

# **Exploring The Lived-Experience of Business Model Innovation**

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## **Abstract**

*Due to increasingly complex and uncertain environments, businesses must deal with multiple competing and often opposing models, what we may call 'ontological relativity'. To deal with this, the practice of innovation management requires a new type of practical-epistemology. The best insight into these new types of knowledge is an exploration of lived experience of innovation management practitioners. This research then explores the phenomena involved in the practice of business model innovation in the context of two innovation projects. To achieve these goals, a phenomenological method is used to uncover fundamental aspects of the innovation process. The outcome of the inquiry is a set a set of phenomena that hope to contribute to the discourse around this emerging field of management knowledge.*

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## Introduction

### Situation of Concern

Martin and Moldovenau (2008), in their book *The Future of the MBA*, call for a restating of the managerial role and in so doing the redefinition of *organizing practice* itself. In particular they articulate the need for the *high value decision maker of the future* to move from an *arbiter* to a *designer*. They further explain this point in relation to the markets from which these functions emerge. An arbiter is squarely situated in both the market and the area of concern, taking action reactively to some dissonance in order to re-establish or repair that market. This dynamic cannot produce the new concepts necessary for the high value decision maker (Martin & Moldovenau, 2008). What is needed is a thinking discipline focusing on synthesis and integration, one in which new concepts may be disclosed (Martin & Moldovenau, 2008; Senge, 1990; 1994. Johannisson, 2011; Varela, Thompson, & Rosch, 1993).

They continue by situating this movement as emerging within the postmodern era, articulating in particular how “the demise of the master narratives” (Martin & Moldovenau, 2008) which is characteristic of this time has allowed the plurality of meaning and sense to emerge. We find ourselves within “*many* value systems, *many* ways of knowing, *many* ways of acting and relating – many ways of managing – and many ways of choosing among them” (Martin & Moldovenau, 2008, p. 26). This underpinning dynamic describes at once the complexity and variegation of the postmodern milieu and consequently it highlights the lack of any self-evident or *a priori truth* – “no single way is evidently valid to everyone in virtue of its claims. Monoparadimacy is a cultural relic...” (Martin & Moldovenau, 2008, p. 26). Furthermore they point out that this position is precisely the one in which managers and decision makers find themselves, and in which they need to act. Facing the seemingly impossible and indeed the paradoxical, managers must evolve their thinking and foster a new disposition. Legitimacy of action cannot be purely a factor of logic but rather of *plausibility*. Without this crucial understanding – that is, that “legitimacy is made, not given” (Martin & Moldovenau, 2008, p. 26) – we would have to admit that any other instrumental action would be inept and inadequate.

To act successfully, the manager must certainly exercise a level of cognition that is able to deal directly with uncertainty; moreover, it is required that he act skilfully. Martin and Moldovenau (2008) point out that the high value decision maker of the future-

“must *act* in the face of the breakdown of certainty and self evidence for the reasons of action; must *think in* the face of the looming paralysis induced by an awareness of the multiple ways of thinking available to him or her; must *experiment* and tabulate results in a disciplined fashion in the face of doubts about incontrovertibility of ‘data’ and the ultimate meaning of those data vis-à-vis a particular set of reasons for action; must *believe* in his or her grounds for acting in order to induce the right motivation to act in others; and must *act* in order to produce the right beliefs in him- or herself and others – all without falling into the epistemic and moral relativism that empties him or her of the vital trust that a better outcome is possible and achievable” (p. 26).

Scharmer (2009) goes further to suggest that what is needed is a capacity for precognition – “to sense and actualize emerging potentials” (p. 3). “This kind of knowledge can be thought of as *tacit knowledge prior to its embodiment*, or self-transcending knowledge” (Scharmer, 2009, p. 3). In his article, *Self-Transcending Knowledge*, Scharmer (2009) explains how this capacity is needed now due to the postmodern condition, in which we find ourselves; “the logic of competition has shifted from markets with decreasing returns to markets with increasing returns driven by positive feedback loops” (Arthur, in Scharmer, 2009, p.3).

Following this we see the emergence of an organizing style that embraces uncertainty in the deepest manner – with uncertainty itself as the seed of discovering resolution and order. “The high value decision maker of postmodernism is, we claim, an accomplished *experiential epistemologist*” (Martin & Moldovenau, 2008).

It is from this perspective that we ascertain that business model innovation is a deeply creative act, one that is reliant on the traits of cognitive plasticity and volition to innovate with both guided creativity as well as analytical skill. Moreover it is a process that attempts to sculpt perception and cognition, continuously eliciting meaning and

creating value in the arena of social systems. Central to this concept is the notion that seeing *meaning and value as an emergent property of the human-activity-system (shared praxis)* is key to unlocking both the success of a project and to an understanding of *why* that success is attained. To elucidate briefly, by *creating shared meaning*, the causes and conditions for success are set into motion.

This highlights the significant role of the *high value decision maker* (Martin & Moldovenau, 2008) as a central agent for self-organization and perceptual coherence (or vision). This is the agent who works to uncover dissonant elements with the aim of creating *disclosive spaces* from which new worlds of action and being may emerge.

Martin and Moldovenau (2008) however emphasize the need for an authentic investigation (in management science) into the *as-lived* experience of these high value decision makers, with the ultimate goal of gaining deep understanding of the cognitive modes at play. They indicate that management science currently is largely a set of prescriptive techniques abstracted from the practice itself:

“Management science is a net importer of theories and models from disciplines, such as psychology, that are deemed to be more ‘basic’. Thus it is not surprising that the study of managerial cognition proceeds by processes similar to those encountered in the history of cognitive psychology. The appropriation of the methods of the mother field proceeds in the study of managerial cognition by one of two steps: by direct use of the results of behavioural design theory as explanatory variables in management of managerial phenomena...and by the use of normative models of cognitive science and behavioural decision making, in conjunction with well documented deviations from these models to derive *prescriptive approaches*” (Martin & Moldovenau, 2008, p. 75).

They go on to indicate the value of the accounts of “field epistemologists who chart the still-unknown ways in which skilled managers make sense of the unknown and make critical decisions with only limited, foggy, ambiguous, doubtful and fuzzy information or from insightful practitioners themselves” (Martin & Moldovenau, 2008, p. 76).

In a more practical way, this research explores these larger themes within the immediate practical context; this is the development of a digital learning and collaboration

platform. The end-users and diverse stakeholders involved indicates the complex nature of the design process. In conjunction with this, the need for new innovative approaches to crowd dynamics employing new disruptive crowd technology approaches makes this a project that deals with the uncertainty of new technology innovation. Furthermore underlying this a new type of business model is required – one that deals with new forms of monetisation, public-private partnerships and novel forms of organising.

It is with this understanding that the central aim of this research is to make an inquiry into these modes of cognition, into perception and apperception at play in business model innovation. It is hoped that the outcome of to the inquiry will contribute towards the on-going development of a *practice-theory* of innovation.

## **Methodology**

This section gives a detailed description of the methodological processes undertaken with respect to the research question – *What is the as-lived experience of business model innovation?*

To begin to answer this question we must first gain some clarity into the exact meaning of what a business model is. A business model refers principally to the underlying logic of a business, and describes the core assumptions beliefs and modes of operating of that business (Teece, 2010). These models have existed as long as markets have (Teece, 2010) and have mutated, adapted and evolved in line with the complexity of the markets they serve. Magaretta (2002) relates the business model to Drucker's questions: 1) Who is the customer?; 2) What does the customer value?; 3) how does make money in this business?; 4) what is the basic logic of this business, that is how can be deliver value for a reasonable cost?

Although this is a good foundation for the conception of business models, the advent of new disruptive technologies, ecological implications and social purpose no must also be considered (Chesbrough, Ahern, Finn, & Gueraz, 2006; Seelos & Mair, 2007; Yunus, Moingen, & Lehman-Ortega, 2010; Wustenhagen & Boehnke, 2006). It is this larger conception and understanding of a buisness models that we hope to work with, one that will accompany a new cognitive and practical capacity to the art and scirnce of business model innovation.

The research question addresses three interlocking concepts: 1) as-lived experience, 2) business models and 3) innovation. This is significant because it points to three distinct concepts that we are here attempting to integrate, and investigate.

## **The As-Lived Experience**

The term ‘as-lived’ indicates that this research inquiry is phenomenological, that is, it is an inquiry into the phenomena of the experience itself. Our investigation is interested specifically in the thinking discipline needed, within the innovator, to act purposefully when faced with a complex and uncertain terrain. As we have explored earlier, our inquiry finds itself within the post-modern milieu – an era of many meanings, many ways of knowing and many ways of being, or what we may call *ontological relativity* (Martin & Moldoveanu, 2008).

As Martin and Moldovenau (2008) indicate, this situation has emerged with the demise of the master narratives, which are based on positivistic foundations and dogmatic justification. Seemingly all at once the world has found itself grappling with a dynamic plurality of meanings. Following this we find that instrumental, rational and generalized explanations of reality are increasingly inept at providing insight and value in addressing complex social realities.

This ontological relativity demands a new managerial competence (Martin & Moldoveanu, 2008) – one that can deal with a multiplicity of thinking mechanisms or logic(s):

“...Different domains of expertise are embedded in fundamentally different modes of inference (inductive, deductive, abductive) and different logics (modal logic – granting epistemic and ontic status to possibilities; declarative logic – denying such status; second-order logics, allowing statements about statements, etc.). The (modal) logic of design used by the system architect must be brought – through the medium of our manager – into dialogue with the non-modal language(s) of the programmer and the network theorist; the (inductive and abductive) logics of the marketer and the product line manager must be brought into dialogue with the (deductive) logic of the hardware engineer” (Martin & Moldoveanu, 2008, p. 46).

This new integrative management style therefore is plastic and allows the manager to be present within this ontological relativity, to make sense of these competing narratives, and to propose legitimate actions for their integration (Martin & Moldoveanu, 2008).

We find that this is facilitated by a disposition of inquiry into the machinery of thought itself – thinking about thinking (Martin & Moldoveanu, 2008). The integrative thinker then is one who inquires not only into the phenomena that present themselves but also the mechanisms that generate them. It is for this reason that a phenomenological approach is adopted as the primary research method.

The phenomenological method is concerned with describing the structure of experience and furthermore with enquiring into what that experience signifies or means. In contrast to positivist traditions of inquiry, which aim to map generalities, laws or *universalis*, the phenomenological method aims to transcribe directly the substance of experience.

The term ‘phenomenology’ is synthesized from two root words, ‘phenomenon’ and ‘logos’ (Heidegger, Basic Writings, 2011), whose juncture means the *science of phenomena*, or what we may term in a more current vernacular as the *science of consciousness*.

Traditional scientific inquiry is focused on uncovering some underlying universal truth; that is to be eventually discovered through some path of experimentation, using a prescribed methodology. Phenomenology in contrast has no such prescriptive method, but can be found among the writings of Husserl (2012), Heidegger (2011), and Merleau-Ponty (2005). Rather phenomenology reinforces the belief that knowledge is developmental and emergent; knowledge is made through experience.

Husserl’s (2012) phenomenology asks for a return to the lived experience itself, with the recognition of its primacy in the construction of knowledge; before the objective world appears there is a subject that is apprehending, assembling and constructing it. Husserl proposes that this science of consciousness must have a distinct approach to that of the natural sciences, because it is not a study of things but of experiences. In this proposition he is not denying the existence of the objective world but instead attempting to venture into the world of *sense*. As Heidegger (2011), a student of Husserl, articulates - phenomenology is not the study of *what* but of *how*.

Phenomenology emerged at the end of the 19<sup>th</sup> century in reaction to a crisis within philosophy and also within the human sciences (Merleau-Ponty, 2005). Increasingly

the positivist perspective was unable to answer the questions that arose within the human sciences. Durkheimian Positivism in particular believed in the logical continuation of the natural sciences into the realm of human activity – that human sciences would maintain the same objectivity, rationality and causality. Husserl’s formulation of the phenomenological method emerged from a critique of positivism, and in an attempt to integrate these two systems – the world of science and the life-world – rather than supplant one upon the other.

The ‘life-world’ here refers to the pre-reflexive state of the intervener that permits questioning of the world. Husserl’s belief was that subject and phenomenon are linked inexorably – because if there is a phenomenon there is a subject that experiences it (Husserl, 2012). Phenomenology then is a mode of inquiry whose emphasis lies in the experience and the interpretations thereof – rather than statistical correlations – for an understanding of causality (Sadala & Adorno, 2002).

Martin Heidegger (1997) in *Being and Time* gives insight into the etymology of the word ‘phenomenon’:

“The Greek expression *phainomon*, from which the term “phenomenon” derives, comes from the verb *phainesthai*, meaning, “to show itself.” Thus *phainomon* means to show itself, the self-showing, the manifest. *Phainesthai* itself is a “middle voice construction of *paino*, to bring into daylight, to place in brightness. *Phaino* belongs to the root *pha-*, like *phos*, light or brightness. i.e., that within something can become manifest, visible in itself. Thus the meaning of the expression “phenomenon” is established as what shows *itself in itself*, what is manifest. The *phainomena*, “phenomena,” are thus the totality of what lies in the light of day or can be brought to light” (Heidegger, Basic Writings, 2011, p. 31).

Phenomenology then is the study of what is manifest, what *shows itself in itself*, the totality of what is disclosing itself before us. So the phenomenological method is the ‘*return to the very things*’ – an engagement to the state before reflexive thought, the pre-reflexive state. Therefore the researcher must attempt to be present wholly to what is unfolding, emerging and becoming; this presence is what we may call a

*phenomenological stance* (Sadala & Adorno, 2002). This stance allows the researcher to gather descriptions of these unfolding phenomena with necessary openness and authenticity – to live that experience as a Gestalt – “in its wholeness, by trying to prevent any judgment from interfering with [his/her] openness to the description” (Sadala & Adorno, 2002, p. 283).

By doing this, the researcher is placing the phenomenon in *epoche*; that is, searching for this phenomenon’s essence (the thing itself) to describe the most invariable aspects of it. Merleau-Ponty indicates that

“Phenomenology is the study of essences; and according to it, all problems amount to finding definitions of essences: the essence of perception, or the essence of consciousness, for example. But phenomenology is also a philosophy, which puts essences back into existence, and does not expect to arrive at an understanding of man and the world from any starting point other than that of their ‘facticity’” (Merleau-Ponty, 2005, p. vii).

The essence then is the very essential nature of the thing that is being questioned.

The *intentionality of consciousness* is the direction, coordination and movement of consciousness; this is central to generating meaning in the world (Sadala & Adorno, 2002). “Through the intentionality of consciousness all actions, gestures, habits and human actions have a meaning. Consciousness, through such intentionality, is understood as the agent that attributes meaning to objects. Without these meanings it would be impossible to talk either about an object or an object’s essence” (Sadala & Adorno, 2002, p. 283).

It is the role of the researcher then to study the intentionality of the phenomenon, and ascertain how meaning is created through this movement. This *phenomenal reduction* allows for a reliable description of the phenomenon because it highlights the intentional character of consciousness. It is not so much the reduction of noise but rather the ability to hold a phenomenon in mind and be present to it. This *bracketing* of phenomena is to move beyond subject and object to the transempirical realm of essences. Thus *eidōs* is the necessary structure of a thing – its principle integrity. Eidetic reduction also uses

*free variation*, meaning that it is not reliant on mental constructs or objects themselves but takes its starting point in the knowledge of that object. By becoming present in this way, the researcher allows for imaginative variation – that is, what is given immediately and indubitably. Through this presencing – of being present to that which reveals itself – the researcher finds that series of variations overlap and precisely at that point of overlapping s/he may find the essence of that phenomenon. Thus by starting with evidence within the perceptual sphere and then moving to evidence within the imagination – what could be true – the researcher arrives at the invariable and essential nature of that thing.

“It is a transcendental philosophy which places in abeyance the assertions arising out of the natural attitude, the better to understand them; but it is also a philosophy for which the world is always ‘already there’ before reflection begins—as ‘an inalienable presence; and all its efforts are concentrated upon re-achieving a direct and primitive contact with the world, and endowing that contact with a philosophical status. It is the search for a philosophy, which shall be a ‘rigorous science’, but it also offers an account of space, time and the world as we ‘live’ them. It tries to give a direct description of our experience as it is, without taking account of its psychological origin and the causal explanations which the scientist, the historian or the sociologist may be able to provide” (Merleau-Ponty, 2005, p. preface vii).

Importantly, *eidetic reduction* is neither induction nor deduction, nor is it abstraction; it defers from the actual existence of object, subjects and other substantive measures – rather it holds the experience itself, bracketing it in process of elucidation.

So the researcher begins with the as-lived experience and then engages in a significant discourse around this experience, and thus unravels the essence of that thing by understanding its intentionality – “consciousness is only consciousness when it is turned towards an object” (Sadala & Adorno, 2002, p. 285). We may further venture that consciousness is only consciousness when it is turned towards an object from a background of experience, or from a Self. Thus Husserl defines phenomenology as *the descriptive science of the essences and actions of consciousness* (Sadala & Adorno, 2002).

Merleau-Ponty in his existential phenomenology extends Husserl's work significantly – it is existentialist because it conceives of people acting within a pre-existing given world. He explains phenomenology as the study of essences, but argues that these essences present themselves to a historical self. He “proposes the task of returning to *the very thing* in a search for the essences of objects, their qualities, but seeing these as part of the lived and experienced world, which is a world of things that have not been reflected upon, and on which sciences are constructed upon” (Sadala & Adorno, 2002, p. 286). A fundamental point here is that truth is not found in the inner space of ‘man’ because this inner space is not there – rather we are people in the world, and truth is made through our engagement with the world. This worldview does not deny the inner world as empiricists do, nor does it deny the outside world as idealists do – but rather it transcends the traditional notions of a self-contained consciousness:

“The prereflexive, lived experience of a human being in the world (*eˆtre-au-mond*) in the sense of being thrown into the world, with its intentionality, in an already-existing world, ready but not thoroughly ready – these are the founding conceptions of Merleau Ponty's phenomenology, which seeks to understand people as beings in a situation, never fully free but in a world never fully finished either: being born is simultaneously being born from and in the world. The world has already been formed, albeit never completely. However, this analysis is still abstract because we exist in both relationships simultaneously. There is never either determinism or full choice; I am never a thing nor pure consciousness” (Sadala & Adorno, 2002, p. 286).

This underlying incompleteness is the fundamental proposition of Merleau-Ponty's phenomenology: that things are in an ongoing dialectic between universal and private worlds. Merleau-Ponty further proposes that the body is the anchor between these two worlds – the body itself is the interface of this engagement. Therefore there is a dialectical relationship between the body, as a body of apprehension, and the world in which it finds itself (cf. Autopoietic model). The conditions of the world do not have a deterministic relationship with this body but rather limit the possibility of action. People use this dialectic to afford themselves a level of self-determinism – this is the

fundamental existential proposition – that of an overarching responsibility for one’s own existence (and the world one finds oneself immersed in).

This dialectic relationship between perceiving the world and being in the world proposes that we are simultaneously perceiving the world and perceiving ourselves; it is from this perceptual dialectic that we are thrown into the world. Merleau-Ponty calls this *dialectics without synthesis*, or what we may interpret as the ambiguity and incompleteness of things. There is no absolute truth, nor are there certainties, nor is there universally applicable knowledge – rather the question and the investigation remain open and in transformation (Sadala & Adorno, 2002). This is a perpetual movement of meaning making, and so people are seen as eternally becoming, in a dialectic without synthesis.

“By relating with the world’s objects, beings and things, a person is a being who perceives the world from different standpoints depending on the situation in time and space, who perceives particular perspectives that vary accordingly to the perceptual field – which is a horizon, that is, the place of perceptual experiences. We can perceive objects from different places, at different moments” (Sadala & Adorno, 2002, p. 287).

This realization of *eternal becoming* points to a new reckoning of experience, one in which self and world are fundamentally intertwined, woven into a continuum, a dance between self, other and world. This suggests that upon a continuum of change we impute the notion of a stable self, and further we impute the boundaries of self and the world outside it.

We may understand a self then to be that on-going process of uniting these perspectives into a continuum. Then when we engage in the world, and engage in the worldviews of others, these multiple subjectivities affect each other and limit each other – creating an *objective-subjectivity*. This is a key insight, for it leads us to see that any objective experience of the world is founded in our own intimate understanding of it – it is this *intersubjectivity* which co-creates the world in a worldhood of relationships and interdependent meanings.

“Probably the chief gain from phenomenology is to have united extreme subjectivism and extreme objectivism in its notion of the world or of rationality. Rationality is precisely proportioned to the experiences in which it is disclosed. To say that there exists rationality is to say that perspectives blend, perceptions confirm each other, a meaning emerges. But it should not be set in a realm apart, transposed into absolute Spirit, or into a world in the realist sense. The phenomenological world is not pure being, but the sense which is revealed where the paths of my various experiences intersect, and also where my own and other people’s intersect and engage each other like gears. It is thus inseparable from subjectivity and intersubjectivity, which find their unity when I either take up my past experiences in those of the present, or other people’s in my own (Merleau-Ponty, 2005, p. xxii).

Classical phenomenology has recently gained a newfound wave of interest and applicability (Lawlor, 1998). We could infer that this has occurred due to a greater interest into the complexity of precisely this *intersubjectivity* and due to a desire to gain a more profound exploration of it. So, has phenomenology succeeded in fulfilling this?

Deleuze (1994) has confronted classical phenomenology with two oppositions with regard to this theory of intersubjectivity. These are the challenge of *immanence* and that of *difference*. The challenge of immanence is in what Deleuze has called the *univocity of being* – or that there is no two-world ontology, that essence does not lie outside presentation or appearance. We see that much of phenomenological inquiry alludes to this: that as we delve into a world of subjective appearances, rather than recovering some essential nature, we find an infinite set of interlocking and interdependent meanings that are reliant on each other. So rather than finding an integral principle or essence of a phenomena, we find a thread within a much larger fabric of experience. Moreover we find that the phenomenological stance fundamentally explores this immanence as the unraveling of the self – which itself undermines the transcendental approach of phenomenology:

“Interestingly we find that the challenge of immanence indeed is the exact starting point of the phenomenological inquiry the challenge of immanence, however, appears to be nothing less than the challenge with which

phenomenology confronts traditional metaphysics; the *epoche* is a process in which one switches off the belief in things in themselves in order to arrive at a plane of immanence: being is phenomenon. Despite this similarity, Deleuze argues that phenomenology reinstates a dative; it relates the plane of immanence back to a subject that constitutes the given (Lawlor, 1998, pp. 15-16).

Here Deleuze argues that because the phenomenological inquiry is grounded in a subject that it aims to transcend, it necessarily undermines immanence. The whole transcendental argument is reliant on a subject to which a thing is being unravelled – but Deleuze (1994) asks “how can there be a given, how can something be given to a subject, and how can the subject give something to itself?” . Therefore the critique is empirical because after situating ourselves in a purely immanent point of view we ask ourselves, how is the subject constituted in the given? This questioning is what Deleuze calls *radical empiricism*.

The second challenge, that of *difference*, takes its inspiration from Heidegger:

“According to Heidegger’s ontological intuition, difference must be articulation and connection in itself; it must relate different to different without any mediation whatsoever by the identical, the similar, analogous or the opposed. There must be a differentiation of difference, an in-itself which is like a *differentiator*, a *Sich-unterscheidende*, by virtue of which the different is gathered all at once rather than represented on condition of a prior resemblance, identity, analogy or opposition” (Deleuze G. , 1994, p. 117).

Here Deleuze asserts that the difference is not to some essential nature but to the simulacrum itself – it cannot be the difference of some generality, ideal or essence. According to this there must be heterogeneity between ground and grounded; the ground must be different from that which it grounds.

These two challenges bring us to Deleuze’s *transcendental empiricism* – that infers that experience is always in the process of exceeding our concepts by presenting novelty. It is the role of philosophy then, not to pursue an essential nature, truth or universalis, but

to create new concepts. This generative process is engendered by a primal *encounter* with the world – ‘something in the world forces us to think.’

The fundamental point relevant to our investigation is in the explication of essences, whose description and analysis is the core of our methodology. Deleuze’s critique of phenomenology then does not necessarily ask us for an abandonment of essences but a reawakening to them. Rather than positing an essential nature, he asks to see them as the simulacrum itself, repeated and concreted through perceptual acts. So rather than uncovering some fundamental *logos*, we are rather uncovering an eternal thread – what Hofstadter and Sander (2013) have termed an *n-dimensional knot (or a tangled hierarchy)*, or what Deleuze and Guattari term a *singularity* within a structured field of possibilities.

As we explore this realization we gain an understanding that creativity is an ontological imperative. Further we see that intuition and sense function as the movement of creation – to resolve what is experienced (empirical) to that which is asking to become (transcendental). This process is at its heart is abductive inference, what we may propose in this context as the ultimate goal of the researcher, innovator and entrepreneur.

From a methodological perspective, our investigation is phenomenological in that it is exploring the as-lived experience. However instead of an attempt to uncover the essential nature of business model innovation we are rather trying to 1) understand the experience as one that lies at the intersection of a set of ontological narratives, 2) be present to this experience in its totality – being present to that which the world is asking us to do, and 3) transcribe this experience, not as a sterile artefact that has long forgotten the life of experience, but as a generative, creative act.

In this way our methodology is distinctly Deleuzian and this is not odd for it follows the lineal succession of the phenomenological tradition to that of transcendental empiricism.

## Business Models

The term ‘business model’ is comprised of two concepts: ‘business’ and ‘model’. ‘Business’ refers to a set of value-generating activities, the equipment that enable these activities, the identities that carry out these activities and the overall purposes they pursue. Moreover what is implied by ‘business’ is also the coordination of these in a *style* of organizing (Spinosa, Flores, & Dreyfus, 1997). A ‘model’ is way of representing these activities, identities, purposes and their overall coordination.

Importantly, we are interested here in the relationship between experience and its representation. There are three further concerns here 1) what is the epistemological process of modelling? 2) How does representation capture meaning, experience and sense? And 3) how does this process engender systemic change and *history making*?

At its essence a business model is a representation of a set of phenomena relevant to the enterprise it is describing – a conceptual model. Although its purpose(s) may be varied, it is fundamentally a representation that consolidates shared values and generates common meaning, and gives the sufficient reason for action (strategic, tactical and operational action).

This reveals a far richer reckoning of what we call a ‘business model’, and we may propose that the noun ‘model’ is largely a misnomer, for an object in of itself does not have the necessary currency to create meaning. Rather we are seeking to describe an underlying ‘ongoing creative organizing’ and its concretion and crystallization into a legitimate and understandable taxonomy. To be more precise, we are describing the perceptual acts of the intervener and his ability to *affect* history.

From this perspective we may venture that that the traditional conception of both businesses and the models that describe them needs a more relevant appropriation ... but an appropriation from whom and to what? Spinosa, Flores, & Dreyfus (1997) suggest that we have inherited a legacy on instrumentality, a technical rationality founded on a Cartesian view. This Galilean tradition has given birth to the modernist era, which has turned thinking away from an existential inquiry to one that is inert and detached.

In contrast to this we find ourselves amongst an emerging postmodern, hyperreal world; the ground of meaning that allows us to develop an overall sense of purpose, identity and integrity has been challenged by the advent of a new virtual sphere of social interaction (Spinosa, Flores, & Dreyfus, 1997). This has had two consequences (Spinosa, Flores, & Dreyfus, 1997) – 1) we are developing practices for enjoying change for its own sake and 2) this improvisational way of being challenges the development of any stable meaningful identity within society.

In the introduction to *Disclosing New Worlds*, called *History or the End of History*, Spinosa et al. (1997) suggest that we find ourselves lodged between two ineffectual, unproductive and non-historical paradigms: that of the modernist legacy of reductive explanation and that of the post modern *anti-historical* future. We are faced with the choice to either deny our histories passively or resign ourselves to the futility of merely coping with the emerging future (Spinosa, Flores, & Dreyfus, 1997).

Interestingly we find the basis of the modernist tradition is positivist, and in violent reaction to this technocracy, we now witness the birth of a nihilistic cultural disposition. Here, it is important to draw the link between these two ontologies. The positivistic regime is concerned with the systematic eradication of the human subject in the search for forever more abstract assertions about reality. In this process we have also systematically disempowered individuals and societies to act systemically, purposefully and meaningfully. Following this understanding, we could venture that these two paradigms are in fact two sides of the same coin – that of existence and non-existence.

The key to finding the resolution between these two dissonant ontological stances lies in the concept of history – a thing's historical contingency validates the existence of it. Things do not exist independently but neither do they lack existence completely – they emerge as relational entities within a worldhood (Heidegger, 2011). To take this thinking further, history validates identity and purpose, providing the necessary reason to take purposeful action.

Spinoza et al. (1997) maintain “the choice for us now is between the style of flexibility toward which we seem to be drifting and resuscitation of our historical skill. Almost every action each of us in the West takes draws us one way or the other. We need to develop sensitivity to where we are going if we are to make choices instead of just following the drift” (p.15). Spinoza et al. (1997) call this type of action *history-making*: the skill that underlies entrepreneurship, citizen action and solidarity cultivation.

But what exactly is *history making*? To gain this understanding, we acknowledge that this text (*Disclosing New Worlds*, 1997) has its foundations in Heideggerian philosophy. Three Heideggerian concepts are relevant here – *background*, *thrownness* and *breakdown*. History making then is the ability to *affect* the pre-reflexive state (or *background*) of a situation by seeking and articulating *breakdown* of *thrownness*.

Let’s explore this a little further. Spinoza et al. (1997) use the example of the feminist movement in the last century. They maintain that the real value of this movement was not in only changing the way we think about woman in our society, but primarily in how the feminist movement has affected the pre-reflexive state of societal perceptions: “feminism has changed the way we see women *prior* to our reflexive judgments. Such changes at the heart of perception are the ones we designate as *history-making*” (Spinoza, Flores, & Dreyfus, 1997, p. 2).

The next question is, how do these changes happen, or more specifically, how do we attempt to engage in this profound change? The answer is a distinctively existential turn, emphasizing the roles of identity, purpose, passion and situatedness (Spinoza, Flores, & Dreyfus, 1997). The central point here is that our current notions of reality give us no room to become the empowered history-makers we should be – they are either dominated by inflexible modernist concepts or the ineffectual postmodern disposition.

Spinoza et al. (1997) propose that what is needed is a set of perceptual tools (founded on Heideggerian philosophical concepts) that help us disclose much more about our world, and what action that world is calling us to do. Moreover they maintain that our lives are at their best when we imbibe this phenomenological experience-first disposition.

“In a general sense we try counter the tendency to look at human experience from the point of view of individual agents who generate action and instead look at common human practices and skills into which we are socialized and that in turn produce people, selves and worlds. The basic intuition, then, is that shared human practices tend to gather together into organizations we recognize as worlds, peoples and selves. Once those organizations gain consistency and effectiveness, we as people and selves bring them into sharper focus...” (Spinosa, Flores, & Dreyfus, 1997, p. 16).

Spinosa et al. (1997) term this underlying structure of existence ‘the ontological structure of everyday history-making’. They go further to describe a disclosive space as “any set of practices for dealing with oneself, other people, and things that produces a relatively self-contained web of meanings” (Spinosa, Flores, & Dreyfus, 1997, p. 17) – a set of interlocking and interdependent meanings that allow the world to ‘show-up’. This worldhood containing equipment, identities and purposes is coordinated in a more than equipmental manner – this overall coordination of the system is what allows things, people and selves to show up as meaningful (Spinosa, Flores, & Dreyfus, 1997).

Following this Spinosa et al (1997), propose *articulation*, *reconfiguration* and *cross-appropriation* as processes in which we may facilitate profound change within this overall coordination of practices (Spinosa, Flores, & Dreyfus, 1997). What makes this change plausible is that it is *historical*, in other words that it is historically contingent. Therefore meaningful, purposeful and inclusive change aims to facilitate continuity through the elicitation of new meanings (Spinosa, Flores, & Dreyfus, 1997). This is change that is facilitated as an emergence rather than that which is imposed or supplanted, which we may call *discontinuous change*.

Following this we can begin to fathom the extent of our role as history-makers and particularly our role as disclosers. Spinosa et al. (1997) call the ability to be sensitive to the disclosing one is doing as *disclosing that one is a discloser*. They maintain here that there is fundamental difference between those of us who consciously act as disclosers and those of us who do so passively:

“We engage in disclosive activity all the time, whether we are aware of it or not, whenever we deal with things or people (disclose them) *as* the things or people that they normally are in our culture. But we are *only* sensitive to disclosing as our way of dealing with things and people when we are engaged in articulating, reconfiguring, or cross-appropriating. When we engage in these history-making activities, we are engaging in changing the coordination in the practices of some domain we inhabit, and then we are dealing with ourselves as the kinds of beings who can disclose things, people, and selves in various ways, coordinated by various styles. Normally we simply deal with ourselves and the people and things around us according to the role we happen to have. On reflection – of the sort in which we are engaging in here – we may be able to deduce that we can deal with or disclose ourselves in a variety of ways, but only in history-making do we actually deal with or disclose ourselves as disclosers and not, for example as Cartesian subjects with a substantive nature” (Spinosa, Flores, & Dreyfus, 1997, p. 29).

This excerpt is centrally relevant to our investigation as it points directly to the phenomena that we are trying to understand – the lived experience of the discloser. So from a perspective of methodological considerations, we are concerned with describing the experience of the discloser in articulating, reconfiguring, or cross appropriating in this process of history making.

In addition this research attempts to shed light on why this ability to disclose has remained hidden for so long. Spinosa et al. (1997) propose three reasons for this. Firstly those structures (cf. Heidegger’s *forestructures*) of commonsense, and in particular the ontological assumptions on which this common-sense emerges, limit our ability to be sensitive to our role as disclosers. What they are not saying here is that this common-sense is not without purpose; in fact common-sense is the very thing that allows us to operate within a domain – “we are indebted to this common-sense understanding, for without it our practices would lack coordination and our lives would lack meaning and direction. But the common-sense practices that make our lives intelligible cover up the fact that everyday common-sense is neither fixed nor rationally justified” (Spinosa, Flores, & Dreyfus, 1997, p. 29). This points to the realization that a ground of intelligibility is not a fixed thing but is based solely on a set of shared practices, social

norms and shared language. This is a key phenomenon of our investigation – there is no *right* way of doing things rather they are socially inscribed. Moreover this realization makes change, development and innovation possible.

Secondly there is a structural reason for this blindness (Spinosa, Flores, & Dreyfus, 1997): “once we become habituated into a style it becomes invisible to us” (p.29). Due to this blindness we are not aware of style, other styles and how they intersect in our world(s). In fact, this does not afford us the choice to be empowered disclosers; we are simply subservient to some dominant style. Also when we encounter other people we engage them within the confines of our own hermeneutic machinery – we ask them to explain themselves in terms we can understand. “In this way, our very concern with coping successfully with things (which always includes coping with other people) motivates us to bring others under the dominance of our style. We thus unwittingly inculcate others in that style while remaining focused on coping with everyday life” (Spinosa, Flores, & Dreyfus, 1997, p. 30).

The third reason is particularly profound, “because we do not cope with our culture’s or company’s or generation’s style directly – we have no *direct* way to handle it or come alive to it and transform it,” and this is primarily because, “we are interested in the things we disclose and not in the disclosing” (Spinosa, Flores, & Dreyfus, 1997, p. 30). It is this last point, which is most relevant to this investigation because we are not inquiring into business models per say but rather into how they may be disclosed.

From this perspective we find that what we are asking is for is a broader scope of perception – a broader scope of what is relevant – coupled with a newfound sensitivity to the marginal, occluded and unusual. We could venture that this *inclusivity* - of being coupled with a view of things as *becomings* - is the foundation on which to create purposeful and meaningful societal change; what Spinosa et al. (1997), call “entrepreneurship, citizen virtue and drawing people together into a community” (p.30).

“This sensitivity generates the art, not the science, of invention in business, interpretive speaking, not persuasive speaking, in politics, and the courageous acceptance of

cultural circumstances, not utopian hopes, that creates solidarity” (Spinosa, Flores, & Dreyfus, 1997).

So in exploring a somewhat sterile notion of ‘business model’ we see that what is more relevant to our investigation is to see these models as concretions of an activity of *existential venturing* (cf. Johannison, 2013). However, these are not merely concretions but creative and generative acts that in turn engender further trajectories of thought and create new syntheses of shared meaning. This is what Deleuze & Guttari (A Thousand Plateaus, 1988) would name as the process of stratification, or the emergence of the striated from the nonmetric, smooth intensities of the immanent.

## **Innovation**

Lastly, ‘innovation’ is a term liberally used within contemporary culture, and concomitantly is an emerging field of study within business management sciences. And so we have many claimants to the title but few that define it comprehensively; therefore we should aim, at best, to venture a contextual definition.

We may propose that innovation is concerned with creativity and in this context how creativity may be applied to business models in two ways: 1) to adapt current value generating mechanisms to the emerging needs of the markets and societies they serve, or 2) to conceive disruptive or novel value propositions that engender new (and more inclusive) social dynamics, and the new markets they generate. Ultimately however, we may propose that innovation is a form of co-creative leadership that deals with the unknown, with an emerging future – what Scharmer (2013) calls ‘leading from the emerging future.’

Scharmer & Kaufer (2013) articulate that we have entered an age of disruption, one that affords critical choice as a global culture:

“Our moment of disruption deals with death and rebirth. What’s dying is an old civilization and a mindset of maximum “me” – maximum material consumption, bigger is better, and special-interest-group-driven decision

making that has led us into a state of organized irresponsibility, collectively creating results that no one wants... What is being born is less clear but in no way less significant. Its something that we can *feel* in many places across Planet Earth. The future is not just about firefighting and tinkering with the surface for structural change. It's not just about replacing one mindset that no longer serves us with another. It's a future that requires us to tap into a deeper level of our humanity, of who we really are and who we want to be as a society. It is a future that we can sense, feel, and actualize by shifting the inner place from which we operate" (Scharmer & Kaufer, 2013).

Following this, Scharmer & Kaufer (2013) propose that this ability – to presence this emerging future possibility – is at the core of innovation leadership work today. This is the work that will facilitate the movement from ego-system to eco-system. It is a shift from a place of concern with oneself to that of a concern for the whole. This age of displacement and disruption then is the indication that the current *habits of thought* and the *actions* they engender are insufficient to create this evolutionary change.

Scharmer and Kaufer (2013) propose that the symptoms of this disruption show themselves in three divides – 1) the ecological divide, 2) the social divide and 3) the spiritual-cultural divide.

The ecological divide is the systemic pathology of how we continue to deplete our natural resources on a massive scale – we are depleting our natural resources at 50% more than our planet can regenerate. The social divide can be seen by the incredible poverty we now experience as a global community with more than two and a half billion people living below the poverty line. Simultaneously we see the polarization of wealth, with the top 1% having more wealth than the combined wealth of the 90% below them. The most profound insight here is what Scharmer and Kaufer (2013) call the socio-cultural divide. This divide reflects a fundamental disconnect between self and the emerging future Self, which represents one's greatest potential.

There are 8 systemic disconnects (Scharmer & Kaufer, 2013) that give rise to these symptoms and great divides:

1. A disconnect between the financial and the real economy – this disconnect represents the damage speculative investments have had on the economies of the world
2. A disconnect between the infinite growth imperative and the finite resources of Planet Earth
3. A disconnect between the haves and the have nots – the increasing polarization of wealth has not allowed the creation of equal opportunities while limiting access to basic public service
4. A disconnect between institutional leadership and people – this disconnect refers mainly to overall failure of leadership to be collaborative and co-creative, while creating an overall sense of helplessness and disempowerment
5. A disconnect between gross domestic product (GDP) and well being – this disconnect refers to a bubble of material consumption that is not in anyway related to greater sense of improving the basic well being of individuals
6. A disconnect between governance and the voiceless in our systems – the current governance structures fail to serve the people who they espouse to serve, rather the governance structures keep disempower the voiceless further
7. A disconnect between actual ownership forms and the societal use of property – both private and state use of property are not used in ways that serve the broader ecosystemic and ecological needs
8. A disconnect between technology and societal needs – this disconnect refer to the technology bubble which is centered on serving an elite few in an already overserved market. What is need is the leveraging of technology to deal with broader social impact issues

These structural pathologies are indicative of a system with delayed or even broken feedback loops – this does not allow learning to take place and also does not allow decision makers or leaders to truly understand the extent of their actions. As result change happens very slowly, if at all.

Although these structural pathologies are central to the overall failure of many global socio-economic systems the real problem are the mental models underlying them. We have inherited a set of thinking practices and logic(s) that reinforce the traditional economic operating system. What is needed then is an upgrade of our economic thought

– we need to update the essence of economic logic and thought (Scharmer & Kaufer, 2013).

Scharmer and Kaufer (2013) propose four levels of the evolution of economic thought:

- 1.0: The state-centric models, characterized by coordination through hierarchy and control in a single-sector society
- 2.0: the free market model, characterized by the rise of a second (private) sector and coordinated through the mechanisms of market and competition
- 3.0: the social- market model, characterized by the rise of a third (NGO) sector and by negotiated coordination among organized interest groups
- 4.0: The co-creative eco-system model, characterized by the rise of a fourth sector that creates platforms and holds the space for cross-sector innovation that engages stakeholders from all sectors.

Scharmer & Kaufer (2013) suggest that we accept existing economic law as natural law, but that these mainstream economic notions transform when the quality of awareness within the system is transformed. Therefore to explore the evolutionary trajectory through these economic systems we must move the awareness within the system from ego-system to eco-system. This means three fundamental processes (Scharmer & Kaufer, 2013) – 1) a better relating to others; 2) a better relating to the whole system; and 3) a better relating to oneself.

These three processes require participants to go to *the edges of the system* (Scharmer & Kaufer, 2013). This means engaging with those things which would traditionally seem unimportant or irrelevant, to seek out the unusual and irregular parts of the system for indication of its evolutionary change.

“Exploring the edges of the self means shifting the inner place from which one operates. It means opening the mind, the heart, and the will. It means suspending old habits of judgment. It means empathizing. And it means letting go of what wants to die in oneself and letting come what is waiting to be born” (Scharmer & Kaufer, 2013).

Fundamentally this brings us to the main proposition here, “that the success of the intervention depends on the interior condition of the intervener” (Scharmer & Kaufer referencing Bill O’ Brien, 2013).

From a systemic point of view, this means that the behaviour of a system cannot be transformed unless we transform the quality of attention that people apply within the system.

“The quality of results produced by any system depends on the quality of awareness from which people in the system operate. The formula for a successful change process is not “form follows function” but “form follows consciousness,” the structure of awareness and attention determines the pathway along which a situation unfolds” (Scharmer & Kaufer, 2013).

One way of engaging with this consciousness is through the practice of presencing. Presencing is a word that combines *sensing* and *presence* – *sense* refers to the future possibility while *presence* is the state of being present in moment. Presencing then means “sensing and actualizing one’s highest future possibility – acting from the presence of what is wanting to emerge” (Scharmer & Kaufer, 2013).

The principles of presencing are as follows (Scharmer & Kaufer, 2013):

1. Energy follows attention – wherever you place your attention that is where the energy of the system will go.
2. Follow the three movements of The U
  - a. Download and immerse yourself in the places of most potential
  - b. Retreat and reflect, become present to what wants to emerge
  - c. Act in an instant – develop a prototype, a small easily-constructed idea of what might be emerging
3. Go to the edges of the self – this awareness based technology asks us to operate with three characteristics – 1)an open mind, 2) an open heart and 3) an open will. With an open mind we can suspend old beliefs, with an open heart we can empathize and with an open will

4. Pass through the eye of the needle – at the heart of the presencing work is asking for a fundamental transformation – to connect with your best possible future Self and also with what Work you need to engage in to get there
5. Transform the three enemies – 1) The voice of judgment, 2) the voice of cynicism and the voice of fear
6. Always start by *attending the crack* – look for the opening for what is trying to emerge in front of you.
7. Hold the space for transforming the fields of conversation – from debate to dialogue to collective creativity
8. Strengthen the sources of presencing in order to avoid the destructing dynamics of absencing.

### **Lenses of Intervention**

The method employed here involves three basic processes – 1) the encounter with the experience itself, 2) being present to this experience and 3) the transcription thereof. The aim here is to describe the phenomena of the business model innovation process in a rich and generative manner. In particular we are interested in describing the epistemological processes of presencing (Scharmer & Kaufer, 2013) within a complex and uncertain environment.

Given the above discussion, the following major conceptual themes construct the lenses of the intervention. It is important to note here that these lenses construct a overall structural approach to the intervention(s), but are not all simultaneously applicable. They are documented here to orientate the reader to the latter part of the thesis, which is centred on exploring the phenomena encountered, due to this structural disposition

#### The As-Lived Experience

The phenomenological method's primary object is to describe the full structure of the experience lived. As this research is primarily qualitative, generalizations are not intended here; rather attention must be paid to how phenomena appear and then to what they mean contextually.

The first step is the phenomenological description, and is intended to give rich description of the participant's experience:

1. What are the phenomena that present themselves?

The second point is phenomenological reduction, a critical reflection on this experience:

2. Keeping this description in its original format the researcher attempt to keep it in brackets (*epoche*) – to try to bring to focus the essence of what is being described
3. The next stage involves a radical gestalt view– how can we look at the totality of experience here while exploring the transempirical relationship between subject and object
  - a. What is the intentionality of consciousness?
  - b. What emerges as significant and salient within this context?
  - c. What are the *units of significance* (Sadala & Adorno, 2002)?

The next stage focuses on the prereflexive state, or the world that exists prior to reflection:

4. How is the world *pregiven*
  - a. What is the ontological structure of the everyday
  - b. The main aim of this stage it understand the intervention in terms of the scientific inquiry – how are everyday features and overall coordination of the system relevant?

The third stage is phenomenological interpretation, in which the four stages of hermeneutic procedures are identified:

5. Locating those elements which are explicit and those things which can be uncovered through the description itself (Sadala & Adorno, 2002).

6. The radical cogito (Sadala & Adorno, 2002) – the researcher’s effort to uncover the phenomenon’s totality – it’s gestalt.
7. The understanding of preconscious phenomena
8. The final result of the hermeneutic judgment, that is related to the meaning of the phenomena that is uncovered in the research process

Existential phenomenology then asks the relevance of the phenomena to a fundamental existence of the being experiencing it.

9. This existential phenomenology, “ focuses on this person’s conscious experience, which allows epistemological limits to be defined – that is, determining the way subjects know about their own experience – at a descriptive level. By using logical inferences, reduction of the conscious experience enables the researcher to locate those elements of meaning that are empirically present in the situation and are perceived and expressed through the participants’ discourse” (Sadala & Adorno, 2002, p. 291).

Transcendental Empiricism asks specifically how experience has engendered thought:

10. What is asking to be created or born?
11. What is this field evolving to and what has it evolved from?

### Business Model

In the process of understanding businesses as socially embedded organization, the following framework will be used to facilitate our role as *disclosers*:

1. What are the equipment, purposes and identities relevant to the inquiry?
2. How are these organized in an overall style and/or coordination?
3. How may we apply the processes of articulation, reconfiguration and cross-appropriation to create historical *continuous* change?

## Innovation

In the process of systemic evolution, the following framework will be use to facilitate our role as co-creative leaders:

1. How is the observed systemic phenomena related to the three divides (Scharmer & Kaufer, 2013)
2. Which of the eight structural disconnects are relevant to the social phenomena being described (Scharmer & Kaufer, 2013)?
3. How may do we improve the overall quality of awareness within the system to facilitate the evolution of societies from 1.0 to 4.0?
4. How may we apply the *principles of presencing* to raise the awareness within a group of people to affect the overall system?

### **A Note on Writing Methodology**

It is centrally important at this point to describe the structure of this work in its assemblage, goals and medium of explication. Although the general structure of this work shows a somewhat traditional structure – that of Introduction, Methodology, Literature Review and so on – the pieces of the work have been written in different spaces of time and from differing contexts. The linear structure presented here in in this way, is purely ornamental. Furthermore the reader when engaging in this work is unlikely to read it from beginning to end. Rather readers will scroll though, navigate through the contents page or search for words. It is these aspects that I wish to not ignore in the writing and presentation of this text.

In this way both the writer and reader stumble upon, reconfigure and search for meaning in a non-linear manner; and so it is the aim of this piece of writing to emphasise this – by not suppressing this innate organic configuration. Following this understanding, there are two Deleuzian concepts that are relevant here: the first is the *rhizome* and secondly the *assemblage*. The concept of *rhizome* in Deleuze's work emphasises that wholes (moments of individuation) emerge from intensive difference; moreover that

these differences come together in a rhizomatic fashion, In particular, a *rhizomatic structure* is contrasted to an *arborescent structure*. The arborescent structure has a system of roots (its foundation) and a trunk that gives rise to a series branches and smaller branches; and then eventually leaves and fruit. Deleuze and Guttari use this as a central analogy of Western thought, from the Aristotlean tradition to modern scientific thought – which knowledge is built in *developmental manner*. To explore this further, this analogy for as epistemological system highlights a few insights:

- Knowledge is built on a set on first principles (ontology), which are the foundation upon which new knowledge can be created (epistemology)
- This knowledge is built in a developmental manner, structurally building new concepts based on interpretation of experience through basic ontological and epistemic principles
- This structure has a definitive beginning and definitive end and is ordered in a hierarchical form
- Most distinctly this knowledge is an imposed structure – it is an ideal form of which research is expected fulfil

A rhizome in contrast is a horizontally branching underground stem that expands in a disjunctive and striated manner. Its major operation is in establishing connections to its immediate environment, forming assemblages that due to their virtual properties bring about emergent phenomena. As Deleuze and Guttari say:

Any point of a rhizome can be connected to anything other, and must be.... A rhizome ceaselessly establishes connections between semiotic chains, organizations of power, and circumstances relative to the arts, social sciences, and social struggles (1988, p. 7).

From this perspective we could venture the following points as the basic ‘form’ of a *rhizome*:

- Rather than proposing axioms or first principles, a rhizome’s ‘first principles’ are that first principles can be and must be established. In this way the ontological assertions are not to first principles but to that which allows first

principles to form. This is a core theme in this work and we explore this notion as *groundlessness, emptiness, interdependent origination*; and in the case of Deleuze and Guattari, *difference-in-itself*.

- Furthermore knowledge is built within a context of understanding, specifically from understanding things as *emergent* and *historically contingent*
- An important aspect of rhizomatic forms is that they are dependent on intensive differences within a field of intensities – that these differences *produce* novelty, autonomy and organization

The last point to see in this contrast is that *arborescant* structures *emerge* from *rhizomatic* interactions. The mistake of the Aristotlean tradition was not in depicting ordered, regular forms but in the understanding that these forms are eternal and ideal. Rather they emerge particularly from the differences within the historical context of the emergent phenomena.

So in writing this work, I have aimed to not try ‘smooth over’ the rough edges between many heterogeneous philosophical, methodological and domain specific systems. Rather I have assembled the parts of this work as I have read and understood them – as an assembly of different lands, some more exotic and others well travelled. Each of these systems has their own basic ontologies, knowledge generating and sense making machinery – domains of experience. The rationale for this is that this *ontological relativity* is the exact problem of the innovator and high value decision maker must deal with. Therefor in disrupting the notion of arborescence, I am aiming to reveal an underlying isomorphism between *rhizomatic production*, innovation and philosophical writing (or what Heidegger would call *thinking*).

This brings us to the second Deleuzian concept, *assemblage*. This concept in essence describes a relational structure whose constituent parts give rise to emergent properties; moreover these cannot be reduced to the properties of its parts. In writing this work, I had to foster a deep coupling with the several different *mediums*, forming assemblages that afforded different experiences, insights and perspectives – the phenomena of the process. It is these phenomena that I have attempted to transcribe here.

What I noticed is that these phenomena were not limited to immediate practical engagement with the innovation projects, but that some phenomena emerged in retrospect while reading a certain philosophical text, for example. So although this text is divided into three sections Ontology, Epistemology and Phenomenology; the phenomena, which I aim to articulate, occur embedded and interwoven within the text. This is significant because instead of formulating propositions and claims that are a result of a structured research programme (built on a set of axiomatic truths), the object of this work is the *space between*.

Therefore in reading this, the reader forms an assemblage with the text – bringing one's own sense-making apparatus to bear upon the conceptual architectures of the text. In so doing new concepts are created due to the new assemblage; if the reader becomes aware of this *in itself*, they would have revealed the object of the work.

I would like to make one further appropriation of Deleuzian philosophy, that of territorialisation. Deleuze articulates the self, world and environment as a process of mutual codification and transcription. In this way our apperceptions, beliefs and perceptions are the result of a territorialisation of what he calls a field of immanence or intensities. In the writing of this, I underwent a process of *deterriorialisation* – the process of deconstruction of ontological and epistemological assumptions. Then through the process of reconfiguration due to these experiences of dissolution, a *re-territorialisation* is required. This is akin to the alchemic notion of *Solve et Coagula* (dissolve and coagulate) – that the process of dissolution and then (re)formation creates resilience, adaptivity and tensesgrity. This is the fundamental evolutionary operation in concepts and ideas, philosophies, individuals, societies and species – it is the central aspect of innovation.

In this way, this work should be read experientially and not only explicitly- it is hoped the reader will allow to be taken with the text. The work has been written then as a mechanism of *deterriorialisation* and *re-territorialisation*, to create the tension for the reader to explore the innate truth of creativity within them. Therefore the basic form here is a form of disclosure, whose fundamental aim is to unconceal *thinking* in the context of innovation. I have aimed to steer clear of a clear set of propositions and claims (a closure) – in favour of the construction of ‘an opening’.

Lastly if we are to take this as a 'formal system', then we see that if we propose a set of axiomatic truths and then also definitive conclusions we limit the resilience of the system. Rather if we acknowledge the *incompleteness* of the system, our aims are centrally that of ontological design. This is the design of the generative mechanisms from which a domain of experience is produced. Therefore this work's most important aim is to construct ontology, but specifically to construct an opening within metaphysics (a deconstruction in metaphysics).

## **On the Ontology and Epistemology of the Research**

The compilation of the literature review has been directed by a pragmatic inquiry into the experiential dimension of business model innovation. Initially the research began as an investigation into current methods of business model innovation. This process assembled a repertoire of thinking styles, methodologies and philosophies to ground the innovation practice, which will be explored in the second section of the Literature Review, titled 'Epistemology'.

It soon became apparent that these models of innovation, while explaining the process of innovation, fell short of describing the true experience and cognitive state of the innovator. Therefore, the first part of the literature review will explore *thinking* through a practice-directed inquiry into the nature of being – titled 'Ontology'.

It is this relationship between ontology and epistemology, which lies at the heart of our journey. Moreover what has emerged within this research is an intimate braiding of these two fields of study resulting in the understanding that the nature of *being* is *becoming*, and moreover that a theory of knowledge is indeed, a theory of being.

Zizek (2004) articulates this well:

“The traditional opposition between epistemology and ontology should be left behind. It is no longer that we, Subjects of a scientific investigation engaged in a difficult path to getting to know objective reality by gradually approaching it, formulate and solve problems, while reality is just out there, fully constructed and given, unconcerned by our slow progress. In a properly Hegelian way, our painful progress of knowledge, our confusions, our search for solutions, that is to say, precisely that which seems to separate us from the way reality is out there, is already the innermost constituent of reality itself. When we try to establish the function of some organ in an animal, we are thereby repeating the objective process itself through which the animal has 'invented' this organ as the solution of some problem. Our process of approaching constituted objective

reality repeats the virtual process of Becoming of the reality itself. The fact that we cannot ever ‘fully know’ reality is thus not a sign of the limitation of our knowledge but the sign that reality itself is “incomplete,” open, an actualization of the underlying virtual process of becoming” (p. 50).

This ‘approach to the problematic’ is then the  $N$ -dimensional knot (cf. Hofstadter, 2013; Deleuze, 1994) that is at the heart of our journey. It is the process of invention, creation and objectification that creates our own identity and our reality via the simulation of virtualities (or possibilities). It is also this that bridges the infinite chasm of the unknown (cognitive breakdown), from ourselves to the shore of the known.

Thus it is the main aim of this review to construct *this* bridge of *sense*. Furthermore the review hopes to show that innovation, creativity and cognition itself are not only means of operating within complexity but that these are the creation mechanisms of reality itself.

## Ontology

### The Transcendent Self

Scharmer (2000), in his article *Self-Transcending Knowledge*, delves into ontological themes of contemporary philosophy during the postmodern era. He notes that this time has ushered in a new reckoning of how we view ourselves, of how we view the world we perceive, and of how we act in this perceived world (Scharmer, 2009). At the heart of this underlying theme of twentieth century philosophy, and at the heart of the thinking of Martin Heidegger, Edmund Husserl, Kitaro Nishida, and Friedrich Nietzsche, is a fundamentally different way of sensing, approaching, and conceiving of reality (Scharmer, 2000).

Heidegger (1993) asks the question, “why are there beings at all, and why not rather nothing?”. This marks a direct inquiry into the nature of *Self*, and how we name and impute it into existence. Heidegger is coaxing us to consider the world without this concept and indeed without beings. As we reflect on this, we immediately ask ourselves, *Where is my self and where are other beings [for objects and things we encounter]?*”.

We may begin by saying that we are our bodies or our minds or both, but these are entirely unsatisfying answers. For example, if we consider our bodies and minds as our self, we may ask ourselves whether the bodies and minds we called our self when we were born are the same as those we experience today, but plainly this is not the case. The more we investigate, the less we find.

The paradox we encounter here is in trying to uncover a truly inherently existing object, the *Self*. We find that the very notion of *Self* is insubstantial, changing, and without locus. It is also for this reason that we can say that this is the main criterion for perceiving an inherently existing object –that through this conceptual imputation of inherent existence, we find the object exists in some ideal way that cannot be known directly, but subsists in some material substrate – whose nature itself when investigated cannot be found. We find then reality, *Self*, and other as this creative tension between existence and non-existence.

With this, Heidegger attempts to radically reassess our locus of *Self* and *Being*:

“With this question Heidegger tries to conceive of reality from the locus of origin, from a space in which being emerges out of nothing, out of no thing. This locus allows Heidegger to approach reality in a radically different way. From this point of view, reality is not simply “out there.” Rather, reality is brought forth from absence into presence, from concealment into unconcealment. The process of ‘presencing’ and disclosing reality is the essence of true thinking” (Scharmer, 2009, p. 14).

Scharmer (2000), continuing his exploration of the notion of *Self*, moves to the concept of Pure Experience according to Nishida (1990). This has three properties, it :

“1) precedes the subject-object distinction, 2) conceives reality from within, and 3) accomplishes a union of knowledge, feeling, and volition” (Scharmer, 2000, p. 14).

Nishida (1990) articulates “reality is that which constitutes itself into a single system. The unifier of reality is the self. The self is not a thing but an activity. The activity in which the self unites with things is called love. Hence, real knowledge is based on the unity of subject and object –that is, on love” (Nishida, 1990, in Scharmer, 2000, p. 14).

Nishida expands this notion of pure experience to self-consciousness and later to the notion of *Basho* – which is neither subject or object but a place or field of emerging relationships – the given-in-intuition prior to analysis and expression (Nishida and Carter, 2000, in Scharmer, 2000). The *Basho* is the primal source from which knowledge emerges.

Nishida (1990) goes on to describe three interlocking and nested *Bashos* that give rise to the three types of knowledge as described above. The first *Basho*, the ‘universal of judgment’, gives rise to knowledge about judgment. This first *Basho*, because it is related to *things* in an objective way, can be related to the epistemological notion of explicit knowledge. The second *Basho*, ‘the universal of self-consciousness’, is deeper than the first and contains it. The second *Basho* is concerned with how the content of

the judgment arises in consciousness and self-consciousness, while relating to tacit-embodied knowledge. This second Basho, because it surfaces knowledge about *things* and their relationship to *Self*, may be thought of the epistemological notion of reflection-on-action. The third Basho, ‘the intelligible universal’, is more fundamental than both these two and is concerned with the relationship between self and self-consciousness, and to acts of consciousness in which the self is no longer the focus (Nishida, 1990, in Scharmer, 2000). This last Basho relates to self-transcending knowledge (Scharmer), reflection-in-action (Schon), action-intuition (Nishida) and what Rosch (1999) calls ‘primary’ knowing. “It *transcends* the current self toward the most ultimate common ground (source) that is prior to subject-object distinctions” (Scharmer, 2000, p. 15).

*Primary Knowing* differs significantly its means of surfacing knowledge because it knows :

“by means of interconnected wholes (rather than isolated contingent parts) and by means of timeless, direct, presentation (rather than through stored representations). Such knowing is ‘open’ rather than determinate, and a sense of unconditional value, rather than conditional usefulness, is an inherent part of the act of knowing itself. Action from awareness is claimed to be spontaneous, rather than the result of decision making; it is compassionate, since it is based on wholes larger than the self; and it can be shockingly effective” (Rosch, 1999, in Scharmer, 2000, p. 15).

Lastly Scharmer looks at Nietzsche’s *Thus Spoke Zarathustra*, relating the three metamorphoses described there to the three Bashos described above. The three metamorphoses relate to three states: the camel, the lion and the child. Scharmer (2000) anthropomorphizes the three Bashos as these three animals.

“In the first metamorphosis the spirit becomes the camel by submitting completely to the external reality, bearing whatever it must ... The lion relates to his will-based reality *from within*, which is isomorphic to how the knowledge of the second epistemology (or Basho, respectively) relates to the reality that it denotes: from within” (Scharmer, 2000, p. 18).

The last metamorphosis moves the will-based reality to that of the innocence and forgetting of a child. “The way the child relates to his "sacred Yes" is isomorphic to how the knowledge (knower) of the third epistemology relates to reality (known): both from outside *and* from within *at the same time*, or, as Rosch puts it, as two aspects of the same primary field” (Scharmer, 2000, p. 18).

### **The Turn in Heidegger’s Philosophy**

We find a very significant and fascinating turn in Heidegger’s thought, which essentially dealt with a turn away from the human subject as essential to the exploration to the notion of *Being*. However this may be a bit of a simplification of the aims of Heidegger here. In his *Letter on Humanism* (Heidegger, Basic Writings, 2011), Heidegger explains that the main reason he seeks a new way of posing the question of Being was due to the failure of language – but particularly what he called the “language of metaphysics.” If we examine *Being and Time* closely, we notice that his approach remains metaphysical in its basic ways of inquiry and questioning. This is in particular reference to his transcendental approach to the question of being - specifically in the notions of ‘*transcendence*’, of ‘*horizon*’, of ‘*condition of possibility*’ and of course in the ‘*ontological difference*’ (Vallega-Neu, 2003).

So we find that fundamentally Heidegger’s pursuit in *Being and Time* is to approach the question of Being, through locating *Dasein*. Soon after this, Heidegger began to see his approach here as ‘humanist’ or an anthropomorphic mistake (Cahoone, 2010) – in essence a turn from many of the existential notions, which populated his earlier work.

So in Heidegger’s later work we find a greater usage of terminologies and etymologies of Greek philosophical terms. The reason for this was that he came to see most of the western philosophical tradition from the Greeks and up until his time as a mistaken approach to *being* (Cahoone, 2010). He also outlines that this mistaken notion is in many respects linked to the notion of *fallenness*, articulated in *Being and Time* (Heidegger, Basic Writings, 2011). This notion (*fallenness*) is the structural aspect of

*Dasein* that is responsible for dealing with *presence*, the set of things to deal with the here and now. To explain this, it is useful to contrast the difference between *ready-to-hand* and *present-at-hand*, these two aspects relate to two very different approaches to phenomenological and scientific inquiry. *Present-to-hand* refers to engaging into the ontic status of a thing – to describe its qualities, parts and facts. This description is disinterested in its usefulness, history or its relationship to *Dasein*. Ultimately this is what we see at the *breakdown* in the continuity of experience, or *thrownness*. In contrast *ready-to-hand* is a concept more ‘primordial’ or prior to reflection, describing a deep engagement with the world around us, without theorising. Heidegger (2011) further explores this notion of present-at-hand as found in the *now* or in *eternity* which he calls *presence*; that has become a foundational aspect of scientific inquiry, because it occurs in a neutral *mood* or what he calls the *metaphysics of presence*. By posing the question of being within this mood we disclose only a sterile version of the world, and Heidegger (2011) shows we cannot mount any honest ontological investigation from this limited grounding. Moreover the mode of operating from this mood of neutrality leads to *fallenness* (Heidegger, Basic Writings, 2011),

This *fallenness* means *Being-with-one-another* to the degree that we are engaged in idle talk, curiosity and ambiguity; and it is through this disclosure that we may further understand the meaning of inauthenticity (Heidegger, Basic Writings, 2011). Although in *Being and Time* Heidegger explains this as necessary aspect of *Dasein*, in later works he suggests that what is needed is a deep unearthing of these modes of Being, which have been carried throughout the western philosophical tradition.

So Heidegger sets out in the *Destruction of this metaphysics of presence* and aims to return to the ‘fork in the road’ so to speak – to the origin of its appropriation. It is from this place that Heidegger deconstructs this traditional disposition in an unremitting critique, whose primary aim is to liberate *Being* from the language of metaphysics.

This concept of the *metaphysics of presence* is a central one and needs a little further understanding. The main proposition Heidegger makes in *Being and Time*, and then again in much greater depth in his later work, is that the Western philosophical traditions have privileged a *direct or immediate access to meaning* – ultimately this is the privileging of presence over absence. Specifically, this disposition was established

in Aristotle's *Physics* (1984), which gave a detailed account of the phenomenon of time defined as "the number of movements with respect of before and after" Through this conception Aristotle places primary importance to presence, and Heidegger asserts that this allows for a very static and unrevealing notion of *Being* - that it is understood within a definite mode of time, the present. Moreover, Heidegger asserts that this understanding of time has been accepted throughout the philosophical tradition since Aristotle and so a major theme of his work is an exploration of *time* itself. Heidegger's central proposition (with regard to *time* and *being*) is that *time* and *being* are inextricably linked, not in a discrete manner as Aristotle suggests but in a unity of the three *ecstases* - the past, the present and the future.

This leads us to explore term *ecstasis* (*ek- stasis*) in the Heideggerian conception of time. The term literally means *being outside of itself*, and it is in this definition of temporality that we find a very distinct association with the notion of *transcendence*. This is a central pattern of meaning within *Being and Time* and we may argue that the evolution of this aspect of *Dasein* is what brings about Heidegger's abandonment of temporality as the foundation of metaphysics and ultimately the notion of a *fundamental ontology*.

To really grasp the thinking behind this we must first explore this notion of transcendence and with this the unity of the ecstasy in Heidegger's *Being and Time*. He explains that with *resoluteness* we are enabled to separate *inauthenticity* from *authenticity* through the experience of *anxiety* (Evans, 2009). This angst is the most appropriate mood from which to recover the question of *Being*. In this attunement *Dasein* perceives the world as empty and without meaning, further the anxiety experienced has no object. It is this 'nothing' that is a necessary condition for the objectification of the world (Heidegger, 1995). In the case of objectification according to Kant, this nothing is what creates the 'space' for the union of intuition, understanding and transcendental imagination. In the context of the discourse within *Being and Time*, this nothing is the silence from the idle chatter (*Gerede*) of *das Man*; and it is in this silence that awakens to the *conscience* of *Dasein* to find *authentic resoluteness*.

The desire for a structural unity, which surpasses the notions of subject-object, is found in what Heidegger calls the existential constitution of *Dasein*. This constitution is

unified in its temporality by the structure of *care* (*sorge*) – in both *authentic* and *inauthentic Dasein*. The fundamental structure of care can be found in the words “before “ and “ahead of” which indicate the care is fundamentally about the potentiality-of-being (Heidegger, 2010). As Heidegger (*Being and Time*, 2010) says, “The self-project grounded in the “sake of itself” in the future is an essential quality of *existentiality*. *Its primary meaning is the future.*” (Heidegger, 2010, p. 313)

In the inauthentic understanding of Dasein, the structure of *care* is one that is of things manifesting as our apprehension of things, which are *ready-to-hand* - things, which are next to (*bei*), and with (*mit*) other beings. In the authentic understanding, Dasein has answered the call of *conscience* and gained a totality or authentic understanding of its *temporality*. It is after this *resoluteness* that the three ekstases reveal themselves as the true structures of temporality (Heidegger, 2010); and so we can further explore this in relationship with a traditional notion of time as a succession of instances.

This is a key juncture for Heidegger because he is suggesting, that to even begin a discussion into the meaning of *Being*, we must abandon the very propositional and formal logic that philosophers, up to that point have engaged in. Indeed Heidegger believed that in some sense *Being* can be equivalent to nothing (*no-thing*) – that it is neither a thing, nor an entity at all and so requires a fundamentally different approach. It is from this juncture that Heidegger embarks on what he calls the ‘*kehre*’ or ‘the turning’ – central to this move is his concept of *aletheia* or *truth*.

Heidegger first explores his conception of truth in *Being and Time* using the term *aletheia* meaning *disclosure* or *unconcealment*. Through this reframing of truth, Heidegger is suggesting that truth is not a mere characteristic of propositions or ideas but rather what truth is most fundamentally, that things are revealed. In *Being and Time*, Heidegger calls the human state as “the clearing” or *Lichtung* - this is to mean that *Dasein* is the place where *Being* reveals itself. After ‘the turn,’ Heidegger deconstructs the notion of *revealing*, to that, which reveals itself in itself. So the way he describes the possibility of the ‘human being’ as discloser is to say that *Being itself* is what discloses to *unconcealment* and also that which conceals. This means that *truth* is when *Being* reveals itself and falsehood is when *Being* conceals itself.

In Heidegger's essay, *On the Essence of Truth*, (1943; 1949) Heidegger explores this terrain in some depth by reframing the traditional notion of truth as correspondence (Heidegger, 2011). This notion holds that whether a representation, proposition or belief is true depends on its relation to reality, as Aristotle claims, "to say that that which is, is and that which is not is not, is true" (Aristotle, 1984). Heidegger problematizes this claim, by showing that truth, when approached from the question of Being, is not necessarily only validated by correspondence.

Propositions, mathematical formula and physical laws may be deemed to be true, so too could purely subjective experiences such as dreams and visions be deemed to be true; in conjunction to this there are pragmatic truths or falsehoods which are neither purely subjective truths nor truths of correspondence. What is the way that these differing avenues to truth may be in some sense the same? So it is Heidegger's aim in this essay to deconstruct what is tacitly posited in this notion of truth as correspondence and in so doing disclose a far more fundamental nature (of truth).

And it is in this inquiry in effect that Heidegger answers the question that truth is found in the quest of truth – it is this *self-referentiality* that pervades the mood of Heidegger's discussion. He proposes that the true meaning of truth can be found in *phenomenology* (Heidegger, 2011) – 'taking beings out of their concealment and letting them be seen in their unconcealment.' Further the discovery of being is always a *disclosedness* of world (and Dasein) and *disclosedness* is always *unconcealment* – it is this *unconcealment* (or *disclosedness*), which is truth.

In the last section of this essay (9. Note), Heidegger articulates with great artistry and truly profound insight, the question of truth:

"The question of the essence of truth arises from the question of the truth of essence. In the former question essences understood initially in the sense of whatness (*quiditas*) or material content (*realitas*), whereas truth is understood as a characteristic of knowledge. In the question of the truth of essence, essence is understood verbally; in this word, remaining still within metaphysical presentation, *Beyng* is thought as the difference that holds sway between Being and beings. Truth signifies sheltering that clears [*Lichttendes Bergen*] as the

basic characteristic of Being. The question of the essence of truth finds its answer in the proposition *the essence of truth is the truth of essence*. After our explanation it can easily be seen that the proposition does not merely reverse the word order so as to conjure the spectre of paradox. The subject of the proposition – if this unfortunate grammatical category may still be used at all – is the truth of essence. Sheltering that clears is – i.e., lets essentially unfold – accordance between knowledge and beings. The proposition is not dialectical. It is no proposition at all in the sense of a statement. The answer to the question of the essence of truth is the saying of a turning [*die Sage einer Kehre*] within the history of Being. Because sheltering that clears belongs to it, Being appears primordially in the light of concealing withdrawal. The name of this clearing is *aletheia*.” (Heidegger, 2011, p. 81)

In this passage Heidegger directly deconstructs the problem of ‘metaphysical representation’ and in so doing discloses the essence of truth. Proposing that representation (or concealment) itself is only possible due to the nature of truth, but that this representation is not truth, it is concealment.

Heidegger goes on to say in this note (the amendment in 1949) at the end of the essay that his original project for this work was for it to be a two-part lecture. The second part called, *On the Truth of Essence* (a reversal of *The Essence of Truth*), which was not completed because of his ‘turn’ in his thinking (he references here another work called the *Letter on Humanism*). This points to a distinct change in his approach of truth as found particularly and uniquely within the human condition.

Moreover he asserts that the project of the truth of Being remains unintentionally undeveloped (Heidegger, 2011). The reason for this is to point out that this line of question ‘remains within the line of metaphysics’. However he asserts that this line of questioning deconstructs the notion of truth such that it facilitates a fundamental change in questioning that leads to the overcoming of metaphysics.

As Heidegger articulates the first step here is in the question of being, that is *Dasein*, in which man ‘can enter’. It is in this questioning, which is essentially an inquiry that is *being ontological*; that the clues of the *essence of truth* may be revealed. He asserts also

that Dasein discovers beings but also covers them over – that is to say it is that it is nevertheless ‘ensnared ‘ and ‘thrown’ into the world. However truth is that which discloses-in-itself, what we may venture has a striking similarity to the Deleuzian concept – *difference-in-itself*. Following this Heidegger makes a spectacular proposition, that of a deep and intimate braiding between *concealment* and *unconcealment* – that to be unconcealed a thing must first be concealed. Moreover, the nature of concealment is itself only possible due to the nature of truth or *unconcealment*. And it is for this reason that Heidegger uses the conjoining of two seemingly opposing terms – *clearing* and *sheltering*.

In Heidegger’s later works, Heidegger uses the verb *essencing* – that Dasein in disclosing beings, ‘essences’ them by gathering this being into a context or ontology of meanings. This being an essential task of Phenomenology, this point particularly differentiates pure Phenomenology to Heideggerian phenomenology described here - this amounts to the difference between *essence* and *essencing*. Both these items infer *transcendence*; the first is to some ideal or conceptual schema, while the second (distinctly Heideggerian) relates to the three temporal *ectses* – that is they are purposeful. Increasingly Heidegger critiques this view (his own view in *Being and Time*) of transcendence, in favour of what we may call immanence – which essence is found in its unconcealment of itself.

In the final reckoning, Heidegger has achieved a fantastic feat - using the question of being (of the authentic *Dasein*), he affords us a unique view into the nature of Being itself, unearthing a fundamental structure. This structure which makes Being possible is also that which makes Being impossible or if we were to explain it differently, that *the essence of truth is the truth of essence*.

The essence of truth – what *truth* really is- is the unconcealment of Being (disclosure); that *truth* is Being’s self-disclosure. It is not that I reveal the world through my *presence* but that Being reveals itself through me. Therefor Being is a shelter that illuminates - that in its disclosure it brings directly the possibility for truth.

Heidegger proposes here that this conceptualisation of *Being* has been unthought-of in philosophy up to now -this means that philosophy up to this point, including his own

work, namely *Being and Time*. He proposes here that philosophy cannot get away from thinking within the *Lichtung* or clearing that Dasein brings, by seeing that what is being revealed is made so by Being itself. In essence Heidegger is here (much like Deleuze does later) is inverting the Kantian notion of transcendental idealism; and also the pure phenomenology (what we may term transcendental essentialism) of Husserl. In other words, Heidegger here deconstructs phenomenology to a degree that he views his own work, *Being and Time* as very much in the oeuvre of these two philosophies, taking a fundamental 'humanist stance'.

This means (for Heidegger) that the western philosophical tradition has always conceived being through the human condition, or *Dasein* or some aspect of it such as experience, concepts or consciousness. For example here we could think of Descartes' 'mental substance' or Kant's 'synthetic a priori.' Heidegger here is asserting that what appears (phenomena) are a result of *Being's* self-disclosure – therefore all previous schools of philosophy are seen as essentially anthropocentric, and it is this exact disposition that he is here refuting.

Heidegger during his discourses on Nietzsche during the 1930's explores the concept of 'will to power'. He proposes that this concept – that nature (or the conscious) can be seen as sheer power - is the realisation of the metaphysics begun by Plato (Cahoone, 2010). This is a truly revolutionary jump in not only Heidegger's thinking but within the whole Western philosophical tradition itself. In this way Heidegger proposes that the essence of the approach of the west to Being has always been centred on 'power'. That is to say that, this tradition always been concerned with the expression of Being through humans, it attempts to express control, or exert will over it (Cahoone, 2010). This manoeuvre has thus always been obsessively concerned in a theoretical understanding of Being, in the ultimate concern to control it through a preponderance of calculative and representative thinking. So Heidegger's great critique of Western philosophy, and its approach to being has always been to dominate it and not understand it.

This brings us centrally to Heidegger's *Letter on Humanism* (1946), which really crystalizes Heidegger's stance in this matter. In this paper, Heidegger criticizes Sartre's explicit identification of existentialism with humanism (Heidegger, 2011).

Sartre proposes that existentialism and humanism are essentially the same thing, because for Sartre, there is no natural order, or societal constraints which will guide the journey of the individual (Cahoone, 2010). In this way Sartre favours the human subject, that it is our very self-determination that gives us the dignity of *being human*. For Sartre, existentialism (by negating God), leaves us alone in the world, without anyone or anything to answer beyond our own machinations. It is this very disposition that Heidegger addresses by showing that all *humanism* accomplished was in the formulation of a rationality that warrants man to override and dictate a conceptual scheme to Being (Cahoone, 2010).

In this way, Heidegger reveals, that ultimately *humanism* is founded on the basic metaphysical position. Moreover it follows in lineal succession of idealism and subjectivity – this is the notion that the human experience is most valuable and also central to not only Being but also the world, and nature. This places Man in a central position, to exploit the natural world and the resources they bestow. With the recognition of the truth of Being, Heidegger says of a ‘true’ *humanism*,’ that it should be founded on an *openness-to-be*; that we should become the Shepard of Being (Heidegger, 2011) and not suppose to be the Lord of Being.

At the end of the essay, Heidegger makes somewhat of a provactive prediction, on the evolution of Western philosophical thought:

It is time to break the habit of overestimating philosophy and of thereby asking too much of it. What is needed in the present world crisis is less philosophy, but more attentiveness in thinking; less literature, but more cultivation of the letter.

The thinking that is to come is no longer philosophy, because it thinks more originally than metaphysics – a name identical to philosophy.” (Heidegger, 2011, p. 181)

This statement once again exhorting us to relook at the tacitly accepted assumptions within philosophy, and to disclose a new kind of thinking which is not constrained by the metaphysics of presence. Heidegger hopes to show that it is this thinking, which

has, lead us to crisis; furthermore to truly address these issues a whole new type of thinking is required.

This line of inquiry, comes to a certain maturity in his essay *The Question Concerning Technology* (1953), in which he proposes that technology *enframes* (*Gestell*) *Being* as *standing-reserve* (*Bestand*). This term, *standing-reserve* means that technology treats *Being* as a resource, to be exploited and used. A good metaphor that Heidegger uses is that we see *Being* as inventory that can be accessed and used at anytime. In conjunction to this Heidegger says that technology *enframes* *Being* such that it conceals it. This means technology, along with all the theories and modes of justification that supports them, gives us a very particular way of understanding the world and *Being*. Therefor Heidegger is proposing that due to our obsession with technological purposes, we have a very different relationship with *Being* than was found in other epochs of time. Therefor *Being* discloses itself or reveals itself in different epochs of time, that sometimes certain things are disclosed and at other times not.

Specifically in this essay Heidegger aims to show that, science and technology places a very particular threat to our understanding of being. Moreover technology itself is the completion of the project of *metaphysics* that began with Plato (Cahoone, 2010). Remember as we have discussed earlier, this was not *metaphysics* in a general way, but specifically what we understand as *metaphysics of presence*. This enframing of being within the present moment that *Being* is shrunk to fit into a discrete unit of time. Thereafter it projects the ‘idea’ or ‘concept’ onto this discrete notion of time; that is, *Being* is shrunk to the present moment and that moment is then made subject to the mind’s ideas.

In this way, Heidegger asserts that we have become alienated not only from ourselves, but also from *Being* itself. He suggests further that the only way for us to overcome this error, is for us to return to the notion of *aletheia* (*disclosure/unconcealment*) – *truth as unconcealment*.

The notion here is not that we should abandon technology, but abandon the *instrumental rationality* that accompanies it. Then again, the word ‘abandon’ is still too strong a recommendation. Rather Heidegger asks us to see *it* for what it is, that the development

of technology is permeated by *enframing*, and further that this is a type of *unconcealing* which (if it is not seen as *a way of unconcealing*, but rather as *the way of unconcealing*) conceals.

If anything, Heidegger's essay is permeated with a sense awe as much as it is with a sense of caution. A common approach Heidegger takes in this later period of writing is to move back historically, to try finding where this enframing began. In this process we uncover a great deal about *unconcealment* itself. However instead of learning about the creative process, we become enamoured with the creation, in so doing we implant a instrumental understanding of things; while simultaneously instituting a blindness to *Being*, or *aletheia* itself. In this exploration, Heidegger suggests that we go back to the original *revelation*, so to speak and pursue the development of technologies from within a stance of disclosure.

Heidegger asserts further that Being *must* grant *enframing*. This is another very profound and recursive idea, which shows the nested and interdependent nature of *unconcealment* to *concealment*. That is to say, that the nature of Being is in *concealing*, but is always unconcealing this to us. It is the task of *thinking*, to recover this.

In *thinking* technology, Heidegger urges us to return to the ancient Greek notion of *technē*. (*practical arts*). We see that *technē* is that place between fine art and creating utility. As Heidegger says:

“There was a time when it was not technology alone that bore the name *technē*. Once the revealing that brings forth truth into the splendour of radiant appearance was also called *technē*.”

There was a time when bringing-forth of the true into the beautiful was called *technē*. The *poiēsis* of the fine arts was called *technē*.” (Heidegger, Basic Writings, 2011, p. 237)

He exhorts us to reclaim the creation of technology from one centrally concerned with *instrumentality* to one engaged in *poiēsis*, or bringing-forth. In this way he suggests that

we must reunite the now disjointed practices of poetic imagination and utility in practical skill.

In a later essay, *The End of Philosophy and The Task of Thinking* (1966) Heidegger proposes that Cybernetics is the final outcome and fulfilment of the metaphysics of presence or for that matter *philosophy* itself. Further that science is now usurping the role of what philosophy, in earlier times aimed to achieve – relegating it as unnecessary, due to the certitude it once unearthed:

“The sciences are now taking over as their own task what philosophy in the course of its history tried to present in certain places, and even there only inadequately, that is, the ontologies of the various regions of beings (nature, history, law, art). The interest of the sciences is directed toward the theory of the necessary structural concepts of the coordinated areas of investigation, “Theory” means now supposition of the categories, which are allowed only a cybernetic function, but denied an ontological meaning the operational and model-based character of representational-calculative thinking becomes dominant.” (Heidegger, *Basic Writings*, 2011, p. 314)

To truly grasp the meaning here, we must again track back to the great historical realisation of first principles or metaphysics. We see, that because the aim of metaphysics and the great philosophical tradition which ensued there is an overriding concern with *presence* - the notion on *now*. This foundational concept, that of a discrete notion of time, permeates western philosophical thought from that point on, such that eventually the primary conception of Being is one founded on the notion of *information*. So from this viewpoint Heidegger claims that Cybernetics is the final fulfilment of this metaphysics, because it is a supreme example of *will to power*. That is, it exemplifies an immediate access to knowledge because it understands reality as *pure information*. This is tantamount to saying that reality, in fact all of our experience (Being) is merely a product of conception.

In this way, Heidegger strongly claims that this information age is the fulfilment of the project of philosophy, which began with Aristotle. This epic manoeuvre completes the task of power over Being by assigning a conceptual value to Being and in effect reifying

it as an sterile entity. In this way he calls for a renewal in *thinking*, which will endure after ‘end of philosophy’, so to speak.

So for Heidegger what is needed is, an unthought of ability, that thinking be that which discloses. There is a deep congruity here, for we understand that this sense of disclosure is also the way we may think of Being. In this way he calls for a thinking, which is *Being* itself – that thinking abide in disclosure itself – the opening of aletheia, which is the source of both Being and Thinking.

This thinking, opposed to rational and propositional thought, is to capture the moment of revelation, in what may be understood as *ontological poetry*. This moment of revelation is problematic due to its revelatory nature – that it requires a re-invention within ontology. This may seem somewhat obscure at first but as Heidegger leads us we find many of the clues within his critique of metaphysics.

Here he contrasts Husserl and Hegel, in their exploration of the primary matter of philosophy – the thinking of thinking. Saying that although the methods could not be more different they arrive at the same area – what Heidegger calls, the “determination of the task of thinking at the end of philosophy” (Heidegger, 2011, p. 318) – or *the matter itself*. Although these moments of revelation emerge through subjectivity, they are ‘of the world’ and have the great power to affect it. As Heidegger says of ‘the matter itself’:

“Questioning in this way, we can become aware that something that is no longer the matter of philosophy to think conceals itself precisely where philosophy has brought its matter to absolute knowledge and to ultimate evidence.” (Heidegger, 2011, p. 318)

We find that ‘questioning in this way’ is the fundamental mode of philosophy, beginning with –What is the question of Being – what does it mean to question Being. This at the heart of philosophical inquiry, what is the essence of something; what do we mean by saying *Being*?

And so here Heidegger asks - is this questioning privileged in philosophy?, asking an innately self-reflexive question – the question of the question. He further indicates that this line questioning liberates *thinking* from *philosophy* – is *thinking* really *questioning*? Could there not be, before this question a more primal and ancient form of thinking; that is not questioning, but an affirmation?

In this way Heidegger claims that although all philosophy uses the ability of the mind to *presence* (what he calls the *clearing*), we have not asked what is the clearing itself - the presencing of presence itself. Therefore the unconcealment (itself) of the concealed (itself) is the true task of thinking.

“Alētheia, unconcealment, is named here. It is called well rounded because it is turned in the pure sphere of the circle in which beginning and end are everywhere and the same. In the turning there is no possibility of twisting, distortion, and closure. The meditative man is to experience the trembling of the untrembling heart of concealment. What does the phrase about the untrembling heart of unconcealment mean? It means unconcealment itself in what is most its own, means the place of stillness that gathers in itself what first grants unconcealment. That is the clearing of what is open. We ask: openness for what? We have already reflected upon the fact that the path of thinking, speculative and intuitive, needs the traversable clearing. But in that clearing rests possible radiance, that is, the possible presencing of presence itself.” (Heidegger, 2011, p. 321)

And so it is clear in this passage that what is needed, is openness to possibility, to being and to thinking itself. In this way Heidegger is asking for an end to the philosophical tradition and a reawakening to vibrant and luminous nature of mind. To in effect liberate the potentiality of thinking (as tool of perceptual and social sculpture) as our innate right as co-creators of our world. The question of Heidegger’s philosophy then becomes not one of the temporal being, but of the modes of thinking and creativity; that the oeuvre of his work should be titled, perhaps not be *Being and Time* but ‘Clearing and Presence’ (Heidegger, 2011)

As the last lines of this essay leave us, “ the task of thinking would then be a surrender of previous thinking to the determination of the matter of thinking.” (Heidegger, 2011, p. 325)

### **The Enactive Approach**

The core questions that the enactive tradition aims to resolve or at least engage with are *how does the mind relate to life?* and *how does life relate to mind?* (Thompson, 2012). Moreover what is the place of the body in relation to this; how does it act as an interface between life and mind.

Traditional cognitive science holds that life is not necessarily needed for mind; that any system with sufficiently developed nervous system can be alive. Also these sciences believe that life is not necessarily needed for mind – as we see in basic artificial intelligent systems (based on a representational model of the mind).

The enactive thesis conversely holds that any living system is by its very nature is a cognitive system (Thompson, 2012). Furthermore what makes this living system a cognitive system is autonomy. Therefor to understand cognition we must understand biological autonomy,

In this way the enactive thesis has several distinct propositions. The first is that autopoiesis and adaptivity are the necessary and sufficient qualities of a system, for life (Thompson, 2012). Autopoiesis is self-production, while adaptivity refers to the ability of the system to self-regulate with regard to its viability conditions. Thompson (2012) further proposes that both autopoiesis and adaptivity are two inextricably linked characteristics necessary for autonomy. So according to Maturana and Varela (1980) autopoiesis is an internal (with respect to a boundary) metabolic process that produces its own components contained within a semi-permeable membrane (which is thermodynamically open) that produces itself – that is the metabolic process, the

reaction network and the boundaries – such that this self-producing unity emerges in the bio-chemical domain.

The second proposition of the enactive tradition is that autopoiesis typifies the notion of autonomy, that it is a paradigm case of autonomy. This is to assert that it is the best known case in terms of conceptual understanding, modelling and experimentation (Thompson, 2012). Therefore the fundamental proposition here is that autopoiesis is the best-known and minimal case of autonomy.

So the enactive approach holds that a system is autonomous when it has several basic constituent processes. These are firstly that these self-produced components form a thermodynamically open network and secondly, that this network has organisational closure (Thompson, 2012). Thirdly the identity of the system, which is maintained as a relational structure, is maintained under conditions of stress; Lastly this network specifies a meaningful environment for the system (Thompson, 2012).

To explore this further we notice that, within this system we find various processes that influence each other in a tightly known or recursive manner (Thompson, 2012). This means that the basic constituent parts exert conditioning mechanisms amongst one another, to create a distinctly relational structure. The autonomous structure as such is therefore a set of processes, which creates a broader process in which these constituent processes exert forces against one another in a recursive and nested manner. This means that in a sense there is a closure amongst these processes in that they are mutually dependent or co-arising,

Furthermore these processes are coupled to the external environment (or wider context of the system) similarly in relations of mutual influence (Thompson, 2012). Importantly the closure that the autonomous system has here is not in isolation or decoupling from the wider context; rather we have a very tightly interrelated network of processes within a larger comparatively less tightly bound network.

Therefore a system is adaptively autonomous when the constituent processes retain the integrity of the system while being thermodynamically open (Thompson, 2012), but also have these features or organizational closure. It is this balance, between openness

and closure (the fundamental quality here of an autopoietic system), which by maintaining this equilibrium, establishes a relational identity. This means that identity is found particularly in reference to the wider context it is embedded within, further if the constituent parts are removed from this context they tend to atrophy or undergo entropy. This means that the identity of the system is challenged in such a way that it must maintain its integrity.

The last important feature of this system is that it creates a meaningful environment; this means that the basic recursive patterns are such that that system is identifiable. Moreover, the recursive patterns that create the system also create a domain of meaning – which is specific to that system. Another way of conceiving of this adaptive closure is to understand that the system is closed, but also that it is self-regulating, with respect to a set of viability conditions (Thompson, 2012).

The third proposition here is that both autonomy and adaptivity are necessary characteristics for agency and sense making. In this sense we understand particularly that these concepts find their meaning within the meaningful domain setup by the system.

So therefore agency has three distinct qualities: Firstly the system has individuality, which is self-produced in that it defines its own individuality (Thompson, 2012). Secondly it has interactional asymmetry (Thompson, 2012), which means that the system itself is a source of interaction with regard to its environment. This means in essence that the system self regulates such that it has specific activity with regard to its environment –for example the regulation of the wings of a bird to the air around it (Thompson, 2012). Thirdly there are certain normative qualities of the system’s self-regulation in regard to its viability conditions.

Sense making refers to what is significant for the system from the perspective of its embodiment. This means that an autonomous system is embedded in its context such that it has a perspective in which its encounters have significance for the system. Therefor the environment is a place of significance for the autopoietic system, which is in an on-going process of sense-making by establishing significance. Therefor the environment is not merely a physical environment, but a place of significance for the

system – it is a niche or milieu; furthermore the viability of the system is dependent on the sense the system can make of its context.

Furthering this understanding we can distinguish three dimensions of what it means to sense, within the context of autonomy described here (Thompson, 2012). Firstly this means sensitivity to conditions, in which the system finds itself; secondly the sensitivity of the system facilitates it to uncover significance of environmental conditions in relation to its own autonomy. Thirdly, the last way we can think of sense, is in a kind of directedness in that it has certain goals, which allow the system to understand significance (in the environment) that leads to action – that is to avoid certain things and approach other things. So from here, the fourth proposition of an autonomous system is that to live is to undergo the process of sense making within precarious conditions (Thompson, 2012).

The fifth proposition of the enactive approach is that an autonomous system must have cognition. This means principally, ‘being directed towards objects’ which ‘show-up’ based upon the perspectival variations of the system (Thompson, 2012). This is what we may call, from a phenomenological perspective, that they appear as unities within manifolds of appearance. These perspectives can be spatial and or temporal in variation – a key proposition of Sensorimotor Contingency Theory (Thompson, 2012). This means that the system can understand these phenomena through the unity of these spacio-temporal variations. Therefore, fundamentally from an enactive perspective cognition is a type of sense-making that arises through the movement of the organism and from its nervous system.

So now we can build on to the basic propositions for autonomy - that there is organisational closure and that this is regulated (agency). Now we can see that the nervous system, complexifies this quite significantly, in that it ‘holds together’ multiple cells, tissues and organs by unifying perception through these perceptual variances or what we may call the system’s manifold of experience. Therefor from an evolutionary perspective the nervous system evolves as due to the need for movement of the organism, this typifies animal life (Thompson, 2012).

Thompson (2012) says about this, that from this perspective we can see that the nervous system offers regulation in terms of movement and emotion, with regard to the environment.

Therefore the nervous system generates and maintains neuronal assemblies (transient or more permanent structures), which in turn creates a sensorimotor linkage - that is the linkage between sensory components of the body to motor neurons – which effect movement (Thompson, 2012). The effected movement in an environment then modulates the dynamics of the nervous system, which then in-turn once against triggers or creates new neuronal assemblies. Therefor there is an on-going circularity that occurs, in which the sensorimotor assembly continues to adjust to meet environmental demands in accordance with the systems viability.

So we find that there is an isomorphism between the conditions of autonomy at a fundamental level (unicellular organisms or individual cells) and also to that of a more complex level, as seen with those having developed nervous systems (Thompson, 2012).

Now if we begin to try understand the environment around an organism, we can notice that sensorimotor coupling, ‘brings forth’ a niche or rather creates affordances within the ontogeny or phylogeny of the system, which in turn influences the sensorimotor coupling. This then once again modulates the dynamics of the nervous system, and thereby engages certain neuronal assemblies that produce specific sensorimotor coupling. So we find that a deep interlocking, relational circularity is developed, which in together brings about a world. So this is the core and fundamental meaning of enaction, that there is an innate a deep circularity between an organism and the niche it finds itself – that these two are linked such that they emerge together, interdependently- the enaction of a world (*umwelt*) through structural coupling (Thompson, 2012).

Thompson (2012) explains further that the role of emotion is also of great significance in sense making, of equal import as that of cognition itself. So as we covered earlier, sense-making is the process which determines significance and valence for the system. Thompson (2012) proposes that emotion acts to motivate action tendencies and affect regulation – to orient the action of the system. Further he asserts that emotion in this

regard cannot be separated from animal sense making and cognition. Therefore from the enactive perspective emotion is produced by the complex neuronal structures that are responsible for cognition, in this way both cognitive and affective effects emerge in the same way. In a cognitive ‘event’ there are cognitive aspects and also affective aspects, these two aspects together bring about an ongoing feeling (Thompson, 2012). This feeling both motivates the system but also continues to make sense and to determine the relevance of the world around it.

Following this understanding, for the enactive tradition of cognition is not abstract problem solving, but rather adaptive self-regulation in precarious conditions (Thompson, 2012). This is not to say that the mind is not capable of abstract problem solving, but that fundamentally this arises from the embodied cognition of the system within a niche - that is the narrow cognition of problem solving, presupposes the emotive cognition of sense making. Indeed in this sense we may think that abstract problem solving is very narrow cognitive state that at its highest realisation assists the organism to act better within a context. In general then, the enactive view believes that the body shapes cognition in a very direct and inextricable way, further there is no distinguishable difference between cognitive and extracognitive processes. This view then is particular against the notion of separating out what is cognitive, from what is rational, from what is emotive or bodily sensation.

In this way the enactivist tradition holds that the body is central to all cognition, specifically because of the interrelationship between emotion and cognition. A body is a self-constituting and sense-making system (Thompson, 2012) such that it is the precondition for the disclosing of a meaningful world (cf. Merleau-Ponty, 2005).

The central question for the enactive view then is - is life necessary for mind? It would seem from the discussion above that, yes indeed that cognition and mind are dependent on the metabolic process of autopoiesis. Moreover a meaningful perspective, which is a central necessary component of cognition is brought about by systems whose *being is their own doing* – or actually *living bodies* (Thompson, 2012).

Therefore the logical evolution of this view then is that every living system is a cognitive system – that life is sufficient for mind. Further that any genuine cognitive system must also be a living system (mind is sufficient for life) (Thompson, 2012).

Therefore for the enactivist approach the minimal condition for sentience is not just the brain, but the whole living system which is an adaptively autonomous system that is constituted by densely coupled and deeply interdependent neuronal and extra-neuronal subsystems (Thompson, 2012).

## **Incompleteness and Analogy**

### ***Gödel's Incompleteness Theorem***

In 1931, the German mathematician Kurt Gödel published a landmark paper; it was called *On Formally Undecidable Propositions of Principia Mathematica and Related Systems*. The Principia Mathematica mentioned in the title is a monumental treatise compiled by Alfred North Whitehead and Bertrand Russell, which focused on the foundational principles of mathematics and mathematical logic. And it was in this space of foundational mathematics that this paper addressed.

From the time of the Ancient Greeks, mathematical logic has been grounded in the deductive principle. This meant that propositions could be established as the result of an explicit logical proof, this was known as the axiomatic method, because it was based on certain a priori truths. The axiomatic method holds that there are certain principles, which can be accepted without proof; and further that on the basis of these axioms a set of theorems can be derived through the principles of logic. So therefore, any system could be explained by first finding their axiomatic foundations. Thereafter using the principles of logic, a set of theorems then create the structure of the mathematical system.

The reason for the widespread adoption of this method was basically, that it worked. For the development of Euclidean geometry, this method produced a staggering amount of theorems and propositions. In this way axiomatic thinking appears in the work of many outstanding thinkers of our time, and its weighty contribution to the fields, of Science and Mathematics cannot be ignored. Following this, a general mood was developed in the scientific and mathematical community, with the central belief that in every area of mathematical thought there were a set of axioms, which could provide the necessary foundation to build theorems in that field.

Gödel's theorem (Nagel & Newman, 2005) showed that this was not the case at all, that the axiomatic method had some very distinct inherent limitations. He showed that even the basic arithmetic of integers could not be ever fully axiomatized. Further he showed

that it was almost impossible to establish the internal logical consistency within the system of theorems.

In this way Gödel (Nagel & Newman, 2005) showed that many of the great insights of mathematics could not have the absolutism they claimed; and that many of the great branches of mathematics cannot be shown to be completely free from internal contradiction. In this way Gödel broke down many of the fundamental conceptions of what mathematics was and specifically to its relation to logic and thinking. In this way Gödel ushered in a new paradigm of mathematical thought, which had its effects into many varying fields of scientific thought.

### Formal Systems

A formal system is a well-defined system of abstract thought within a domain of mathematical inquiry (Nagel & Newman, 2005). In this way formal systems have a formal language comprised of primitive symbols. These symbols are developed by inference on a set of axioms. The system as we have explained earlier then is built through the creation of many formulas that are the result of combining these primitive symbols, in line with established rules (Nagel & Newman, 2005).

In this way a formal system has the following main constituents:

- A finite set of primitive symbols
- A grammar which shows how formulas are created from a set of these basic symbols
- A set of basic axioms, which are grounded in these grammars
- A set of inference rules

What formal systems aim to do in basic mathematics is to rule out ambiguity and uncertainty. In this way, mathematics should be able to:

- Propose a statement of numbers precisely
- If it is a true statement, there must be a way of proving that it is true
- If it is false, there must be a way of proving that it is false
- There cannot be a way of proving something both true and false

This last point is particularly frustrating for mathematicians, especially with regard to formal systems. This is because if you have a statement, which is both true and untrue, it in effect can invalidate a whole system, due to the interlocking nature of logical inference. This dual truth, so to speak is a paradox.

For example if we look at this proposition, “this statement is a lie.” We find that this is false (due to its own declaration) and true (because it is asserting something true); therefor this statement is both true and untrue or we could say this statement is both not true and not untrue. This is a basic example of a paradox, a formally untrue proposition.

For example we could take Russell’s Paradox (Nagel & Newman, 2005), which is a paradox he found within naïve set theory. This paradox shows that you cannot have a recursive relationship within a set – for example if I have a set of all sets within a system, that itself cannot be a set because it contains all other sets and would have to, by this definition, also contain itself – which is paradoxical. In this way it is both not a set of that set and also cannot be not a set of that set.

Russell’s paradox is also called the ‘barbers paradox’, which is more common way to explain it. In this example the barber proposes, “I shave all people who cannot shave themselves.” However, when his beard has grown, he will shave himself, at which stage the first proposition is invalidated.

An interesting note, which is particularly relevant for our discussion, is that paradoxes are generally formed in relationships between two propositions or set of propositions – that is they are relational. Traditionally these statements are placed in hierarchy or formal rules, which fundamentally aim to suppress the unwanted meaning, or paradox inherent within the system.

This point is well ‘illustrated’ in the work of M.C. Escher who visually shows how a paradox is formed when two seemingly true statements are brought into reference with one another. For example, his famous staircases, which show on the one side, them moving up and linked in a seeming unity on the other, so that they are going down, In

this way the stairs are both going up and down simultaneously, which is of course paradoxical.

The immediate reaction we have to seeing an Escher staircase is to place it within a set of rules for our perception, that it is only a two dimensional drawing and cannot be true in three dimensional space. In this way the systematic hierarchy of perception and the rules we implant in it mitigates the risk of the paradox to our perception. Similarly if we go back to Russell's Paradox we cannot have a set of all sets because this would invalidate the hierarchy of the system.

In this way, sets cannot contain sets of higher order, nor can statements of mathematics talk about themselves or things of a higher order (Nagel & Newman, 2005). This hierarchy of rules eliminates many valid statements of the system, however it does mitigate the chance of there being a tangled hierarchy at any point.

If we apply this type of thinking to our everyday speaking, what we would remain with would be completely incomprehensible. For example if I were to write this proposition, "I am going to write a sentence, which will explain this paragraph and also be pivotal to this whole document." I would have to exclude firstly, 'I' because it is self-referential, for the same reason, I would have to also remove 'sentence'. Furthermore I would have to remove 'paragraph' and 'whole document', because they are of a higher order. What is left is an utterly incomprehensible mess – "*going to write which will explain and also be pivotal.*"

The task for mathematicians then would be to create an enormous amount of rules, to bypass this in an ever more elaborate manner. The Principia Mathematica was a monumental volume of these rules and logics and their relationship to basic axioms of a system (Nagel & Newman, 2005).

Gödel skilfully shows in his paper, that he could still create a recursive and self-referential proposition, using the very language of Principia Mathematica (Nagel & Newman, 2005). Further he shows that this is not just the case here but is true of all sufficiently powerful formal systems (Nagel & Newman, 2005).

To try explain Gödel's theorem in a rigorous and thorough way is far beyond the scope of this work, however to truly grasp the import we should attempt a birds eye view of his theory.

So firstly Gödel shows how to construct the formula  $G$ , which shows that 'The formula  $G$  is not demonstrable.' That is to say that the formula itself shows that it is, itself not demonstrable. Secondly Gödel then shows that  $G$  is demonstrable if and only if its negation  $\sim G$  is demonstrable. This in essence is saying that  $G$  is demonstrable if it is not  $G$ . However this is not consistent with arithmetic calculus, because a formula and its negation cannot be both formally demonstrable, but if the calculus is consistent then neither  $G$  nor  $\sim G$  is formally derivable from the axioms of arithmetic. Therefore if it is correct then  $G$  is a formally undecidable formula. Then Gödel shows (Nagel & Newman, 2005) that even though  $G$  is not formally demonstrable, it is still a true arithmetical formula, this is because it asserts that every integer possesses a certain arithmetical property, which is defined by whatever integer is examined. Then because  $G$  is both true and formally undecidable the axioms of arithmetic are incomplete (Nagel & Newman, 2005).

Gödel then goes on to show that arithmetic in its essence is incomplete and finally that the consistency of arithmetic cannot be proved using formal arithmetical calculus.

# System Innovation

Exploring the incompleteness of formal systems in light of Godel's theorem

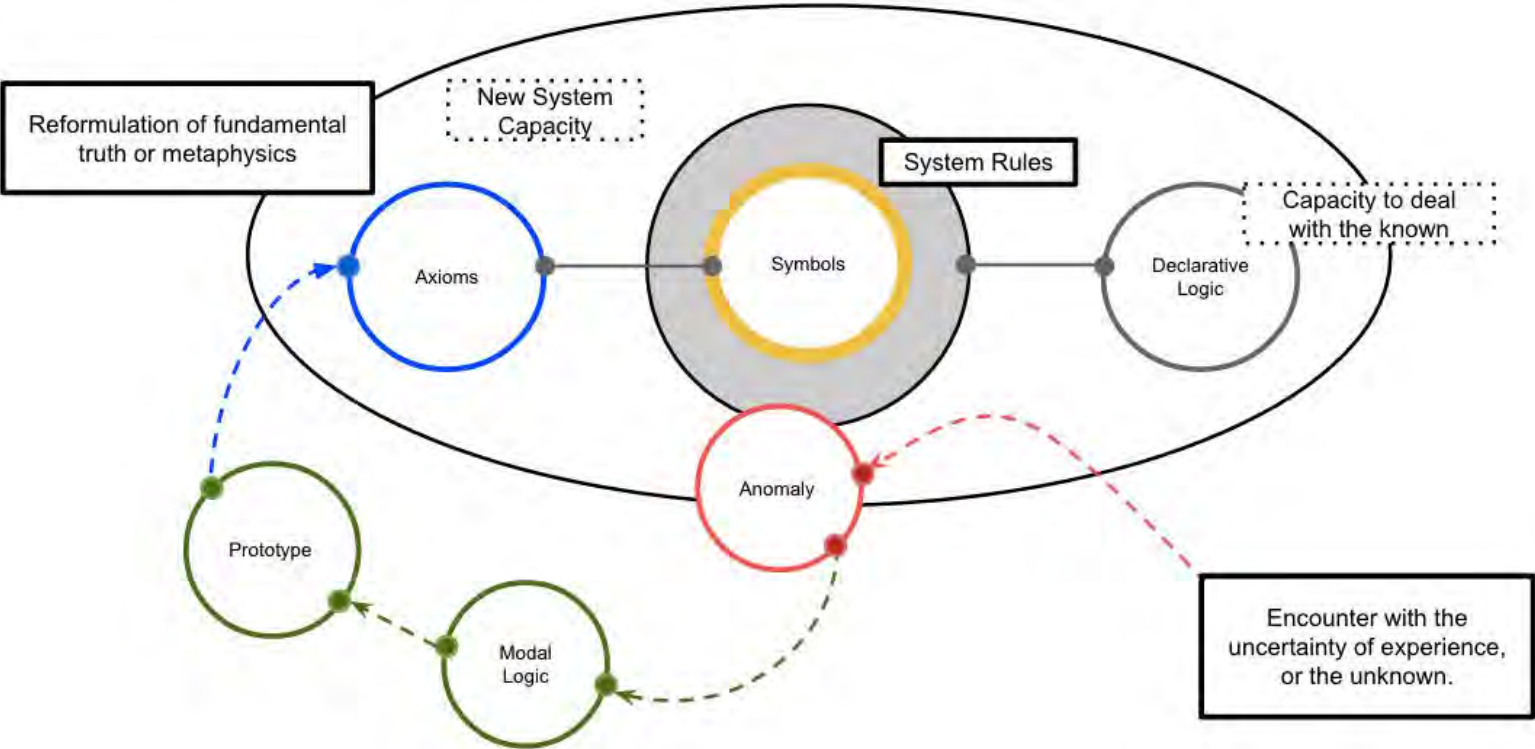


Figure 1. A model for system innovation

## **Gödel, Escher, Bach**

Douglas Hofstadter's (1979) well-known book *Gödel, Escher, Bach (GEB)* explores principally what sentience means, but specifically how basic operations can become identities of selves. In this way Hofstadter's inquiry is primarily the *question of being* – how do beings emerge from relatively simple and basic interactions? Moreover how do these interactions, which are seemingly meaningless, produce meaning at higher levels of organization?

For example, when we consider the human body, within the traditional scientific paradigm, we have a set of primitive things, such as atoms, molecules, proteins and so forth. Yet at the individual level we have a system which represents emergent properties far greater than the sum of its parts. Hofstadter believes we can use Gödel's theorem of incompleteness to help us discover this somewhat mystifying relationship. Similarly in mathematics, we have at the most basic layers some very primitive symbols and their relationships are similarly very simple ones. However, Gödel attempts to describe self-referentiality and it is this quality that Hofstadter hopes to explore. In this way he claims that Gödel's theorem is *isomorphic* to the emergence of a self – or self-referent system.

Hofstadter employs several thinking tools, which are crucial to his thesis, these being Isomorphism, Recursion, Paradox, Infinity and Formal Systems (Curry, 2007). Isomorphism here means that two systems, when mapped have similar features such that these features play similar roles in their respective systems (Curry, 2007). Moreover there is a relational structure between these features that are also similar. Recursion is simply the repeating of a certain property, element, activity or process; this could have a definable end or halting point, which would stop the recursion at some point. A very well known example of recursion in mathematics is the Fibonacci Sequence, which applies a recursive algorithm to an infinite set of integers, producing the sequence – 1,1,2,3,5,8,13... The formula can be represented as a recursive algorithm, which is a smaller way to represent this indefinite string of numbers. Another example of this is in fractal geometry, whose basic operation feeds the identity of the last recursion back into itself (very much like the Fibonacci sequence) ad infinitum. The amazing thing about fractal forms is that they give the illusion of being solid

objects, but at every deconstruction of the object you get a similar form to the whole. So we find an object, which is a whole in multiple and recursive manner.

Paradoxes have three different variances, veridical, falsidical and antinomies (Curry, 2007). A classic example of a paradox is Zeno's paradox of motion, where he shows that motion, as we understand it is impossible. This is because for our bodies to travel any discrete length it must first travel half of that distance, but to travel half of that distance it must travel half of the half, and this carries on forever. In this way he suggests that it is impossible for us to move at all. This is paradoxical because we obviously do move. Eventually the advent of differential calculus has helped us understand rigorously how motion is possible.

A veridical paradox is paradox that appears to be false, but on closer inspection is seen to be true (Curry, 2007). We may classify Zeno's paradox of motion in this category. A falsidical paradox is a paradox, which is established on false assumptions, for example the division by zero in mathematics. An antinomy (Curry, 2007) is a paradox that is reached through proper reasoning and logic and this is particularly what Hofstadter in this book explores. An example of an antinomy for example is the Liar's Paradox, whose main proposition is – *this statement is not true*. Indeed Gödel's theorem is a variant of this example, in that what the formula proposes is that it is not provable.

In the Buddhist tradition, we have a further paradox, in which a thing is both true and false simultaneously, what is called a *dialethia* in Western traditions and *Catuskoti* in Indian traditions. This offers an alternative to some paradoxes, an particularly the paradoxes that Hofstadter (1979) explores, in that they define them – for example, the liar's paradox is both true and untrue.

Infinity, which is the last thinking tool for Hofstadter, (Curry, 2007) refers to the sense that we engage in with infinity all the time. For example the integers are an infinite series, so is time and also length.

Using these distinct dimensions of inquiry, we may note that the inquiry is not merely into a static structure of the universe but into the generative mechanisms that produce

the universe, selves and beings. In this way there is a noticeable theme of inventiveness and creativity.

The central theme of the work examines the mathematics of Kurt Gödel, the drawings of M.C. Escher and the music of J.S. Bach. What characterises all these great geniuses is their ability to begin with very simple building blocks, which are related in a more than linear way. That is they are related through rules, rhythms and interlocking relationships; in essence they create patterns of relationship (what we could understand as a formal system). To add to this these relationships are recursive, isomorphic, paradoxical and infinite. These tangled hierarchies are not mere complex and tangled messes of meanings but are some of the greatest works of art, music and science ever produced. In this way Hofstadter's main proposition is that these systems are isomorphic or analogous to human consciousness and being; however I think what he eventually uncovers, much like a Deleuzian Ontology is that this fundamental (meta) pattern *is our ontology*, our world.

Hofstadter skilfully crafts his book, using these three pillars of insight (Gödel, Escher and Bach) to understand each other, and also to understand a fundamental isomorphism or metapatterning between them. He describes Escher's drawings in that they show a way in which an infinite series can be displayed in a finite way. Similarly Hofstadter says of Gödel's Theorem, "all consistent axiomatic formulations of number theory include undecidable propositions." (Hofstadter, 1979, p. 17) In this way Hofstadter proposes that these two propositions are analogous in that they both show how seemingly finite systems have infinite, recursive and paradoxical foundations. Hofstadter shows that it is impossible to design a formal system, which does not have fundamentally recursive, paradoxical and infinite features. In the work of Bach we find a very similar approach to his craft and composition. Bach's fugues are a rich tapestry of interwoven recursive musical compositions. For example, Bach would take a pattern of notes and recursively re-insert them into a musical composition, at different octaves, at different speeds and also backwards. In this way, he would create a musical structure, which was fundamentally self-referential, but also different at each recursion – this was Hofstadter calls unity between true and false beginnings and endings or strange loops (Elias, 2006).

In her article *Stumbling unto Grace* (2006), Camelia Elias proposes that what is not seen immediately in Hofstadter's writing is the creative genius at work - that it is not only about how the world is creatively produced (invention) but that it also deconstructs the process of invention itself – that GEB is a reinvention of invention itself. Her claim here is that Hofstadter in his exegesis gives insight into the nature of inventiveness by constructing the book as a series of interrelated dialogues, self referent concepts, paradoxical ends and tangled hierarchies. In this way Hofstadter suggests that the place of invention is found in the process of imaginative discovery –

“As he [Hofstadter] puts it: “Quaerendo inveniendis” is my advice to the reader” , thus implying that by seeking one will discover the place where invention can take place. For Hofstadter the relation between discovery and place is essential insofar as the question of invention falls within the category of its relation to places.” (Elias, 2006, p. 64)

The term “Quaerendo inveniendis” translates from Latin as “if you look for it, you will find it.” This in itself shows a certain recursivity which is the paradox at the heart of all invention – how do you find something, that is unknown to you; how do you let the idea of an end state guide you to itself? Hofstadter suggests the answer lies in the relational position of the inquiry, that it itself both contains the question and the answer. In this way the process of discovery is that process which leads to the place of discovery.

Elias, in her reading of Hofstadter claims that the process of invention involves a “simple process in aesthetic work: coming upon, stumbling over and ultimately writing stories out of ones own imagination have a relational function.” (Elias, 2006, p. 64) Specifically in GEB, Hofstadter uses, for example, Lewis Carroll to explore and investigate Bach's two-part and three-part inventions and in so doing generates connections, analogies and similarities. This integrative and synthetic approach uses the context of inquiry as the process of discovery to find the place of invention.

Elias explains further that the etymology of the word invention is the Latin term *in venire*, which means to come upon something (Elias, 2006), suggesting that there is something ‘already there’ - that it is in the process of emerging. Later the word became

associated with making up a story and by 1531 it come to be associated with the making of a device or method (Elias, 2006). These three different meanings of the word – finding something, creating a story and inventing a method or device – are all found within the work of GEB. In this way the main proposition that Elias makes in her reading of GEB is that, “mental and aesthetic representations involve and draw upon a poetic embedding into each other, making invention the matrix of imagination.” (Elias, 2006, p. 64)

This insight into invention is significant because it reveals an underlying epistemic mechanic or process in invention. That first there is sense of something that is significant, that something shows up as meaningful to the disposition of the inquiry. Significance is the sense of a thing, which is novel but also relevant, relational, and of interest - to be significant it must stand out within a network of relations, which it shows up as different. Thereafter this significance must be woven into a narrative to give it relevance, to justify its significance – it is to place it within a world. Lastly once this discovery becomes more crystallised, it gains consistency and becomes more reliable and regular. There are very clear similarities between this understanding of invention and to Deleuzian understanding of individuation – the process in which virtual differences when brought into relation create actual events, further there is a striking similarity here between the Heideggerian notion of clearing (sensing emerging potentials) and presence (bringing to being). We find this also within much more contemporary thinkers like Roger Martin with his ‘knowledge funnel’, which brings things from a mystery level, to a more well formed but still semi-structured heuristic to finally an algorithmic level.

Elias (2006) further explores this proposition by turning to Derrida, who in his paper, (Derrida, *Psyche: Inventions of the Other*, 1989) points to three definitions of invention. Firstly it refers to a capacity with an individual to invent, what we could call *inventiveness*. The second aspect is the actual experience of the process of invention or the experience of it and thirdly invention can refer to the product itself. This sets up an interesting contrast to that which creates and that which is created - how does the processual aspects of inventiveness become the completed form of the invention? Derrida (1989) in this explanation, reveals two competing meanings within these three understanding of invention:

“(1) “first time”, the event of a discovery, the invention of what was already there and came into view as an existence or as a meaning and truth;  
(2) the productive invention of a technical apparatus that was not already there as such. In this case the inventor gave it a place upon finding it, whereas in the former case its place was found there where it was already located. (Derrida, *Psyche: Inventions of the Other*, 1989, p. 49)”

In this way Derrida shows that meaning of invention holds within it two fundamentally opposing ideas – that of *revealing* and that of *production*. The crucial medium that differentiates these two aspects of the word is time. We can see that revealing is instantaneous – the moment of revelation; secondly production happens over a period of time as it is machined into existence. In the first sense we can see the word as something that we stumble over something of significance, in the second sense, invention as production, we find that it requires recognition and institutionalisation (Elias, 2006).

In this way Derrida proposes that in invention we are finding a truth, which is already there, because once found it is something that is apparent to everybody (Elias, 2006). Therefore the art of invention is in searching and finding that which is already there; however because it is not sufficient from an explanatory perspective so too we must create a method of invention – a research program that validates the discovery (Elias, 2006). In this understanding of Derrida, we see that his proposition of a transcendent nature of the invention - that it already exists, however this is distinctly relational way – that it is obvious in a set of interrelationships, or what we could name the Deleuzian assemblage. In this way it inverts the transcendent, to the immanent. As we see Derrida claims that, “the truth that we must find it there where it is found, the truth to be invented, is first of all the nature of our relation to the thing itself and not the nature of the thing itself.” (Derrida, *Psyche: Inventions of the Other*, 1989, p. 51) This places emphasis on the relational truth of the discovery - that the moment of revelation must be woven in to set of relational meanings.

In this way Derrida's understanding of our relation to truth, or the relation to *the* relation is of particular relevance here from the perspective of GEB. Hofstadter claims that invention is based on a set of propositions, which consist of certain truths (Elias, 2006). In describing our relational relation to truth, Hofstadter claims that invention is based on the formulation of propositions – that whatever is to be invented must have proof, even if that proof is the incompleteness of truth itself – as is the case in Gödel's Proof. So for Hofstadter proof is demonstrations within a fixed system of propositions. So the genius in Gödel's proof is not that he disproved Russell's Number Theory, but that saying the statement of number theory itself did not have any proof – therefore challenging the fundamental axioms of the whole of arithmetic. From a deconstructive perspective, Gödel found a truth that was already there and in so *invented* the incompleteness of Principia Mathematica (Elias, 2006).

Let us consider this a bit more. Gödel's manoeuvre was the very subject of the relational nature of truth – or the relation itself - in this way he aimed to not merely prove that the invention was untrue but to move back to the fork in the road so to speak and uncover the very foundations of the invention. This shows that every system, no matter how well established, has areas which lapse into ambiguity, uncertainty or the infinite. In this way he shows a very crucial insight: that provability is a weaker notion than truth – no matter what set of axioms are in place (Hofstadter, 1979).

Hofstadter shows something truly profound in this proposition, for his object of explanation here is the relation of provability and truth, moreover that proof itself is not truth, rather that truth is a structure of propositions which reveal truth. In this way Gödel is an inventor of truth because he reveals a truth that is already there. As Derrida says, in his reading Leibniz,

When Leibniz speaks of the “inventors of truth”, we must recall [...] that he means the producers of propositions and not just sources of revelation. The truth qualifies the connection of subject and predicate. A person has never invented something, that is, a thing. In short, no one has ever invented anything. Nor has anyone invented an essence of things in this new universe of discourse, but only truth as a proposition. And this logico-discursive mechanism can be called *technè* in the broad sense. Why? For there to be invention, the condition of a

certain generality must be met, and the production of a certain objective ideality (or ideal objectivity) must occasion recurrent operations, thus a utilizable apparatus. (Derrida, *Psyche: Inventions of the Other*, 1989, p. 51)

In this way, Derrida proposes that invention is the revealing of truth, much as Heidegger did before him. Moreover that this art of revealing is a matter of practical wisdom (phronesis) because it is an embodied skill of knowing what is significant, it is a function of sense. Further Derrida explains that for it to be truth there must be some ideal met, that is articulated within a network of propositions. Therefore an ideal objectivity emerges contextually within a structure of justification. It is at this point that we find many similarities with the Deleuzian simulacrum, in that from a Deleuzian (1994) perspective, an ideal objectivity is formed through fields of probability, due to the assemblage of constituent parts. That is to say the ideal is formed through differentiation. To increase this common ground between Derrida and Deleuze we need not look further than Derrida's following assertion:

“If the act of invention can take place only once, the invented artefact must be essentially repeatable, transmissible and transposable. The two extreme types of invented things, the mechanical apparatus on the one hand, the fictional or poetic narrative on the other, imply both a first time and every time, the inaugural event and iterability. Once invented, so to speak, invention is invented only if repetition, generality, common availability, and thus publicity are introduced or promised in the structure of the first time. (Derrida, *Psyche: Inventions of the Other*, 1989, p. 51)

Here we see that Derrida asserts that in the act of invention we have a moment of revelation, which begets us a prototype, a possible form of the invention; but this must be created within a public space in which the original experience of truth can be justified and repeated. The moment of revelation relates very closely to Deleuze's concept of the difference-in-itself, the original point of revelation; whereas the production of this truth is in Deleuzian terms *repetition* or the codification of the immanent into the ordered. This process for Derrida then is taking the simple and poetic instance of

revelation and creating a consistency in relation to the social world, through repetition, transmission and transposition (Elias, 2006).

It is this understanding on invention, that we find within GEB, for although his book explores certain well-established themes within art, music, literature and science – the assemblage of these things creates an emergent meaning in its entirety; but also redefines the constituent parts. Hofstadter not only brings these different themes into a comparative proximity but also uses them as epistemological tools on one another. In GEB, Hofstadter interprets set theory, through the paradoxical drawings of Escher, finding a fundamental isomorphism. Further, taking that insight, he then explores Bach's fugues to produce 21 dialogues, which creates a discursive mechanism around the nature of inventiveness, incompleteness and creativity.

The first dialogue is named after a short piece of music by Bach called the "Three Part Invention." This dialogue explores Zeno's paradoxes of motion in its two parts: 1) motion is inherently impossible and 2) motion unexists. In this dialogue he uses the characters of Achilles and Tortoise from Lewis Carol (who himself got from Zeno). Further in the next dialogue, he uses the same characters, in Carroll's "Two-Part Invention" which rearranges Euclid's theorem into a paradox. The first dialogue is centrally concerned with form (Elias, 2006) as it explores how form arises out of incomprehensibility - the main subject of Zeno's paradoxes of motion. The second dialogue, Two-Part Invention explores process (Elias, 2006) in that it explores the process in which invention occurs as a dialogue between the two protagonists. This first dialogue then, posits invention in its syllogistic form, while the second explores in a recursive manner - the question of invention. These two 'forms' of invention are key themes throughout GEB, and Hofstadter aims to show a braiding between them throughout the book.

It is a key conception of invention in Derrida's reading of Leibniz as well, as he calls for a 'new species of logic' which, in essence we could say creates a bridge between being and becoming. Once again we find an inherent similitude to Heidegger's *clearing* and *presence*, which aims to untangle form and then recreate it. Indeed this theme of dissolution and then coagulation can similarly be found in Deleuze's conception of territorialisation and de-territorialisation; all of these hark back to a more fundamental

alchemic maxim of *solve et coagula* (dissolve and coagulate). So in this way Derrida affirms:

“The game here occupies the place of a psyche that would send back to man’s inventiveness the best image of his truth. As through a fable in images, the game states or reveals a truth. That does not contradict the principle of programmatic rationality or of the *ars inveniendi* as the enactment of the principle of reason, but illustrates its “new species of logic”, the one that integrates the calculation of probabilities.

One of the paradoxes of this new *ars inveniendi* is that it both liberates the imagination and liberates from it. It passes beyond the imagination and passes through it.” (Derrida, *Psyche: Inventions of the Other*, 1989, p. 57)

This is very much the sentiment in Heidegger’s essay *The End of Philosophy and the Task of Thinking* (1966), which calls for an end to the philosophy of presence and with this a reinvention of thinking itself. However it is not through our reason or rationality but to understand the relationship between reason and creativity – which is, we may venture, *invention*.

This relationship between invention as form and also as process is the central poetic of GEB, in which Hofstadter (1979) interweaves and contrasts these two notions in a tapestry of dialogues, narratives and proofs. In these dialogues there is a focus on exploring inventiveness (process) as reasoning, logic and method; and invention as abduction and imagination; showing that both of these types of knowing are central to the process of invention (Elias, 2006).

Of particular relevance here is the dialogue, which is called “Little Harmonic Labyrinth” to explore infinite regress in Lewis Carroll’s paradox (Hofstadter, 1979). Further it uncovers how infinite regress both liberates imagination and liberates from imagination (Elias, 2006). The story undulates and embeds itself within itself, creating a labyrinthine network of referential meanings. Of particular relevance here is the notion of *teleology* or the concept of end state and its relationship in this example to the unfolding of the narrative. Hofstadter explores this by explaining recursive and nested

structures and their relationship to modulations in music. He proposes that modulations setup a temporary goal for the listener without resolution and much of the story weaves the reader into such a dialectic without resolution. In this way Hofstadter makes invention as the subject of the narrative – by showing invention (form) as a “Typless Wish” or what we could call an empty teleology; and inventiveness (process) as an open or incomplete system – that is has the ability to accommodate fundamental changes to the axiomatic structure of the system. It is in this way that we may venture that Hofstadter is offering a meta-pattern of this new type of thinking, or system. The Typless Wish reads, “I wish my wish would not be granted.” In this way the only way the wish can be granted is by not granting it, but yet to grant it would also be to grant it. In this way this paradox shows something, which is both true and false at the same time.

If we use Gödel’s theorem as an analogy to explore this Little Harmonic Labyrinth (Hofstadter, 1979), we may find some distinct commonalities. In the incompleteness theorem, we find purpose and structure – the purpose is revealing itself; its structure is incomplete such that it offers itself up, it accommodates and is plastic. In this way it reveals an essential nature, which is essenceless. We may say that this is the ideal form of tensegrity - the infinite regress; the difference-in-itself (Deleuze) or différance (Derrida) – in each case we have a non-affirming negative. In this way we see that The Little Harmonic Labyrinth and Gödel’s Theorem have the exact same paradoxical nature, which Hofstadter pulls us back into over and over in GEB.

What this means is that is that invention as form is the ability to create (or find) recursive definitions and invention as process, and is incompleteness such that the imagination can continually create new realities based on productive differences (Elias, 2006). In this way Hofstadter describes recursive definitions as,

“Such a definition may give the casual viewer the impression that something is being defined in terms of itself. That would be circular and lead to infinite regress, if not to paradox proper. Actually a recursive definition never defines something in terms of itself but always in terms of simpler versions of itself.” (Hofstadter, 1979, p. 129)

In this way we can grasp invention as a typless fragment (Elias, 2006), in that it is produced from difference and also differs to other things in sameness, which is not identical. As Gödel shows, this is the unknowability of truth – or as Heidegger would say, “The essence of truth is the truth of essence.” Furthermore as we have understood invention as a process of discovery, we can also see that invention is the uncovering of a n-dimensional knot – of interlocking analogous fragments. In this way we can say invention is fundamentally concerned in the process of unravelling and unfolding and then forming and presencing.

The truly astounding accomplishment of GEB, is that much like an Escher drawing or a Bach fugue, it conceals the infinite such that it reveals it utterly.

### **Analogy as the Core of Thinking**

In their book, *Surfaces and Essences: Analogy as the Fuel and Fire of Thinking* Douglas Hofstadter and Emmanuel Sander (2013) propose that the core mechanism of thinking is analogy. “...This thesis is that each concept in our mind owes its existence to a long succession of analogies made unconsciously over many years, initially giving birth to the concept and continuing to enrich it over the course of a lifetime (Hofstadter and Sander, 2013,p.i).” Moreover the constant analogizing of the mind, creates triggers which aim to bridge the known with the fresh experience of the unknown – “at every moment of our lives, our concepts are selectively triggered by analogies that our brain makes without letup, in an effort to make sense of the unknown in terms of the known and old (Hofstadter and Sander, 2013,p.i).”

They begin by making an inquiry into the relationship between thinking and categorization. The primary assumptions of traditional Western philosophical thought hinges on the relationship between specific and general or categorization. However a category in of itself is a very ambiguous notion. If categorization fulfilled its pragmatic purpose fully, “Every entity in the world would fit intrinsically into one specific mental “box” or “category” and this would be the mental structure to which all the different entities of the same type would be assigned (Hofstadter and Sander, 2013).” However

such a vision is naïve in its rendering of the complex richness of reality. Hofstadter and Sander (2013) therefore conceive of a category rather paradoxically as an essence of thing, which is essence-less or changeable. “For us a category is a mental structure that is created over time and that evolves, sometimes slowly and sometimes quickly, and that contains information in an organized form, allowing access to it under suitable conditions. The act of categorization is the tentative and gradated, gray-shaded linking of an entity or a situation to a prior category in one’s mind (Hofstadter and Sander, 2013,p.19).”

Categorization therefore implies a perfect naming of that which may be unknown, allowing for previously invisible or uncertain aspects of objects to be disclosed (Hofstadter and Sander, 2013). So a categorization is pragmatically involved in allowing us to discover how a situation may evolve and is an indispensable adaptive mechanism allowing us to take appropriate action. Hofstadter and Sanders (2013) then propose that if categorization is central to understanding, analogy is the mechanism that carries it out (Hofstadter and Sander, 2013). In this way, there is no clear demarcation between analogy and categorization, rather they represent two states of an ongoing mechanism, “since each of them simply makes a connection between two mental entities in order to interpret new situations that we run into by giving us potentially useful points of view on them (Hofstadter and Sander, 2013, p.21).”

They propose therefore that at every second of our day we are in a dynamic engagement with the uncertain – in a process of analogizing. What we perceive has a determinate relationship with our past as we can only formulate categories through analogy. Moreover what we perceive determines our actions – the core adaptive capacity of thinking. So it is centrally the analogizing mechanism that is at the heart of invention, which liberates the pure force of creativity into the emergence of the novel.

“We claim that cognition takes place thanks to a constant flow of categorizations, and that at the base of it all is found, in contrast to classification (which aims to put all things into fixed and rigid mental boxes), the phenomenon of categorization through analogy-making, which endows human thinking with its remarkable fluidity (Hofstadter and Sander, 2013, p.25).”

This movement of mind as category-generating analogizing machine allows for rapid inferences with relation to the uncertainty of perception. Rather than knowing things in a direct manner we engage in a reality of inferential objects. These objects themselves are insubstantial as they are constructed by analogies to other inferences, ad infinitum. This is of crucial and primordial importance to the survival of an organism, as Hofstadter and Sanders articulate, “if you try to imagine what it would be like to ‘perceive’ the world in a manner entirely devoid of categories – something like how the world must appear to the newborn... Thus if there were two creatures, one of which (an adult human being) perceived the world using categorization through analogy while the other (a computer) had no such mechanism to help it out, their competition in understanding the world around them would be comparable to a race between a person and a robot to climb up to a high roof, with the human allowed to use a preexistent staircase but the robot required to construct its own staircase from scratch (Hofstadter and Sander, 2013,p.35).”

In addition to this, Hofstadter and Sanders (2013) propose that analogizing is effectuated in a multiplicity of layers and in a nested and interdependent nature – ‘that categorization through analogy drives thinking on all levels’. They take the example of a conversation in which several hierarchical linguistic levels are operating, “First of all the choice of a specific word will of course determine the sounds that make it up; similarly, when one is typing at one’s keyboard, each word chosen determines the letters composing it, so that they come along automatically rather than being chosen one by one. Analogous words are often determined by larger structures of which they are but pieces. This happens most clearly whenever one uses a stock phrase (such as ‘so to speak’ or ‘cut to the chase’ or ‘down to the wire’ or ‘when push comes to shove’ or ‘as easy as stealing candy from a baby’), but it also often happens when no such expression is involved, because one is always working under the syntactic and semantic patterns of the language one is speaking as well as one’s own habitual speech patterns (Hofstadter and Sander, 2013,p.36).”

In this way we find a few striking points: firstly that sensory data is handled through categorization by analogizing, secondly these analogies are determined within the context of past experiences (themselves analogies), thirdly an analogical trope is instantiated as the sufficient reason for action and lastly, this *analogical tensegrity*

coordinates action in a hierarchical and nested manner. This analogical structure then determines the first point in an on-going and dynamic apprehension of reality. The structural integrity described here is founded on an irreducibility of the interrelating parts – that neither part is a part of itself but rather a processural movement of becoming.

Hofstadter and Sanders indicate also that this principle of counter-effectuation in the production of a linguistic integrity occurs on multiple global, local and recursive levels.

“Thus as much as with letters being constrained by word, the words are in a sense constrained by higher-level thoughts. And then moving further upwards, we can say that the same holds when one is developing an idea; that is the sentences one produces to express the idea are once again constrained by a yet higher-level structure, even if there is more freedom at this level than at the letter-choice level. And the same holds at the level of the conversation itself, because its overall topic, its tone, the particular people involved and so forth all constrain the ideas that will be thought of ... in summary a conversation constrains the ideas in it, the ideas constrain the sentences, the sentences constrain the phrases, the phrases constrain the words and finally the words constrain the letters (Hofstadter and Sander, 2013,p.43).”

In this insightful inquiry into the nature of linguistic structure, Hofstadter and Sanders point not merely to structure of language but to an ontological explanation of the production of reality.

In the closing chapters of their book, Hofstadter and Sanders explore that thesis that the greatest strokes of genius, insight and innovation come from the cultivated mental activity of analogy making. In particular they explore the genius of Einstein and how his particular thinking style, afforded him the ability to revolutionize the scientific world and disclose new realities that catapulted human evolution.

The discoveries made by Einstein, suggested that he saw unities, similarities and connections where almost no one else in the world saw. The fundamental insight here is not only that he made rich and fruitful analogies between previously unrelated concepts or principles, but that underlying everything he did there was unifying and

guiding belief - an *analogical trope*. This was of universal unity – it was this analogy of cosmic harmony and unity that drove Einstein creating the creative and cognitive dissonance to disclose a reality for its fulfilment (Hofstadter and Sander, 2013).

“My unflagging faith in nature's uniformity leads me to conclude that it must be possible for an ordinary lump of matter possessing normal mass to be converted into a quantity of strange mass or *visa versa*, even though nothing of the sort has ever been seen anywhere. (Einstein in Hofstadter and Sander, 2013).”

So we find that Einstein's unwavering belief in cosmic unity allowed him to perceive or intuit that which others couldn't.

## Epistemology

### Self-Transcending Knowledge

Scharmer (2009) in his book *Theory U: Learning from the Future as It Emerges* asks us to consider not how we may change a system, model or organization but rather how ‘we’ or ‘I’ can change in order to facilitate the change that is asking to emerge. Like Martin (and others) he differentiates between learning from the past and what Scharmer (2009) calls *learning from the future as it emerges*.

“Learning from the future is vital to innovation. Learning from the future involves intuition. It involves embracing high levels of ambiguity, uncertainty, and willingness to fail. It involves opening ourselves to the unthinkable and sometimes attempting to do the impossible. But the fears and risks are balanced by feeling ourselves part of something important that is emerging that will truly make a difference (Scharmer, 2009,p.21).”

This quality of the leader, to *presence* and *sense* opportunities and possibilities not yet actualized and then bring them into being – is one that is now a necessity.

“Leaders are confronted with this question to face a new challenge. The challenge is to develop the capacity for ‘precognition,’ the ability to sense and actualize emerging potentials. To do this, leaders must be able to see the emerging opportunities before they become manifest in the marketplace. This kind of knowledge can be thought of as *knowledge prior to its embodiment*, or ‘self-transcending’ knowledge (Scharmer, 2000,p.6).”

Scharmer uses the example of a painter to outline this aspect, “there are three ways to look at a painter and her work: one can look 1) at the completed painting; 2) one can watch the painter in the process of painting; or 3) one can watch the painter before she lifts a brush, as she considers the blank canvas”(2009,p.6) The painting itself is the explicit outcome of the artist activity, while the process of painting will show the artists tacit ability in bringing the painting into being; and lastly the artist in front of the blank canvas shows how the artist senses the emerging painting (Scharmer, 2009). This last

point, not-yet embodied knowledge or self-transcending knowledge is a central capacity of the modern leader – “the capacity to sense and actualize emergent realities distinguishes great entrepreneurial leaders from the rest (Jaworski and Scharmer, 2000, p.6).”

In his essay, *Self-Transcending Knowledge* Scharmer (2000) begins by differentiating between the knowledge management discussions of the late 1990’s, whose main concern was around two forms of knowledge – explicit and tacit (Scharmer referencing Nonaka and Takeuchi, 1995). He then proposes a third form of knowledge – self-transcending knowledge.

### 3 Types of Knowledge

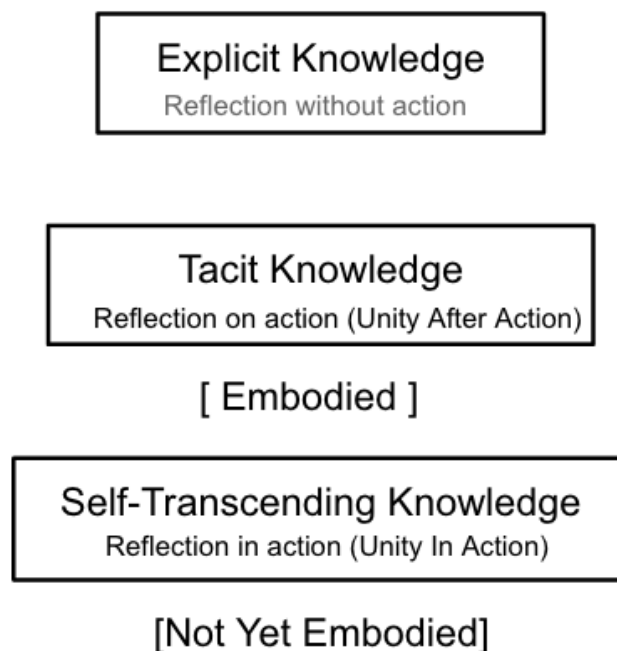


Figure 2 Scharmer's Knowledge Model

Using the analogy of ‘baking’ Scharmer outlines self-transcending knowledge as tacit knowledge prior to its embodiment: “Certain kinds of information about bread – like

weight, price and ingredients- are examples of explicit knowledge. The activities of baking and producing the bread are examples of tacit knowledge and knowledge that enables a baker to invent baking in the first place is an example of not-yet embodied knowledge” (2000,p.5).

He then couches his investigation into the history of Knowledge Management (KM) using these three types of knowledge as a benchmark. The first phase of knowledge management arose around information technology and whose focus was primarily on explicit structures of knowledge management – ‘Knowledge was conceived of as a thing (Scharmer, 2009). This understanding of knowledge as nothing but information allowed it to be stored in databases and manipulated by information processing methods.

The second phase emphasizes the *process* of knowledge as the most important aspect (Scharmer referencing Nonaka, 2000). “ Knowledge creation evolves in a spiralling movement between the explicit and the implicit knowledge held by individuals, teams, and the organization (Scharmer, 2000,p.6).”

The question then emerges, what is the force that drives the knowledge spiral itself? The third phase of KM then focuses here on the cognitive state that allows tacit knowledge to emerge in the first place (Scharmer, 2000;2009). “ Examples of this form of knowing are what Nonaka and Konno (1998) call “originating ba”; what von Krogh (1998) refers to with his notion of “care”; what Senge (1990) calls “personal mastery”; what Kappler (1993) calls “presencing”; and what Scharmer (1999) calls “not-yet-embodied” knowledge (Scharmer, 2000).”

“All of these refer to a territory of knowledge formation that is upstream from both explicit and tacit-embodied knowledge. It is the kind of knowledge Buber (1970) meant when he talked about the basic word “I-Thou,” and Heidegger (1993) meant when he talked about Being as “coming from absence into presence” and truth as coming from “concealment into unconcealment,” and what the Japanese philosopher Nishida was referring to when he spoke of “pure experience” (1990) and “action intuition” (1987). All of these scholars point at

a formative state of knowledge that precedes the separation of subject and object, or knower and known, as we will see in the following sections (Scharmer, 200,p.7).”

In this way Scharmer (2000, 2009) proposes two forms of tacit knowledge – tacit embodied knowledge and not-yet-embodied knowledge. This is significant because of the epistemological assumptions that underpin them are distinct and requires different types of knowledge infrastructure. Moreover as Scharmer indicates, “ differentiation among markets with decreasing, steady and increasing returns suggests in order to successfully compete for increasing return markets leaders need a new type of knowledge that allows them to “*sense and actualize what wants to emerge*” (Jaworski and Scharmer, 2000).”

Scharmer then maps the landscape of KM, using three epistemological distinctions and four ontological distinctions based on corporate action. The epistemological distinctions are explicit knowledge (K1), tacit knowledge (K2) and self-transcending knowledge (K3). The ontological distinctions he outlines are (Scharmer, 2009):

- A1: delivering results that create value (performing)
- A2: improving the process-based context of performing (redesigning)
- A3: improving the assumption-based context of performing (reframing)
- A4: improving the intention-based context of performing (regenerating)

A1 or delivering customer focused value creation in the end point of the other three underpinning processes, which act primarily to fulfil it. Table 1. Shows how these three ontological dimensions interact with the three epistemological dimensions K1, K2, K3 - whose interplay discloses 12 types of knowledge (Scharmer, 2000).

Epistemological /Action Type	K1: Explicit Knowledge	K2: Tacit Knowledge	K3: Self-Transcending Knowledge
A1: Performing	Know-what	Knowledge in use	Reflection-in-action
A2: Redesigning	Know-how	Theory in use	Imagination-in-action
A3: Reframing	Know-why	Metaphysics in use	Inspiration-in-action
A4: Regenerating	Know-who	Ethics/Aesthetics in use	Intuition-in-action

Figure 3. Twelve Types of Knowledge (Scharmer, 2000,p.8)

Plotting the history and development of Knowledge Management, Scharmer elucidates three stages of development, *Act 1: Knowledge About Things*, *Act 2: Knowledge About Doing Things* and *Act 3: Knowledge About Thought as the Origin of Doing Things*.

The first act understands knowledge as merely the aggregation of data accompanied by a set of rules for its translation into meaning full information. “ Examples of this are a balance sheet (know what), accounting rules (know-how), reports based on activity-based costing (know-why), and the purpose statement of the company (know-who) (Scharmer, 2009). Knowledge here is an objective and explicit piece of information about the reality that it denotes. The main concern here is “ how do these explicit types of knowledge relate and contribute to the capacity to innovate and create value (Scharmer, 200,p.9).”

The second act is concerned with the interplay between explicit knowledge and tacit embodied knowledge. Scharmer (2009) attributes much of the progress in this area to the work of Nonaka and Takecuchi (1995): “What I found was that the existing theory of information processing is not enough. The process of innovation is not simply information processing; it’s a process to capture, create, leverage, and retain knowledge (Scharmer quoting Nonaka, 2000, p.9).” The knowledge creating organization then is

one that acknowledges both stages of knowledge creation – explicit and tacit-embodied knowledge - and works on refining the interplay between these two aspects, in what Scharmer (2009) terms ‘an ever evolving ‘knowledge spiral.’ This stage is concerned with how knowledge is situated (Orlikowski, 1996), embodied and tacit – not only with the external reality but about enacting that reality. Following this Scharmer (2000) skilfully unites the themes of this period into four aspects (a) knowledge in use (Lave and Wenger, 1991); (b) theories in use (Argyris and Schön, 1996); (c) culture and metaphysics in use (Schein, 1992; v. Krogh and Roos, 1995); and (d) aesthetics in use (Monthoux, 1993; Scharmer, 1991).”

The last act as proposed by Scharmer focuses on the question, “what drives the knowledge spiral itself?” This act points to that state beyond traditional notions of self and object and between reality and imagination.

“On this stage knowledge is situated in an incipient *not-yet-acted* reality that is brought into existence through an act of *action-intuition* (Nishida) or presencing (Heidegger). The terms “action-intuition” and “presencing” signify a state of mind that transcends the distinctions between “inside” and “outside,” between “I” and “thou,” and between knowing and acting (Scharmer, 2000). This stage is concerned with how the three stages of knowing are enacted simultaneously (Scharmer, 2000,p.10).”

These three acts have three different underpinning epistemological assumptions – different relationships between knower and known (Scharmer, 2000). These are outlined in Table 2 below.

	<b>K1</b>	<b>K2</b>	<b>K3</b>
<b>Epistemology</b>	<b>Explicit Knowledge</b>	<b>Tacit-Embodied Knowledge</b>	<b>Self-Transcending Knowledge</b>
<b>Type of Knowledge</b>	Knowledge about <i>things</i>	Knowledge about <i>doing</i> things	Knowing about <i>thought-origins</i> for doing things
<b>Data</b>	External reality	Enacted reality	Not-yet-enacted reality
<b>Experience Type</b>	Observation experience	Action experience	Aesthetic experience
<b>Action-Reflection Ratio</b>	Reflection without action	Reflection-on-action	Reflection-in-action
<b>Truth</b>	Matching reality	Producing reality	Presencing reality
<b>Truth Criterion</b>	Can you observe it?	Can you produce it?	Can you presence it?
<b>Perspective</b>	External: View on <i>objective</i> reality	Internal: View on <i>enacted</i> reality	Both internal and external: View on <i>not-yet-enacted</i> reality
<b>Subject-Object Relation</b>	Separation	Unity (after action)	Unity (in action)

Figure 4 Three Epistemological Stances (Scharmer,2000,p.12)

Explicit knowledge is knowledge about things and its data point is observed reality, its experience type is based on observation and its conceptualization is based on *reflection without action*. Its criterion for truth is ‘Can you observe it?’ Tacit embodied knowledge is knowledge about things we do and its data point is situated and enacted reality, its experience type is based on action. Capturing this type of Knowledge requires reflection on ones actions or *reflection-on-action* and its criterion for truth is, ‘Can you create it?’ The last type of knowledge – not-yet-embodied knowledge is concerned with that place “where thought and action come into being’ (Scharmer, 2000,p.12).” Scharmer explains (2000) that the experience type is based on aesthetic or pure experience (Nishida 1990). In order to capture this most upstream level of social action, we have to engage in what Schön (1983) calls “reflection-in-action,” in what Csikszentmihalyi (1991) calls “flow,” or in what Rosch calls primary knowing (1999).”

These three acts, as we can see have three distinct epistemological notions, meaning three different notions between knower and known. With explicit knowledge, “ the knower produces a statement about the *outside* (reality) but cannot bring it into existence, the known. From this point of view knowledge represents a *thing* (Scharmer,

2000). The second act is related to knowledge *within* about a living process and its enactment. Self-transcending knowledge is related to reality from both *within* and from *outside*. As Scharmer (2000) indicates the locus of the denoted reality is both outside and inside; or as Nishida states (in Scharmer, 2000) neither outside nor inside the knower.

### **The Cultural Innovator**

The above-discussed ontological stances (which we may call distinctly Postmodern) describe or articulate certain *groundlessness* to as-lived-reality. They have emerged largely as a critical discussion and dissatisfaction around the master narratives of the Modernist era (Martin & Moldovenau, 2008). These philosophies such as “Marxism, *laissez-faire* capitalism, positivistic science, Lockean liberalism, and the systemic and totalitarian philosophies of Hegelian and post-Hegelian philosophies have given rise to multiple ways of thinking and patterns of behavior (Martin & Moldovenau, 2008,p.26).” Each structured on a set of ideals or posited beliefs that have created a lens in which to *act-in-the-world*. These ontological stances each create a realm of possibilities and it is for this reason that they are invaluable mechanisms in the generation of reality (or realities). However it should be also acknowledged that no one stance (unless it is one that is ungrounded in a set of inherent truisms) is able to deal with the complexity of the modern organizations or market place.

We see in our societies, organizations and business practices as a multitude of layered ontological narratives that are woven inextricably, each “equally legitimate or illegitimate, depending on their context and purpose (Martin & Moldovenau, 2008,p.26).” This is the hallmark of the postmodern era – “*many value* systems, *many* ways of knowing, *many* ways of acting and relating – many ways of managing – and many ways of choosing among them (Martin & Moldovenau, 2008,p.26).” It is the role of the innovator, entrepreneur and high value-decision-maker is to be a point of synthesis in the generation of shared (and even transcendental) meaning or ultimately *Shared Praxis* (Scharmer, 2000). This arena of shared meaning or consensual reality unifies worldviews. We may also note that, that the interaction between many worldviews may often bring breakdown, especially in synergistically engaged and

coupled systems such as in organizations and societies. This is because, “In the postmodern era, *self* evidence is dead: no single way is evidently valid to everyone in virtue of its claims. Monoparadigmaticity is a cultural relic (Martin & Moldovenau, 2008,p.27).”

This breakdown offers an opportunity for cultural innovation, technology development and synthesis of new meanings. It is therefore the role of the *cultural innovator* to facilitate this purpose (Martin & Moldovenau, 2008). He or she must be able to internalize the clash among multiple, incommensurable views of the world and resolve this clash productively.

In recognizing this fundamental quality, we simultaneously see the need for a new way thinking and acting, an embodied and integrative approach. So where do we start? The first place is addressing the ontological and epistemic foundations under which entrepreneurship, innovation and strategic management occur. We see that currently these practices operate embedded in a set of worldviews that dictate the potentiality of the action. For example; entrepreneurship traditionally operates under means of creating some new value proposition and thereby creating a new market or providing value in a novel way to an existing market. However these conceptions of value, market and novelty are treated as absolute – as if they could be applied acontextually. The blindness of this objective stance disempowers the entrepreneur fundamentally to understand the problem space – there is no self-evident value to provide to some uniform and objectively understood customer.

So how does it come to be that the entrepreneur acts within this worldview? It is with unawareness that these modes of operating are accepted - as a process of *Being*; of living in language We see then, the innovator, inept and disillusioned (Martin Moldovenau, 2008, Johannison,2011) and with it we see failure of such an astounding amount of new ventures that we have come to take for granted the high risk nature of these new ventures. It is this breakdown, this area that holds the key to a reformation of the innovative practice. If alternatively the entrepreneur or innovator understands the *situated-ness* of his venture or invention s/he may begin a dialogue with the environment, the customer or user and also himself – what Johannisson (2011) has called *existential venturing*. This may be thought of as the realization that cultural

innovation is a process of identity crafting, in order to meet the context of the venture. Moreover a deep sense of responsibility for your existence in that situation and at that time is needed -understanding the creation of meaning as one that emerges from this reflective act. - The fundamental existential stance. The primary quality of The Cultural Innovator then is the ability to reflect and act in the face of dissonance and opposing worldviews. The primary ontological basis for this is the realization of the groundlessness of reality and the construction of meaning as situated. The epistemological function then is one that is iterative, emergent and both historically and socially contingent.

As Martin and Moldovenau indicate, “The postmodern condition of management may be understood as the percolation into organizational reality and managerial practice of dilemmas and conundrums that have inhabited the core of epistemology and analytical philosophy” (2008, p.28). We may extend this insight to many aspects of cultural and technological innovation as well as entrepreneurship as an encompassing practice. In this way we can appropriate many post modern philosophical stances as starting point in the reforming of theory and practice of innovation and entrepreneurship (Martin and Moldovenau, 2008).

This multiplicity of meanings and representations can only be held together – integrated and synthesized – by an ontological stance of radical indeterminacy (Martin and Moldovenau, 2008 referencing Quine, 1951). This is a very interesting and central point in describing the as-lived experience of the cultural innovator because it means that on a fundamental ontological level there must be an acceptance of a world of many meanings and interpretations and that these *worldviews* are made *due to its groundless nature*.

Radical indeterminacy then suggests “these different representations – which come alive through managerial action and make themselves into separate realities- cannot be guaranteed to connect to each other...(Martin and Moldovenau, 2008, p.55).” Therefore decisions cannot be made on a sound logical argument alone, rather the most plausible or most valid choice must be made. It is this cognitive capacity; to choose without the possibility of objectively reducing to axiomatic premises, that is a profoundly creative act. The integrative thinker then must act when there are no

incontrovertible premises from which to motivate. Rather plausibility and meaning must be made through that action.

Consequently this indicates that the integrative thinker must have a high *plastic* cognitive ability while having a good theoretical and philosophical understanding of these concepts. Granted, these are innate and tacit abilities, yet all tacit ability comes through reflexive understanding (hermeneutics). As Martin Moldovenau state, “the very problem of ontological choice must be understood and accepted before it can be cultivated as a core managerial ability” (2008, p.63)

The Hermeneutic Circle, which may be described as - *theory, method, observation, interpretation and new theory* - indicates the circularity of generating new meaning. It also highlights the interdependent and synthetic nature of interpretation.

This process is the basis of how we make decisions to act – by observing and interpreting and then theorizing we make a choice. Heidegger (1927, *Being and Time*) explains (with regard to the Hermeneutic Circle) that this process is determined largely by the “forestructures’ that apprehend it. This means that the only way a thing may be known is through a background of interlocking meanings and representations (cf. Maturana, 1974). It points to a coupling between the way we represent things and how we investigate them – “What you know, how you know it, what you take to be real, and what you take the import of reality to be in the constitution of knowledge are intertwined (Martin and Moldovenau, 2008, p.63).”

Theories for understanding or interpreting the world emerge as dependent on the methods that give rise to them and are consequently bound to the epistemological rationality that founded the inquiry. Moreover there is no trans-paradigmatic metric that may measure the quality of a theory acontextually (Martin and Moldovenau, 2008), rather theories must be verified or refuted within its own standards of epistemic rationality.

It is the quality of the integrative thinker then to design a course of action that unifies not only competing paradigms and worldviews, but also the meaning generating apparatus that support them – their epistemic rationality (Martin and Moldovenau,

2008). What is required for the cultural innovator and integrative thinker is an engagement in these circular hermeneutic worlds not only at a logical and pragmatic level but also simultaneously on ontological and epistemic level.

Investigating how choices of theories and models are made further, Martin and Moldovenau (2008) indicate that it is only partially based on data and the articulation of data... “ But also on choice based on unconscious theories. They cite Pierre Duheim’s *data undetermine theory*, which states ‘that even if a datum refutes a theory, it is still possible to salvage that theory by making changes to its assumptions, to the theories which the measurement apparatus that has produced the datum is based (Martin and Moldovenau, 2008).’ All these factors point to a complex and nondeterministic relationship between theory, evidence and data; that there is a underlying and persistent subjectivity to reality.

As Martin and Moldovenau (2008) explain, “what you say you see does not depend only on what you see and the structure of English; rather, there are, once again, choices to be made when you put your experiences in words, even though these choices of which we may not always be conscious” (p.65).

It is an important role of the integrative thinker then as *articulator* (Johannisson; Spinosa et al. 1997; Martin and Moldovenau, 2008). This is the process of making sense of a complex social world and mediating that meaning – sensgiving (Johannisson, 2011; Martin and Moldovenau, 2008).

This indicates how central the *act of thinking* is in this area; indeed it is ultimately the process of thinking about thinking structures themselves that is what is required (Martin and Moldovenau, 2008). It is this way that the integrative thinker must constructively bridge multiple hermeneutic circles, making sense of numerous theories and methodologies existing in varying worldviews.

The integrative capacity then is the ability to think reflexively and act responsibly “in the face of multiple, incommensurable, and possibly conflicting models of oneself, the world and others (Martin and Moldovenau, 2008,p.8). Moreover we may understand

these models to not be only theoretical or representational but also embodied aspects such as, "modes of argumentation, justification and personal technologies for understanding oneself and others (Martin and Moldovenau, 2008,p.8)."

We recognize here how this is an innate and tacit ability, one that cannot be reduced to the algorithmic level and one that may not be fully explicitly represented (Martin and Moldovenau, 2008). In this way Martin and Moldovenau suggest that fostering 'productive stances and modes of being,' rather than a dissemination of instrumental methods and techniques may inculcate these tacit abilities. Knowing that when *thrown into the world* it is impossible to be consciously aware of ones action, rather it is suggested that this capacity must be embodied, it must become a way of being. This understanding outlines the importance of an *ethics* and *values* based approach to the management of innovation.

In building a tacit ability we notice that it is a way of being, that is to say it is building a disposition – an embodied stance. If we reflect on the meaning implied here, we may say that this is an autopoietic function. That the integrative thinker will organize and reorganize to meet environmental demands is very appropriate in describing a tacit and embodied ability; and although this ability will undoubtedly employ algorithmic and technical skills they will be used contextually and relevantly.

We may further infer that this embodiment, due to its nature must be fostered through a deep reflexive act into the nature of being itself. As we have seen the foundational aspect of the integrative thinker is in an ontological stance of groundlessness. This is quite significant. To truly embody such a stance requires a deep dedication to validating this belief both experientially and logically.

Once this understanding has become established, s/he must engage in what may be best described as the practice-theory (Johannisson, 2011) of the experiential epistemologist (Martin and Moldovenau, 2008). To elaborate, there is a need for a serious and dedicated reflexive practice, in which one engages progressively in a complex world. A reflexive practice that not only formulates theories, models and practices but engages in discourses about the nature of theorizing itself (thinking about thinking). This is

coupled with a deep sense of empathy, lateral thinking and big-mindedness (Martin and Moldovenau, 2008), allowing the ability to act as a bridge across multiple hermeneutic circles.

What we are interested in here as researchers is in understanding the as-lived experience of this - how does this come about? What is the relationship between theory, its practice and how it may this become embodied? These concepts have much similarity with Johannisson's (2011) discussion of *phronesis* - "Entrepreneuring as a practice is ontologically/epistemologically qualified by presenting phronesis as the relevant guiding intellectual virtue in knowledge-creating (Johannisson, 2011, p.23). "He is suggesting here that only by looking at the knowledge creating process itself may we begin to uncover the entrepreneuring, innovation and the integrative capacity.

Johannisson (referencing Flyvberg, 2001) describes the three Aristotelian virtues of *phronesis*, *episteme* and *techne* as having new relevance to entrepreneurial research (Johannisson, 2011). *Techne* refers to artisan skill and craft whereas *episteme* refers to the nature or grounds of knowledge, which in traditional science is embedded (with its normative functions and structures). *Phronesis* then is practical wisdom and that "[t]he person possessing practical wisdom (*phronimos*) has knowledge of how to behave in each particular circumstance that can never be equated to knowledge of general truths (Johannisson, 2011 referencing Flyvberg, 2001)."

It is this quality of practical wisdom, of knowing when to act and how to act and to what degree, that we may link to the integrative capacity of the high value decision maker of the future (Martin and Moldovenau, 2011). Therefore *phronesis* becomes an appropriate paradigmatic standpoint for our investigation because 1) it allows the ability to engage with as-lived experience of the innovator as one that is preoccupied the knowledge creating apparatus itself, 2) that it allows the integrative capacity and the course of the innovator and entrepreneur at once to emerge from a purely organizational or economic function and evolve to one of identity crafting and existential venturing and 3) innovation, invention and the integrative capacity are innate and tacit abilities (it is impossible to apply a set of universal truths or instrumental and algorithmic functions to them).

In this way we may posit that phronesis is pragmatically reliant on a relationship with knowledge before its embodiment (self-transcending knowledge). This notion of practical wisdom is very close to the disclosive capacity that Spinoza et al. (2007) describe in the entrepreneur. They define six qualities that show this relationship: 1) The entrepreneur finds an anomaly or a point of significance and holds onto it, thereby innovating; 2) He brings this anomaly to his everyday life and allows it to generate and disclose opportunities; 3) He makes this anomaly to his world, undergoing a process of sense-making and in the process embodying it; 4) he then moves further, having built a prototype, he begins to test this in the world; 5) in this way he must then integrate this moment of realisation with the world around him, creating the machinery of justification and sense behind them and 6) he must now move this embodiment, through his activity to the organisation which attempts to enact it; so that it become the central organising principle of that venture.

This description shows how the central capacity of the cultural innovator is a disclosive capacity:

“Entrepreneurs are in tune with the disclosive nature of human activity, in that they establish disclosive spaces held together in particular styles. By being in tune in his way – by holding onto an anomaly and instituting the practices by which an anomaly comes into focus – entrepreneurs contribute to reconfiguring the practices of their society. Thus successful entrepreneurs bring about social change by modifying the style of particular sub worlds or the style of society in general.” (Spinoza et al, 2006 p.68)

This understanding of *entrepreneurial activity* places the entrepreneur at a critical juncture in the evolutionary path of businesses, organisations and societies. Further because this activity is fundamentally disclosive, that is it enacts new worlds of being, it is and always has been a crucial component of society. However we must reclaim the notion of business, enterprise and industry from one that is principally concerned with the manipulation of resources to create new value propositions; to one that is vested in the overall benefit society. Most importantly however, *technē* the fundamental quality of the entrepreneur as discloser is what can rescue this world, which lies on the brink

of many global and local systemic disconnects. The ethics of business then is acknowledge this great responsibility and act in accordance.

## **The Opposable Mind**

Roger Martin (2009), in his book *The Opposable Mind* outlines the qualities of the integrative thinker: someone who skilfully applies the integrative thinking discipline as an indispensable antidote to complexity and uncertainty . “They have the predisposition and the capacity to hold two (or more) diametrically opposing ideas in their heads. And then, without panicking or simply settling for one alternative or the other, they’re able to produce a synthesis that is superior to either opposing idea. *Integrative Thinking* is term for this process – or more precisely this discipline of consideration and synthesis – that is the hallmark of exceptional businesses and the people who run them (Martin, 2009,p.6)”

He goes further to describe the workings of decision making, outlining four steps to resolution. The first stage understands or decides what is relevant to the inquiry, ‘*What is salient?*’ The next stage involves modeling the causal relationships between these salient features. “*How are they related?*’ Next, by keeping this causal map in our minds we gain an understanding of the architecture of the decision – ‘*What are the processes or steps of the decision?*’ Often this process happens as a mental exercise, as an organic organizing process. Lastly we determine what the criterion for resolution is - ‘*How do I know when I am done?*’

As Martin (2009) elucidates “ Whatever we decide, we’ll arrive at our choice by considering a set of features we deem *salient*; creating a mental model of *the causal relationships* among those features; arranging those causal relationships into an *architecture* intended to produce a specific outcome; thereby reaching a *resolution* of the problem at hand. (p.29)” Importantly he goes on to emphasize the ‘situatedness’ of the decision making process, “With different salience, causality and architecture, we would almost certainly arrive at a different outcome (2009,p.29).”

This last point is a critical insight into what differentiates what he calls The Integrative Thinker and his/her capacity to create new ways of *Being* and *Doing*. Martin then outlines four qualities of The Integrative Thinker, which increase their capacity to harness creative tensions. “The first difference between integrative thinkers and conventional thinkers is that integrative thinkers take a broader view of what is salient. (2009, p.29)” This indicates that this unique disposition is the opposite to the natural process of decision-making – when facing complex decisions; we instinctively strive to simplify the problem statement. Indeed much of the technical-rational and scientific paradigms are concerned with how to apply experimentation (in ideal states) to complex everyday realities.

The second difference is that, “integrative thinkers don’t flinch from considering multidirectional and nonlinear causal relationships” (Martin, 2009, p.30). Traditional decision making methodologies strive primarily to reduce complexity and non-linear causality through linear and *atomistic* relationships. This is significant because many complex phenomena are emergent – that is not reducible to basic interactions or parts.

“The third difference between integrative and conventional thinkers is in the architecture of their decisions. Integrative thinkers don’t break a problem into dependent pieces and work on each piece separately. They keep the entire problem firmly in mind while working on its individual parts (Martin, 2009,p.30).” This focus on holism and systems creates an expanded scope of application for the intervention, allowing a solution to emerge that is more relevant, valid and robust. As Martin describes, “The complexity presents a cognitive challenge that integrative thinkers welcome. Because they know that complexity brings along in its train an opportunity for a breakthrough resolution” – an unprecedented solution, the disclosing of a new world” (2009, p.31).

The fourth quality is that “the integrative thinker will always search for creative resolution of tensions, rather than accept unpleasant tradeoffs (Martin, 2009,p.31).” This concept of creative resolution is the heart of innovation, implying two principles, that of 1) striving for resolution between opposing or dissonant forces, models or

concepts and 2) the creation or generation of a novel concept, model or entity that bridges that divide.

Martin outlines three aspects that are needed to develop the capacity of The Integrative Thinker namely, *Stances, Tools and Experiences*. The first aspect, Stance describes both on the world you find yourself in and your disposition towards it. “It is your most broad-based knowledge domain in which you define who you are in the world and what you are trying to accomplish in it. Stance is how you see the world around you, but it’s also how you see yourself in that world (Martin, 2009).”

The stance taken is the most fundamental point of addressing a problem. Often we take this aspect for granted, believing that ‘we are who we are, in a world that is what it is.’ This *worldview* determines the scope of our ability to act with skill, as Martin indicates, “it guides us in making sense of the world around us and taking action on the basis of sense-making. In fact, because we are so often unconscious of our stance and the assumptions about the world that flow from it, its guidance is all the more powerful and all the more difficult to resist (Martin, 2009).”

Concurrently, the *tools* used in a situation are largely determined by the stance taken. “Tools range from theories to established processes to rules of thumb (Martin, 2009),” which “make it possible to recognize and categorize problems, and apply tools to them in the past proved effective on similar circumstances (Martin, 2009).”

*Experience* then stems from the practical knowledge of the application of tools within the chosen domains of action. “Experiences enable us to hone our *sensitivities* and *skills*. *Sensitivity* is the capacity to make distinctions between conditions that are similar but not exactly the same ... *Skill* is the capacity to carry out an activity so as to consistently produce the desired result (Martin, 2009).”

Experience supports and enhances these *tacit* abilities, allowing an experienced practitioner to improve his abilities to fine tune his capability in the chosen practice. Moreover these skills and sensitivities are mutually supporting activities: “Skills and sensitivities tend to grow and deepen in concert. As you repeat a task, you are inclined to build what you learned from previous repetition into the next (Martin, 2009).”

Through experience you are able to differentiate between finer and finer detail of that task or ability. In contrast a new practitioner is concerned with the new features of the activity, and your activity in that task. “ When we learn something new, we’re acute aware of features that more experienced practitioners take for granted...This hyperawareness of yourself and the skill you’re learning does not last long. Over time, practice transforms conscious acts into the automatic habits characteristic of mastery (Martin, 2009).”

In so doing, a practitioner becomes an adept and eventually a master in the chosen field, using a set of tools from a certain disposition. Martin calls this dynamic relationship, your Personal Knowledge System, “ Stance guides tool acquisition, which in turn, guides experience accumulation.” Furthermore this relationship is unidirectional, “ Experiences inform the acquisition of more tools (Martin, 2009),” which in turn may influence your stance or disposition.

Hilary Austen (2013) in the article *Artistry: The Territory, The Map and a Compass* gives some insight into the concept of mastery. She has developed a knowledge system that aims to support the goal of artistry, which she articulates as the balance between qualitative and quantitative modes of knowledge (acquisition), “ the enduring conflict between structure and openness (Austen, 2013).”

“Quantitative thinking – the application of numerical values to enhance understanding (Austen, 2013)” is the use of abstractions of reality in order to manipulate knowledge, with a focus on allowing us to repeat our work predictably and reliably. “Quantitative thinking allows us to be precise and to share understanding; we use it to define fairness, rationality and effectiveness and it is this utility factor that has led so many people to equate quantitative thinking with intelligence (Austen, 2013).”

Qualitative thinking is involved in the subjective experience of reality, “Qualities are physical and tangible rather than abstract: we perceive and feel them: tones, textures, movements, flavours, interactions, relationships and materials all have qualities.” Moreover these qualities are inextricably with the cognizer, as they are not generalities or abstractions.

“ Whenever you reason with sensory experience rather than with abstract symbols; whenever you act without hesitation upon what you know, while courting the possibilities of surprise; whenever you use a combination of immediate and remembered experience to predict and then revise immediate action – these are times when you are exercising qualitative intelligence (Austen, 2013).”

Her main proposal is that these two modes of knowledge are the two sides of the same coin and furthermore that *Artistry* is the “dynamic interaction between these two sides of the coin (Austen, 2013).” To enable this ‘dynamic interaction’ she proposes a personal knowledge system around three kinds of knowledge: “Directional, Conceptual and Experiential. The links among them, whether working upstream or downstream, suggest fundamental differences in how we approach our practice. To work downstream is to exploit past knowledge (*‘Mastery’*) and to work upstream is to seek new knowledge (*‘Originality’*). True artistry depends on both. (Austen, 2013).”

Experiential knowledge speaks to the qualitative or situated aspect of knowledge acquisition, the direct interaction of the practitioner with the medium and all of its qualities. Conceptual Knowledge is the “map of that (experiential) territory; it is the sum of all theories, equations and models you use to find your way through the thickets of first-hand experience and pass your knowledge to others (Austen, 2013).” Lastly Directional Knowledge are a set of ideals, values or principles “that guide your practice – even your identity (Austen, 2013).”

Similarly Martin (2009) in articulating the *stance* of the integrative thinker highlights six key features. Firstly they see models as representations of reality and not reality itself, ‘the map is not the territory.’ Rather it is a useful representation of an experiential reality, with the main aim of guiding purposeful activity. “ Whatever models exist at the present moment do not represent reality; they are simply the best or only constructions yet made (Martin, 2009).

Secondly, to the integrative thinker differences and dissonance in these representations are opportunities for the development of novelty. “...they believe that conflicting models, styles and approaches to problems are to be leveraged not feared (Martin,

2009).” Importantly at this point it is also interesting to note that the emergence of dissonance that is the perception of disharmony between models is the actual indication that change is possible and needed. This leads to the third point that they believe better models are possible even when others don’t.

The fourth point indicates a full cycle from experiential knowledge to conceptual knowledge and back to experiential knowledge – the belief that this new model is *enactable*. “ They believe that not only does a better model exist but that they are capable of bringing that better model from abstract hypothesis to concrete reality (Martin, 2009).”

“Fifth they are comfortable wading into complexity to ferret out a new and better model, confident they will emerge on the other side with the resolution they seek ... And sixth they give themselves the time to create a better model (Martin, 2009).”

Martin’s six aspects and Austen’s three-part knowledge system point to a deep relationship with many complimentary yet opposite modes – that of analysis and synthesis, divergence and convergence, dissolution and concretion, qualitative and quantitative. Underpinning these modes is an *optimism* and *faith* that sustain this practice of enactment. As Martin says, “ This is an inherently optimistic stance. Integrative thinkers understand that the world imposes constraints on them, but they share the belief that with hard thinking and patience, they can find a better outcome than the unsatisfying ones they are presented with (Martin, 2009).” Most fundamentally it discloses a positive and reinforcing relationship between imagination and reality and provides pragmatic insights as to how new worlds may be enacted.

Through this we can understand that this practical wisdom or *Phronesis* is ‘*mastery of mastery itself*’ or as Austen calls it *Artistry*.

## **Designing Business**

In his book *The Design of Business* (2009), Roger Martin calls for a reconciliation of existing value generating mechanisms in business today. He sees these two mechanisms as based on analytical and intuitive thinking respectively.

On the one side we have a model “ that holds that the path to value creation lies in driving out the old-fashioned practice of gut feelings and instincts, replacing it with strategy on rigorous quantitative analysis (Martin, 2009).” This model of value generation, centred on analytical thinking, “harnesses two familiar forms of logic – deductive reasoning and inductive reasoning – to declare truths and certainties about the world. The goal of this model is mastery through rigorous, continuously repeated analytical processes (Martin, 2009).” The aim here is to eliminate judgment bias through systematic abstraction and strive for consistent reproduction of results. The other model focuses on intuitive thinking – “the art of knowing without reasoning. This is the world of originality and invention (Martin, 2009).”

Both these modes of operation have their strength and weaknesses yet neither is satisfying to meet the demands of modern organizations. Organizations cantered on analytical thinking hone their ability around a core range of activities improving their operational capacity to replicate the original moment of their success in a reliable and consistent manner. In so doing these organizations cripple their ability to adapt to the changing nature of the markets they are embedded in. Concomitantly those organizations that focus the intuitive insights operate at the mercy of those seemingly random breakthroughs without any hope of developing the innate innovative capacity, to meet a changing market landscape. “Neither analysis or intuition alone is enough... The most successful businesses in years to come will balance analytical mastery and intuitive originality in a dynamic interplay that I call *design thinking* (Martin, 2009).”

Martin (2009) goes on to describe what he calls the knowledge funnel or the movement from *mystery* to *heuristic* to *algorithm*. Design thinking is that organizational disposition that allows the movement along this knowledge funnel (Martin, 2009) and more importantly this allows the ability to develop long-term advantage and resilience.

These three levels represent the three stages in which some unknown value may be ‘unearthed,’ then better understood and finally mastered. The first stage - the mystery

level, refers to the deep and wide area of the initial inquiry. The next stage in the funnel, the heuristic refers to a narrowing of the field of inquiry to a more ‘manageable size.’ It is a way of thinking about the mystery that provides a simplified understanding of it and allows those with access to the heuristic to focus their efforts. Over time the organization that places much effort and focus on a heuristic, may take it to the algorithmic level or a fixed formula.

Moldovenau (2009) equates the mystery level to a hunch or a *prelinguistic intuition*. This is quite significant as it honours intuitive knowledge in its most raw form, as *feeling* or *sensing* that will remain beyond words or explanations. Indeed we may be able to explain much about that moment in retrospect but at that time this breakdown will cause a creative engagement with the unknown – a dynamic coping with environmental stress.

Keen observation of this through experience and time, will show the emergence of a heuristic or rule of thumb.”...heuristics are *open-ended prompts* think or act in a particular way... Heuristics offer no guarantee that using them produces certain results. Rather they contain the vague promise that, all things being equal, using that heuristic in the context it is meant for *may*, or on average will be better for you than not using it. Heuristics are different from hunches in that they are *explicit*: they bring intuitions into language (Moldovenau, 2009).” Lastly algorithms guarantee a uniform result in the absence of any catastrophe or unusual anomaly, they certified production processes (Moldovenau, 2009).”

Heuristics lie at a critical juncture between the known and the unknown – it provides a path of organized exploration of what could be. For example, when trying to get to a new destination we may use a map, or the sun or some other landmarks to guide our exploration. Over time we may explore several routes in dependence on the markers we have available to us. While some might value efficiency and try to limit travel time, others might enjoy the view of a particular route. To add to this, our preferred choice might change due to the time of day taking into account traffic or a beautiful sunset. Heuristics allow us to gather many messy and uncoordinated variables into a salient and cohesive exploration of possibilities.

Algorithms thereafter, “take the loose, unregimented heuristics – which take considerable thought and nuance to employ – and simplify, structuralize and codify them to the degree that anyone with access to the algorithm can deploy it with more or less efficiency (Martin, 2009).” If we expand on the above analogy, we would use an algorithm as a set of specific directions to communicate (to a group of people) how to get to an event. In this instance many of the variables and possibilities of the original process will be omitted for the explicit purpose of sharing this specific route to a place at a specific time. We see then that as the purpose is made more specific, the way to fulfill that purpose becomes more prescriptive. Concomitantly the applicability of this algorithm will be quite limited: the set of prescribed directions will be quite reliable and also very valid for the situation – to communicate clear directions to a specific place at a specific time, however they become far less valid when applied to other similar situations. The goal of reliability then is to produce repeatable results that are predictable while the goal of validity is to produce results that meet the desired outcome.

“As understanding moves from mystery to heuristic to algorithm, extraneous information is pared away; the complexities of the world are mastered through simplification (Martin, 2009).”

In this way we can see that the knowledge funnel may be seen on appropriated in two broad functions: 1) to explore new possibilities and knowledge, what Martin (2009) calls *exploration* and 2) to capitalize on existing knowledge or what he calls exploitation. “Devotion to *exploration* is the *invention of business*, a risky proposition and the reason that nine of ten entrepreneurial start-ups expire in less than two years. Exploration alone is unstable business (Martin, 2009).” The *exploitation* of knowledge within a given stage – that is, running an existing heuristic, gently honing and refining it but not seeking to move knowledge to an algorithm or running an existing algorithm and not seeking to explore the next mystery – is the *administration of business* (Martin, 2009).”

Most organizations take the common path, whereby some great insight has generated a new value proposition. It then proceeds to experiment and hone their ability deliver that value proposition with greater efficiency and accuracy. Over time a competitor will

emerge and drive a new value proposition from mystery to heuristic to algorithm and in effect taking over the market.

So what is the reason so many businesses, organizations and companies fall into the trap of taking a disposition that is either exploitation or exploration. Martin (2009) indicates that this is mainly because they adopt analytical thinking as their main organizing principle. Furthermore as time ensues this causes an ever-increasing reliance on these forms of thinking making them rigid and fragile. Moreover in an organizational culture steeped in *analytical thinking*, that is one that is based on proof emanating from the past, the alternative of *intuitive thinking* seems like complete self-sabotage.

Martin (2009) suggests that the answer lies in what he calls *the Design of Business* or the balance between these two modes: *exploitation and exploration*; a focus on *reliability* and a focus on *validity*; *analytical thinking* and *intuitive thinking* – “that helps a company both hone and refine within the existing knowledge stage and generate the leap from stage to stage. (Martin, 2009).”

*The Design of Businesses* then is a meta-organizing intelligence that knows when and how to apply these two opposing modes of thinking. The main thinking discipline in this regard is *abductive logic* – or the logic of what might be.

Pragmatically this means that the Design of Business can be broken into three essential components “1) deep and holistic user understanding; 2) visualization of new possibilities, prototyping and refining; and 3) the creation of a new activity system to bring the nascent idea to reality and profitable operation ( Martin, 200).”

## **Design Thinking**

The *design thinker* helps the organization “balance between exploration and exploitation, invention of business and originality and mastery (Martin, 2009).” The main process in this is the use of *abductive logic* – a concept first developed by Charles

Sanders Peirce. His major insight into the field of innovation was that new ideas cannot be proved in advance, rather they can only be validated in time.

“ To advance knowledge, we must turn away from our standard definition of proof – and from the false certainty of the past – and instead stare into a mystery to ask what could be (Martin, 2009,p. 25).” In this way the abductive thinking discipline sits middle way between the past-data driven world and the knowing-without-reason world. Most organizations are dominated by forms of inductive, deductive and declarative reasoning, which emphasize understanding what is and what is operative. New ways of being and new knowledge however can only emerge from asking about what could be.

Therefore the design thinker is constantly striving for the most valid solution, knowing that all past driven data are *hypotheses* and not fact. This belief stems from the lucid insight that if it has worked in the past it does not necessarily mean it will still work , hence “the real empiricist is a ‘first-rate noticer’ of precisely the anomalies that would cause him or her to throw out the all things equal assumption (Martin, 2009).”

In this way, Martin (2009) describes a Design Thinker as someone who is “constantly seeking a fruitful balance between reliability and validity, between art and science, between intuition and analytics and between exploration and exploitation.” Furthermore in achieving this the design thinker and the design thinking organization applies the most crucial tool of abductive reasoning to the problems of business.

To understand the true import of this mode of thinking we must first examine the modes of thinking on which the scientific paradigm -which has monopolized modern thought – is built. These are deductive and deductive reasoning, whose main goal is “ to allow the speaker to declare at the end of the reasoning process that a statement is true or false (Martin, 2009).”

Deductive logic is moving from the general to the specific - because all crows are black, if I see a black bird I can deduce it is a crow. Inductive logic is moving from the specific to the general – because all the children I have observed enjoy playing with Lego, all children like playing with Lego. However these two forms of logic are not the full picture, it is apparent that the acquisition of knowledge is not an abstract and purely

conceptual exercise but that that one is necessarily bound to the environment of action and also to experience (Martin, 2009).

The early pragmatists argued in fact that new knowledge could only come about through the synthetic process of dealing with uncertainty in one's experience (Martin, 2009). One of those pragmatists, Charles Sanders Peirce, "in fact argued that no new idea could be proved deductively or inductively using past data. Moreover, if new ideas were not the product of these two forms of accepted logic, he reasoned, there must be a third fundamental logic mode (Martin, 2009). Peirce argued that new knowledge occurred through 'logical leaps of mind'... "New ideas arose when a thinker observed data (or even a single data point) that didn't fit in with the existing model or models (Martin referencing Charles Sanders Peirce, 2009)."

## Disciplined Imagination

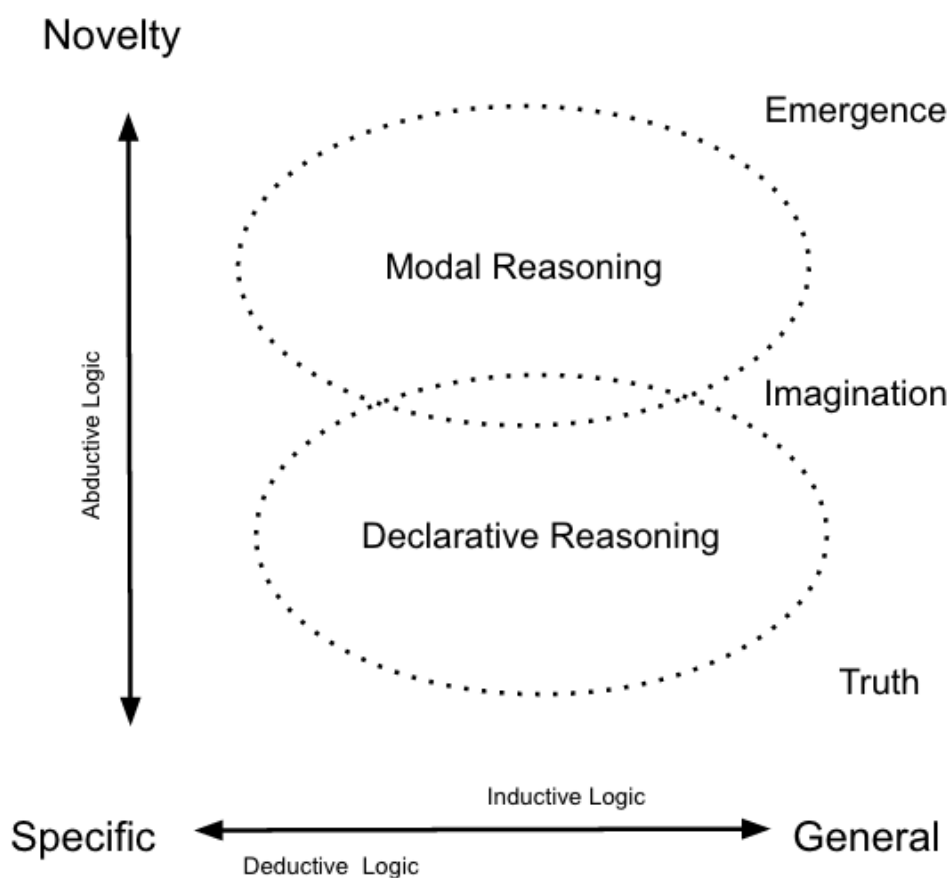


Figure 5 Modelling Abduction

This ‘inference to the best explanation’ started with the observer trying to make sense of what was observed, he called this third type of reasoning *abductive reason*. This was not concerned with declaring what is true (*declarative reasoning*) but what could possibly true (*modal reasoning*).

We notice in this description a few significant points: firstly the seeking out of breakdowns, disharmonies and dissonance as the true seeds what is asking to emerge, secondly the use of *correct* or *valid imagination* to simulate new possibilities and thirdly using direct experiential knowledge to navigate and inform the becoming emerging reality.

### **The Integrative Thinker’s Toolbox**

Martin (2009) outlines three main tools to be used by the integrative thinker, in his book, *The Opposable Mind*: 1) Generative reasoning; 2) Causal modeling; and 3) Assertive Inquiry.

Generative reasoning is the use of modal reasoning and specifically abductive logic (as explained above) to think about possibilities and generate new concepts of what may be. As Martin explains, “In essence, abductive logic seeks the best explanation that is, it attempts to create the best model – in response to novel or interesting data that doesn’t fit an extant model. Deductive or Inductive logic might prove such a modal true or untrue over time, but in the interim, abductive logic generates the best explanation of the data. That’s why I call this process of using abductive logic ‘generative reasoning.’ (Martin, 2009).”

This type of thinking facilitates the trial and error that is needed to find creative resolution. Through multiple prototypes, iterations and evolutions, integrative thinkers use generative reasoning to work through this messy and unknown terrain of what does not yet exist - working back from resolution to architecture to causality to salience (Martin, 2009). Starting with the unknown, they navigate using the tool of generative

reasoning progressively shedding light on the emerging reality, through organized exploration and deliberate experimentation.

The next tool at the disposal of the integrative thinker is causal modeling, “sophisticated causal modeling is a crucial underpinning for causality and architecture, the middle two steps of the integrative thinking process (Martin, 2009).” Martin goes further to highlight two types of causation relevant to the causal mapping: material causation and teleological causation. “Material causation, which says that under a certain set of conditions, x causes y to happen (Martin, 2009).” Teleological causation asks “what is the purpose of y, or why do we want y to happen? (Martin, 2009).”

Systems dynamics mapping is a process of mapping complex systems that helps clearly visualize complex and non-linear causal relationships. Of specific import here are feedback loops that generally accelerate relationships between variables (Martin, 2009).

“Systems dynamics tools help integrative thinkers consider complex causal loops in creating their models and help them build models in which the whole is viewed together rather than split into discrete components. In fact, in systems dynamics, the whole must be held in mind to capture and understand all the relevant causal feedback loops (Martin, 2009).”

These two tools, generative reasoning and causal modeling are very potent tools at the disposal of the integrative thinker. They work together to create novel models that take into account phenomena, data and ideas previously not accounted for. Moreover they give the modeler the tools to ‘recover the memory of the whole’ - or keep in mind all the complex dynamics of the whole. To this Martin, (2009) add radial metaphors to act as a trope for the exploration and investigation. “The radial metaphor helps the integrative thinker in two ways. First it helps thinkers conceive of the situation at hand in a way that is conducive to creating a new model. The radial metaphor also helps with the cognitive heavy lifting of keeping a coherent whole in mind while honing the individual parts (Martin, 2009).”

The third important tool Martin outlines is assertive inquiry, whose main aim is to foster a deeper relationship between modeling and reality. The processes of modeling aspects

od reality, is inherently bound to the subjective experience of the modeler. In order to ground the generative aspect of innovation, these models must be based on foundation collaboration and consent. “ When you use assertive inquiry to investigate someone else’s mental model, you find saliences that wouldn’t have occurred to you and causal relationships you didn’t perceive (Martin, 2009).”

Assertive inquiry is a “ sincere search for another’s views ... and tries to find gaps in understanding...it seeks common ground and tries to fill gaps in understanding (Martin, 2009).” In this way this process can continue to reinforce both generative reasoning and causal modelling.

## **Ontological Design**

In their book *Understanding Computers and Cognition* (1986), Winograd and Flores propose a new foundation for design. This is not the design of artefacts, but in the design of new way of being. This new design imperative emphasises innovating within the *preunderstandings* of a social context. Therefore fundamentally this is the design of synthetic and integrative structures that facilitate new ontologies, these new ontologies in turn allow for the emergence of technologies, which enact these emerging potential realities into being.

“The most important designing is *ontological*. It constitutes an intervention in the background of our own heritage, growing out of an already-existing ways of being in the world, and deeply affecting the kinds of beings we are. In creating a new artifacts, equipment, buildings and organizational structures, it attempts to specify in advance how and where breakdowns will show up in our everyday practices and in the tools we use, opening up new spaces in which we can work and play. Ontologically orientated design is therefore necessarily both reflective and political, looking back to the tradition that formed us but also forward to as-yet-uncreated transformations of our lives together. Through the emergence of new tools, we come to a changing awareness of human nature and human action, which in turn leads to new technological development. The designing process is part of this dance in which our structure of possibilities is generated.” (Winograd & Flores, 2006, p. 163)

As we see have seen from our discussion above, the Postmodern world is an interwoven tapestry of ontological narratives. Each which their own means of knowing, being and doing, so in turn there is a need for a rethinking of design, from a art preoccupied with the design of instruments or as a purely aesthetic endeavour. This rethinking, asks for a practical wisdom, that has the ability to be present to these often-incommensurable narratives and create new ways of generating meaning that unite these differing worldhoods. Furthermore, ontological design is founded with the understanding that systems are open, incomplete and in evolution; therefor a major concern of this new design is in the development of mechanisms, which allow for dealing with the processes

of on-going *breakdown*. These mechanisms deal with the breakdown, by creating means of what we may term *teleological design* – or the ability to dynamically generate system goals, through dialogue, learning, consolidation and generating new dispositions.

Therefore what is apparent from this discussion is that we need to move *design* from a *thing* to a process of *designing*, an activity. This is a pivotal insight for design – that design is not a detached activity that happens periodically but is one that is a necessary function of any social and technological structure. We have inherited a legacy of design philosophy, which privileges an objective view – we see this in the design practices, which are based on the manipulation of raw materials into objects. For example within a typically modernist view, we have the emergence of modernist architecture, which privileges abstract and ideal forms. The result of the modernist regime on architecture is the monolithic, sterile and machine like buildings that litter our cities; that privileged efficiency, and reduction of cost above human need. The results were buildings, which after few decades broke down and became uninhabitable.

Following this we see that ontological design as the design of systems, which self-regulate and are evolvable. To this we have to acknowledge that to enable this, human cognition must be placed centrally in an on-going process of *designing*.

In this milieu of design as an activity, Winograd and Flores (2006) present the first real explanation of technological ontological design. This approach draws from a typically Heideggerian tradition, exploring in much greater depth some of the thoughts Heidegger around technology and its role in society.

They begin by exploring a central concept to in Heidegger's ontology, *readiness-to-hand*. As we have explored earlier Heidegger compares *ready-to-hand* and *present-at-hand*; these two phenomena relating to two distinct aspects of *being-in-the-world*. Present-at-hand refers to what Heidegger describes the *metaphysics of presence*, which is concerned with the ontic status of a thing – it is looking at objects which are immediately apparent or eternally present in an ideal way. This phenomenon is an object of thinking – of what Scharmer terms *reflection-on-action*. *Ready-to-hand* refers

to a prereflexive state, or state before thinking – a background of *preunderstandings* from which we operate.

When we engage in the world, we have a shared background of history in which we all share. For example, we have a set of cultural norms, language and ways of speaking which make communication and engagement in the world possible. In this way our backgrounds give us the affordance to be able to communicate easily and effectively. Winograd and Flores (1986) call this *transparency of interaction*, in that it allows interactions between people and within social context to happen ‘naturally’. Furthermore they propose that this is central in the design of technologies, because technologies, which have transparency of interaction, are easier to use and thus enable human activity. To do this, design must be *ontologically clean*, which means it presents an experience, which is consistent with the domain of understanding, it is within. In this way the user is *driving* and not commanding, there is an assemblage with the system that is intuitive and natural.

Following this Winograd and Flores (1986) emphasise another Heideggerian concept, *breakdown*. This also relates to the concepts of *ready-to-hand* and *present-to-hand* in that *breakdown* occurs when we stop acting in the world and step back and reflect on it. The classic example of this is when a pen stops writing, at that point we stop writing and we become aware of the object, pen. In this way we become aware of the world in a particular way, which allows us to examine it. In this breakdown worldhood appears, a set of interrelated equipment, purposes and identities. In this way breakdown is a design opportunity, a necessary process which is indicative of the evolutionary development of the system. Design then must facilitate processes, which dynamically deal with breakdown, not as system failure but as means of evolution.

The third characteristic of technological design is an understanding of *blindness*, this emphasises that any system that is developed within a set of basic axioms will *always* have certain blindness. This like breakdown cannot be avoided, but must be embraced, as a means of system development. However if *blindness* is not accepted, that is if we believe a system may solve a problem indefinitely we run the risk of designing systems, which are irrelevant and fragile. Therefore a key aspect of *ontological design* is in being aware of the possibilities, which are being eliminated in its construction.

Another key concept that Winograd and Flores (1986) explore is that of systematic domains. This is a domain, in which a recurrent pattern of breakdown occurs (Winograd & Flores, 2006), that leads to the development of a set of rules and laws to deal with these breakdowns. In many ways this is similar to a *formal system* within mathematics, that it is a systematic approach to a recurrent pattern of breakdown. Technology offers a distinct mechanism for human activity within these systematic domains, particularly as a mechanism of extended human cognition. Through leveraging the huge processing power of technological systems, we are able to identify much larger insight into the world around us, but also allow greater abstraction of it. In this way technology affords us domain specific ‘enhanced cognition.’

In the essay *The Question Concerning Technology*, Heidegger expresses that the advent of cybernetics represents the completion of the project that began with Aristotle. In this epoch, being is treated as a resource that can be manipulated; it is the attempt of man to finally exercise complete dominance over being. In this way, we are left with a *technical rationality*, that limits the possibilities of our existence. As we see from the enactive traditions, which are similarly based on autopoietic theory, as we change a domain of interactions, the system that interacts with it is also changed. In this way this paradigm of *presence* limits the evolutionary means of humanity. “There is a fundamental circularity here: the world determines what we can do and what we do determines the world.” (Winograd & Flores, 2006, p. 177)

Technology is a particularly powerful because are “machines for acting in language” (Winograd & Flores, 2006, p. 178), by using them we engage in a discourse that is set down by their designers. In this way we act in a domain of interactions that are brought-forth from a very specific background of understanding (Winograd & Flores, 2006). In most cases the design background is based on a rationalistic tradition that is at its very core antithetical to the nature of being, or to us (Winograd & Flores, 2006).

From a design perspective technologies built in this way will necessarily create many breakdowns, in their use. Moreover, systems built from this *technical rational* paradigm, engender a certain *hard wiring* of cognitive processes. As we see from the enactive tradition, the viability of any system is based on its plasticity in creating new

ways to adapt in precarious conditions. By interacting in a technical rational paradigm, we cut ourselves off from our innate right as creators and inventors, because we reinforces our role as merely ‘decision making things in the manipulation of representations.

More profoundly, as we engage with these systems, we are ultimately imposing a technical rationality – a cognitive perspective, a way of *being –in-the –world* – which effects the way we see ourselves, others and the world we live in. This has huge ramifications for us as a species, for if we see the world as merely a resource to be exploited, we will see ever increasing amount of macro and mundo systemic disconnects. The effect of this is already very apparent.

However Winograd and Flores (2006) claim that for this very reason we can turn the tables, so to speak, That we may, as Heidegger suggested use technology as tool of human evolution and transformation. The reason for this is because technology is a way of *acting in language*, this is important because language makes distinctions in being. In this way technology has the potential to bring forth worlds that connect us back to our *humanness*, back to our role as ‘shepherds of being’ as Heidegger would say. As Winograd and Flores (2006) say at the closing of their book:

“In ontological designing, we are doing more than asking what can be built. We are engaging in a philosophical discourse about the self – about what we can do and what we can be. Tools are fundamental to action, and though our actions we generate the world. The transformation we are concerned with is not a technical one, but a continuing evolution of how we understand our surroundings and ourselves – of how we continue becoming the beings that we are.” (Winograd & Flores, 2006, p. 179)

## Disclosing New Worlds

Spinosa, Flores and Dreyfus (1997) in their book *Disclosing New Worlds* describe all pragmatic activity as being organized by a *style*. This is a very appropriate framework for our exploration of business models.

The description of the *style* of each of the interacting business models will be a central concern of the investigation. The style is a concept akin in meaning to the notion of *Worldview* (described in Soft Systems Methodology) and Heidegger's concept of *Worldhood*. According to Heidegger a *Worldhood* is comprised of three interrelated parts – *equipment*, *purpose* and *identities*. That is, a *Worldhood* is a “totality of interrelated pieces of *equipment*, each used to carry out a specific task... these activities are undertaken to achieve certain *purposes* ... (and) finally this activity enables those performing it to have *identities* (Spinosa et al., 1997).”

They further distinguish between style and disclosive *spaces*, “We have already specified that a disclosive space is organized as an interrelated set of equipment relations, plus roles that give a point to the activity of using that equipment. But in order for things, people and selves to show up as *meaningful* (as opposed to merely effective), this organized activity needs a further level of organization, which we call *coordination*... That all of our disclosive spaces are organized in a more-than-equipmental way becomes apparent if we consider the everyday phenomenon of familiarity (Spinosa et al. 2007).” This refers to the experiential truth we all share – that things seem familiar even when we haven't experienced them before – a fundamental continuum of experience.

Therefore style is “ the ground of meaning in a human activity system (Spinosa et al., 2007)” and it is this exact area that the ethnographic study hopes to address and interrogate.

A style of organizing pattern “or the coordination of actions, opens a disclosive space and does so in a threefold manner: 1) *by coordinating* actions, 2) by determining how things and people matter and 3) by being what is *transferred* from situation to situation.

These three functions of style determine the way anything shows up and makes sense for us (Spinosa et al., 2007).”

Through the fieldwork it will be precisely the *style of organizing* that is to be elicited. Spinosa et al., go further to describe a method of ‘involved experimentation’ in which reflective practitioners may engage with disharmony in a deep, deliberate manner to bring about evolutionary and purposeful change within the system. This involves three processes namely – *articulation*, *reconfiguration* and *cross-appropriation* – which may through involved engagement may cause the style to change.

Articulation is when a style is defined and described in greater detail, that is the process of being aware of the style itself. “All articulating makes what is implicit explicit. If what is implicit is vague or confused, then we speak of *gathering from dispersion*. If it was once important and has been lost, then we have the special kind of articulation we call retrieval (Spinosa et al., 2007)”

Reconfiguration then represents a larger shift in the style, what may most closely be described as a form of recombination of parts of a systemic whole. Although it represents a fundamental change in the workings of the style it does not include a departure from its intrinsic meaning. “ In the case of reconfiguration, a great sense of integrity (experienced in articulation) is generally *not experienced*. Rather, one has a sense of gaining wider horizons (Spinosa et al., 2007).”

Cross-Appropriation can be seen as changes occurring between two disclosive spaces or *Worldhoods*, specifically the adoption of a practice or set of practices “that it could not generate on its own but that it finds useful (Spinosa et al., 2007).” Cross-appropriation is often associated with large-scale change, representing a significant change in the coordination of the style.

These three skills are different ways in which *disclosure* may occur and bring about historical change. This concept of *historical change* is fundamental to a reckoning of the evolutionary mechanism. Historical change refers to a constructivist view, that people sense them as *continuous* with the past and therefore as *meaningful*. This is contrasted with discontinuous change that is an imposed order. Therefore these skills

of *disclosure* are involved in the discovery of what might be called an *implicate order* and it is this *revealing* that is the primary activity of designing and creating purposeful systems.

## **The Lived Experience**

This section of the thesis is called ‘The Lived Experience’ because it aims principally to describe the phenomena encountered, in its making – which took about one year to complete. During this time period, I was involved in numerous business model projects, however only one of these interventions are documented here – the business model innovation work for a new model for online learning. This project was embedded within a much larger ecosystem design, whose overall strategic goal was to improve job opportunities through skill development, within the Western Cape.

The rest of the section has been dedicated to an investigation into the general phenomena of the business model innovation process – spanning several projects during this year. In line with the phenomenological methodology, these phenomena aim to attempt a description of the essential nature of the process. This part has six chapters which each aim to disclose a key dimension of the journey. These chapters were constituted from notes and journal entries during the yearlong period; and so is a synthesis of an on-going process of self-disclosure within numerous fields of intervention.

The first one, *A Triangulation of Space* looks specifically at the existential phenomena present during the period, while the last five focus on the process of innovation within business specifically.

## **A New Paradigm for Learning**

Education is one of the most fundamental needs facing Africa and indeed the world today. In Africa, many challenges exist in the education arena, with many citing the quality of education offered in the continent as being low. There are many challenges faced within the African context regarding the provision of learning. These include access to early childhood education, primary and post primary education, including vocational education and training; shortages of basic facilities, infrastructure, equipment and teaching and learning materials; a shortage of qualified teachers within the continent and an inadequacy of investment in education have all assisted in impeding access, quality and achievement of international targets for education. Within the South African context, the challenges of education and the provisioning of learning have received much focus, with the introduction of a number of initiatives to address such challenges. This initiative seeks to help by enabling self-direct learning in order to help meet the skills and education demands of the country. It focuses on creating a holistic model of learning, which ensures the ability to understand and interpret content and create relevant solutions based on individual learning.

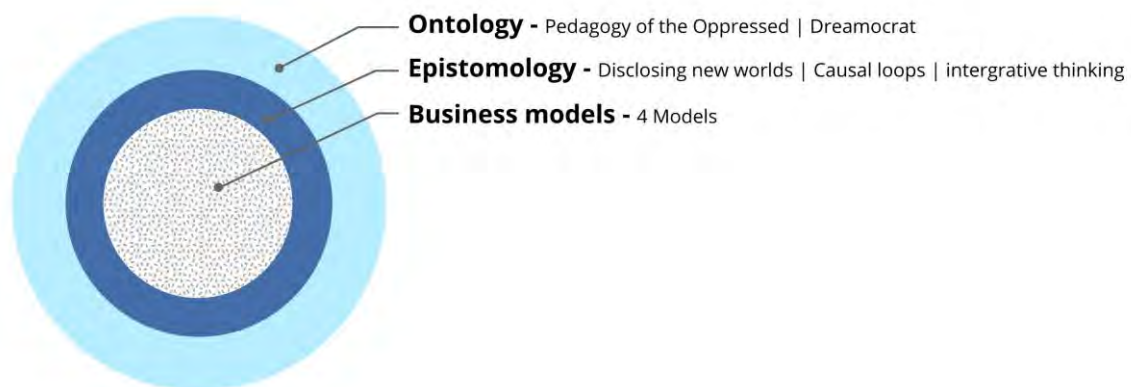
### ***Situation of Concern***

There are currently many ways of accessing content about a area of knowledge over the Internet; however, most of the current models of online learning systems/platforms seek to ensure knowledge transfer, and focus on the transference of explicit knowledge. Focus on only this form/type of learning is concerning as it only provides knowledge about things (as opposed to knowledge about doing or knowledge about new ways of doing things). It further places focus on data related to the external reality (as opposed to the enacted reality or not-yet enacted reality) and only allows for learning in abstraction or reflection without action. In essence, it does not provide the learner with the ability to understand, experience, and make contextual sense of knowledge. Therefor application of the knowledge in a practical and pragmatic way is often difficult. The predominant existence of such platforms compounds the challenge of ensuring a quality education in the South African context, and highlights the need for an online learning platform that creates a holistic learning experience providing

knowledge about things, knowledge about doing things and knowing about thought-origins for doing things.

### ***Approach***

In order to conceptualize and design a Learning Management System that seeks to ensure holistic learning, we have used a particular lens for the intervention. This lens comprised of the ontology, which enabled the team to gather an understanding of the philosophical underpinnings of the current education system; the epistemology, which outlines the methodological processes we engaged in, while creating a new model for learning within the context of the broader job economy and ecosystem and; the business models, which included a presentation of varying learning models based on different philosophies of learning.



**Figure 6 Ontological design approach**

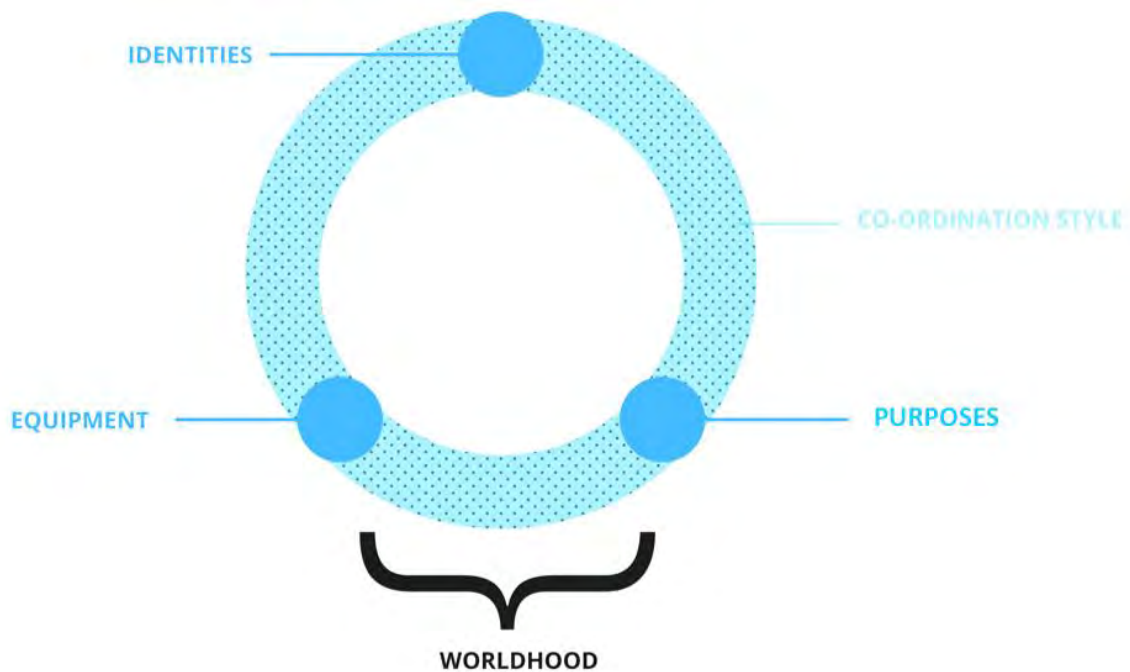
### ***Pedagogy of the Oppressed***

Paulo Freire wrote the Pedagogy of the Oppressed in 1970. It seeks to describe the contradiction between the oppressors and the oppressed, and how this dichotomy may

be overcome. The main proposition here is that liberation is not a gift or a self-achievement, but a mutual process. Freire presents the “banking” concept as a means to describe the current education system, highlighting this concept of education as a means of oppression because it treats the student as an empty vessel to be filled with knowledge, like a piggy bank. This presupposes that the student is absent of knowledge and experience and presents an objective view of knowledge.

The learning process teaches the individual important societal norms needed for them to become successful; moreover creativity of the individual is discouraged for uniformity. The *Pedagogy of the Oppressed* (Freire, 2000) asserts that learning should rather be seen as a mutual process that is world-mediated; views people as uncompleted beings that are conscious of their incompleteness (both learner and teacher). These assertions point towards a learning model that embraces co-creation, interpretation (a subjective view of knowledge) and dreaming (individual and societal). In this sense, the relationship between the teacher and learner differs in that generative themes of learning are created rather than the pure transference of knowledge (teacher transferring “objective” knowledge about particular subject matter to a learner) and the essence of education then becomes the practice of freedom. Through this process of dialogue and the creation of generative themes the individual then has the ability to look critically at their world and slowly develop the skills to perceive their personal and social reality. As this process occurs, the person is then transformed from being a passive receiver of information to one that can deal critically and creatively with reality and discover ways to transform their world.

The educator constantly re-forms his reflections in the reflections of the students [who] are now critical co-investigators in dialogue with the teacher... Problem-posing education involves a constant unveiling of reality, the emergence of consciousness, and critical intervention in reality. This is education as the practice of freedom rather than the practice of domination. It de-mythologizes and takes character of our present historical society and culture as a starting point” (Freire, 2000)



Adapted from, *Disclosing New Worlds*. Spinosa ,Flores and Dreyfus. 1999.

**Figure 7 The Worldhood as business model**

### ***Evaluated learning Models***

Four different models for educating people were utilized, with the goal being to understand the way in which the model creates learning and the style through which it is done. This was conducted in this manner in order to be able to create a holistic model of education that links the various methods of ensuring learning that exist in the evaluated models.

#### ***A: Formal Schools***

This model represents the traditional form of ensuring learning.

The basic philosophy of the formal school learning model is that *education is objective* and that *learners need to be socialized in a paradigm of scarcity industrialization*.

Purposes:

The formal school-learning model seeks to serve a number of purposes.

- **Socialize in:**
  - Corporatization
  - Capitalistic principles
  - Commodification
  - Scarcity

This purpose seeks to ensure that learners are socialized into the key concepts operating within their society. This speaks to the provision of knowledge about things and highlights the systemic structure of education presented by Freire in the *Pedagogy of the Oppressed*.

- **Industrialization of Education:** This refers to ensuring reliability in the education system and consistency with regard to the quality of teaching and learning activities.
- **Standardization:** Standardization means the development of a coherent standard that may be applied in a large number of contexts.
- **Educational policies:** This refers to the creation of policies, which propagate a certain pedagogical agenda.
- **Clear standards of education:** The formal school-learning model also seeks to create clear standards of education. The value of this is ensuring economies of scale in the propagation of education amongst a variegated population.
- **Create passive learner:** A purpose of this pedagogical theory is that it creates learners that are passive and receptive to the knowledge that is being transferred to them. This is complementary and necessary with the high level of standardisation in this pedagogical agenda.
- **Fulfil needs of industry and economy:** Finally, this learning model seeks to provide learning that speaks to the demands of job roles that have been identified and seeks to provide learning that may be transferred to application within the role.

## Identities:

This refers to the stakeholders who participate in providing learning in the formal school learning model. The identities that function within this learning model are:

- **Students:** This refers to the person seeking to learn within this process.
- **Teachers/Principles:** This refers to individuals that function to provide the knowledge about things/concepts.
- **Government:** This refers to the government in which the learner and teachers/principals are citizens and the government has a social contract to provide learning to its citizens.
- **Parents:** This refers to the parents of the learners.
- **Informal leaders:** This refers to leaders within the community who do not necessarily hold formal positions within the community.
- **WC District:** This refers to the community/regional area under which the formal school functions or the district where the citizens are based.

## Equipment

This refers to the things that are used to provide learning within this model.

- **Classrooms:** This learning model is usually provided through a classroom setting.
- **Curriculum:** This refers to the sets of concepts that are intended to be transferred to students within a course.
- **Schools:** This refers to the institution of learning responsible for ensuring the provisioning of learning.
- **Policy development:** This function guides the governance and implementation parameters for ensuring learning within this paradigm.

## Coordination Style

- **Objectification of knowledge and belief that knowledge is transferred:** The central belief in this system is that knowledge may be viewed objectively and

that the primary function of education is in the transfer of this object between teacher and student.

- **Education “only” happens this way:** There is a certain rigidly held belief that knowledge is only gained through knowledge transfer.
- **Knowledge acquisition and transfer:** This refers to the basis that learners are passive participants and that the teacher transfers knowledge (about things/concepts) to them and once this is done, the knowledge has then been transferred to the students and they then have an understanding of the concepts.

We find the best critique of this model in Friere’s *Pedagogy of the Oppressed*. The data utilized in this model is based on external reality with ‘observation experience’ operating as the primary experience type. The learning model does not place much focus on learner reflection, opting for a stance of reflection without action and the truth criterion being whether one can observe the (relayed) properties of an object. In this sense, the perspective of this model is external, with a view on objective reality.

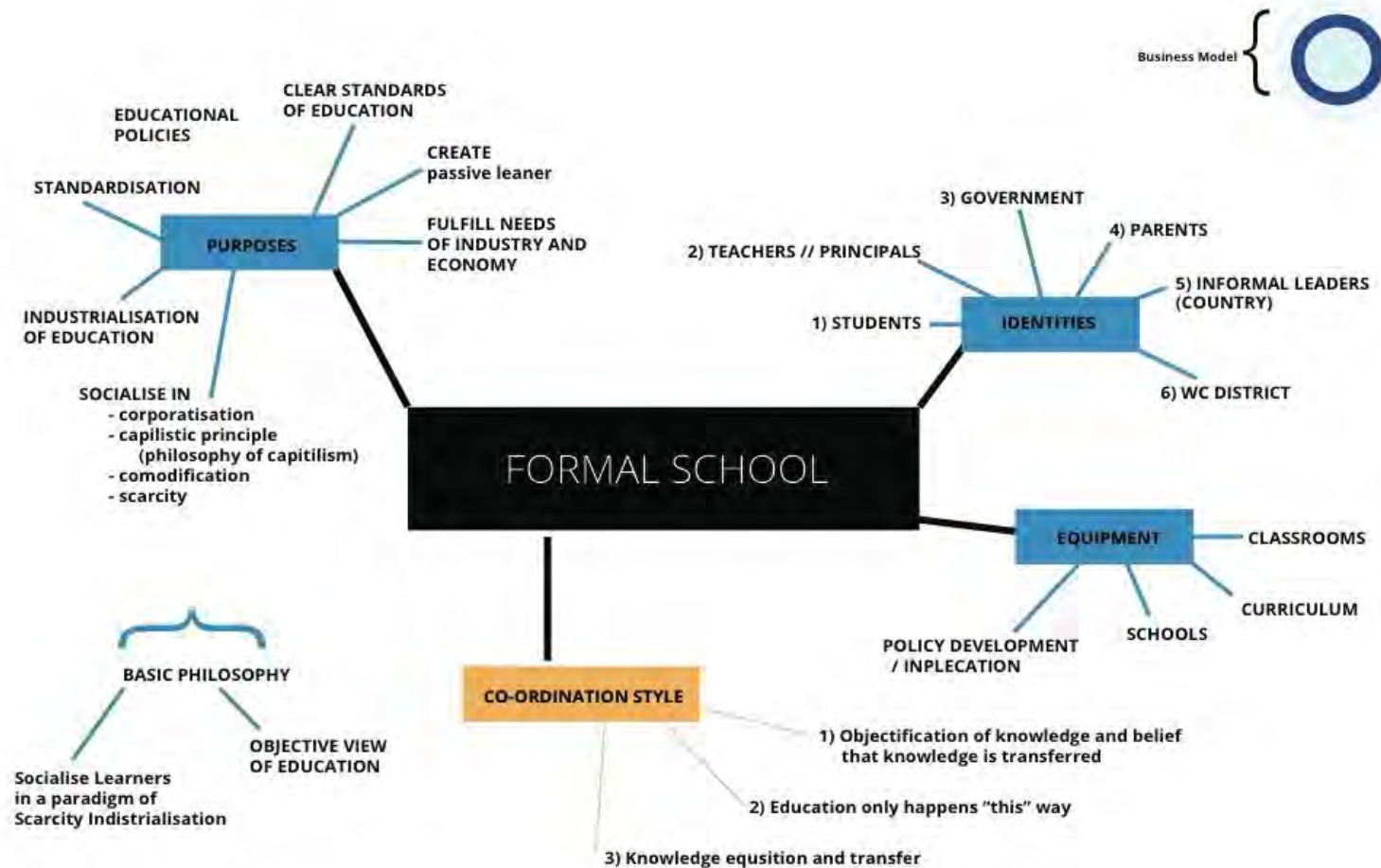


Figure 8 Formal School business model

## ***B: Moocs***

The current era shows that we are approaching more networked connections between people, content and tools. Due to this, new pedagogical methods of learning online have been proposed based on the principles of connectivism. In this new model, learning is seen to reside in the connections between people and digital artefacts within the network. This pedagogy is known as the connectivist pedagogy. One way in, which this pedagogy has been actioned, is in the form of massive open online content (MOOC). The MOOC format was pioneered by George Siemens and Stephen Downes and the key difference with MOOCS is that they focused on knowledge generation and creation as opposed to knowledge duplication. In MOOCs, the learners take a greater role in shaping their learning experiences than in traditional online courses, while facilitators focus on fostering a space for learning connections to occur. There are key concepts within the connectivist pedagogy that seek to make this learning model successful in creating learning connections, these are

- **Aggregation:** Enable content to be produced in different places and aggregated as a newsletter or a web page accessible to participants.
- **Remixing** associates materials created within the course with each other and with other materials.
- **Re-purposing** of aggregated and remixed materials to suit the goals of each participant.
- **Feeding forward:** sharing of re-purposed ideas and content with other participants and the rest of the world.

There are several key principles that form the basis for the connectivist pedagogy and allow it to achieve its purposes, these key principles are

- Learning and knowledge rest in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to learn is more critical than what is currently known.
- Nurturing and maintaining connections is needed to facilitate learning.
- Ability to see connections between fields, ideas and concepts is a core skill.

- Accurate, up-to-date knowledge is the intent of all connectivist learning activities.
- Decision making is a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision

These principles inform much of the MOOCS learning model and may be seen through its purposes, identities, equipment and co-ordination style.

The basic philosophy of MOOCs is that education is an open resource and explicit knowledge is a utility and human right.

Purposes:

The purposes that being sought to be fulfilled by the MOOCs learning model are to

- **Disrupt the commodification of education:** a founding principle of the connectivist pedagogy is in the disruption of education as a scarce resource, while creating the channels to promote knowledge as open resource or social utility.
- **Facilitate self-organization through collaboration:** A further proposition of the connectivist pedagogy is that learning may be significantly facilitated through collaboration between learners.
- **Provide quality free online learning content**
- **Facilitate self-guided learning:** A key concept here is to nurture the ability within learners to find knowledge and learn through self-guided efforts.

Identities

The identities that exist within this learning business model are and pursue its purposes are

- Students:
- Academia/Thought leaders
- Private learning institutes

- Learning groups
- Practitioners

Equipment:

The equipment that is utilized to pursue the purposes of this learning model are

- Collaborative learning mechanisms
- Web platforms
- Online curriculum
- Personal computers

Co-ordination Style

The co-ordination style that is portrayed by this learning model is articulated as follows:

*We need an open-education economy to fulfil the skills needs of our time.*

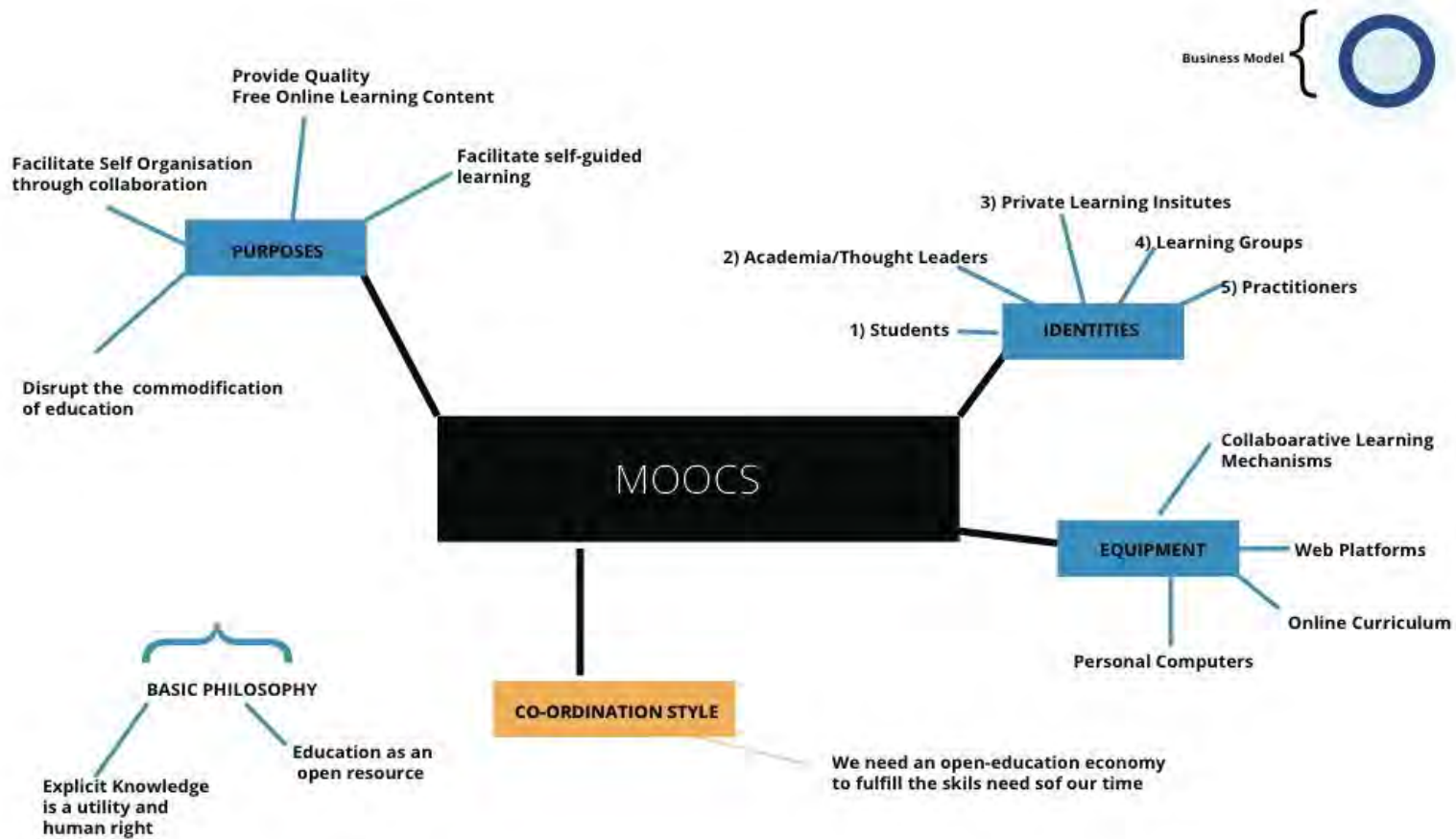


Figure 9 MOOC business model

### ***C: Disruptive Approaches:***

Kepler School: Instilling tacit-embodied knowledge through the pragmatic pedagogy

The third learning model is based on a disruptive new approach to solving the crisis of higher education in the developing world. This model has been introduced in Kigali, Rwanda in the form of the Kepler School and seeks to provide the benefits of both the formal school learning model and the MOOCs learning model. Launching in 2013, the pilot campus in Kigali, Rwanda will be the first university to bring together three major innovations in education and technology for the first time:

1. Online courses from leading international universities, e.g. Harvard, UPenn;
2. Intensive, in-person instruction using proven techniques from high-performing schools, e.g. no-excuses charter schools
3. Employment-focused learning through structured internships and employer participation.

Within this disruptive model, learners stream lecture and complete online assignments, problem sets, and exams developed by professors at leading universities around the world. Kepler's Teaching Fellows then lead seminars to discuss difficult material, build critical thinking skills, and contextualize topics for Rwandan undergraduates. This is a time when learners can analyze, debate, and question their own preconceptions. A condition of this model is that learners live and work together in wired group housing, fostering an atmosphere of friendship, collaboration, and academic competition. These are all seen as key drivers in achieving long-term intellectual outcomes. Finally, Kepler connects its learners with employers for internships and careers. The school trains their learners to stand out professionally from the start by partnering with local and international organizations to determine the skills they need from new hires.

As this model is guided by a basic philosophy that true learning generates tacit ability; the purposes, identities, equipment and co-ordination style are geared towards this philosophy.

Purposes:

The purposes being pursued by the Kepler School learning model are to

- Leverage online content
- Provide space for learning
- Provide tutors and mentors
- Focus on competency-based learning

#### Identities:

The identities that function to pursue the purposes of this learning model include

- A community of tutors
- Learners/students
- College of America (and other leading universities)
- MOOCS

#### Equipment:

The equipment utilized to pursue the purposes of the Kepler School learning model are

- Classrooms/School
- Internet Access
- Web platform
- Practical programs
- Curriculum

#### Co-ordination Style

The co-ordination style that blends the purposes, identities and equipment of this learning model is a basis on *competency/outcomes based learning*.

This learning model focuses on ensuring tacit-embodied knowledge and illustrates the pragmatic pedagogy in action. This highlights a move away from the formal school pedagogy and seeks to ensure greater co-creation and ensure a tacit-embodied knowledge with the focus on the type of knowledge being knowledge about *doing* things. The data focus of this learning model is enacted reality, with action experience being the primary experience type. As opposed to the formal school model, the Kepler School learning model does focus on reflection, highlighting reflection on action as a key learner activity. This model has a generative epistemology; hence, a true test for a

learner is this model is producing new knowledge and hence new realities, with this being the truth criterion. The perspective of this model is internal and view is on enacted reality.

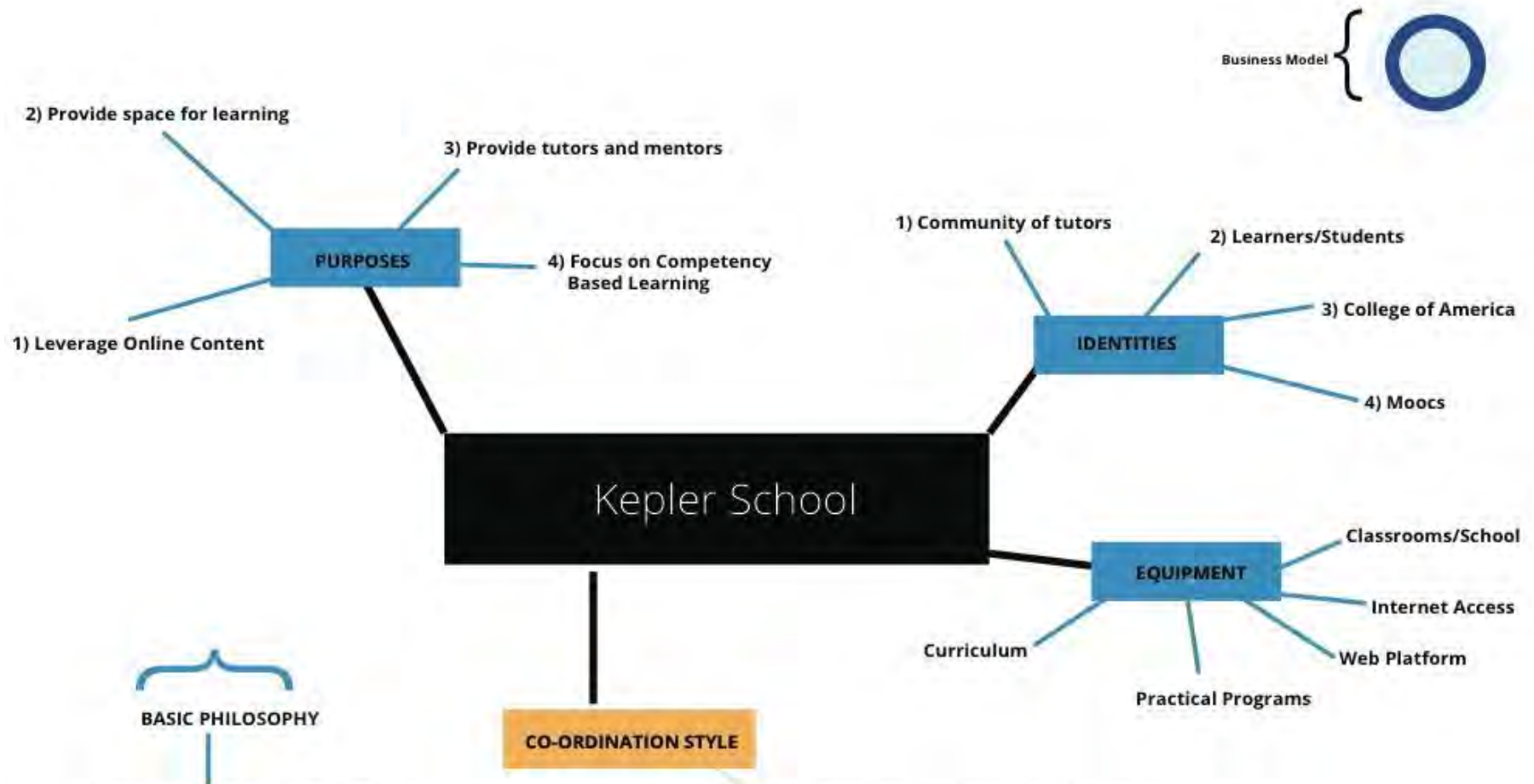


Figure 10 Kepler School business model

## MPhil. in Inclusive Innovation

Another disruptive model that seeks to blend varying pedagogies of learning to enhance the learning experience is the Mphil. in Inclusive Innovation. This learning model was introduced in South Africa at the University of Cape Town Graduate School of Business (GSB) in 2013. The focus of this learning is making sense of the world/reality in which one lives in order to pursue and create meaningful change within that context. It places a strong focus on self-transcendental learning, experiencing breakdowns (as an epistemological process) and utilizing these in order to create (re)solutions in order to make a meaningful change. The model includes a rigorous academic curriculum and practical prototyping of new business models, processes, services and products that help create a more inclusive economy and society at large.

The model seeks to move learners away from set (organizational) cultures and organizations (traditional ways of organizing) and ensures that learners work together for one year in a “living lab” environment, where expertise, life experiences, passion and innovation all converge to support new possibilities and ideas. This learning model has a strong philosophical basis and seeks to equip learners with skills that enable them to analyse (work) systems towards creating new solutions.

The basic philosophy underpinning the Mphil.(in Inclusive Innovation) learning model is that *existential crises are the means to discover new job markets and self-transcending knowledge allows for the exploration of emerging potentials.*

Purposes:

The purposes being pursued by this learning model are to

- **Create social enterprises through engaged scholarship:** A fundamental goal of this model is to facilitate the advent of social enterprises by exposing the learner/entrepreneur to relevant discourses in contemporary philosophy and science.

- **Focus on self-mastery as means to knowledge acquisition:** A further proposition here that true learning occurs a deep engagement with purpose and identity.
- **Leverage existential and transcendental crises to create purposeful systems (existential venturing):** Another key concept in this model is that of *entrepreneuring* - that enterprises are born out of the existential crises of the entrepreneurs pursuing them.
- Articulate existential processes with entrepreneurs

#### Identities:

The identities that function to pursue the purposes of this learning model are

- Students/Entrepreneurs:
- Academia/Thought leaders
- Private Enterprise
- University of Cape Town

#### Equipment:

The equipment utilized to pursue the purposes of this learning model are

- A Curriculum around the philosophy of learning
- Incubator- Solution space
- Practical problems based on industry need

#### Co-ordination Style:

The co-ordination style that enables the interrelationship between the purposes, identities and equipment is an emphasis on engaged scholarship.

The disruptive learning models place a strong focus on self-transcending knowledge (MPhil Inc. Innovation) and tacit-embodied knowledge (Kepler Model), highlighting a learning need to know about the thought-origins of things. The data focus of these models is a reality that is *not yet enacted* and it utilizes aesthetic experience as the primary means to learning. This model places much emphasis on *reflection-in-action*, highlighting the key truth criterion as the ability for learners to presence an emerging

reality. The model embraces both an internal and external perspective, focusing on a view of a not-yet-enacted reality.

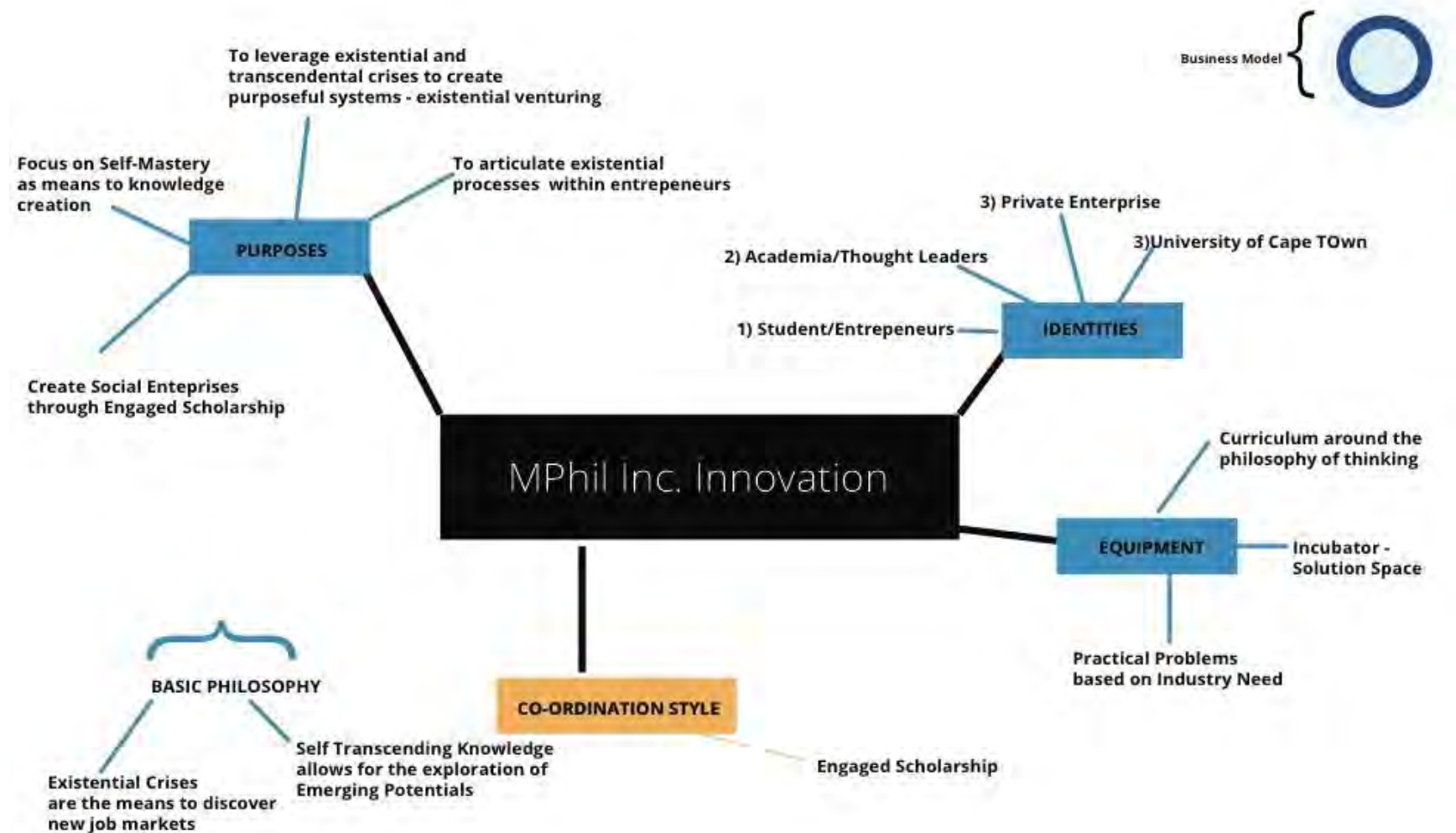


Figure 11 MPhil business model

### ***Problematizing the current system***

The interrelationship between the explicit (As represented by the formal school and MOOCs learning models), tacit (as represented by the Kepler School learning model) and self-transcendent (as presented by the MPhil. in Inclusive Innovation learning model) models of learning reveals the current chasm between education and pragmatic skill. The model below highlights the key systemic interrelations between these models and the current issues presented by the perpetuation of a system that only focuses on the production and transference of explicit knowledge.

The objectification of knowledge intensifies (has intensified) the practice of education as knowledge transfer. This intensified practice of education as knowledge transfer as not only reinforced the objectification of knowledge, but it has also increased the commodification of education. The intensified commodification of education has subsequently intensified the standardization and validation of knowledge, further intensifying the reliability of education to fulfil need for particular/specific expertise. This has intensified the objectification of knowledge and subsequently intensified the autocracy of the knowledge economy and the Pedagogy of the Oppressed, this learning model focus has intensified passive learning, which has negatively impacted on the learners' ability to think critically and abductively and be aware of social and existential realities. The reduced ability to think critically and abductively has decreased the mindfulness (cognitive plasticity) of learners, reducing their ability to adapt thinking to context and subsequently intensifying the inability to deal with dynamic complexity. This inability has increased the dissatisfaction with educational outcomes.

The reduced ability to be aware of social and existential realities has slowed down purpose-driven learning and venturing, reducing the ability to sense emerging market potentials and subsequently intensifying the inability to innovate and create new job markets. This inability to innovate and create new job markets, coupled with the inability to deal with dynamic complexity has led to further dissatisfaction with (formal school learning model) educational outcomes.

This highlights the inadequacies of the predominant model of learning and calls for a model of learning that blends explicit, tacit and self-transcendent learning models in order to enhance the ability to think critically and abductively, be aware of social and existential realities, innovate and create new job markets and, deal with dynamic complexity, in order to narrow the chasm between education and pragmatic skill and ensure satisfaction with educational outcomes.

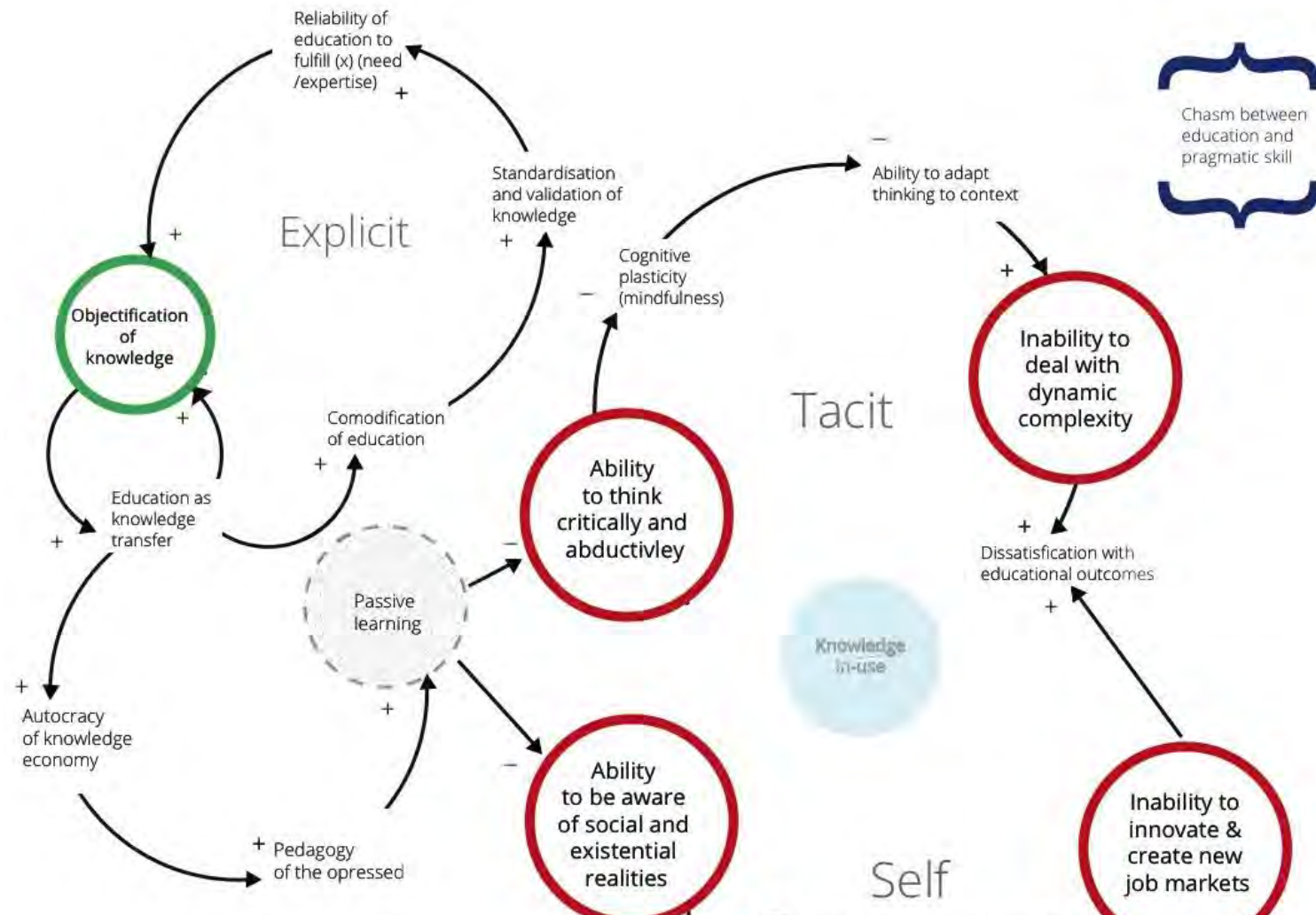
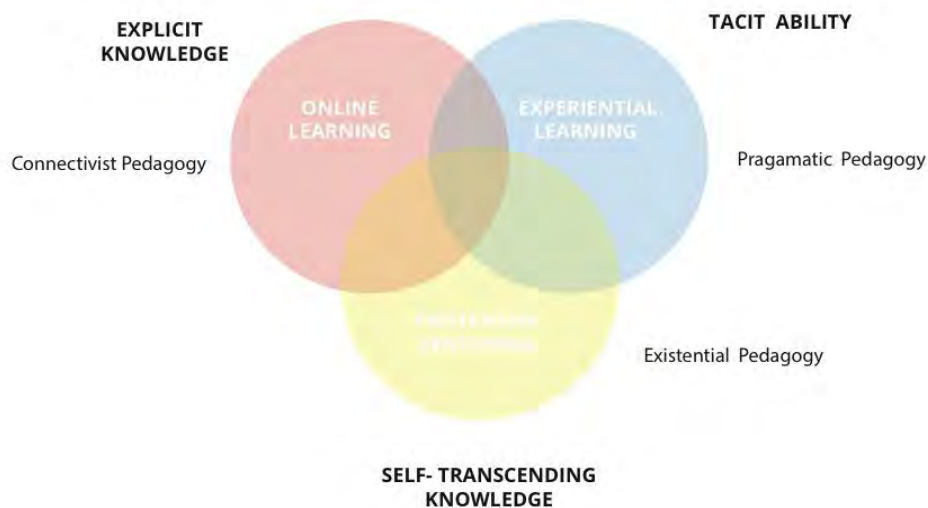


Figure 12 Causal knowledge model

### ***Proposed model***

Learning for dream advancement is an intellectual and practical space where individuals articulate, develop, innovate, and pursue their dream. Dream advancement encourages creativity by all those in educational space. Educators within the educative environment promote self-examination, dialogue, and co-creation amongst all learners to prepare them to build the world they want their dreams to exist. Learning provides people the skills and experiences needed to adapt or transform the world as citizens. The proposed model brings together the various evaluated models in a way that ensures holistic learning.



**Figure 13 Integrative knowledge model**

This new model of learning seeks to achieve the transference of knowledge, utilizing the principles of the connectivist pedagogy through online learning (merging the formal school and MOOCs learning models), provide tacit ability to learners via experiential learning pursued using the pragmatic pedagogy (merging the Kepler School and MPhil. in Inclusive Innovation learning models) and ensure the instilling of self-transcending

knowledge through existential venturing utilizing an existential pedagogy (expanding on the MPhil. in Inclusive Innovation learning model).

In order to fulfil this purpose, it is envisaged that the learning model needs to exist within an interdependent ecosystem. The diagram below highlights the components of this ecosystem.

The ecosystem aims to provide a mutually reinforcing multiplatform system that's net effect aims to ensure holistic learning and address the supply and demand of skills within The Western Cape. The four platforms involved are:

1. The Skills Intelligence Platform
2. The Career Awareness Platform
3. The Learning Awareness Platform
4. The Learning Market

#### The Skills Intelligence Platform (SIP)

This platform's overall aim is the facilitation of the development of new skills programs. To achieve this the platform must assist in assessing skills gaps within the Western Cape, allow for the aggregation of these skills gaps into categories and tags, enable the creation of challenges to meet these skills gaps and enable the creation of initiatives that plot the course of an implemented solution to a skills gap.

The net output of this platform is to supply information regarding skill development to those who post their "skills gaps" (as a result of the development programs), to allow a platform on which skills development practitioners to collaborate to create skills and, to generate skills development programs which are most directed to fulfilling the biggest skills demands in The Western Cape.

#### The Career Awareness Platform (CAP)

The CAP's main objective is to address the need of the citizens of The Western Cape to find fulfilling work aligned to their skill ability. To achieve this goal, this platform must assist in graphing social and skill ability for each user, assist in the creation of career wizard to match users to skills development programs, online learning content and mentors. Further, this platform should provide coaching and guidance regarding career awareness and match users to job opportunities.

#### The Learning Awareness System (LAS)

The LAS is fundamentally a system to facilitating learning via an online learning platform. To achieve this goal, the platform needs to aggregate online learning content, provide practical cases to support online learning, provide validation for skills learnt and connect learners to real work situations.

#### The Learning Market

The Learning Market is an online marketplace for online learning content generated by private businesses to create a skills development economy. This system will be interoperable with the Learning Awareness System.

#### *Engagement dynamics of the learning model*

The learning model is conceptualized to function within this ecosystem in a manner that maximizes holistic learning and links explicit knowledge, tacit knowledge and self-transcendent knowledge.

Within the model, academia, industry, the Premier Skills Office (Western Cape) and small-medium enterprises would collaborate to provide information related to skills demand and practical problems. The content related to skills demand would feed into the skills intelligence platform resulting in programs being created to address skills gaps. The created programs would be viewable online via the learning management system, these would be supplemented by the practical problems raised, MOOCs and online content. Learners, unskilled and unemployed citizens would also collaborate to create content regarding the knowledge demand, this content would feed into both the Career awareness platform as well as the learning management system. The culmination of the content arising from the skills intelligence platform, learning management system and career awareness platform would function to create practice based courseware which would inform practical solutions, assist in meeting the skills demand and assist in meeting the knowledge demand. This would ensure that learners gain explicit knowledge, tacit knowledge, and self-transcendent knowledge that not only enhances their learning and individual skill base, but that is also directed towards creating (or participating) in solutions aimed at making a positive impact in their context. In this sense, it may be seen that the learning management system is geared to provide holistic learning, and meet the emerging needs of the context.

### ***Final Outcome***

The total lifecycle of this project (The Design of a New Learning System) alone was 10 months. The process articulated above, constituted the first two months of work on the project. Following this we took this high-level conceptual model and created a detailed specification for development, including a functional, specification, user experience analysis and design, a fully functional prototype and visual guidelines documentation. Much of this work has not been included here due to intellectual property restrictions.

At the time of hand-in of this thesis, the project was in the first phase of development, and the final design was received with great commendation.

## Phenomena of the Interventions

This research has been grounded within the experience of the everyday reality of business model innovation. In the previous section we explored the intervention. This section will explore, the phenomena, which were encountered during these interventions.

All the phenomena detailed below occurred during the engaged process of business model innovation. In this way they arose firstly as experiences, which were at once deeply moving, but also inexplicable and uncertain. The journey of this thesis then was taking these experiences of significance and finding a way to firstly understand them better, secondly interrogate them and thirdly being able to explain them clearly and lucidly.

Sections two and three then are a result of my deep interrogation of current philosophies, theories, narratives and methodologies; in an attempt to recover the essence of the phenomena I experienced. In this way this research is distinctly empirical, in that it is based centrally on the as-lived experience of this process. What is attempted here is to draw these experiences (*a posteriori*) into their essential natures (*a priori*). This is with an important distinction however. Unlike Husserl's project, which aimed to reveal essential and eternally existing natures, we are here interested in the inverse – the creation of essences from experience. This is with the central realisation of our role as *disclosers*, to *unconceal new truths* that give birth to *new worlds*.

Following this, these descriptions of the *phenomena of the intervention* are not lengthy explanations of theoretical or philosophical systems but rather succinct descriptions of experience. In this way, these are points of synthesis and integration of the previous three sections.

## **A Triangulation of Space**

The journey of this thesis began in early 2013 when I realized I had received a scholarship to complete my masters' degree at The Graduate School of Business. I had been living in Durban for the last year, working at a venture capital firm in the capacity of a product designer, digital and business strategist. The year had been a cumbersome one, full of obligatory handshakes and meaningless nods. I had become somewhat disillusioned with many aspects of the world I was engaging with and was sincerely seeking a way out.

I felt the noose of the modernist regime firmly around my neck – I worked all day and well into the night (I was managing a local team of designers and developers in South Africa and also team of developers in San Francisco) running after what seemed like an utterly futile goal – the creation of a product whose primary purpose was to extract as much money from would-be consumers as possible; without any real benefit I may add.

So after a year of this my life was a complete mess – my relationship of three years was systematically falling apart in front of me; my relationships in general with people had become painful and stressed. At the end I realized I had embodied all those things I had fought so hard to exclude from my life, I had become so self-obsessed, habituated into the style of always 'looking out for number one'. In the final reckoning the decision to leave my life in Durban, my family and my girlfriend was my attempt to directly face myself, to question fundamentally the nature of my existence and my purpose.

This is an important point of departure because it articulates well the place from which all my research came– highlighting the intentionality of this work. Emerging from this crisis, I realized my journey was dedicated to resolving two broad questions – 1) Where do I find myself in this world and how do I make my engagement in this world meaningful? 2) How do we transform businesses, organizations and societies, so that we can begin addressing the great (eco) systemic disconnects of our time (Scharmer, 2009).

The first and probably most profound phenomenon I wish to describe in this narrative is that of *self-transcendence* (cf. Scharmer, *Self Transcending Knowledge*). This is the realization that the self is not the source of knowledge but the vehicle of it. Furthermore it is the fluidity of the self that determines its ability to recognize, assemble and *make-sense* of the *noise* of reality. When describing this fluidity, I suggest that it is traditional notion of linear causality, which is the fundamental stricture on this. The great leap of thought then, is that the world emerges, not to 'billiard ball' determinism but through an innate and fundamental circularity – that world gives us narratives, which occupy the imagination, from which we give the world our narrative.

To articulate this, I will begin at the beginning - to a month before I left for Cape Town. In the period after I resigned from my job and before leaving (to Cape Town), I had a month of time to try and determine my bearings in this journey. It was a time of meditation and reflection. Reflecting on this now I realize this was my first experimentation with the notion of being *present to the problematic*. What occurred through this period of deep mindful engagement to the mess of my life, was that quite magically three narratives appeared. These three texts were – 1) *The Myth of Sisyphus* by Albert Camus, 2) *Dune* by Frank Herbert and 3) *Tlön, Uqbar, Orbis Tertius* by Jorge Luis Borges (part of Borges's compilation of short stories called *Labyrinths*)

These narratives are significant because their appearance were an answer from the world to my internal condition – that by mindfully holding the breakdown before me, the world swiftly answered. Moreover each of the texts, which emerged, was to become three dimensions I would explore over the next year and become the major themes of my journey.

Lets begin in the beginning, with Camus' absurdity. The myth of Sisyphus is a classic essay of existential philosophy, inquiring into the nature of purpose and meaning of existence. The book is a retelling of the Greek myth and introduces Camus' philosophy of the absurd. It is important to note here that Camus' work was published in 1942 in the age of industrialization and in a world at war.

The gods condemned Sisyphus to a truly pointless and meaningless task – he had to roll a rock to the top of a mountain and then due to its own weight it would roll back down

again. Then he had to do it again and again, for eternity. It is in Camus' retelling of this myth that he articulates what he calls the absurd – a lifetime of futile labor. Here Camus is not referring to the many small absurdities we encounter in our everyday life but to the overall obsession of the modernist culture to enforce a life of servitude to irrelevant and indeed non-existent ideals – and is therefore a philosophical and metaphysical thesis. It is a confrontation, a confrontation between sturdily held notions of justification and rationality that the world itself is comprehensible. One might say it is part of our human nature, that we are born with certain sense, which is integral and inherent to our *being human*. It is this common sense, which is confronted. Camus maintains here that we project this sense onto the world – which we expect the world to confirm to.

We think for example that evil should be punished and that goodness should be rewarded – however this is not always the case. Goodness is not always rewarded and evil is not always punished. The absurd is this recognition - that we have this demand of the world and that the world is indifferent to it completely.

There is much subtlety in this text for it is an inquiry into the notion of the world and into the notion of Self. In my reading of *The Myth of Sisyphus* and of *The Stranger* (1942) it seems that Camus is describing not a confrontation between this rationality and an indifferent world necessarily, but between the actual notions of a real world itself. This needs some clarification. An object of Camus' thesis is the scientific paradigm, what Thomas Nagel (1989) calls 'the view from nowhere'. This objective view of the world holds that the world exists 'out there.' This scientific worldview with its grand notions of the universe and objective rendition of history leaves the individual with an indubitable recognition of their insignificance and indeed the futility of their existence.

Camus' proposes then that the real meaning then is life itself – life *is* the meaning of life. The value of life is in making it's meaning, the only thing that is meaningful is the meaning you make of your experience.

The central point here is that our rationality has dominated our way of thinking in a blind and uncontrolled manner – to such an extent that most people would argue that thinking *is* rationality. If we look deeply into what rationality is, we notice that it is the

function of the mind, which attempts to explain, *why*? It is a chain of justification or explanation to deal with the incomprehensibility of experience.

The problem is that we don't follow this chain to its conclusion, we are always happy to resign ourselves to a middling explanation, which truly explains nothing. For example children are always full to the brim with questions, whose exhaustive questioning always exceeds the knowledge of the parent. A child may ask about a person who died in a car crash:

*Child:* Why did she die in the car crash?

*Parent:* Because she wasn't wearing a seatbelt?

*Child:* But why did she die and the other person who also wasn't wearing a seatbelt not die?

*Parent:* That's just because it was her time

You see, our rationality does not explain anything, however it does highlight the coordination of our own thoughts, our *sense* of things.

Similarly if you ask yourself why you do a thing, what is your motivation for doing a certain thing. If you do this, then you get that and then when you get that, you will do this...and finally you will be happy. But what is happiness and what is pleasure and why is it so important that we find it? And why should happiness be a final end? In this way justification, explanation runs out. Similarly in a scientific paradigm understanding runs out – we find amusingly that theoretical physicists are always attempting to explain the next edge of the known world. This edge is indefinable because of the dependent nature of all things – things emerge together, not from origins. This understanding of a world of origin, Heidegger calls the *metaphysics of presence*, which he explains has been the predominant mode of thinking in our time.

As David Bohm (1980) lucidly describes, “...older theories become more and more unclear when one tries to use them to obtain insight into new domains. Careful attention to how this happens is then generally the main clue toward new theories that constitute further new forms of insight.” As we observe the world, we have implicitly agreed to

certain attributes and qualities of it through our disposition. These theoretical lenses provide the main source of organisations of factual knowledge (Bohm, 1980).

Returning to Camus' retelling of the myth of Sisyphus, we find ourselves upon what we may argue is some of Camus' finest writing. He explores Sisyphus as the archetypal absurd hero – that he is an archetype for *us*. Fated to live an eternity in meaningless toil.

Using this archetype as mode of exploration he inquires into the state of mind of Sisyphus. In this he further explores two possible states of mind. Firstly he begins to examine Sisyphus' intentionality toward his task. If he were completely engaged in his work, if he was truly coupled with it, and not reflecting on the task itself, this problem would not arise. In so doing he problematizes thinking and reasoning – that if in the end we ask, “what does this amount to?”, the answer will always be deeply unsatisfying. Conversely if we ignore the urge to question and remain in the experience itself we avert the weight of reflection.

The second answer that he proposes is that Sisyphus' mind is one of resentment against the gods, and is in a state of revolt. However this is not revolt in the mundane sense but in a metaphysical sense. That is, a rejection of the basic premise of things, selves and worlds. It is a reactive gesture a way of giving meaning to your life but in defiance and revolt. There is some ambiguity here in what this actually means and indeed it was this ambiguity, which much of this discourse aims to unravel. What does it mean to defy the traditional common-sense?

So in this rendition Camus proposes, in line with a tradition including Kierkegaard and Dostoyevsky before him, that rationality and self-consciousness is the problem. Camus is indicating that if the story of Sisyphus is tragic it is because he is conscious but specifically that he was self-conscious, reflective and self-aware. Moreover that consciousness is not necessarily a blessing, but rather the problem of existence.

To elaborate on this further, we may take the example of a machine, which is also fated to do the same repetitive task until it breaks down or becomes redundant. This activity is only absurd in the view of self-agency or self-awareness. We may venture that

Camus' proposition here is that this concept of Self is in fact the root cause of the despair of the existential crises.

We could argue further that consciousness itself is not the problem but the quality of consciousness, or in other words what we are conscious of. In a mundane sense our consciousness is always directed to a sense of individuation - that our consciousness is aware of our selves and then the world in which we act.

As discussed earlier Camus proposes two alternatives to this – 1) that we remain focused in the experience itself or 2) that we revolt against the fateful determinations of our existence. It is at this point that I found many correlations to Tibetan Buddhism. The fundamental proposition here is that the self is not an inherently existing thing, meaning that it does not exist independently. Furthermore, and this is the fundamental link with Camus specifically and with the existential philosophers in general, the notion of the self as an inherently existing thing sullies the quality of consciousness, such that it is suffering.

This is a truly profound pattern, that is unravelled here – that the conception of what a self *is* determines the quality of experience. The Buddhist notion of self then is that which holds the activity of a self as one coherent entity – through conceptual imputation. I would like to emphasize the last point, that of conceptual imputation. This is the insight that the self is a function of concepts, naming and the structure of language and that it is *merely* that. However language makes distinctions in a field of intensities, this is significant because these distinctions once made propagate themselves. If this crucial generative mechanism is not revealed, we would believe that the words we live in, is life. As Camus explains, 'the absurd is lucid reason that sees its limits.' This means as we delve into the machinery of thinking we find its paradoxical and labyrinthine beginnings, which is life in its most gracious unknowable form.

However this does *not* mean that we may merely think away the world, but rather that we find our responsibility to take *creative action*. To be present and to dream those dreams, which are being asked to be dreamt. What does this mean? This means that, as Deleuze indicates, the role of the philosopher is not to reflect, but in the creation of

new concepts, for the world is dynamic flux which is eternally becoming. The true act of philosophy then is not to acquiesce to what *is* but to abide in possibility itself.

This leads onto the next fundamental phase of my investigation, that of *intersubjectivity*. This was a driving question that I found myself seeking answers to, how do we resolve the internal world with that of the material world? It is this question, which we find really at the centre of contemporary philosophical debate, global economic and political discourse and most importantly at the centre of every human being, in their everyday life.

There is much evidence that this question lies at the heart of human experience; in fact we may say that it is that which defines the human experience. In Western Philosophy, as we have shown earlier this has been a central question defining the trajectory of philosophical thought from Husserl, Heidegger, Merleau-Ponty and then Deleuze. The early phenomenologists were concerned with uncovering an essential nature of things.

We find in fact that the lineage of western thinkers followed a very specific line of inquiry. We find firstly, that there is a complete dissatisfaction at the ontic level with an objective reality or world 'out there'. What is acknowledged is a plurality of subjectivities; there are many people who are experiencing the world from their own perspectives – however there are enough shared experiences for us to act with *in* it. To facilitate communication, language emerges as means of finding shared experience. With this language-ing of reality we find a *metapatterning* of this language to structures of justification, explaining and understanding - what we may term rationality or common sense. These metastructures of language infer a certain hierarchy, that things are only things when placed in some association with an ideal.

This concept may be understood between the relationship of *general* and *specific* – which ground inductive and deductive forms of logic. Using an example of a table, when we encounter a table we immediately recognise it as a table, but is this *Table*. That is to ask does this represent the essence of table-ness, does it represent all tables and more profoundly where does *Table* exist. Fundamentally this is an ideal sense of Table, yet it is only through this idea, this virtuality that we can comprehend it as a table. This led first to movements of Transcendental Idealism and this notion of

thinking also lends itself to finding an essential nature of things, which we find in Phenomenology. Finally in the neo-phenomenological movements and later with the philosophy of Gilles Deleuze, the proposition of an essential essence is abandoned.

Interestingly there is a striking resemblance between this lineage of thinkers and that of middle way school(s) of Buddhist philosophy. Nagarjuna the great Buddhist philosopher founded this tradition. He expounded the doctrine that things are devoid of substance or essence because they are mutually dependent and co-arising, called The Middle Way.

There were three major schools of the Madhyamaka tradition, each founded upon a critique of the former, with a final exposition held by the Prasangika School, which is widely acknowledged as the most accurate understanding of Nagarjuna's doctrine. This is interesting here because the two earlier schools, the Sautantrika School and the Yogacara School both hold views, which have similarity with the phenomenologist and the idealist positions.

The Sautantrika School firstly held the notion of an essential conventional nature, that things have an essential nature when they appear in an interdependent manner. This can be likened to the phenomenologist's thesis, which holds that things appear as a derivation of some essential nature or organisation. The fundamental argument posed to this proposition, specifically in Chandrakirtis commentary to the *Mūlamadhyamakakārikā*, is that a thing cannot fundamentally have a different nature from its essential nature. This argument is in essence the same argument as that proposed by Deleuze against an essentialist view (Deleuze G. , 1994).

The Yogacara or the mind-*only* school, was concerned centrally with phenomenology and ontology. Specifically they were interested in understanding the difference between what may be considered to be real and what is illusion or false apprehension. The Yogacara School and the Prasangika School were engaged in a very central dialectic to the emptiness doctrine. This dialectic was really around the Prasangika's claim that an assertion of any thing's existence or non-existence was incorrect, while The Yogacara's view holds that mind alone is real. This conception then is of the mind being *inherently existing*.

Simply put, these two schools uphold two views, which the Prasangika School countered. In all philosophical traditions, this is *the* question, the question of being so to speak. Is the world we experience *real*, are our minds only real or is the world only *real*? These fundamental questions in philosophy, science and religion have led to many stances. In particular we can contrast two dominant stances that of *nihilism* on the one hand and *essentialism* on the other. Obviously there are numerous gradations of these positions, with ever greater subtlety.

Particularly from the point of the Madhyamaka school, the essentialist (or eternalist) view holds that things inherently exist. This view is very close in explanation to the Aristotelian metaphysics of presence, which understands the world as either immediately present or eternally existing. With this in the West is a long tradition of 'essentialists'. This understanding breeds a way of being which aims to pursue those desirable objects we crave and push away those objects we are averse to. Even more fundamentally than this we see that this view in the West has led to an overriding preoccupation with dominance over Being.

This is worth exploring further. If we take the essential and idealist stance – which holds that there is an essential nature to things, which exist eternally. We would have no ethical problems exploiting the world, because we do not see the resources of the world as immanent to history, but from a plane of ideal essences. However if we understood the world, its resources and our lives as historical entities, we are immediately called to act with responsibility and indeed awe.

The second view, which the Prasangikas refute, is that of *nihilism*. This is the belief that life is meaningless, that all equates to nil. Particularly they address this as an ethical standing - that because meaning is made, that there are no eternal truths that the meaning of life is similarly devoid. This belief lies in a schism between our inner world and the world out there – in this way our actions, our thoughts and our beliefs are our own and have no real meaning. This amounts very closely to Descartes' *solipsist view*--, which implants the great schism between self and others.

The middle way school, in this way proposes a middle way, that things do not *not exist*, neither do they *exist*. A common explanation of this is in the doctrine of the two truths, which says that there is an *absolute* and *relative* truth. This doctrine claims that things do not exist absolutely, however in a relative sense things appear as objective reality.

This in turn relates to two fundamental characteristics that of *emptiness* and *dependent origination*. Things are empty in the sense that they do not have an essential nature – that is when you search for an inherently existing object, it is *unfindable*. Things arise dependently, this means all objects are relational, all things are historical entities.

The lack of *inherent existence* means that objects do not have any finite points – in of themselves; rather objects are products of distinctions in language or conceptual imputation. Language in turn is based on a way of reasoning, but particularly in rules of thinking, which are related to inductive and deductive forms of logic. Specifically it is the function of language to make inferences from general to *specific*; which in turn must hold an essential nature.

The Madhyamaka School aims to show fundamentally the irrationality of an existing thing. For this Nagarjuna proposes the *tetra lemma*, in which describes the eight limits of propositional logic. For a proposition P we have eight possible limits:

Positive Configuration	Negative Configuration
P	Not (P)
Not-P	Not (Not-P)
Both P and Not-P	Not (Both P and Not P)
Neither P nor Not-P	Not (Neither P nor Not-P)

The view of emptiness that Nagarjuna expounds is the viewless view, which is all of these in a *dialectic without synthesis*. We can understand this logical machine as working against the tools of logic itself, to engender a state, which is the *viewless view*. If we take any proposition (P), we must also acknowledge that it emerges from a background of understanding (Not-P). Similarly we may see that Not-P is a proposition in itself, and similarly emerges from a background Not (Not-P) – this is a paradox of

infinite regress, remaining incomplete and without resolution. Further if we take both P and Not-P to be true, this is similarly a proposition within a background and so on.

We may say then to assert a thing to be real we must suppress an inordinate, in fact infinite number of possibilities for its truth – that perceiving the real requires a fundamental lack of awareness. And so the spell of reality is cast. As Heidegger urges us to see it is *unconcealment* that also *conceals*; for it is the clearing that shelters.

So back to our narrative, as I have said at the beginning of our story, one of the nodes of this journey lay in discovering Borges' *Tlön, Uqbar, Orbis Tertius*. This book was a *fragment* of an incomplete totality, which I stumbled upon. The short story is a beautifully crafted, journey into the reality of the imagination. Borges is a part of an oeuvre of South American writers that explored *magical realism*. This was a style of writing, which explored the borders of the real, in attempting to understand reality itself. At the heart of his writing is a paradox so profound, it asks a fundamental ontological question. This became known as the Borgesian Conundrum, “whether the writer writes the story, or if it writes him.” Rather than resolving this, the works of Borges imply that there is a mutual inscription, further that the creative act of being is one that alters the totality of being- it alters the past and restructures the future.

The story of *Tlön, Uqbar, Orbis Tertius*, starts with Borges, who finds an article in an encyclopaedia about a mysterious country called *Uqbar*. He uncovers a massive conspiracy of a group of elite intellectuals to imagine and thereby create a world, called *Tlön*. This world has its own set of *metaphysical* and *physical* laws, in which the mythology of *Uqbar* is set.

In the beginning of the book, *Uqbar* is thought to have existed somewhere on Earth around the Middle East. As he investigates further, he finds more *fragments* and *clues* about the existence of this world. He is lead through a labyrinthine maze of texts and books in his attempt to verify the existence of this place. What is most interesting in this journey is that he discovers a passage, which says that in the literature of *Uqbar*, there is never mention of reality but rather *imaginary worlds*. He finds evidence of two imaginary worlds *Mlejnas* and *Tlön*.

Eventually the discussion around Tlön moves beyond Borges, and further to a broader group of academics and intellectuals. This leads to an extended discussion around the languages and philosophy of this lost world. In particular Borges' explores the epistemology of Tlön, whose inhabitants hold an extreme form of idealism, that they emphasise the world before inference to *things*. In explaining this further Borges discovers that one of the languages of Tlön lack nouns, its central mode is in the use of impersonal verbs qualified by monosyllabic prefixes and suffixes, which in effect act as adverbs. In another language, the basic unit of language is not the verb but the adjective, which when in conjunction with other adjectives infer what we would call a noun.

There is a common reading of Borges that he is proposing that the world of Tlön holds an extreme form of Berkeleyan Idealism – denying the reality of the world. Indeed Borges does undergo an extensive discussion of Berkley in the short story:

Hume noted for all time that Berkeley's arguments did not admit the slightest refutation nor did they cause the slightest conviction. This dictum is entirely correct in its application to the earth, but entirely false in Tlön. The nations of this planet are congenitally idealist. Their language and the derivations of their language - religion, letters, metaphysics - all presuppose idealism. The world for them is not a concourse of objects in space; it is a heterogeneous series of independent acts. It is successive and temporal, not spatial. There are no nouns in Tlön's conjectural *Ursprache*, from which the "present" languages and the dialects are derived: there are impersonal verbs, modified by monosyllabic suffixes (or prefixes) with an adverbial value. For example: there is no word corresponding to the word "moon," but there is a verb, which in English would be "to moon" or "to moonate." "The moon rose above the river" is *hlor u fang axaxaxas mlo*, or literally: "upward behind the onstreaming it mooned." (Borges,1998, p.73)

However if we examine this a bit closer we find a thread, which tugs at the very notion of *ideal*. For there to be an ideal there has to be the notion of the *non-ideal* or specific – in this way the notion of *ideal* is inherently fixed to an object, thing or noun. For me

the true thrust of this imagining is conceived of a world of pure *intensities*. It is this world of intensities, which Deleuze's whole ontology embraces - in fact for Deleuze reality is a unified field of intensities, which is territorialized through differences (Deleuze G. , 1994). It is this act of *difference*, which produces things – though these things are emergent properties of intensive differences.

There is a further understanding commonly held about the story, that the members of Tlön deny reality. However they obviously do take things to be real, for they act in language, however it is based on a completely different *metaphysics*. This alternate metaphysics does not privilege presence but possibility and becoming. This *unreality* liberates being from the ontic status to that of the ontological status – that of *Being* as possibility. Further it shows that the possibility of being is also the impossibility of it.

As the story continues, Borges' inquiry unravels Tlön to the world; slowly the rest of the world gradually hears more about Tlön, its people and their ways. In this way they slowly adopt the ideas of Tlön and begin *affecting* reality in the same way. At the end of the story, these ideas take over completely eradicating the cultures of the *real world*.

When I first read the story, I was about to set off on my journey to Cape Town and like Borges, within his own story – this story was the first fragment of the investigation. It was a puzzle so intriguing it occupied my thoughts week after week – stuck in my mind like a grain of sand within a clam. I read and reread this story many times – mainly because I felt it was significant in some way. I couldn't exactly understand why it was; yet I was drawn to it again and again.

What I eventually found was that this journey, the journey of Borges was *isomorphic* to my journey, similarly it transcribed a route that was common to philosophical, innovative and entrepreneurial activity. As we recall the story, there are a few stages. Firstly the discovery of some anomaly, which just doesn't quite sit right – in this case Borges stumbling over the article about the lost world. We may call this our *Gödel statement*, which is a statement, which is true for the system but inexplicable by the

theory of the system<sup>1</sup>. Secondly, the inquirer unfolds the investigation by being present to the anomaly; slowly more and more fragments appear. These fragments are part of a whole picture, which seems to remain whole, but also incomplete.

As more and more pieces fit together, there is a fundamental breakdown in the epistemic machinery, things do not make sense. In this breakdown the intervener asks – what may be true? In this certain axioms of a new system emerge in dependence of each other – this is the basic scaffolding of a new *truth*.

In generating basic axioms of a new system, we articulate its coordination, rules and laws. In the process of Borges, the evidence within the encyclopaedia pushes him to question his own epistemological machinery and in so doing the ontological status of things. So thirdly there is a *prototype* of a new sense – an innovation in the epistemological machinery of the situation (what Spinoza et al. call *reconfiguration*). This is not as instrumental innovation would have it; as a development of a new concept or thing, but an innovation around how new concepts are made and what is called to ‘be plausible’ – innovating within a background of understanding or *ontological design*.

Next having found this radiant gem, the intrepid explorer uses it as tool within a social context. This new prototype disrupts the predominate sense, using the basic anomaly(s) it has found. This new assemblage is defined in its relationship to a context of intervention- by its ability to *affect and be affected*. It is this dialogue of *counter effectuation* that weaves in a new sense. It is important to note here that this process of *validation* is not an imposition, but a dialogue of mutual becoming. In the story Borges finds that his discovery leads to this being a discovery of a wider socio-cultural context.

In the next stage there is larger and larger adoption of this new sense, which becomes an unavoidable *truth*. Over time this takes hold until the old sense is forgotten, and a new world has emerged. This last stage is such a profound ontological transformation that both *histories* and *futures* are altered. In this way the *a posteriori* creates a new *a priori*; a *transcendental empiricism*.

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<sup>1</sup> It is important to note here that this is *a posteriori* that it is a found empirical piece within a system

This may seem all rather *esoteric* and *abstract*, but this form of ontological design is a pervasive mechanism within society to day. Spinoza et al. (2007) in their research of entrepreneurs detail six qualities, which they think are most important:

“(1) The entrepreneur innovates by holding some anomaly ;(2) he brings the anomaly to bear on his tasks;(3) he is clear about the relation of the anomaly to the rest of what he does, and once he has a sense of a world in which the anomaly is central, such as the world of work, he embodies, produces, and markets his new understanding; (4) to do this he preserves and tests his new understanding...to see how it fits in a wider experience (5) as we have claimed but have yet to argue, he must take this new conception and embody it in a way that preserves its sensibleness and the strangeness it produces, seeing to it that his new understanding retains for others the authority it had for him and reconfiguring the way things happen in a particular domain; (6) finally he focuses all dimensions of entrepreneurial activity into a styled coordination with each other and brings them in tune with his embodied conception, so the critical distinctions involved in appreciating the product become manifest in the company’s way of life.” (Spinoza et al, 2007 p.50)

This pattern is not only found in business though, it found in physics, biology, mathematics and philosophy. Moreover, since this process begins with an individual experience of significance, this is also our main way we approach the world and the uncertainty inherent within it.

The work of Einstein is a great example here. His work in general relativity began with empirical observation, which led to a reformulation of basic laws of physics. It is important to note however that his intervention did not disqualify the formal system of physics entirely but explained it in a fundamental different way, namely *general relativity*. In this way he addressed the epistemic machinery within the milieu of physics. Today his work has completely changed the ontology in which we live.

Borges’ strategy in *Tlön, Uqbar, Orbis Tertius*, is profoundly fitting to the current investigation because it aims at envisaging a world freed from the shackles of a

*metaphysics of presence*. If Heidegger aimed to outline the mechanisms of *presence*, Borges helps us imagine a world made, not inherited:

“How could the world not fall under the sway of Tlön, how could it not yield to the vast and minutely detail of an ordered planet? It would be futile to reply that reality is also ordered. Perhaps it is, but orderly in accordance with divine laws (read:” inhuman laws”) that we can never quite manage to penetrate. Tlön may well be a labyrinth, but it is a labyrinth forged by men, a labyrinth destined to be deciphered by men.” (Borges, 1998 p.81)

It is with this grand vision of the work of the imagination, that we find the last 'night star' is the sky of my journey. This is Frank Herbert's *Dune*. (1990) Like the other two narratives, I stumbled upon this one too; I started listening (on audiobook) to it on my drive down to Cape Town. The exquisitely crafted novel is one of the great Science Fiction classics and became one of the first insights into a genre of ecological thought.

It traces the life path, of Paul Atreides who is born in the midst of an interplanetary political saga. Paul is propelled across the universe when his family is given stewardship of a new home, the desert planet Arakis. Paul and his family are usurped and have to flee into the desert wild.

The planet, Arakis is a source of the most valuable substance in the universe, the spice. The spice has truly supernatural powers that allow it to 'fold space' and carry interstellar ships across great distances in a blink of an eye. It also has several *entheogenic* and *psychotropic* properties when ingested, allowing for supernatural abilities such as precognition and telekinesis.

The main antagonist in the story is Baron Harkonnen of the House Harkonnen, who spins an elaborate plot to gain control over the planet and in effect, dominate the spice route, which rules the known universe. Further Arakis is a desert planet, in which all the natural resources have dried up, on the brink of ecological collapse.

The story drew many parallels for me to the world we live in, with wide macro and mundo system failure, entangled beneath a complex political agenda. Moreover it represented the overburden of the overriding paradigm of exploitation in which most of our industries operate under. Most centrally it was the reason I had travelled across the country, to try find a way to renew business, organisations and societies – to liberate them from a paradigm of scarcity, instrumentality and dominance.

I found the richest understanding of Dune, in reading Heidegger side by side, the spice seemed analogous to the Heideggerian concept of Being. Specifically I was drawn to make connections between Heidegger's articulations of *the metaphysics of presence*, (which established an epoch of dominance over being) to the obsession of the interstellar community's obsession with spice. Further the spice is used as fuel to power great intergalactic ships; it is manipulated and subjugated to will of man.

In contrast, in exile Paul Atreides learns to use the spice to unlock inner wisdom and potential within him. Instead of using the spice in a machine, Paul ingests the spice and lets it transform him; rather than impose his will on it. This is what Heidegger suggests, when he proposes that the role of man is as 'Shepherd to being.' Arakis, the Desert planet was analogous to language, the *house of being*, because like language Arakis is the home of being. In the hand of the house Harkonen the planet is dry wasteland, in my interpretation this is the same state of language, which is used as a stricture on being.

At the end of the novel, Paul retakes the control of the planet and in effect the power of the entire inter planetary society. In this he initiates systems, which territorialise the arid planet in attempt to make it a rich and fertile paradise once again. The message then (from my extended metaphor/interpretation) is that in the reinstating man as the 'Shepherd of being', that is to be guided by and through it, we may stand at a new age of human evolution. An age where we may truly unlock our potential - which I suspect is far greater than our wildest dreams.

The key point in the telling of this narrative, is not only in detailing these guiding stars of my journey, but also in trying to describe the unravelling of the process of discovery and innovation. This is not innovation in the way that is commonly understood but an innovation within the background of my being, an innovation of self. In following these

clues and fragments, which at first seemed nothing more than mere interest, unravelled fully into this thesis, the creation of a social innovation.

## Purpose

As we have seen from the narrative (*A Triangulation of Space*), in the last section the first portion of my journey was concerned centrally with *identity* and *purpose*. In particular, Albert Camus' writing had resonated deeply with the deep *anxiety* I had been experiencing. In fact I found the whole movement of existentialist philosophy was grounded in the understanding that we are pulled to see the world as mundane, meaningless and unfulfilling, if we merely become accepting inhabitants of it. Heidegger calls this *conscience*; this is the part of Dasein, which calls us back to discover our *authenticity*. It is that part of us which shakes out of complacency, into a state of *being ontological*. This is to ask the question of being, to ask the question of our own true potential.

To set the scene briefly, I had begun my journey as an entrepreneur with a group of fellow students, who had been friends for a few years. We had started a company, which we called Ownpower, which focussed on offering a set of business and organisational design services. In these early stages of the business we were all struggling to find our identity by ourselves and together, bound together by deep passion to find meaning in our own lives and in the work we were committed to doing.

It was interesting that during the first period of this journey I immersed myself in the early work of Heidegger, especially *Being and Time* that is one of the great and sentinel works of existential philosophy. In particular this piece of writing with its deep profundity, struck a chord with my experiences at the beginning of this project. In this work Heidegger articulates his conception of *authenticity* – which in his explanation is *to be one's own person* or *to belong to oneself*.

This is a conception, which is not to isolate oneself from the world around you, but emerges from a deep affirmation of your own *historicity*, while acknowledging the impermanence of life, or what he called *being-unto-death*.

Placing yourself firmly within this temporality, you are affronted with the creative act of being- what should I do with my life, what is meaningful to do? Heidegger believes

firmly that we must not detach ourselves from the place where we find ourselves, and to the people, places societies we belong. It is in this situatedness, in or dependence of others that we find our purpose, identity and authenticity. Furthermore realising that death is a real possibility, that we could die at any moment, we must act in accordance – swiftly and with commitment.

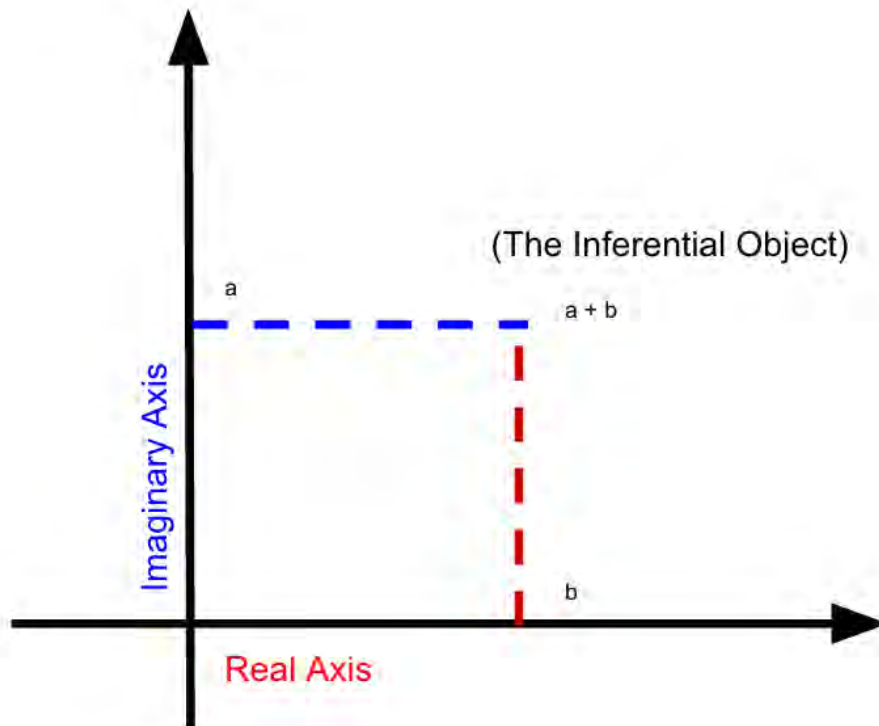
In my case, I realised profoundly that a meaningful life would necessarily mean a dedication to designing systems that create the conditions that help people to empower themselves. Indeed this is the very meaning of the word, Ownpower. So as a group we found a deeply shared common purpose, a dedication to creating purposeful systems. My work in particular explored the way we could leverage technology to create virtual platforms that could improve the lives of South Africans.

The feeling of finding your voice within the sea of noise of the modern world brings about unbelievable joy. It is a state of true awe and is difficult to describe. Overall this comes from an overwhelming feeling that you were born do this, that all the pieces in your life finally make sense. All the little jobs you had, all the experiences and paths you took, which never really seemed to make sense, suddenly do. To find that *thing* is to find your authenticity, and with this is a deep sense of purpose and the meaning of your existence.

Most importantly, I believe that this is the first step in which every entrepreneur or any inventor, philosopher or great scientist must pass through. This feeling of *purpose* is the only thing that can provide the passion and fuel to pursue the great ideas and enterprises of our time.

## The Inferential Object

This area is concerned with exploring that *thing* which is unknown. Probably one of the most pervasive phenomena I experienced in all the projects was a relationship with a field of possibilities – which I call here the *inferential object*.



Abduction as Intuition - adapted from Semetsky (2004)

Figure 14 Mapping the inferential object

It is the work of all entrepreneurs, innovators, scientists, and philosophers to articulate this relationship with a possible future. This idea became more and more clear to me as the journey progressed. It really hit home after being on a course to study Scharmer's methodology, *Theory U*. During the course of the program Otto Scharmer gave a talk to the whole group, describing how he came across the concept of *Leading from the Future as it Emerges*. He explained that as a young man, within a divided Germany there was an unquestioned sense of a better future. It was taken for granted, he said that

people everywhere had a common vision of what a better world would be, this sense of a better future, he explained, created the conditions for that new world to be born.

It was the role of the leader, to be perceptive enough to *sense* this future, and to facilitate the dialogue, engagement and interaction that makes this conception clearer and clearer. As he said, “the role of a leader is to immerse himself in the context of the situation, to understand the systemic causality of the system, in so doing, find the points of leverage—those points in which he could affect change and then create the shared praxis to change them.” This shared praxis is centrally dependent of *teleological design* or designing a future end state. Indeed the process has six different stages: 1) Downloading or understanding the context of the situation, its history and peculiarities; 2) Seeing or suspending judgment to see the situation with new eyes; 3) Sensing which is looking for aspects of significance 4) Presencing, which is finding what the system is asking to become and also finding what your place is, what is the action you need to take to actualise it;) Crystallizing, this is the process of bringing this discovered emerging potential into greater clarity, bringing vision and intention; 6) Prototyping, in this stage the emerging potential is tested within the context of intervention, a process of validation and iterative development; and finally 7) Performing refers to the implementation of practices and infrastructure that weaves the potential state into an actuality.

In my research I have tried to explore the process of innovation in many differing contexts and studying many heterogeneous methodologies. In so doing I believe there is a deep *isomorphism* between all these practices, which I think Scharmer’s *Theory U* typifies. Furthermore in my study of philosophical and social theories as well as in cognitive and evolutionary theories, I have found this creative process repeated over and over again. I will attempt here to make the connections to outline this isomorphic trait of creativity, which is also the basis for life – the ontological claim that *Being is Becoming*.

If we begin in the proximity of Scharmer’s *Theory U*, which attempts to understand evolutionary mechanisms within dynamic systems, we find in business literature, the work of Roger Martin. In particular Martin’s ‘Knowledge Funnel’ tracks the process of

an innovation from the level of *mystery*, to the level of *heuristic* and then finally to the level of *algorithm*. This very much like Scharmer's model begins with an anomaly, a mystery that has no real explanation within the system. Following this the innovator finds a set of heuristics to better deal with this uncertainty, creating models and prototypes. Over time this heuristic becomes an algorithm, as it gains consistency, legitimacy and plausibility. With this comes the formulation of practice, methods and infrastructure that exploit this new found potential – in the case of a business this would mean a new model, practice or innovation.

Martin further goes on to explain that businesses in general can have modes of operating and can have blends of the two in their operating. This is of exploration and exploitation: exploration is process of finding that anomaly, that *Gödel statement*, if you will, and then bringing it into an organisational or business practice; exploitation on the other hand is the exploitation of an already established algorithm, invention or practice. Businesses need both to survive but generally have a predisposition for one of the other. This is the basic evolutionary dynamics of business, as a business disposition becomes more based on exploitation it becomes more fragile and less adaptive. It must then engage in a process of innovation, a state of dissolution and re-creating – the genetic algorithm, so to speak. This is what Deleuze would call a process of *de-territorialisation* and *re-territorialisation* and so this conception of a business is very much in line with the Deleuzian conception of social systems as the development of assemblages and strata, through a process of stratification. Over time a business undergoes greater and greater territorialisation and codification, which gives it a certain structural disposition. However all organisms must undergo change, grow and adapt or breakdown. In this case the social organism, it must find generative mechanisms to adapt to new environmental and internal stresses.

Martin proposes one such *genetic algorithm* for business in his methodology of *Integrative Thinking*. This is the process of taking two opposing, distinct and differing business models and integrating them. Once again for Deleuze the morphogenetic process is that of *intensive differences*, this is the conception of *productive difference*. In the process of Integrative Thinking, we are holding to opposing models and not only finding how they are different but also how they could be the same, we are looking for common ground, or more appropriately a common future.

If we turn back to Deleuze, an assemblage has an actual state, which is the basis for a virtual field of *possibilities*. In this way, when two actual objects interact it is the differences between their virtual fields which define *the event*, of their interaction. In this way the differences between the fields of virtualities creates novelty, action or the case of an organism - cognition itself.

If we take the enactive approach, the very act of cognition is sensing within the environment for points of significance – points of difference. For example a bacterium will notice a sugar gradient in its extracellular environment, this intensive difference causes the organism to travel upstream of the gradient finding food. So even in the most fundamental aspect of mind and mind in life, we have this basic *creative process*. This is the exact same process – an organism understands points of significance, has a sense of *directedness* and acts. In the same way the innovator senses significance, brings forth the intensive differences, explores and discovers meaning and creates action which birth new worlds.

Similarly in the Heideggerian schools of *Ontological Design* and in *Disclosing New Worlds*, we find the same basic phenomena. First we have a background of understanding, things *breakdown* and in the breakdown points of significance emerge. This leads to a process of *articulation*, *reconfiguration* and *cross-appropriation* which due to it acting within a ‘background of understanding’ leads to a reengineering of the prereflexive state. In this way new forms of justification and plausibility are created, leading to new businesses, new innovations and new social practices.

Similarly as Spinoza et al. (2007) describe the path of the entrepreneur, they describe an almost identical process (explained earlier, *the six qualities of the entrepreneur*). Indeed we find this thinking well inscribed in the later work of Heidegger, who calls for a return to *technē* – the union between the *poetic imagination* with that of practical skill. what he calls *poesis*, - to *bring-forth*.

In Heidegger’s unrelenting determination to describe the essential nature of being, he stumbles upon a paradoxical and unequivocal truth. That in our unconcealment (in finding truth), we conceal - hence he claims that being is the clearing that shelters. From

here he proposes that our true role discloses new possibilities and then brings them into being, that is to say our work is in clearing (unconcealing) and presencing (bringing that which has been unconcealed into reality).

## Analogical Tensegrity

This term, *analogical tensegrity* combines two concepts *analogy* and *tensegrity*. These two terms have been centrally important to my understanding of what the *as-lived experience* of innovation is.

The word *tensegrity* is a word that has been mainly used in architecture and itself is a synthesis of two words – *tension* and *integrity*. In its common usage in architecture it represents an ability of a structure to withstand exterior conditions, while maintaining its form, it refers then specifically to a *dynamic stability*. In this way it is a very similar concept to *autopoiesis* in evolutionary biology, in that it refers to a condition in which a cell *self-produces* to maintain its identity in precarious environmental conditions.

Within the Enactive Tradition, we find a further exploration of *embodiment* to propose that cognition arises from autonomy. Further autopoiesis and adaptivity are the necessary conditions for mind. This is due to the recognition that as an organism deals with a changing environment it undergoes a process of *sense making* which carves out a *niche* within its environment. This is a key point, so it is worth exploring in a bit more depth here. What this means is that by understanding *intensive differences* within the environment the organism coordinates itself such that it takes action, based on a basic *directedness* and *self-production*. Therefore the enactivists propose the body is a self-constituting and sense-making system such that it is the precondition to disclosing a *meaningful world*.

A meaningful world then is a way of interpreting the raw sensory data, which is a field of intensities in the environment. At a biological level of a bacterium or single cellular organism, much of this *meaning* is determined by phenotype and genotype of the organism, that is the biological history of the organism – therefor cognition is *structurally determined*. Furthermore this determinism creates the capacity to exist in a particular *milieu*.

However the *future state* of the organism is determined centrally on another aspect of the organism, *adaptation*. The first thing to consider when understanding this capacity

for adaptivity - is to adaptive to what end? In this way we can note that adaptivity is always to some goal or teleology. So in the enactive tradition, this is the capacity of the organism to make sense of its environment towards some goal or set of goals – what they call *directedness*. To elaborate on this, in every actual situation, there are set of possible futures, which are inherent within the organism and its relation to its environment. Furthermore there is an innate disposition to a best future state, what we could call an *attractor*.

In this way the world *shows up* from this *being towards objects*, that things are meaningful within a field of possible futures. This idea is common throughout the phenomenological tradition from Husserl to Heidegger; and is very apparent in the work of Deleuze in his explication of the structured space of possibilities of a system.

To take a slightly different perspective on this same concept, I'd like to talk a bit about my experiences with tensegrity – or dynamic stability. The great revelation for me with regard to tensegrity came through my practice of Kung Fu. I have trained in Kung Fu and particular the internal art of Chi Kung and the style of Hung Gar (Tiger Kung Fu) from the age of 16. In tiger training, there is an emphasis on exercises that mimic the movement of the tiger, changing the basic movements of the body. By exposing the body to new rhythms, new sensations and new experiences, the capacities of the body changes. However this is only the mundane aspect of this practice, surprisingly what I noticed through my practice were significant changes in my consciousness.

The practice specifically involves breathing practices combined with visualisation, of you as a tiger. When deeply engaged in the practice, there are moments of deep clarity when the world shows up in a fundamentally different matter, particularly as a field of intensities and not as realm of objects. Over time (I practiced for about 6 years) I noticed significant changes in my consciousness and became deeply interested in that world before reflective thinking. The basic understanding from this experience is exactly what the enactivist articulate, that 1) cognition is determined structurally (through experience) and 2) that by noticing things of significance produces action and furthers an evolutionary trajectory.

As I researched these phenomena more, I discovered a few interesting concepts that are relevant to our discussion here. Firstly different states of consciousness are distinctly related to a different inner biology, specifically different states of consciousness depend on the occurrence of very particular neurotransmitters within the body.

Deleuze speaks about this in third chapter of *Difference and Repetition* (1994) where he describes our appearance of our world as determined by the territorialisation of the ego – or the structure of the space of possibilities of the self. In this chapter he writes about delirium as a *temporary de-territorialisation of the self* – not the biological self but the self, which is a structuring of possibility, which in turn has its basis in the biological body.

In delirium, much like the states I experienced through martial practice we have a deterritorialisation of the mind such that we are open to a much broader sense of things. To reiterate our points above, taking from the enactive approach, things show up as meaningful dependent of the teleological architecture - things make sense against a structure of possibilities. In these states, whether they be meditative, delirium or fugue states, there is dissolution of this structure of virtualities. In this way the world appears as field of pure intensities, what Deleuze called the field of immanence.

There is an extra step in the process of kung fu and in also within practices of tantric yoga, where dissolution is just the first step. The second step is a restructuring of this field to a particular new disposition. In the case of tiger kung fu, you (*re*)perceive yourself as a tiger – the main aim of this practice then is to create a temporary singularity of *tiger*. In this way things show up in a fundamentally different way – that is to say, things are significant in a fundamentally different way. In so much that action is directed in different avenue altogether and creates a different growth trajectory.

It is important to note that these states are never produced in a purely solipsist way – that is it not purely a result of subjective fantasy. In this process we are not denying that there is a reality that exists, what we are saying is that the machinery of sense of that reality that can change. Furthermore as this changes so does the possible trajectory of that subject – that by restructuring the virtual space we change the future actuality of that subject (in its environment). Lets try and explore this a bit further. Kung Fu for

example is rooted in the physical body; there are extensive exercises, routines and sets of movements. In this process a new reality – that is a new type of engagement with the word – is *enacted*. This means that there is an innovation in the sense generating apparatus, while *being-in-the-world*.

The fundamental learning for me in this process is that things show up dependent on the base of a structure of meanings, which in turn are structured around a teleological architecture of *directedness*. To change this structure (in a fundamental way) one must undergo a process of dissolution and then re-structuring. This requires a level of biological and cognitive plasticity, which in turn requires a state of mindfulness. Within the *phenomenological tradition*, we note with Husserl, Heidegger and also with Merleau-Ponty there is an emphasis on the philosophy of perception, cognition and being. However we could argue that there is very little written about the pragmatic and practical aspects of this. It is of no doubt that these philosophers were consummate meditators but little of their works explains the practical dimension of this – how do we achieve these plastic states of consciousness?

In is this way we can use mindfulness as an appropriate mechanism. Mindfulness is now *en vogue* so to speak; every aspect of modern life is permeated by it, but the question that is not so easily answered is – mindful of what? If the mind is mindful of its own nature (essenceless essence) the world emerges as field of pure intensities. This is similar to paradoxes in logic, when you turn the machinery of logic on itself you are left with an infinite regress; however this is the essential nature of the logic itself. However if you use logic to create structures of thought which are fundamentally relational we get *formal systems*. The mistake we have made in science and in life in general is that we take these systems to be complete, true and or eternal; rather they are always incomplete, relational and contextual – and it is for this reason they can evolve.

Further if we are mindful of ourselves within a certain *teleological architecture* the world appears accordingly. Therefor in disclosing new worlds, the innovator must use his mind in two ways: 1) to hold the breakdown or point of significance in his life and 2) when seeing a possible future teleology (which resolves this) must hold on to it with his mind. Both these processes alter cognition, in that things show up in terms of this. In a typically Heideggerian way, we see that a worldhood is constituted by equipment,

purposes and identities which are coordinated in a more that equipmental manner. In this way changing the basis of understanding of *being-in-the-world* we transform the purposes, equipment and identities.

Therefor mindfulness is the fundamental pragmatic method of the phenomenological tradition and the actual path of the entrepreneur and innovator. Moreover it is the role of passionate commitment, purpose and desire that allow for the sufficient energy to create both the plasticity (to think of new ways) and the structured thinking creating new ways of being. Hillary Austen explains the combination as artistry, or the ability to exploit past knowledge (mastery) and also be concerned with new types of knowledge (originality). In addition she claims that artistry is the ability to balance between qualitative and quantitative thinking, in a purposeful and directed way. In this way she proposes an assemblage of three different types of knowledge: experiential, conceptual and directional. This relates very well to the view we have been building up to this point – that we have experiences, which become meaningful within a set of goals or ideals we conceive. It is important to note however that experience is first in the order of things, that it is the experience itself which brings about a set of virtual possibilities, and that with every actuality the field of possibilities is altered.

In this way we have two sides of the coin so to speak, which are both integral to the work of the entrepreneur and innovator. Firstly there is the ability to conceive of things in a different way and then secondly to find the axioms that make it a plausible or justifiable system.

In Hofstadter's book *Surfaces and Essences*, he explores the genius of Einstein in his ability to make analogies, where others could not see any. In particular we see that Einstein had a very particular structure to his being - that he believed in a deep unity between all things. Hofstadter explores all the great discoveries Einstein made as found through analogies between different aspects of theoretical physics; but places an emphasis on what we could call an overarching analogy – that of unity. In this way he shows that these generative analogies were made possible because of deep faith and belief in the unity of physics. Moreover this belief is the analogy of analogy - that is it is the ultimate analogy because it holds that the essence of theoretical physics is to show unity.

What is extremely significant here to our investigation is that through his cognitive structures certain things became significant to Einstein, where no one else could see them. Then by taking these moments of lucid insight, he found the rigorous thinking required to validate them in an intersubjective world of shared experience. Over time these insights became the basis of a whole new era of theoretical physics and not to mention a whole new way of understanding our world.

In my experience in the projects described earlier, this was so close to the actual experience of what innovation is, for me. The first necessary step however is a deep commitment to the project; this commitment is always to some ideal. This ideal or teleology is vague and insubstantive at the outset, no more than a hunch or intuition. However as this intuition is held firmly through deep emotional commitment, the world offers up itself in many meaningful ways. I would see analogies to almost everything that was going on in my life, what I could only call a deep synchronicity between the design of the project and my everyday experience of life.

It is the work of the innovator and entrepreneur to create this analogical tensegrity that allows things to be significant in relation to a set of goals – what we could call *teleological design*.

## The Essence of Innovation

In many ways the central theme of this research has been to engage in a discourse about what innovation is, specifically within the context of business models. From this initial point of departure, our journey has led us deeper and further than this initial point – exploring cognitive science, complexity, dynamical systems and philosophy. In the practical dimension, I explored the as-lived experience of business, system and technology design in varying contexts in an attempt to enrich my own understanding of what innovation means. This somewhat broad investigation aimed to reveal an essence, a common ground or isomorphism - by asking what are the basic phenomena of business model innovation?

As I started this research project, one of the most significant things that I felt was that the process of innovation was a fundamental and even basic form of life – that we have no choice but to be creative, to dream and to become. However we forfeit this right, to merely be consumers of mass engineered ideas, thoughts and media. We are truly living in time where we have forgotten the meaning of *authenticity* - to be true to oneself and to get a hold of oneself in such a way that we live a true meaningful life. This is a creative act, an act of innovation within the self. It is this act of authenticity, which opens the way, so to speak, for a true understanding of our role in life as *disclosers*. This point of *authenticity* is the fulcrum from which the act of innovation occurs. In finding oneself *being-in-the-world* you are able to orientate yourself such that you can *make meaning* with the world around you and your work.

The work of the innovator then, is the expression of being; in that it is *being ontological* – it is asking those questions which are centrally concerned with the self, purpose and identity. In this process we find a world of meaning, which is necessary for the work of the innovator. In this way the first disclosure is the disclosure of oneself in the world; with this found purpose, the disclosure of the innovation itself is found without coercion. This is the art of *not-doing*, or being present to a field of possibilities from the perspective of your basic stance.

The second disclosure is within the context of the intervention, but is one fundamentally dependent on the inner state of the intervener (the first disclosure). In this way things show up as meaningful, in relation to a system of interlocking meanings and to oneself. In this process points of significance emerge which lead to a disclosure of what *could possibly be*. The articulation of the structured field of possibilities.

Following this, the innovator searches for the basic building blocks, the basic axioms of a truth – in so doing a prototype is formulated. As we have seen in our examples, this could take many forms – a theory, a practice, a model or primitive product. In this creation he shares his discovery with the world, creating a shared commitment and understanding. In this way he restructures the field of possibility within a group of people – the third disclosure.

Following this an on-going discourse is established between, the context of the intervention, the intervention itself and the innovator. This dynamic assemblage is directed by empirical understanding within the structured space of possibilities. With time the intervention establishes consistency, becomes structured and has greater codification. With this a new sense is implanted and with it a new *truth*. This is the fourth disclosure, which is in truth, concealment into the pre-reflexive background of the intervention.

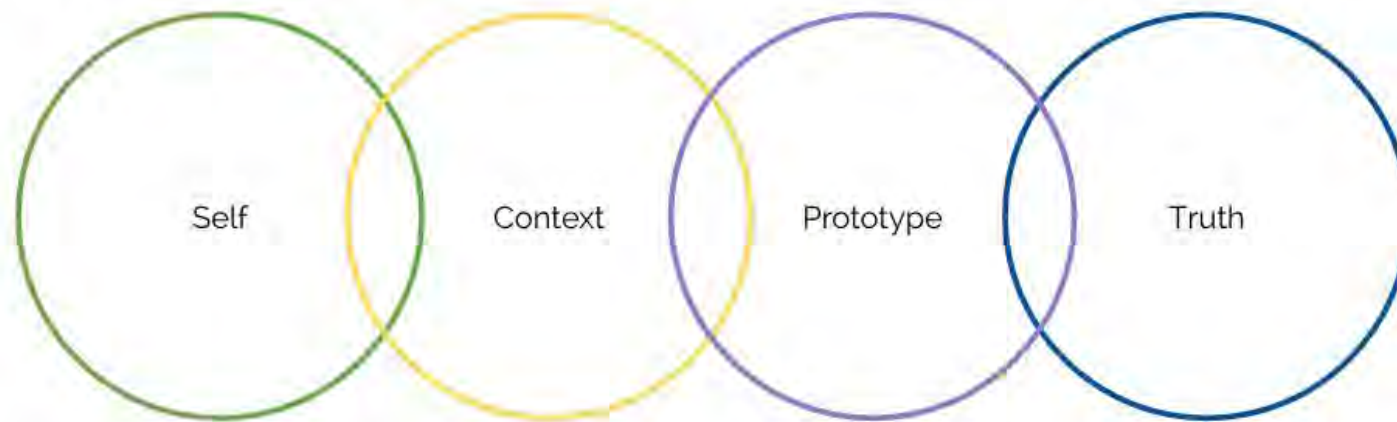
This process requires a level of thinking, which is not merely rational or technical; rather it is one found on the *possibility* of the empirically found. In this thinking discipline, there is a need to transcend both conceptions inherent within the traditional metaphysics of presence- that is of the *now* and the *eternal*. Underlying this *metaphysical* revolt is an understanding of the world as things as *historical, contingent* and *interdependent-*, which insists on a *metaphysics of emptiness (groundlessness)* and *emergence* (dependent origination).

This is very much in line with Heidegger's later works, which suggest that Dasein is the work of *essencing- or* disclosing within a context of meanings. As he says, "the essence of truth, is the truth of essence." In this he articulates that *thinking* is itself the creation of essences, further these essences in their creation disclose whole new worlds or ontologies. To this fundamental equivalence (between truth and essence) we can add

innovation – the verb Heidegger appropriated was *essencing* - the relationship between truth and essence.

In this way we can say, ‘that the essence of innovation, is the innovation of essence’ – the fundamental work of the innovator is in facilitating the emergence of new essences from empirical understanding, which are grounded in experience. In the unconcealment of these essences, with it we find new worlds based on new truths, that in time become *the* truth. So we can also add, ‘that the truth of innovation, is the innovation of truth.’

## 4 Disclosures of Social Innovation



The first disclosure is the disclosure of oneself in the world; with this found purpose, the disclosure of the innovation itself is found without coercion.

This is developing the fundamental disposition on inquiry - building an analogical tensegrity.

The second disclosure is within the context of the intervention, but is one fundamentally dependent on the inner state of the intervener.

In this way things show up as meaningful. In this process, points of significance emerge which lead to a disclosure of what *could possibly be*.

The articulation of the structured field of possibilities.

Following this, the innovator searches for the basic building blocks, the basic axioms of a truth – in so doing a prototype is formulated.

This could take many forms – a theory, a practice, a model or primitive product.

In this creation he shares his discovery with the world, creating a shared commitment and understanding.

And in this way, he restructures the field of possibility within a group of people (sociocultural context) – the third disclosure.

Figure 15 The four disclosures of social innovation

## The Ethics of Experience

Ethics is not often a concept associated with the practice of business model innovation, in fact it would seem that innovation in our society is steeped in *technical rationality* - concerned centrally with the development of technology for technology's sake. We have become a society obsessed with improved efficiency, greater and greater computational power and ever more elaborate methods to distract ourselves. With this we have entered a world in which there are massive ecosystemic breakdowns (Scharmer, 2011) and societal breakdown. As Scharmer articulates:

“We live in a time of massive institutional failure, collectively creating results that nobody wants. Climate change. AIDS. Hunger. Poverty. Violence. Terrorism. Destruction of communities, nature, life—the foundations of our social, economic, ecological, and spiritual well-being.”(Scharmer, 2011)

The key point I'd like to highlight from the excerpt above is that “we are creating results that nobody wants.” This is significant because it implies causality, moreover that the current understanding of causality has left us blind to the effects of our own machinations. As we have explored extensively in this research, the view of reality that values *presence* and *first principles* has been the foundation for a mode of thinking that has borne a world of objectivity, scarcity and self-obsession. Heidegger explored these themes decades ago in his essays on technology, philosophy and thinking (described earlier), and asks for a complete transformation in our basic mode of being. Scharmer calls for the same transformation today:

“This time calls for a new consciousness and a new collective leadership capacity to meet challenges in a more conscious, intentional, and strategic way. The development of such a capacity will allow us to create a future of greater possibility.”(Scharmer, 2011)

Following this we find ourselves between basic ontologies, and have been grappling with this shift for most of the postmodern era. Indeed the postmodern movement could be said to be an over-throwing of the basic foundations of modernist thinking.

For the sake of this argument I'd like articulate and compare these two traditions from their basic ontological beliefs and the ethical consequences of these stances. As Heidegger articulated, the advent of the 'information age' and in particular cybernetics, showed the completion of the Aristotlean doctrine of *essences*. This holds the ontological claim of essential natures – that in a way things are eternally present. The world shows up as a *derivation* of essential natures into specific objects – therefor the metaphysics privileges either the immediately present or the eternal. Moreover this distinction between *presence* and *eternity* or *specific* and *general* are mutually specifying and have determinate relations between each other. This relationship is defined by the crowning achievement of Aristotlean tradition: deductive and inductive logic – which has been the foundation of science, philosophy and religion in the West for hundreds of years.

Let us explore the ethical implications of such a position. Heidegger explains that this view discloses being as *standing reserve*, and further that this disposition aims to exercise power over being – to manipulate, process and exploit. In further articulation of this, he emphasises that this *metaphysics of presence* has formulated the notion of our selves as separate and inherently existing. This view has emphasised our perception of ourselves as *lord of being* – that our ultimate role is to exert force in our exploitation of being. This has created a world in which human endeavour has been marked in the formulation of higher and higher abstraction of thought in order to bend the resources to *our* will. By not seeing ourselves as interdependent and contingent beings, we do not see the non-linear effects of our actions. Further, essentialism has sullied our actions in that we believe implicitly that we and the world of essences around us exist eternally. There is a very direct ecological effect of such a position. For example we are not concerned with the eradication of species, nor the ecological disasters, which we stand at the cusp of because as essences they exist eternally, as do we.

In contrast if we take the view that we are contingent beings that we exist in dependence of each other; a fundamentally different ethic is found. We may say that of course we understand this, that it is obvious that we exist in a world of relationships. However the point here is to explore this within the prereflexive background of understanding – although we may have an intellectual understanding of this it has not become an innate

and embodied aspect of humanity. We still perpetuate the same mechanisms of exploitation founded on a non-linear causal relationship.

To effectuate this transformation of sense, we must innovate within the machinery of sense making itself. In Heidegger's essay *The End of Philosophy and The Task of Thinking* (1966), he describes the moment of *unconcealment* of the *metaphysics of presence*. In this piece of writing we find at once a sense of deep admiration for Aristotle's discovery, while a sense of complete, deep concern for the world it has borne. There is great admiration, in that by unearthing the foundations of Aristotle's project he also shows the work of *ontological design*, of unconcealment of a whole new world. The problem we have faced since then is taking this one disclosure as the only disclosure of being. Moreover as we have shown this metaphysics leaves us separated from our innate capacity as *shepherds of being*. Heidegger's great work then, was in revealing the mechanics of *unconcealment*, how we can conceive of creating new axioms that form the basic of new truths and new worlds.

This dynamic can be seen perfectly through the distinction between propositional logic and abductive logic. Where propositional logic proposes *what is*, abductive logic proposes *what could be*. This abductive leap relates to our innate ability to disclose new worlds, to conceive of what could be true. It is in this step that we hold the responsibility to conceive of different ways of being. In this understanding of being as becoming, we find ourselves centrally as disclosers of new worlds that innovate within the machinery of sense. However this creative act is not in detachment from being, from our histories or from each other but one that is borne from within the crucible of the very context itself.

Deleuze affirms in *Difference and Repetition* (1994) that at difference, it is not the mere difference of one moment of individuation, but the difference of the whole of being. In this way every act, every thought every instantiation of being at once creates the self and the world around it. This is a key ethical understanding.

If we take Nagarjuna's *tetralemma* (discussed earlier) we find a beautiful insight into this. The fundamental proposition that Nagarjuna aims to debunk is that  $A=A$ , that is to say that is we articulate a proposition A, that is all we are proposing. However every

proposition at once affirms itself (A) and also a whole history, context and world from which it ensues (not A). Therefor the affirmation of self at once affirms the details of the world of that self.

In Hofstadter's terms the self is the *central analogy* of being through which we see the world, therefor our conception of our own being determines the way the world shows up. This is not meant in a merely conceptual or mental way but in a fundamental way – Hofstadter explains how analogies give rise to an n-dimensional space of possibilities or Hilbert Space. Further we see in the enactive tradition that *autonomy* is the basic condition for *cognition* – in that the world ensues from that point.

Therefor in *ontological design*, we are asking the question of ourselves in-the-world, of what could be possible. Therefore by innovating within the self, we create the perceptive abilities to see new things – very much like a painter over time is able to see many more colours than the average person, or the way a concert musician is able to hear subtleties in sound, normally unheard. So too the discloser of new worlds develops a sensitivity to possibility, in line with the construction of an analogical tensegrity.

So from an ethical standpoint, if we perceive ourselves as inherently existing, absolute things the world too appears as a realm of objects, inanimate and lifeless. If however we see the world, ourselves, others, in fact all phenomena as one inextricably bound tapestry, we are affronted with a fundamentally different ethical disposition.

If we see ourselves as dependent arising, if we truly see this, the natural feeling is great compassion for all things. This is the fundamental heuristic that our perceptual apparatus is focused on the emptiness of self in its co-dependent origination. The points of significance then are not merely primitively to preserve the self, but ultimately to live in a world of harmonious evolution.

Every act of the self is an affirmation of itself, that is, every act is an affirmation of the ontological assumptions inherent in it. Therefor we must be mindful not only of our thoughts but our prereflexive condition in our actions. By engaging in the process of teleological design, that is designing the architecture of our beliefs – we determine our cognition, which is we determine what is significant for us. In this determination we

act, when we act we produce worlds in which we live. Therefore of central importance for the world we live in are the ethical considerations of ontological and teleological design,

## Conclusion

### Business (like everything else) is Fractal

If we take all business models to be *formal systems* – that it is a system comprising of a basic set of axioms that creates a coordination of activities. Further, taking our discussion of Gödel, we find that in every formal system there is a phenomenon, which is true, but that cannot be explained within the constraints of the system. In this way all systems are incomplete, and in evolution.

Particularly in business these ‘Gödel statements’ are the fractal bifurcations of new businesses, industries and technologies from existing ones. Any disruptive technology holds this as its fundamental operation. That is, it looks at an existing system and finds certain propositions, which can *become*, create new worlds, with fundamentally different axioms. In discovering these new truths a new system of understanding is demanded and so new ventures are born. For example if we take the evolution of computing from massive industrial computing machines, to enterprise level computing machines and then finally to the personal computer – we find at every stage the next evolutionary leap was determined by distinctions in the previous systems and their effect on the world. In this way every new technology develops in recursive manner – the same that is not identical.

The question of disclosure then is, why do some discoveries change the world and others merely remain at the level of instrumental innovation, while even others are a huge failure? In it is my suspicican, through engaging in this deep process of teleological design that there is a determinate relationship between the inner state of the intervener and the nature of the discovery. This is the maxim:

“The quality of an intervention is dependent upon the interior state of the intervener.”(Scharmer quoting Bill O’Brian, 2007)

Business is always in evolution, as are our societies and organisations, however the quality of intervention is often from the point of a technical rationality. If we change

the field of possibilities for this change, we can move business in a direction that can address the great ecosystemic breakdowns we face. This depends firstly on a development of ethics, practices of system thinking and a connection to *self-transcending knowledge*.

The objective of the research was to explore the phenomena that present themselves within the practice of innovation. The reasoning behind this approach is grounded in the fact that little can be gained from abstract theorising about such a deeply pragmatic art. Therefore rather than attempting to describe complete theory of practice, this piece of work attempts the humble description of those phenomena encountered within this specific instance. In this way, the following key insights may be articulated:

1. Business model innovation is grounded in existential inquiry, analysis and indeed even crises. Furthermore through mindful inquiry, non-ordinary types of knowledge must be realised to make sense of the fundamental meaning of one's life – this is the very medium of the innovation process.
2. Building on the existential process explained above, the development of a purpose within the context of the intervention is a necessary precondition for the practice of innovation.
3. Through the exploration of the context of intervention in conjunction with the development of a shared vision within the context of the intervention, a inferred object emerges as a field of possibilities. This 'phase-space' is a central aspect of the work of the innovator.
4. Through abductive and simulative processes, analogical thinking is an important phenomenon in the creative act of the innovator. This aspect is not only central to the initial creative insight but also into the development and design of the new model through an engagement with prototypic forms of thinking and knowledge.
5. Business model innovation is 'radical', that is to say in line with the etymology of the word, which mean to get to the root. Therefore we can say that the innovation process aims to address basic and fundamental principles of the

business model and through an ontological design process evolve, reconfigure and re-create them according to its context.

6. Lastly the business model process is an important one in the ever-increasing need of business to address our world in crises. This is because the innovation we seek, what we may term social innovation (Nilsson & Paddock, 2013; Mulgan, 2006) is the ontological design of a new world. This inclusive and integral approach to business is most fundamentally, an ethical renewal in the essential function and meaning of business.

These six outcomes, transcribe the main outcomes of the phenomenological inquiry. In this, we should understand that these phenomena mark the boundaries of this instance and does not describe the findings into the general phenomena of the same topic, the lived experience of business model innovation. To achieve such a goal, a far broader research agenda would have to be pursued into the experiences of a much larger group of experiential epistemologists. This gives much room for further study and research in the emerging multidisciplinary epistemology of business innovation.

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