize the designed system or situation, which is assumed to be a direct implication of the value sets held by the designing stakeholders.

As with the proposed inclusion of stakeholders, the stipulation to idealize is by no means new. It is well known within systems thinking and emerged there when C.W. Churchman operationalized his teacher’s philosophy; i.e. Singer’s (1959) so-called *Teleological Experimentalism*, a dialect of American pragmatism. This strongly epistemologically oriented argument observes that knowledge by necessity is an imperative assentation, e.g. ‘this table is white’, however this also is necessarily an ideal statement, Singer observes, as we may never know for sure, which means that we inherently operate with ideals when we

assert or stipulate knowledge. Churchman developed this observation philosophically; however it was up to his two students, R.L. Ackoff and W. Ulrich to operationalize it, in the context of their respective systems methodology that offers a guide for the ideal-seeking design process. While both Ackoff and Ulrich succeeded well in utilizing the ideal-seeking mechanism it is probably Ackoff who offers the most elaborate characterization of the ideal-seeking design process, (something that is beyond the scope of this discussion).

Interestingly, Verkerk's proposal for ideal-seeking design is not at all based upon an epistemological argument but derived from Dooyeweerd's notion of religious ground motives, which detailed that all human beings are unconditionally creedal or religious beings, meaning that we all operate from some very fundamental beliefs and convictions. In this, Verkerk says that our value set guides what we believe is desired, which in turn may be further developed into ideals. In this sense we regard the two arguments – epistemological and religious – as complementary and supporting each other in promoting an ideal-seeking design process. Therefore, I am very positive to the idea of ideal-seeking designs that are not only motivated by epistemological challenges but also by humans' basic convictions. In this I believe that Verkerk may benefit from both Ackoff and Ulrich with regard to further operationalization of the specification for ideal-seeking design process. Secondly, and unlike the epistemologically grounded idealization, Verkerk would also need to suggest how to deal with situations when stakeholders are included with strongly contrasting ground motives – e.g. the biblical versus the humanist positions or more concretely, Israel versus Palestine. I wish to anticipate here that the *identity* of a situation, with its inherent norms, could potentially operate as a common denominator.

3.5 Methodological Reflections

Finally, I should like to make a brief reflection upon the actual procedure for the way in which 3IM appears to have been formulated or developed. We are prevented from providing more comprehensive reflections as Verkerk's presentation of 3IM is very brief.

I am pleased to observe that Verkerk starts with real life concerns, rather than a purely theoretical focus, as the former may constitute a compass needle for the further development of his approach as well as a point of reference for investigating the feasibility of the proposed approach. I am also very pleased that 3IM seems to have been developed in a kind of action research setting, where concrete situations of engineering and development constitute the laboratory or workbench for the development of various 3IM-related proposals. In this sense, to be taken more seriously, 3MI would need to show its practical feasibility more openly, i.e. what concrete difference does it make to follow 3IM stipulations when designing complex systems? Currently we do not know whether there are any concrete benefits or if 3IM is a purely conceptual exercise. For this, I wish to recommend P. Checkland's (Checkland 1981; Checkland & Holwell 1998) now somewhat classical approach for the development of a methodology aimed to guide real life intervention. This is the so-called *Framework of Ideals*, to be tested on an *Area of Interest* by means of a *Methodology* (FMA-framework). Checkland was educated in the natural science methodology, and observed that we may not seek repeatability in the social context of action research; rather that we should provide a

recoverable account that is transparent in terms of its process of formulation and test for its aimed feasibility (ibid.)

Finally, I wish to reflect upon the intellectual foundation assumed by 3MI. I sympathize with Verkerk's choice of Dooyeweerd's contribution as such a foundation. However, Verkerk needs to clearly justify his choice, particularly as various quarters hold that no successful operationalization of Dooyeweerd's contribution has succeeded so far. Secondly, it is clear that Verkerk assumes that the most general of all disciplines, philosophy, is capable of providing practical guidance for how to intervene in social affairs. Many would say that the various sciences are much more capable of providing us with such a detailed guidance, thus Verkerk needs to justify this position as well.

4. Conclusions

I am sympathetic toward Dr. M. Verkerk and his colleagues' overall attempt at formulating some conceptual guidelines for the design of complex situations, where contemporary technology is to be allocated into a social context. Such guidelines are much needed coexistence where we may harvest the benefits of technological advancement without exposure to their potential harms.

In my assessment of the proposed 3I-model, I have pointed out some of its challenges but also its promises, as I understand. One is its ambition to provide control of reality; this seems neither possible nor is it compatible with the theoretical underpinnings assumed by the model, an alternative is to seek a process of 'disclosure' as suggested by Strijbos (2006). Secondly, I am fully aligned with the promotion for an inclusion of stakeholders, yet I warn for the common open systems fallacy. Thirdly, I also wish to support the idea of idealization; particularly as it is founded in Verkerk's notion on creedal commitments rather than in epistemological elaborations. Next, the most interesting characteristic of the 3I-model, in my opinion, is its quest for the inherent normativity of entities and their contexts. I find this fully aligned with the Dooyeweerdian foundations assumed, and also with S. Strijbos' proposed disclosure that is also based upon Dooyeweerdian reading. This may potentially provide an alternative to the contemporary ideal communication and the modernist metaphysical commitments.

In all these opportunities I see that the proposed 3MI is in great need of explicit operationalization to do what is proposed in a design situation – this is indeed a core element of any methodology aimed to guide design (e.g. Checkland & Holwell, 1998). In this, I have suggested repeatedly that 3MI may benefit from the developments and learnings made over several decades by systems thinkers, within such themes as stakeholder inclusion (e.g. Ulrich, 1987), idealization (e.g. Ackoff, 1981), and also the handling of pluralism (Checkland, 1981). Finally, the whole process of formulation and testing of the 3MI requires transparency of its recoverability and feasibility, instead of its current 'black magic' approach.

Again, I wish to both congratulate Verkerk and his team on their undertaking so far and also to urge them to strive to further develop their approach, which is probably still in its infancy...

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Information about the International Institute for Development and Ethics

The IIDE is an innovative institute that stimulates collaboration between the North and the South in *study and action in ethical development*, locally and globally. Since 2004 the IIDE has been represented in Africa and Europe by two mutually dependent entities. They operate as an intermediary between universities and the broader society by creating linkages and alliances between different universities and between universities and external parties. It aims to add value for all parties in relation to content and finance, realised through:

- initiating and supporting social entrepreneurial approaches in development;
- research; and
- teaching and training.

It is the mission of the IIDE to serve society by bridging the proverbial gap between theory and practice, between university and society. Being aware that effective development is unthinkable without both practical and scientific expertise, the IIDE brings together practitioners and academics in order to utilise good practices from both environments.

Although the IIDE is a fully independent organisation without ties to any religious denomination, it takes Christian principles and values as its primary source of guidance and reference. As such, its views on Christian social responsibility lead the way to its vision, its mission and the concrete services and products it wishes to render for the benefit of society.

Contact information is available at www.iide-online.org

Information about the Annual Working Conferences

As an essential for the execution of its research, the IIDE sustains an international North-South network of senior academic researchers and their PhD students who are affiliated with different universities and institutions in the Netherlands, UK, Sweden, and South Africa.¹

One of its activities is the organisation of Annual Working Conferences (AWC) at the beautiful venue of the Emmaus Priorij at the river Vecht in Maarssen, near Utrecht, Netherlands. At these week-long events in April or May, participants present papers on their current research, receive comprehensive critical mentoring, and respond with ideas on how their research will be continued.

The formula of these AWC's has proved very successful in generating a flow of high quality papers, informing PhD research, and sharpening up ideas on a wide range of issues. The research of the past has resulted, amongst other things, in a series of Proceedings. The papers that are accepted have been sent out for a peer review. The title of each volume is borrowed from a Discussion paper which aims to foster the ongoing reflection at the AWC's on the mission of the IIDE and its broad research agenda.

The following Proceedings have been published since 2002:

(2002) *On the Connections Between Philosophy, Technology and Systems Sciences*, edited by Johannes D. Bijkerk, Jan van der Stoep, Sytse Strijbos. Amersfoort: CPTS. ISBN 90-807718-1-3.

(2003) *Towards a New Interdisciplinarity*, edited by Rob A. Nijhoff, Birgitta Bergvall-Kåreborn, Anita Mirijamdotter, Sytse Strijbos. Amersfoort: CPTS. ISBN 90-807718-2-1

(2004) *Interdisciplinarity and the Integration of Knowledge*, edited by Marc J. de Vries, Birgitta Bergvall-Kåreborn, Sytse Strijbos. Amersfoort: CPTS. ISBN 90-807718-3-X

(2005) *Towards Humane Leadership*, edited by Albert Helberg, Jan van der Stoep, Sytse Strijbos. Amersfoort: CPTS. ISBN-10: 90-807718-4-8 and ISBN-13: 978-90-807718-4-0

(2006) *Integrating Visions of Technology*, edited by Andrew Basden, Anita Mirijamdotter, Sytse Strijbos. Maarssen: CPTS. ISBN-10: 90-807718-5-6 and ISBN-13: 978-90-807718-5-7

(2007/2008) *The Problem of System Improvement*, edited by Andrew Basden, Darek Eriksson, Sytse Strijbos. Maarssen: CPTS. ISBN 978-90-807718-6-4

(2009) *Systems Thinking and Philosophy as Interdisciplinarity*, edited by Andrew Basden, Leenta Grobler, Darek Eriksson. Maarssen: CPTS. ISBN 978-90-807718-6-4

(2010) *Interdisciplinary Research for Practices of Social Change*, edited by Roelien Goede, Leenta Grobler, Darek Haftor. Maarssen: CPTS. ISBN 978-90-807718-8-8

(2011) *Re-Integrating Technology and Economy in Human Life and Society, Volume 1*, edited by Lucius Botes, Roel Jongeneel, Sytse Strijbos, Maarssen: IIDE. ISBN 978-90-361-0285-8

(2011) *Re-Integrating Technology and Economy in Human Life and Society, Volume 2*, edited by Christine G. van Burken and Darek Haftor, Maarssen: IIDE. ISBN 978-90-361-0287-2

¹ This North-South network, formerly named the Centre for Philosophy, Technology and Social systems (CPTS), operates since 2010 within the organisational framework of the IIDE.

(2012) *The Role of Education in Economy and Society*, edited by Lindile L. Ndabeni, Darek M. Haftor, Sytse Strijbos, Amsterdam: Rozenberg Publishers. ISBN ISBN 978-90-361-0322-0.



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