

# **Design vs. the Design Industry**

## **Conflicts in Emergent Orders**

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### Abstract

In this paper ‘design’ refers to the professional practice of creating new products, buildings, services and communication. Design can be understood as an emergent order that evolves as new cognitive and perceptual capacities enable a greater understanding of complexity, context and system dynamics. In turn, these emergent capacities create greater potential for social and technological innovation. This paper will argue that despite emergent skills, designers are not able to effectively address contemporary problems in regards to sustainability due to conflicts with the emergent order of the market. Critically, ‘design’ is not the same as the ‘design industry.’ The design industry operates according to highly reductive feedback generated by capitalism that systemically ignores signals from the ecological and social systems. These conflicts result in severe distortions of knowledge and reason thereby eliminating prospects for long-term prosperity.

### Key Words:

Design, emergent order, tacit knowledge, capitalism, ecology, epistemology, crisis

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As the professional practice of creating new products, buildings, services, infrastructure and communication, design manifests the creative vision of individual designers for solutions to meet human needs and desires. As a decentralised discovery process using tacit knowledge to bring forth new scenarios, design can be understood as an emergent order, comprised of creative endeavours to address problems and create solutions. As technology and communication practices evolve, designers learn new skills and abilities thereby providing the basis for greater social and technological innovation. Within an increasingly visual and web-based culture, new cognitive and perceptual capacities enable a greater understanding of complexity, context and system dynamics. The phenomenon of emergence is significant for design practice because it describes a process of self-organization that results in the creation of entirely new properties. In this paper the emergent properties are designers' own new relational and contextual capacities that enable greater understanding and abilities to respond to complex levels of causality within networks and dynamic systems. These emergent abilities support humankind's collective capacity to attend to sustainability challenges. Unfortunately, despite these emergent skills, this paper argues that designers are not able to effectively address contemporary problems in regards to sustainability due to conflicts between the emergent order of design and that of the market.

The design industry is a subsystem of the emergent order of the market, oriented towards the accumulation of profit and economic growth. Design agencies function as instrumental organisations directing designers toward the systemic priorities of the design industry guided by capitalism. The design industry is part of the capitalist economic system that ultimately determines the systemic priorities of the design industry, design agencies and ultimately individual designers. Tensions and conflicts exist between the emergent orders of the practice of design itself and the design industry. In this paper design and the design industry are described as oriented towards different goals. This proposition is based on both the explicit intentions of the two orders and an analysis of the systemic behaviour of each order. As design has not previously been theorised as an emergent order in this context, this claim is a new one, but the idea is within a prominent disciplinary discourses that describes the practice of design as stuck in a system of structural unsustainability. Design theorists (Orr 2002; Thackara 2006; Milestone 2007; Fry 2009; Willis 2010; Goodbun 2011; Vodeb 2012; Boehnert 2012) have all examined how design perpetuates conditions of unsustainability due to its position within an economic system unable to prioritise ecological and social values. Sustainability educators and ecological economists expose the system dynamics of 'the treadmill of production' (Foster 1994) as the root of contemporary crisis conditions across the Earth sciences. Earth scientists warn that 'human activity is putting such strain on the natural functions of Earth that the ability of the planet's ecosystems to sustain future generations can no longer be taken for granted' (Assadourian 2010: 4). This warning is reinforced by the international collaborations between thousands of scientists (MA Board of Reviewers 2005; Rockstrom et al. 2009; IPCC 2012). The stakes could not be higher. This paper examines the conflict between the emergent orders of design and the design industry – or capitalism. Capitalism is the hegemonic order due to its powerful dynamic in the organization of economic and social relations. Designers' activities are thus oriented towards the systemic priorities of capitalism in the design of products, communications and buildings that are profitable.

Tensions arise between design and the design industry due to epistemological error, radical reductionism and the invisibility of the ecological and the social consequences of market processes. The historical legacy of the failure to perceive the geophysical basis of civilization results in the continuing distortions of both reason and knowledge within capitalism

reflecting the market's dissociation from a historical and ecological context. The denial of ecological and social relations as the foundation for prosperity has given rise to a new type of state control known as corporatism. This new political order threatens justice, civil rights, democracy and ecological stability. These outcomes are very different from those predicted by neo-liberal economist and philosopher F.A. Hayek who first described the evolution of complex social systems as spontaneous orders. Hayek claimed that freedom should be a 'condition of [women and] men in which coercion of some by others is reduced as much as possible in society' (1960: 11) and 'liberty is essential in order to leave room for the unforeseeable and the unpredictable' (1960: 29). Today, the spontaneous order of the market only creates 'freedom' and 'liberty' for an increasingly small financial-corporate-political elite. Acknowledging deepening economic, social and ecological crises is a basic imperative for a meaningful analysis of systemic behaviour and possible solutions.

This paper proposes that the practice of design, understood as a socially beneficial activity engaged with building a better world, is integrally in conflict with the design industry due to the epistemological and ontological assumptions embedded into capitalism. While this concept of design (as involved with creating a better world) is the dominant rhetoric in the industry and reflects the stated intentions of most designers, designers also simultaneously have other, often obscured and conflicting intentions. Meanwhile, ecological theorists have exposed the manner in which the western philosophical tradition has inherited a legacy of denying and dismissing the life-sustaining services provided by the natural world (Merchant 1980, Shiva 1988, Sterling 2001, Plumwood 2002, Capra 2003, Santos 2007). This error in ontology and epistemology has now developed into a crisis of reason (Plumwood 2002) resulting in subsequent crises across natural and human systems. Distortions of reason are manifested as the misrepresentation of limits and consequences in communication design and also in the design and construction of industrial systems with little regard for ecological and social consequences. Thus while design has the tacit knowledge, emerging systemic awareness and a pragmatic tradition to address complex problems, progress is obstructed by the reductive goals of the design industry oriented towards the goals of capitalism (based on the distortions of knowledge and reason by the systemic dynamics of its own processes). Before examining epistemological error this paper will briefly describe how design can be understood as an emergent order.

### **Design as an Emergent Order**

The practice of design can be seen as an example of an emergent order evolved through spontaneous decentralized processes. Design as a practice emerges out of the creative capacities of thousands of individual designers responding to local conditions and evolving greater skills of bringing forth inventive solutions for the benefit of humankind (and occasionally the wider ecological system). Design is an applied transdisciplinary field of practice in pursuit of practical outcomes, a knowledge building process that combines thinking and doing. Design theorist Jorge Frascara explains that designers require a wide range of competencies: 'from knowledge of form, technique, and manufacturing processes, to the understanding of social, psychological, cultural, economic and ecological factors that affect life in society' (2001: online). Design encompasses a wide spectrum of problem solving activities concerned with the creation of new artifacts, communications, buildings and even new ways of living.

Over recent decades the scope of design problems has been widened to involve a shift from designing products to designing systems and processes. Frascara claims designers 'conceive and build the information, the objects and the spaces that surround [us]' (*Ibid.*). Design has expanded its scope to cope with complexity and designers have developed new cognitive skills in response to complex problems. Design practice has functioned as a means of expanding knowledge. Bruce Archer claims that 'there are circumstances where the best or only way to shed light on a proposition, a principle, a material, a process or a function is to

attempt to construct something or enact something, calculate, explore, embody or test it' (1995: 11). Industrial ecologist John Ehrenfeld describes the relationship between design, learning and the creation of new realities:

Design is a process in which new action producing structures are created and substituted for old ones such that routine acts change from old ineffective patterns to new ones that produce the desired outcomes. Design is relevant to any domain where routines are not working, that is, bringing forth the world that the actors envision. Design and learning are connected in this sense. Design is an activity that proceeds learning. It produces new alternate action producing structures that change the mode of behavior from one that has been ineffective to a more effective regime (2008: 73).

Design thinking (Cross 1990) and system thinking (Meadows 2008) offer strategies and capacities for strategic planning. As a professional practice, design is uniquely positioned to engage with reality in a dynamic process of moving from theory to practice and moving between disciplines and sectors to facilitate Transdisciplinary actions. By facilitating transdisciplinary communication, design becomes a knowledge-building activity.

Design is a process where tacit knowledge is used to bring forth new ways of living. Hayek considered tacit knowledge to be of primary importance and his descriptions of tacit knowledge are similar to those of design theorists who share his concern for practical knowledge. Hayek states, 'not all knowledge in this sense is part of our intellect, nor is our intellect the whole of our knowledge' (1960: 26). Design theory also describes practical ways of knowing as necessary for design practice. Design evolved from the tradition of craftsmanship wherein persons held practical skills necessary for making new artefacts. Design continues to be a discovery process that occurs in decentralized spaces as individual designers use tacit skills, strategies and tools to address local problems. Design uses accumulated tacit knowledge for the purposes of solving increasingly complex problems. For example, a communication designer has tacit knowledge manifested as drawing skills, developed through years of practice and study of master draftspersons. These skills can help a community of people understand changes proposed by an architectural development through a series of visualisations. Hayek conceived of 'social rules as bearers of embodied tacit knowledge' (Grey 1984: 42). Design can be understood as the process of embodying social rules in new communications, artefacts and spaces, thereby embodying and reproducing social rules (and social relations) while responding to local conditions and solving problems. In this way, design can be understood as an emergent order.

The emergent order of design is a field of practice evolving to increasing levels of complexity as globalized networks and technology becomes more sophisticated. As communication media evolve, humankind evolves new communicative capacities. Media theorists and cultural historians have described how consciousness evolves as communication processes and media change (McLuhan 1964, Ong 1982, Rushkoff 1996). Some commentators argue that within an increasingly visual culture the emergence of greater systemic thought is evident (Barry 1997, Horn 1998). Visual and web-based communications are increasing our capacity towards greater understanding of complexity, dynamics systems and relations between systems. As individuals are able to increase the volume or bandwidth of information, human capacities for negotiating complexity is increased (Horn 1999). Emergent capacities enable a new understanding of interconnections, networks and complex levels of causality. As these abilities evolve our collective capacities to attend to sustainability challenges are enhanced.

Emergent cognitive capacities and perceptual practices (i.e. relational thought and systems thinking) *potentially* have radical implications for the design of innovative, prosperous and sustainable ways of living. The dissemination of knowledge within the design industry creates feedback loops that influence the capacities of the emergent order of design to resolve more complex problems. Design evolves through knowledge sharing of successful design interventions. Good design solutions are imitated, successful design strategies copied and

these new projects tend to create more effective solutions. Feedback from other systems (such as the ecological system) contributes to the feedback from the design industry and can help designers understand complex systems. The emergence of new systemic capacities in design creates awareness of the interdependence and interconnected nature of contemporary problems. Design as an emergent order is increasingly aware of the context of its practice.

Unfortunately, despite these encouraging signs, the emergent properties described above do not result in the production of effective solutions because the priorities of capitalism systemically devalue ecologically and socially beneficial activities. Instead of harnessing new abilities to solve social and ecological problems, capitalism harnesses the vision, skills and capacities of designers to serve its own systemic goals, i.e. the creation of economic profit. Thus, as the technological and industrial capacities of civilizations become more powerful, designers are increasingly implicated with ecologically and socially harmful design activities. The need for better understanding of the implications and consequences of design practice is evident but feedback mechanisms are perverted by the radically reductive focus on economic profit within capitalism. Tensions between systems multiply as the dominant systemic priorities dictated by capitalism prevent efforts by designers to create effective design solutions to address social and environmental problems.

### **Systemic Priorities in the Design Industry**

Design as an emergent order is oriented towards a wider set of goals and different values than those of the design industry. The design industry is a subsystem of the larger emergent order of the market (capitalism). The systemic bias of the market is the creation of economic profit and quantitative economic growth. Herein lies a basic impasse; design must operate according to reductive feedback based on the priorities promoted by capitalism as opposed to the feedback from the system in which the market is situated and upon which it is dependent (the planet's ecological system). Whereas designers may recognize that design is situated in a larger context, the design industry reduces its systemic goals to the accumulation of profit and market growth. With this reductive focus, the market ignores as much as possible the ecological and social basis of its own context. The systemic feedback from the market is impersonal and simple; it is focused on the creation of profit for those with capital to invest.

While describing the market as oriented towards profit and economic growth is a simplification of its dynamic, market mechanisms in capitalism are characterised by these reductive systemic priorities and are in conflict with the context in which the market is embedded. Ecological and social values struggle to compete in a market economy; these priorities are systemically devalued. For examples, those who value the preservation of nature can donate their money to charities, but in a market-dominated economy these charities are so marginalized they are not able to stop the rapid destruction of natural systems, i.e. climate change, biodiversity loss, etc. Capitalism is dependent on an increasing flow of natural resources, resources which exit the economic system as waste (including greenhouse gases). Organisations working within capitalism organise flows of information to suit the systemic priorities of the market, i.e. to reflect values inherent in capitalism (i.e. those values that generate profit). Social and ecological priorities are systemically undermined as design is oriented towards increasing market growth at the expense of all other priorities.

Capitalism's reductive focus on economic profit and market growth does not reflect the complexity of systemic conditions. Thus the design industry, constrained by capitalism, cannot create a foundation for long-term prosperity. The design industry relies on profit as feedback to establish value but profits do not reflect ecological stability, resilience, equity, wellbeing or happiness. A narrow focus on economic profit excludes a holistic appraisal of values and encourages short-term thinking and waste of ecological and human 'resources.' Even our language becomes distorted around the narrow focus of profit; we know that neither nature nor people are inherently 'resources' but have value in their own right outside

of their function as a source of profit. The nature of the market is to grow and consume everything to suit its needs: our language, our values and our ideas about what can and cannot be an economic transaction. The emphasis on profit in an international capitalist system based on infinite growth is that transnational capital will continue to grow and swallow up everything in its wake until there is nothing left to use. Evidence will take the form of lost species, destroyed rainforests and an unstable climate system; complex ecological systems that have evolved over millions of years that are being destroyed in a matter of a few decades.

The emergent order of design straddles the borders of other emergent orders: the market (a physical and socially constructed emergent order) and ecology (a biological and geophysical emergent order). Tensions between these emergent orders result from different systemic priorities. The design industry harnesses the talent of individual designers towards satisfying market priorities, i.e. making products which will be profitable. While design is developing emergent properties supporting whole systems thinking and thus designers can increasingly diagnose and potentially address complex social and ecological problems, it is not able to function in an ecologically and socially beneficial manner under the constraints of the design industry, following the systemic goals of the capitalism.

### **Epistemological Error**

In the seminal book *Steps to an Ecology of Mind* Gregory Bateson first proposed that the dominant epistemological position is a poor reflection of reality itself, ‘most of us are governed by epistemologies we know to be wrong’ (1972: 493). Our understanding of reality leads to a particular type of practice in business, finance, culture, education and politics. When our ideas conflict with the way that the world actually works, we make dysfunctional systems. This error arises from a lack of understanding of the order of nested systems. For example, a cell is a system, as is the organ in which a cell is located, as is the individual owner of the organ, the community in which that person is situated, the larger social system, the bioregional ecosystem, as well as the larger ecological systems. All of these layers are nested systems. Thus ‘life is an integrated process of nested living systems’ (Günther and Folke 1993: 257). Dysfunction arises when the relationship between the nested layers breaks down. Such is the case with the current relationships between economic, social and ecological systems, wherein the economic system is not designed as a sub-system of the ecological system (Daly 1998). Gunter and Folke explain that ‘the insight is spreading that socio-economic systems not only need, but also depend on natural resources and ecological services for evolution and survival’ (1993: 272). The implications of dysfunction in nested systems are dramatic. A subsystem that does not function as embedded within a larger system will ignore its context and behave as a cancer or a parasitic growth that destroys the larger system. Such is the case with the relationship between the current economic system and the ecological system.

Humankind’s capacity to address current problems is dependent on our capacity to design for whole systems. The failure of the market to reflect the priorities of the ecological and social systems in which it is embedded constitutes a major error of basic premises and a severe neglect of context. Gregory Bateson describes how this problem means our entire epistemological premises are in error:

I suggest that the last 100 years or so have demonstrated empirically that if an organism or aggregate of organisms sets to work with a focus on its own survival and thinks that is the way to select its adaptive moves, its ‘progress’ ends up with a destroyed environment. If an organism ends up destroying its environment, it has in fact destroyed itself (1972: 457).

As ecological beings, we are embedded and mutually dependent on the rest of the natural world but our understanding of reality does not reflect this basic geophysical reality. Humankind has conceived of itself as the sole proprietors of sentience and the rest of the world ‘as mindless and therefore as not entitled to moral or ethical consideration’ (Bateson 1972: 462) and therefore available for exploitation. The narrowing down of our epistemology

(and ontology) to reflect only our own interests or even the interests of our own species and the instrumental processes we use to do this is at the root of contemporary problems:

When you separate mind from the structure in which it is immanent, such as human relationship, the human society, or the ecosystem, you thereby embark, I believe, on fundamental error, which in the end will surely hurt you (Bateson 1972: 493).

The radical disconnection from the natural world and the forgetting of nature constitutes a severe epistemological error and can only lead to increasing crisis conditions. Our basic premises of independence from the natural world are encoded in the objects and communications we design and the cities we build. Feedback loops reinforce epistemological error, partially perpetuated through design. Bateson describes the 'self-validating power of ideas: the world "partly becomes – comes to be – how it is imagined"' (1980: 223). Epistemological error is encoded into cultural artefacts that reflect the worldviews of their producers. These philosophical problems become dangerous in civilisations with advanced technologies where Bateson explains that 'your likelihood of survival will be that of a snowball in hell' (1972: 468). Fortunately, as systems crises become more severe, systemic understanding is developing to respond to complex problems. Design as an emergent order is increasingly aware of the relationship between systems. Unfortunately, design cannot respond to systemic problems because this work is in direct conflict with the systemic priorities of capitalism stuck in an old paradigm characterised by epistemological error.

## **Design and The Market in Context**

The ecological system is a higher order than the economic system that was here before and will be here long after the human construct called 'the market'. Despite this fact, the market was not designed to acknowledge the needs of the ecological system. While individual designers are increasingly aware of systemic context, they struggle to materialise these priorities within a capitalism system oblivious to ecological concerns (apart from nature's capacity to provide natural 'resources'). The design of the market itself is the primary cause of contemporary ecological, social and economic crisis conditions. The economic crisis of 2008-2009 should be interpreted as a warning and a lesson that will be repeated in increasing intensity until we learn to recognize systemic dynamics of capitalism. A narrow commitment to short-term profit over all other types of feedback cannot create robust economic systems over the long-term. In this way, capitalism thereby destroys the context on which it depends. As such the market's expansive dynamic is inherently in conflict with the ecological system. Humanity's collective ecological footprint exceeds the Earth's biocapacity (the area actually available to produce renewable resources and absorb CO<sub>2</sub>) by 50 per cent (WWF 2010: 8). We are shrinking the available biocapacity on which we depend.

The myth of endless economic growth within a finite ecological system is a geophysical fallacy. The new economics foundation (nef) [sic] explains how economic growth is constrained by the finite nature of the planet's natural resources (biocapacity) by comparing the concept of 'infinite growth' in the economy to how growth functions in nature by focusing on the growth of a hamster:

From birth to puberty a hamster doubles its weight each week. If, then, instead of leveling-off in maturity as animals do, the hamster continued to double its weight each week, on its first birthday we would be facing a nine billion tonne hamster. If it kept eating at the same ratio of food to body weight, by then its daily intake would be greater than the total, annual amount of maize produced worldwide. There is a reason that in nature things do not grow indefinitely (Simms, Johnson and Chowla 2010: 4).

Ecological economist Herman Daly points out that growth's first, literal dictionary definition is 'to spring up and develop to maturity' and 'thus the very notion of growth includes some concept of maturity or sufficiency, beyond which point physical accumulation gives way to physical maintenance' (Daly quoted in Simms, Johnson and Chowla 2010: 4). At maturity growth must give way to a state of dynamic equilibrium. The nef report describes dynamic



equilibrium as a term typically found in discussions of population biology and forest ecology, but used within the context of economics it refers to a system which exists ‘within ecosystem limits but where there is constant change, shifting balances and evolution’ (*Ibid.*: 121). Daly describes the need for an economy:

that permits qualitative development but not aggregate quantitative growth. Growth is more of the same stuff; development is the same amount of better stuff (or at least different stuff). The remaining natural world no longer is able to provide the sources and sinks for the metabolic throughput necessary to sustain the existing oversized economy—much less a growing one (2008: 1).

Scientific knowledge on limits and boundary conditions of the ecological system are established and yet capitalism remains blind to these geophysical realities. Thus the systemic priorities designed into capitalism continue to conflict with the needs of the contexts in which it exists and on which humankind depends.

A financial system narrowly focused on profit and ever-increasing GNP or quantitative growth undermines opportunities for long-term prosperity. Professor Roderick Smith describes the consequences of the fixation with quantitative economic growth:

...relatively modest annual percentage growth rates lead to surprisingly short doubling times. Thus, a 3% growth rate, which is typical of the rate of a developed economy, leads to a doubling time of just over 23 years. The 10% rates of rapidly developing economies double the size of the economy in just under 7 years. These figures come as a surprise to many people, but the real surprise is that each successive doubling period consumes as much resource as all the previous doubling periods combined. This little appreciated fact lies at the heart of why our current economic model is unsustainable (2007: 17).

GNP was not never intended be used in such a radically simplistic fashion as it is now employed. Simon Kuznets, the creator of GDP national accounts ‘warned in 1934 that such a limited, one-dimensional metric should not be used as an index of overall social progress’ (Simms, Johnson and Chowla 2010: 4). Fritjof Capra and Hazel Henderson's report *Qualitative Growth* for The Institute of Chartered Accountants (UK) describe how as living systems mature their growth processes shift from quantitative to qualitative growth. This report proposes a new scientific concept of quality within market growth:

Instead of assessing the state of the economy in terms of the crude quantitative measure of GDP, we need to distinguish between ‘good’ growth and ‘bad’ growth and then increase the former at the expense of the latter... From the ecological point of view, the distinction between ‘good’ and ‘bad’ economic growth is obvious. Bad growth is growth of production processes and services which externalise social and environmental costs, that are based on fossil fuels, involve toxic substances, deplete our natural resources, and degrade the Earth’s ecosystems. Good growth is growth of more efficient production processes and services which fully internalise costs that involve renewable energies, zero emissions, continual recycling of natural resources, and restoration of the Earth’s ecosystems (Capra and Henderson 2009: 9).

There are other models and frameworks available for such a transition, although those with a vested interest in business as usual fiercely resist such a dramatic shift in systemic priorities. Goals on this level will require profound shifts in governance systems and corporate culture that could be facilitated by design - if design is liberated from current market imperatives. The next economics crisis must be recognized as another opportunity to re-design social relations and create the conditions for design to fulfill a beneficial social function.

Ecological economists Herman Daly and Robert Constanza have developed frameworks to enable the market to recognize and respond to wider values, yet designing social and environmental values into the markets is almost impossible under current conditions. Even if it were possible, Matt Price describes systems that attempt to financialize ecological and social values as inherently problematic:

To treat values or beliefs as ‘preferences’ in the economic sense is a category mistake, which compares incommensurables.... Environmental policy is not about what we want, but what is right. Trying to put a price on it is absurd, just as it would be to ask how much we would be willing to pay for our favorite team to win a football game, or giving a trial verdict based on how much the jurors are willing to pay for the verdict they endorse. ‘Those willing to pay the most, for all interests and purposes, have the right views; theirs is the better judgment, the deeper insight, and the more informed decisions’ (2004: 200).

Neo-classical economics aims to design the market to function as ‘the arbiter of morality’ (Price 2004: 189). Yet this process results in the degradation and distortion of knowledge as ‘knowledge’ comes to reflect what is profitable for those with economic power. Economic reasoning does not apply to the protection of nature or to maintaining strong communities and social fabric because these are the context of the market (rather than sub-systems of the market). Economic valuation processes are not appropriate feedback cues for these orders. It is a category mistake and a mistake of levels. The market serves its own self-interests and goals, blind and exploitative to the wider systems on which it is dependent. While efforts are made by hopeful environmentalists to help the market recognize the value of the natural processes, the overall dynamic of capitalism is greater ecological devastation. Furthermore, this process results in an impoverishment of those with strong ecological values in contrast to those who participate in – or greenwash ecologically destructive industrial practice. The systemic dynamics of the market destroy what humanity needs to survive over the long term.

### **Distortions of Reason and Knowledge**

Both reason and knowledge suffer when market processes determine what is considered to be the ‘truth.’ Hayek warned of the dangers of a state in which ‘even the pretense of truth is abandoned and that the authorities decide what doctrines ought to be taught and published’ (1944: 119). Increasingly the market determines what is taught and published. While no rational society rewards members to undermine its existence (Orr 1992: 5), capitalism encourages individual actors to exploit ecological and social resources by reducing all values to economic profitability. The underestimation of complexity and denial of the ecological world on which we depend for subsistence constitutes major distortions of reason. Val Plumwood describes a crisis of reason resulting from the systemic devaluing of nature: ‘for modernist societies capable of very major and rapid ecological impacts, to lack adequate ecological correctiveness is like having a vehicle which is capable of going very fast but has a fault or poorly developed brakes or steering system’ (2002: 67). Denying and destroying the context of our existence is the hallmark of an irrational society. Sustainability is literally impossible within this erroneous and outdated way of thinking.

The denial of context is perpetuated by design that embeds these problems into design artefacts. Design skills are needed to serve capitalism’s goals and thus design is implicated in both the design of unsustainable products and the misrepresentation of the consequences of unsustainable economic growth (including the denial of the ecological boundaries). The market is not designed in such a manner to acknowledge its own dependence on natural systems. Self-reinforcing feedback loops from market systems systemically distort knowledge preventing the public from having access to the scientific knowledge and the social technologies that could encourage sustainable ways of living. For example, ‘coal empire billionaire’ David Koch sponsors the Smithsonian Museum and critics claim that the museum now displays unscientific ideas about climate change (Bell: 2010). Similar accusations were made of the London Science Museum when it accepted Shell as a sponsor for its climate change exhibit. Sustainability requires decreasing resource use, but decreasing consumption threatens the profitability of industry. Thus industry works strategically to prevent any engagement of solutions to the ecological crisis that involves less consumption (with a few well publicized exceptions). Because the market is narrowly focused on profit, it suppresses

information that threatens its own capacity to increase profits (sometimes actively but more often passively).

Design skills are harnessed for commercial imperatives. Designers working for the global brands are rewarded with large salaries. When designers attempt to address social and ecological problems (problems outside work dictated by the market, problems with no clear consumer or client) it becomes obvious that social and ecological values struggle to exist within the dynamic of the market economy. In addressing social and ecological problems, designers expose themselves to financial ruin as there are often no obvious clients for the work of protecting communities and ecological systems. A recent report by the new economics foundation (nef) 'found that for every £1 of value created by an advertising executive, £11.50 is destroyed' (Lawlor, Kersley and Steed 2009: 4). Social value refers to externalities associated with goods and services. Market valuation processes reflect neither the social or ecological costs, i.e. the externalities of products or services. The nef report states:

SROI is a method for measuring and evaluating the consequences that follow from the work of people and organisations. This is value not only in the conventional economic sense, but also in environmental and social terms – taking environmental degradation into account, for example, or changes in the well being of individuals (2009: 29).

Nef explains that 'until goods and services reflect the real costs and benefits of their production, incentives will be misaligned with the kinds of positive behaviors society wishes to promote' (2009: 27). Within capitalism, design skills are only rarely applied towards socially or ecologically beneficial causes, as these are rarely profitable. Designers must often work outside of capitalism to develop ecologically and socially beneficial projects. The failure of the design industry and the market to reflect priorities associated with preserving the planet and creating healthy communities create stark choices for individual design professionals who want to address systemic problems but are forced to earn a living by perpetuating destructive market processes.

The distortion of knowledge and the perpetuation of epistemological error in capitalism can be seen most dramatically in the realm of environmental communication. Communications by environmental organizations are minuscule in comparison to those produced by the commercial advertising industry. The advertising industry creates very different representations of the capacity of the natural world to tolerate industrial exploitation than environmental agencies and NGOs. The amount of financial support for environment NGOs demonstrates the extent of the marginalization of environmental agendas. Industry has plentiful resources to communicate a view of nature that suits its own needs; the UK advertising industry was worth £17,318m in 2008 (equaling 1.2% of GDP) (World Advertising Research Center 2009: 7). The advertising industry uses the talents of visual communicators to illustrate the green credentials of their own products and brands while also attempting to reassure audiences that business as usual is morally sound. The visibility of advertising marginalizes environmental concerns to the point of obscurity while creating a characterization of nature as infinitely exploitable.

In sharp contrast to the budgets available to corporate advertisers, even large NGOs have only a fraction of the capital to communicate environmental facts and concerns. One of largest campaigning environmental NGO in the UK is WWF-UK, with a yearly expenditure of £50.5million in 2010 (Caritas Data 2011: 8.893). The total expenditure for three main campaigning environmental NGOs in the UK (WWF-UK, Friends of the Earth UK, and Greenpeace UK) equals £66.9m in 2010 (figure taken from data in Caritas Data 2011, several pages: £55.5m+£8.7m+£2.7m=£66.9m x 0.10 = £6.6m). This covers research, education, communications, actions and conservation of the environment. Estimating that 10% of this total is available for communication, the result equals £6.6m/yr (WWF's Annual Report claims 10% of WWF expenditure is spent on 'communicating, educating and influencing') (WWF-UK 2010: 37). Contrast this number (£6.6m) to the amount of money spent in the UK on advertising (£17,318m) (World Advertising Research Center 2009: 7).

Corporate advertising communication portrays a very different picture of our relationship to nature than the messages made by those with commercial interests. On the basis of advertising expenditure alone, the three largest campaigning environmental NGOs in the UK have less than 0.04% of the gross advertising expenditure to establish a visibility in an advert dominated public domain. Obviously, NGOs are able to leverage their causes due to the gravitas of their mission and thus in some media environmental discourses are visible without the support of NGOs sponsorship but this visibility is much higher only *in some types of media*. Unfortunately, this media does not have the scope of commercial advertising. It reaches only those who read newspapers with environmental news or watch environmental documentaries. Corporate advertising is a primary way of sense-making in a market-dominated society and this advertising creates representations of nature that suit its own purposes. Advertising portrays the natural world as open to exploitation – and this is the only type of information about nature that many citizens receive. Herein lies a basic failure in social communication systems due to the dominance of the market resulting in a severe distortion of knowledge on the conditions of the natural world (and associated risks to civilization).

Designing solutions to social and environmental problems depends on basic systemic understanding and knowledge leading to the development policy that can support prosperity now and in the future. In 2008 the UK's Sustainable Development Commission (SDC) published *Prosperity Without Growth?* This report examined the contradiction of an economic system oriented towards infinite economic growth within a finite environment and proposed strategies to create prosperity without quantitative economic growth. Author Tim Jackson describes how prosperity is no longer anchored to growth and how quantitative economic growth now functions to undermine prosperity in the wealthy parts of the world. While economic growth is still necessary in poorer nations for material well-being, in rich nations the orientation towards quantitative economic growth undermines the social and ecological basis of prosperity. Neither decoupling nor de-materialization works to slow down the scale of ecological destruction because the current system is oriented towards infinite growth.

More powerful wings of the UK government effectively ignored the warnings of the SDC and in 2010 the Sustainable Development Commission, the UK government's only independent environmental watchdog and advisory body, was abolished. With an annual budget of only £3 million the SDC costs the UK government the equivalent of a few metres of motorway - the M74 extension in Glasgow cost £692m, which works out at £138.4m per mile (Castella 2011: 1). The termination of SDC demonstrates how a substantial attempt to address ecological priorities that will rein in market processes is not permitted by a political system has now quietly fused itself to corporate interests. Hayek wrote: 'the tragedy of collectivist thought is that while it starts out to make reason supreme, it ends by destroying reason because it misconceives the process on which the growth of reason depends' (1944: 123) as a warning against the perils of socialism. Unfortunately, errors in basic premises and denial of context have led to free markets nurturing a new type of state control. The political system has now merged with the interests of corporate and financial classes such that it no longer engages with critical challenges to corporate hegemony. The termination of the Sustainable Development Commission indicates how deeply the UK government is oriented towards the interests of the capitalism (i.e. the creation of short-term profit) above the social and ecological context on which capitalism depends.

Further distortions of knowledge are created by corporate social responsibility (CSR) practices eager to portray corporations as committed to social and environmental sustainability but less eager to actually follow through on these apparent objectives. CSR initiatives drive audiences further into a frame of reference dominated by the market through appropriating a language of values to describe consumer products and corporate culture. The public are referred to as 'consumers' in a non-too subtle linguistic shift into the framework of the market. CSR fails to problematize the issues around industrial practice by working entirely within the systemic priorities of set by the market, i.e. increased profit and market growth.

For example, corporations use public relations firms and astroturfing to deny climate change and dispute the findings of environmental scientists (Greenberg, Knight and Westersund 2001). Public relations and branding exercises aim to legitimize corporate power by attacking an ecologically informed critique of industrial exploitation of the biosphere.

A central problem within CSR and advertising is that corporations orient communications around developing extrinsic values in audiences, i.e. values associated with the ‘acquisition of material goods, financial success, image and social recognition’ (Crompton 2008: 7). Through advertising, aspects of human identity are encouraged that serve the interests of corporate clients. The values associated with developing market growth and driving conspicuous consumption can be characterized as acquisitive, status-oriented and individualistic. This radical individualism is premised on a denial of interdependence with the wider social and ecological systems. Marketing practices perpetuate the denial of context through encouraging extrinsic values motivating individuals to exploit the context in which they are situated. Extrinsic values are based on a largely unconscious view of reality that conceives of humans as fundamentally separate or independent of each other and the ecological system. These values and perspectives create dysfunctional systemic behaviour, due to basic epistemological error. Advertising perpetuates these attitudes with the help of communication designers.

Within the value systems and worldviews promoted by the corporate advertising industry (serving the systemic goals of the market) there appears to be no alternative to dominant values established within consumer capitalism. This ‘There Is No Alternative’ argument is entirely inconsistent with anthropological, sociological and historical knowledge about values systems. Values are learnt beliefs developed by socialization. It is disingenuous to argue that there is no alternative to current values systems. If marketing were not enormously influential it would not be a trillion-dollar industry. People internalize values that are part of the cultural environment, often uncritically. Communication theorist Tom Crompton asks; ‘we have a biological tendency towards both altruism and selfishness – which do we want to accentuate?’ (2010: 38). Systemic dysfunction arises when sub-systems grow beyond the system in which they are embedded. Individuals must not be motivated in ways that contradict the wellbeing of the contexts in which they are situated, i.e. the social and ecological systems.

## **Conclusion**

Design is an emergent order oriented towards creating new ways of living to increase wellbeing and sustain civilization. It does this by attention to context and through its ability to respond using tacit knowledge to develop appropriate solutions. Meanwhile, capitalism depends on the ecological system for stability, raw materials and productive capacities. Capitalism also depends on people for labour and society for stable markets for its products. Despite these facts, capitalism systemically ignores the ecological and social spheres as a basis of wealth. Herein is a dangerous tension between the economic system and the ecological-social systems; the design industry and design; the design agency and the individual designer with a conscience. The recent economic crisis (and the upcoming crises) are opportunities for renewal as shock waves reverberate throughout political and social systems. Economic crisis needs to be understood as a warning. As an emergent order that has been created by humankind, the economic system is within our capacity to rebuild. Humankind cannot, however, re-create collapsed rainforests, extinct species or disrupted climate systems. Sir Nicholas Stern warned that climate change is ‘the greatest market failure the world has seen’ (Stern 2006: viii). Capitalism is not a viable way of organising social relations as long as it is oblivious to the social and ecological context in which it is situated. Ecologically aware political theorists propose that once humankind acknowledges social and ecological realities as a basis for commonwealth, capitalism will no longer be a viable means of organising social relations. In the meantime, efforts by designers to stop ecological collapse will continue to fail until we orient ourselves to address the basic model of development.

Hayek wrote that ‘the Socratic maxim that a recognition of our ignorance is the beginning of wisdom has profound significance for our understanding of society’ (1960: 22). Today, we must recognize the legacy of erroneous ways of thinking obvious in the work of Hayek and his contemporaries. In order to create the conditions to deal with socio-economic crises conditions, basic assumptions must be challenged. The redesign of industrial systems is possible but this renewal is of a higher order than the goals encouraged by capitalism and the assumptions designed into the dynamics of market processes. Hayek said that ‘those intoxicated by the advances of knowledge so often become the enemies of freedom’ (1960: 26). Today, these words best reflect those who privilege the emergent order of the market over the emergent order of the context in which the market is embedded. An understanding of the hierarchy and dynamics between emergent orders is part of the emergent self-reflective consciousness within design and beyond. The market is now parasitical on its host and thereby creates the conditions for oppressive and anti-democratic corporatism. Hayek wrote, ‘the tradition of collectivist thought is that while it starts out to make reason supreme, it end by destroying reason because it misconceives the processes on which the growth of reason depends’ (1944: 123). This destruction of reason is evident in the global economic and financial systems – as evidenced in the recent (and upcoming) financial crises. Market priorities have created gross distortions of knowledge that compounds public confusion making sustainability and financial stability impossible. Capitalism obscures and systemically ignores the context that makes its processes possible. The design industry is situated in this interface between the market and an emerging community of practitioners increasingly capable of designing sustainability into the system (in theory) but unable to do so (in practice) under current systemic conditions determined by the market. Emergent understanding, skills and capacities in design are oriented towards sustainability. Historical evidence of dramatic social changes demonstrates that systems can radically change when society decides its values are no longer fit for purpose. Acknowledging geophysical realities and the need to respect the system in which humankind is situated is necessary not only as foundation for sustainability but to avoid systemic collapse.

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