

Changing the Change:

A Fractal Framework for Metadesign

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Abstract

If designers wish to build an ecological society they will need to participate in a profound political and economic change. Where current democracies are largely 'top-down', manipulative, and choice-based, ecological governance will also need to be 'bottom-up', holistic, imaginative, and co-creative. This paper suggests that we might go some way to achieving this by developing a new profession that it calls 'metadesign'. This is a comprehensive co-design methodology in which the metadesign team also co-designs its frame of reference. The paper's conclusions are informed by some empirical work conducted within AHRC-funded research at Goldsmiths, University of London – 'Benchmarking Synergy Levels within Metadesign' (a Designing for the 21st century Project) that produced more than 80 metadesign tools.

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Introduction

Inspired by the analytical logic of Aristotle, and by the mechanistic reasoning of Galileo, Newton and Descartes, some physicists (e.g. Laplace, 1819 - c.f. Rubino, 2002) believed the world to be totally predictable. And even though this was a dissipative model, it inspired the idea of a 'technologically sustainable' world – i.e. one in which the change need never change. The theory was soon discredited but it still lives on in the modern imagination. If technology can enable us to travel to the stars, we tell ourselves, we may become immortal. Perhaps this is why we have yet to embrace a smarter, more ecological mode of reasoning (Wood, 2008). Mechanistic metaphors, such as 'economies of scale', and 'law of diminishing returns' inform an industrial vision that, like the Aristotlean idea of design, is fundamentally teleological. This is not how Nature seems to work, yet the underlying vision of a prosperous future without end is inseparable from popular terms such as 'sustainable development' (e.g. Brundtland, 1987) and 'sustainable consumption' (e.g. UN, 2007). To be fair, eco-design has sought to resist the mechanistic mindset by reflecting upon lifestyle, as well as products, services and manufacture. However, the paper argues that these approaches are unlikely to work unless they are integrated within a far more holistic and situated (i.e. less Newtonian) politics of understanding. But how can designers join things together again if they continue to be educated, and employed, as profit-enhancing specialists, rather than ecologically and socially-minded generalists?

1. The Big Context of Design

As we all know, in order for our civilisation to survive, designers need to make the world 'greener'. But this also raises complex political issues, as it would include bringing a better quality of life to the world's poorest peoples. Trying to 'make poverty history' could also bring disasterous environmental consequences. At present, twenty cities now have a population of more than 10 million and more than half the people on the planet live in cities. High levels of congestion and urban poverty (around 50%) go hand-in-hand. Intensive urban farming creates health problems, largely because of food contamination and overcrowding. In poor urban communities, although inhabitants consume fewer calories, they spend 30 percent more of their incomes on food than those who live in rural areas. This is not just because of low incomes and the high cost of fuel. In many high-density cities, between 10 and 30 percent of food produce is lost or spoiled because it must be transported over long distances. The obvious way to address this issue is to grow more food in the cities themselves (Wood, 2007:1). This happens already to quite a large extent. At present 200 million urban farmers supply food to about 700 million city dwellers, i.e. one-quarter of the world's urban population. In order to re-design this dysfunctional situation we need a de-centralised system of consensual governance. Designers also need to co-create a discourse that enables everyone to understand things in a more holistic and relational way (Wood, 2007:2). If this does not happen, society's frustration will seriously threaten political stability and world peace. Unless these challenges are met by the relevant agencies, even the wealthy will pay more, albeit indirectly, for problems such as illegal immigration, narcotics, crime, wars and plagues. What has been design's contribution to these challenges, and how can we help, in the future?

2. Why Design Needs to Change

We have had more than 50 years of ecologically aware design, and the world is getting worse. If the current increases in species depletion, atmospheric carbon emissions, and pollution levels are indicators of eco-design's contribution to ecological wellbeing, then designers have

failed miserably. It would be easy to adopt a position of blame, and to argue that they have been too lazy, greedy, thoughtless or submissive to change the change. Although there is some truth in this, it would be unfair and unhelpful to blame designers for population increases and government policies. Nevertheless, this paper argues that designers can contribute a great deal more, but that this would mean asking them to work with systems that are far larger and more complex. How would we achieve this? Governments, industries and educators have yet to harness the full potential of designers as social and ecological entrepreneurs. Since 2005, in order to find ways to reduce mankind's net burden on the environment, our research has sought to expand the agenda and repertoire of design. In a 3-year, AHRC-funded research at Goldsmiths, University of London we have been exploring the idea that specialist designers can work in a higher-level, cross-disciplinary design system that, for the moment, we are calling 'metadesign'. One reason for this is that we are still trained to offer relatively narrow, specialist skills, rather than addressing deeper needs. This has alienated us from our wider economic, social and ecological potential. Many designers feel uncomfortable with ethical aspects of their predicament, but their specialist role makes them too weak to affect positive, radical change. For many designers, positive options may seem remote. Others face what seems to be a 'no-win' situation.

- *If a designer declines the chance to make cars 'greener' he, or she opts out...*
- *On the other hand, making cars 'greener' will encourage more people to drive.*
- *How did designers get into this position, and how can we change this for the better?*

3. The Narrowing of the Design Agenda

This paper calls for the creation of a more comprehensive, self-creating design system (i.e. 'metadesign'). Fifty or so years ago, in the absence of more enlightened, far-sighted policies by corporations and governments, a few eco-designers saw individual, quasi-political activism as the only way to change things. In the early 1970s, socialism was in competition with capitalism, and the idea of 'alternative lifestyles' seemed thinkable, or even feasible. Much of this work addressed the wider social questions of health, energy-production, land-use and global resources, etc. However, after the collapse of the USSR's political economy in 1989, the idea of 'alternative' anything (e. alternative lifestyles, alternative technologies etc.) became far less conceivable, politically speaking. While many saw that a global, expansionist, unified economic order might overburden the biosphere (e.g. Brundtland, 1987), it was also perceived as being too powerful a change to be changed, let alone opposed or dismantled. By the 1990s, while the term 'sustainability' warned that ecological limits would be the ultimate boundary for economic development, we were all being asked to imagine the world as a unified political, economic (and ecological) entity. As a result, virtually all socially and ecologically active designers began to work with, rather than against, the economic status quo. By helping to create the 'consumer society' as we know it, designers were persuaded to ignore the big issues such as social relations, food production and distribution. Consequently, we now know a good deal about how to 'de-materialize' products (e.g. Diani, 1992) or how to make them leaner, cleaner, slower or service-based (e.g. Manzini, 2001) rather than product-based. Nonetheless, these, and the many otherwise excellent innovations are insufficient to reduce the net environmental damage caused by globalization.

4. How Can Designers Change the Change?

How can designers work at a higher strategic level in creating beneficial change? Over the last few decades, many of the most spectacular marketing campaigns would have been impossible without a strongly visual contribution by designers. However, it is hard to imagine what design methods could challenge the stupendous forces of economic growth, unless politicians,

bankers and corporations, rather than designers, would take the primary initiative. Yet designers do enjoy a higher status and greater credibility. Ironically, this is because they have made such an important contribution to economic growth (c.f. Florida, 2002). However, politically speaking, in comparison with architects, designers are a relatively junior profession, and therefore relatively weaker. Moreover, even architects have become subservient to the growing power of capital (c.f. Chipperfield, in Dyckhoff, 2007). For example, the increasing power of property developers and the rise of cost-benefit accountancy methods, short-term efficiencies have encouraged them to focus on point-of-sale profits, rather than long-term benefits for all. At present, the current system of economic regulation and governance is managed largely by fiscal policies, legislation and political persuasion. These operate by enforcing rules and inducements that work within agreed categories and boundaries. By contrast, design works at the level of opportunities and affordances (Gibson, 1982), and how users perceive them (Norman, 1988). In this sense, what we might call 'design thinking' (Simon, 1969) or 'designerly ways of knowing' (Cross, 1990) works more by positive persuasion, than by censure or negation. In short, unlike the negative tendencies within laws (i.e. by drawing categorical boundaries and imposing penalties) designers can transform the world by re-imagining new ways to live.

- *QUESTION: how big is the carbon footprint of rain?*
- *ANSWER: too big...rain is beautiful, but it makes people drive instead of walking.*

5. The Need for a Metadesign Profession

The retrospective search for 'design activism' in the early 21st century (Julier, 2007) may remind us that design has been almost exclusively harnessed to the needs of business, rather than to the needs of society. This is unfortunate, given the tension between the quest for economic growth and the environmental damage it has caused. It may also make us question why most designers are still educated as amenable specialists, rather than enterprising generalists. Indeed, it has been by acting as mercenaries within this commercial context, that designers have created most damage. This question was one of the main motives for challenging existing models of design practice. There have been several attempts to re-design design, in a way that make it more effective, consensual, distributed, influential, or versatile. These echo what John Dewey (1939) and John Chris Jones (1998) have described as 'creative democracy'. Similar sentiments emerged in the 'Creative Commons' and 'Open Design' movements that offer new potential for social integration, and other benefits. In our research we chose the term 'metadesign' because it is already familiar. The Greek word 'meta' originally meant 'beside' or 'after' but is now also used to imply the possibility of change or transformation, including self-transformation. Although 'metadesign' may describe a preliminary activity that precedes orthodox design it can also refer to a possible design practice that re-designs itself in an ad hoc way. The idea of metadesign therefore acknowledges that future uses and problems cannot be fully anticipated at the creative moment of design. One of our aims is, therefore, to create a non-hierarchical community of designers, and other experts who can seed a new metadesign methodology and profession. Two of the key obstacles we encountered are the prevalence of ego, and the hierarchical tendencies within society.

6. The Currency of Self-identity

It is often argued that western rationality emphasises individual, rather than collective actions. The notion of 'self-awareness' seems to have emerged from a pitilessly competitive (Hellenic) culture in which self-assertion, rather than 'self-satisfaction' was seen as a public virtue. Socrates introduced a more philosophical dimension to self-knowledge when he argued that it is a pre-requisite to knowledge. Much later, where, hitherto, mankind had always believed that ideas come from God, John Locke (1689) advanced the notion that individuals were capable

of originating new thoughts. Between the 16th and 18th centuries, keywords such as a 'self conceit', 'self-confidence', and 'self pity' had emerged, and Coleridge (1772-1834) had coined the term 'self-consciousness'. These ideas also had an impact on the ideology of money. It is hard to think of 'market forces' without acknowledging Adam Smith's famous idea of the 'invisible hand' (1776). Arguably, the modern version of this idea is that, as consumers, when we spend money to enjoy ourselves we can reassure ourselves that we are supporting the economy, thence, society as a whole. By the end of the Enlightenment, the Socratic idea of the individual had come to be understood (after Leibniz, 1898) as a self-defining and self-owning citizen. It is for these historical and cultural reasons that we now tend to see the primary duty of industry as meeting the needs of individuated consumers, rather than supporting society at large. This also suggests that the duty of the consumer is to choose the right products to make him, or her, 'feel good' and 'look good'.

7. Designers Can work in New Ways

Today, design is strongly identified with the system of consumption. Today, many products and brands achieve their distinctiveness at a multi-sensory level. Sport, fashion and cosmetics frequently collide in strange ways, and terms such as 'Hoover' and 'Google' may be used as verbs, as well as nouns. Products such as the 'Dyson' and the 'iPod' represent an integration of name, form, function, and – more importantly – habit. It is surprising, therefore, that the designer's primary contribution is predominantly visual, rather than verbal. This is so familiar to us that it may seem natural. But designers have long played a role in advertising campaigns in which words and images are persuasively combined. This combination of signs and functions will be important within the ecological design of the future. This is because neologisms are potentially transformative. Where many tabloid newspapers and business cultures tend to 'dumb-down' the discourse by reducing the vocabulary (cf. Orwell's '1984'), advertising designers seek to enrich beliefs and, therefore, behaviours by introducing new narratives and words into the language. A non-commercial example of this method is the word 'Genocide', which was coined in 1943 by Polish legal scholar, Raphael Lemkin (1900–1959). For years, Lemkin had tried unsuccessfully to draw world attention to the military excesses of certain nations. Eventually, by combining the Greek word 'genos' (family, tribe or race) and the Latin word 'occidere' (to massacre) he created a new word. Only after his word was made public did the United Nations formally recognise the problem. Today, his word is enshrined in the Geneva Convention, and we all recognise genocidal behaviour where, previously, it had not even seemed to exist. This example can be reframed within the discourse of design, where similar gaps in the discourse of ecological design can be found. If conceptual gaps can be located and filled with suitable neologisms there is always a better chance of new ideas, beliefs and actions taking place.

8. Ten Characteristics of Metadesign

i) Metadesign creatively intervenes at the level of language

Arguably, designers can 'language' the opportunities for change by redrawing the known boundaries of what 'is'. Therefore metadesign should also intervene at the level of language. Language informs cultural values, and these inform aesthetic norms. Aesthetics helps us to experience the world in particular ways. All of these processes guide different behaviours, habits and trends.

ii) Metadesign has tools for 'thinking beyond the possible'

If we believe that something is possible it has far more chance than if we believe it to be impossible. In today's rational society, many people tend to confuse the 'unthinkable' and the 'impossible'. This can be easily remedied. When we try to describe the 'impossible' more clearly it

may become more 'discussable'. Once we try to discuss it, it will slowly become more 'thinkable'. Once the 'thinkable' proliferates it will become more attainable. Once the 'attainable' is perceived to be attractive it becomes more commonly applied (Wood, 2005; 2007:2).

iii) Metadesign is intended to deliver 'synergies-of-synergies'

Metadesign is intended to deliver synergies-of-synergies. It takes a minimum of 2 players, or 'agents' (i.e. facilitating 1 possible relation) for a 'first order synergy' to emerge. It is what happens when two, or more agents combine to create a new outcome whose properties exceed the sum of properties of the individual agents. Subsequent 'orders' of synergy emerge when first order synergies are combined to create new synergies. This process may continue into successive orders, although their increase is dependent on the number of agents at level 1. Hence, for example, 2 agents cannot produce any subsequent orders of synergy. A cluster of 3 interactive agents can only produce three synergies at each subsequent order, up to infinity. With more than 3 agents, the rise in the ratio of primary agents to subsequent orders of synergy is exponential. For example, a cluster of 4 interactive agents would produce a maximum of 6 first-order synergies, which could produce 15 second-order synergies, which could produce 105 third-order synergies, etc.

iv) Metadesign tasks are too complex to be undertaken by solo practitioners

Metadesign is intended to address highly complex issues that may range beyond the expertise of individual designers. Its practice is always, therefore, expected to take place within carefully selected, and trained, teams.

v) Metadesign outcomes should surpass the individual potential of participants

Metadesign should surpass the outcomes of individual participants. Metadesign is intended to synergize the efforts of many experts, and therefore requires appropriate team-management methods. When these are effective the quality of outcomes should be higher than the best work by either/any members of the team (Van Nieuwenhuijze & Wood, 2006)

vi) Metadesign teams deliver many-layered, integrated innovations

Metadesign teams deliver many-layered, integrated innovations. Literally speaking, the term 'entrepreneurship' describes a 'taking from within several sources'. By contrast, the notion of 'entredonneurship' (c.f. Wood, 1990) describes a 'giving, from within several sources'. We have developed a system for facilitating a number of parallel innovations. This can satisfy the apparently incommensurate requirements of different vested interest groups. A four-fold version of this is called 'quadratic reasoning'.

vii) Metadesign fosters, and benefits from, 'team-consciousness'

Metadesign should foster, and benefit from, 'team-consciousness'. It depends heavily on the development of 'team (or 'network') consciousness' for successful co-design to take place in a creative way. This needs to be mapped, but it represents a 'field of shared knowing' (c.f. Bert Hellinger, quoted in Hemmings, 2008) that is too complex to quantify. Controversially, Marvin Minsky has argued that consciousness is merely a 'low-grade system for keeping records', and that 'machines are potentially capable of far more consciousness than we are (Minsky, 1988, p. 160). While this model is crude, it nevertheless enables metadesign teams to map salient parameters in a truly holistic way.

viii) Metadesign delivers complex outcomes that are interoperable

Metadesign delivers complex outcomes that are interoperable. Metadesign methods are effective when work achieved remains equally recognizable, amenable and usable by both, or all, collaborating participants.

ix) Metadesign's fractal structures bring unity to very large systems

Metadesign can offer fractal structures that unify very large systems. Metadesign offers a (generic, four-fold) relational model of ethical praxis whose elements are configured as a fractal structure. This means that it can be re-scaled from the smallest (e.g. individual citizen) to the largest (e.g. global society) without compromising its form. This has the advantage that it is a configuration that is shareable across very different domains, territories, cultures etc.

x) Metadesign uncovers unexpected potential for other systems

Metadesign uncovers unexpected potential for other systems. Our tools for metadesign enable outcomes from one project to be applied within other systems.

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